INTERNATIONAL NURSERY REPORT No.11

FOOD LEGUME NURSERIES

1986-87

THE INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH IN THE DRY AREAS

Box 5466 Aleppo, Syria

April 1989

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FOOD LEGUME IMPROVEMENT PROGRAM

THE INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH

IN THE DRY AREAS

(ICARDA), P.O. BOX 5466, ALEPPO - SYRIA

April 1989

PREFACE

A number of trials and nurseries were supplied by the Food Legume Improvement Program to cooperating scientists within and outside the ICARDA region for 1986/87 growing season. Many of these were also grown at ICARDA sites in Syria and Lebanon. This report summarises the data obtained at ICARDA sites from these trials and nurseries and those returned by the cooperating scientists. The results received from the cooperators till March 31, 1989 have been included.

The report has been prepared by Dr. R.S. Malhotra, International Trials Scientist of the Food Legume Improvement Program. The assistance of Ms. Suhaila Arslan and Mr. Murhaf Kharboutly in computerisation of data and Ms. Hasna Boustani in the word processing of the text is sincerely acknowledged.

It is hoped that the information contained in this report will be of interest and use to the cooperating scientists. Any comments on the report and suggestions for future improvement are most welcome.

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INTRODUCTION

The international cooperative testing program on three food legumes, faba bean, lentil and kabuli chickpea is co-ordinated by the International Center for Agricultural Research in the Dry Areas (ICARDA). The main objective of the program is to provide the improved genetic materials and production practices to the national programs for testing and use under their local conditions.

The testing aims at evaluating genotypic performance for both seed yield and reaction to biotic and abiotic stresses. It is hoped that through such testing, it will be possible to identify both superior genotypes which are adapted to specific environments, and genotypes which have a wide adaptation. The performance data from a number of widely differing environments will further help the breeder to reduce the number of seasons required for evaluation prior to cultivar release. In addition the program will permit the dissemination of elite germplasm and segregating populations to interested scientists, who can exercise their own selection to develop superior cultivars well adapted to their conditions.

Through the distribution of agronomic trials it is hoped that agronomic research on these legumes will be encouraged and the information on optimum agronomic practices for different agro-ecological conditions would become available.

2. ICARDA INTERNATIONAL TRIALS AND NURSERIES FOR THE 1986/87 SEASON

2.1. DESCRIPTION

2.1.1. International Yield Trials (IYT)

In order to identify heavy yielding genotypes, with either specific or wide adaptation, it is essential to test genetic material emerging from ICARDA and other national breeding programs in a wide range of environments, encompassing the major production zones in different countries.

The IYTs are replicated trials which test advanced materials that have previously shown above average performance. These trials allow the national programs to identify genotypes best adapted to their local conditions, and provide ICARDA with information that will rationalise crossing programs for different countries.

As in the past there were separate large-seeded and small-seeded trials on lentil and faba bean. In lentil the large seeded trials comprise entries with a minimum seed size of 4.5 g/100 seed, whereas in faba bean the large seeded trials are composed of Vicia faba major types. An IYT for large-seeded kabuli chickpea was provided to meet the needs of the countries where seed size greater than 40 g/100 seed is preferred. In addition, the

IYTs in chickpea were split into two on the basis of adaptation for Mediterranean and for Sub-Tropical region and on the basis of season, into Winter and Spring. A new trial of tall type (Chickpea International Yield Trial Tall Type - CIYT-T) with entries suitable for mechanical harvesting was introduced this season. The winter trials in chickpea possess tolerance to cold and ascochyta blight. Another new trial in faba bean for the southern latitudes was supplied this season.

2.1.2. International Screening Nurseries (ISN)

The ISNs form an adjunct to the IYTs by providing an initial evaluation of a large number of advanced lines (F_5/F_6) and elite germplasm, encompassing a wide range of genetic diversity, in non-replicated trials in the environments utilized for the IYTs. The results thus provide to the national programs the opportunity to practice selection in a greater range of material than provided in the IYTs and to ICARDA provide a basis on which genotypes can be advanced to the IYTs.

As with the IYT's, the faba bean and lentil ISNs were divided into large and small seeded types. These nurseries are non-replicated and contain about 50 entries. In chickpea, however, the ISNs were divided into spring and winter types.

There was also a screening nursery of early lentil lines available particularly for those countries of a more southern latitude in South Asia and Africa and a nursery of lentil with tall and erect growth habit which can be harvested with a cutter-bar.

2.1.3. International F_3/F_4 Trials/Nurseries ($IF_3/F_4T/N$)

Genotypes tested in the IYTs and in the ISNs tend to be relatively advanced breeding material that is approaching homozygosity, so nullifying any chances for re-selection in superior performing genotypes. In contrast the F_4 bulk trials/nurseries comprise early generation segregating material, thus permitting breeders in the national programs the chance to practice their own selection in the populations best adapted to the local environment. In addition the trials/nurseries allow estimates to be made of cross performance and interactions across a range of environments, which will additionally assist in identifying parents to be used in hybridization programs for different countries.

The F_4T/Ns for lentil and kabuli chickpea were developed separately for different major environmental conditions.

2.1.4. International Stress Nurseries (I-N)

The development of cultivars resistant to biotic and abiotic stresses prevalent in the main legume growing areas is essential if stable seed yields are to be achieved. However, there is presently little information available on the incidence and severity of various stresses in different areas. The International Disease and Insect-Pest Nurseries and Cold

Tolerance Nursery have been formulated to rectify this situation. The aim of these nurseries is to test a relatively large number of genotypes, in replicated design, in a range of locations covering a number of countries. The nursery results thus furnish information on the incidence and severity of the stress in differing geographic areas, and provide a means for the identification of resistant genotypes. These together should greatly assist the plant breeder in developing genotypes that combine heavy seed yield with relatively stable resistance to these stresses.

Realizing the importance of different stresses in the region, three nurseries in faba bean (ascochyta blight, rust, and chocolate spot) and three in chickpea (ascochyta blight, leaf-miner, and cold tolerance) have been developed. The entries in these nurseries are initially selected on the basis of their resistance/tolerance to the respective stresses at experimental sites of ICARDA. The cooperators desirous to enter lines in stress nurseries were requested to send to ICARDA, by early October approximately 1000 seeds for each entry of chickpea, and 1500 seeds per entry of faba bean for increase and inclusion in the next year nursery.

2.1.5. International Agronomy Trials

In many countries the legume crops tend to be neglected in favour of other crops, resulting in poorer management and fewer agronomic inputs. To combat this trend it is essential to develop suitable agronomic management practices for legumes that, if adopted, would increase both yields, and a farmer's income, and hence improve economic well-being in a country. Also the use of such practices should permit the full benefit to be gained from the cultivation of the potentially heavy yielding cultivars that emerge from plant breeding programs.

Realising the need for developing information on suitable agronomic management of the food legumes in the region a program of international agronomic trials has been in operation. These trials include, Weed Control Trials, and Fertility-cum-Inoculation Trials. In this program the cooperators are provided with information on design and conduct of the trial. In addition, the necessary experimental material such as fertilizers, inoculum and pesticides are supplied. No seed is, however, sent as these trials are to be conducted with the best locally-adapted genotypes. A trial for the chemical control of Orobanche in faba bean has also been available.

2.2. DISTRIBUTION AND LIST OF COOPERATORS

In Table 2.2.1. is given a list of the trials and nurseries distributed from ICARDA to the different countries; in Table 2.2.2. a list of the cooperators, in Table 2.2.3. a list of food legume scientists at ICARDA cooperating in international testing program and in Table 2.2.4. details of latitude, longitude, altitude and rainfall data of the locations at which the trials were conducted. Weather conditions during the cropping season for the locations reporting data are given in Figures as Appendix 1. In total, 1249 sets of trials were distributed to the cooperators. Data were

returned on 752 of the trials and nurseries, representing 60.2% of the number distributed. It is worth mentioning that out of 128 agronomic trials distributed, only 35 trials reported back the results.

2.3. DESIGN, ANALYSIS AND MANAGEMENT

2.3.1. Design and Analysis

The designs used for the individual trials and nurseries are given in the crop reports. For the International Screening Nurseries (ISNs) which included both test and check entries, an augmented design, as proposed by Federer (1956)[1] was used. This design permits some adjustment for block differences, and the calculation of standard errors for the comparison of entry means.

The data on seed yield, time to flowering, time to maturity, plant height and 100-seed weight have been analysed statistically, and the term 'significant' has been used to denote a probability level (P) equal or less than 0.05. The co-efficients of variation (CV) given in the different tables were calculated using an error mean square (EMS) from the relevant analysis of variance. The mean square due to error was also used to calculate the appropriate standard error of mean and least significant difference (LSD). The LSD was used to test whether a genotype's performance differed significantly from that of the control/local check. The LSD is not appropriate for testing differences between any pair of genotypes in a trial. The abbreviations ENT> and TEST> were used respectively, for number of entries significantly greater than and number of test entries greater than the local check.

2.3.2. Management

For all except the agronomic trials it was emphasised that the material should be planted at the farmer's normal planting date, and that the locally recommended practices should be used with respect to fertilizer, pesticides, herbicides and irrigation.

For each trial or nursery, observations were requested on plant stand (1-5; rating 1 = perfect), time to 50% flowering (days), time to maturity (days), plant height (cm) and seed yield (kg/ha). Other characters were optional e.g. plant width (cm), plant type (erect, semi-erect or prostrate), height of lowest pods (cm), disease damage rating (1-5; 1 = free from disease), insect damage rating (1-5; 1 = free from insect damage), lodging (1-5; 1 = no lodging), vigour rating a visual estimate of yield potential (1-5; 1 = very vigorous), shattering (1-5; 1 = no shattering), branching (1-5; 1 = very few branches) and virus (1-5; 1 = free of virus).

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(1) Federer, W.T. (1956). Augmented designs. Hawaiin Planters Record, 55, 191-208, 1956.

Table 2.2.1. Distribution of International Nurseries and Trials to the cooperators in different countries during 1986/87.

COUNTRY	CIYT-SP	CIYT-WMR	CIYT-WSTR	CIYT-L	CIYT-T	CISN-W	CISN-SP	CIF4T	CIABN-A	CIABN-B	CILMN	CICTN	FBIYT-L	FBIYT-S	FBISN-L	FBISN-S	FBIF4N	FBIABN	FBICSN	FBIRN	FBSLRT
AFGHANISTAN	3	-	3	-	2	3	3	6	-	3	-	-	1	1	-	-	-	-	-	-	-
ALGERIA	2	8	-	6	4	3	-	5	6	-	-	-	4	1	3	-	-	1	1	-	-
ARGENTINA	-	-	-	1	-	1	-	-	1	-	-	-	1	-	-	-	2	-	-	-	-
AUSTRALIA	1	1	1	1	1	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
BANGLADESH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	1
BELIZE	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BOLOVIA	-	-	2	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
BRAZIL	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
BULGARIA	-	1	-	-	-	1	-	1	1	-	-	-	-	1	1	1	-	-	-	-	-
BURMA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CANADA	-	-	-	1	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	-	-
CHILE	-	-	-	3	-	-	2	-	-	-	-	-	4	-	4	1	1	-	1	-	-
CHINA	1	1	-	-	-	1	-	-	-	1	1	-	2	-	1	1	-	-	-	-	-
COLOMBIA	1	-	-	1	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-
COSTA RICA	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CYPRUS	-	1	-	1	1	1	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-
CZECHOSLOVAKIA	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ECUADOR	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	-
EGYPT	-	2	2	-	2	2	-	1	1	-	1	-	1	1	1	1	1	-	1	1	1
ETHIOPIA	2	-	2	-	-	-	-	-	-	1	-	-	1	1	1	1	1	-	1	1	-
FRANCE	-	2	-	2	1	4	3	2	1	1	1	-	-	-	-	-	-	1	1	-	-
W. GERMANY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
GREECE	-	1	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
INDIA	-	-	1	1	-	-	1	-	-	1	-	-	-	1	1	2	2	-	-	-	3
IRAN	1	1	-	1	1	5	5	2	-	1	-	1	3	2	1	-	1	-	-	-	-
IRAQ	2	2	-	2	2	-	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-
ITALY	-	3	-	2	2	1	1	1	1	-	-	-	1	2	-	1	1	1	1	1	-
JORDAN	1	3	-	1	2	1	2	1	1	-	-	-	-	1	-	2	-	-	-	-	-
LEBANON	-	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-

Table 2.2.1. Cont'd. ...

COUNTRY	CIYT-SP	CIYT-WMR	CIYT-WSTR	CIYTL	CIYTT	CISN-W	CISN-SP	CIF4T	CIABN-A	CIABN-B	CILMN	CICTN	FBIYT-L	FBIYT-S	FBISN-L	FBISN-S	FBIF4N	FBIABN	FBICSN	FBIRN	FBSLRT
LIBERIA	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2	-	1	-
LIBYA	-	4	-	-	2	1	-	-	-	-	-	-	3	1	1	-	-	-	1	-	-
MEXICO	2	-	-	1	-	2	1	2	1	-	-	-	2	-	1	-	-	-	-	-	-
MOROCCO	2	2	-	2	-	1	1	4	3	-	2	-	1	-	1	-	1	-	1	-	-
NEPAL	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
PAKISTAN	1	-	10	1	-	4	3	4	-	10	1	2	2	3	1	1	-	1	-	-	3
PERU	-	-	-	8	-	-	-	-	-	-	-	-	3	-	-	-	-	1	1	6	-
POLAND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-
PORTUGAL	1	1	-	1	2	2	1	1	1	-	-	-	1	1	1	2	-	-	-	1	-
SAUDI ARABIA	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
SPAIN	2	6	1	3	2	2	-	2	1	-	-	-	-	1	1	1	-	-	-	-	-
SRI LANKA	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
SUDAN	1	-	1	-	-	1	1	1	-	-	-	-	-	1	-	2	1	-	-	-	1
SYRIA	5	8	-	4	3	4	4	3	1	1	-	-	4	-	4	-	-	3	1	-	-
THAILAND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
TUNISIA	5	6	5	4	6	11	7	5	8	1	4	-	3	3	8	8	1	2	2	1	-
TURKEY	5	5	1	8	6	4	8	9	6	-	1	2	3	6	4	4	3	1	2	1	-
U.K.	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
U.S.A.	1	-	-	1	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
YEMEN A.R.	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
P.D.R. YEMEN	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-
ZAMBIA	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZIMBAWE	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ICARDA-SYRIA	2	2	2	3	4	2	2	1	-	2	1	2	1	1	1	1	1	1	1	1	1
ICARDA-LEBANON	1	1	-	1	2	1	1	1	-	1	1	1	1	1	1	1	-	-	-	-	-
TOTAL	44	62	32	66	47	64	54	54	38	25	13	8	50	34	46	35	19	18	21	15	10

Table 2.2.1. Cont'd. ...

COUNTRY	LIYT-L	LIYT-S	LISN-L	LISN-S	LISN-E	LISN-T	LIF3T	LIF3T-E	CFIT	CWCT	FBFIT	FBWCT	FBOCCT	LFIT	LWCT	TOTAL
AFGHANISTAN	1	1	–	–	–	–	–	–	3	3	–	–	–	–	–	33
ALGERIA	6	1	4	–	3	5	1	–	3	3	–	–	–	2	2	74
ARGENTINA	4	–	3	–	2	–	1	1	–	–	–	–	–	–	–	17
AUSTRALIA	3	3	3	2	1	2	–	–	–	–	–	–	–	–	–	22
BANGLADESH	–	–	1	–	2	1	–	3	–	–	–	–	–	1	–	12
BELIZE	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
BOLIVIA	2	–	–	–	2	2	–	–	–	–	–	–	–	–	–	11
BRAZIL	1	1	1	1	1	1	–	2	–	–	–	–	–	–	–	9
BULGARIA	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	8
BURMA	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
CANADA	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8
CHILE	4	–	2	–	–	1	1	–	–	–	–	–	–	–	–	24
CHINA	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	10
COLOMBIA	1	1	1	1	1	1	1	–	–	–	–	–	–	–	–	12
COSTA RICA	1	1	–	–	–	–	–	–	–	1	–	–	–	–	–	4
CYPRUS	1	–	1	–	1	1	–	–	–	–	–	–	–	–	–	11
SZECHOSLOVAKIA	–	–	–	–	–	–	1	1	–	–	–	–	–	1	1	6
ECUADOR	1	–	1	–	–	–	–	–	–	1	–	1	–	–	1	8
EGYPT	2	2	3	3	4	4	1	1	1	1	–	1	–	2	1	45
ETHIOPIA	1	1	1	1	2	2	–	–	–	–	–	1	–	–	1	22
FRANCE	–	–	–	1	–	2	–	–	–	–	–	–	–	–	–	22
W. GERMANY	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
GREECE	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	6
INDIA	1	2	3	3	4	1	–	4	–	–	–	–	–	1	–	32
IRAN	1	–	5	3	2	4	1	–	–	1	–	–	–	–	–	42
IRAQ	2	–	2	–	–	–	–	–	–	–	–	–	–	–	–	18
ITALY	1	2	–	–	–	–	–	–	2	2	2	2	1	1	1	33
JORDAN	1	1	1	3	2	2	1	–	–	1	–	1	–	–	1	29
LEBANON	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3

Table 2.2.1. Cont'd. ...

COUNTRY	LIYT-L	LIYT-S	LISN-L	LISN-S	LISN-E	LISN-T	LIF3T	LIF3T-E	CFIT	CWCT	FBFIT	FBWCT	FBOCCT	LFIT	LWCT	TOTAL
LIBERIA	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5
LIBYA	3	1	1	–	–	–	–	–	–	2	–	–	–	–	–	20
MEXICO	3	–	2	–	–	–	–	1	–	–	–	–	–	–	–	18
MOROCCO	2	2	1	1	–	–	2	–	2	3	2	3	–	–	3	42
NEPAL	–	–	2	–	2	–	–	–	–	–	–	–	–	–	–	6
PAKISTAN	2	8	6	6	9	3	1	5	1	5	–	1	–	3	7	104
PERU	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	25
POLAND	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	5
PORTUGAL	1	1	1	1	–	1	–	–	–	1	–	–	1	–	–	23
SAUDI ARABIA	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	3
SPAIN	–	–	1	1	1	2	–	–	–	–	–	–	1	–	–	28
SRI LANKA	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	5
SUDAN	–	–	–	–	1	–	–	1	4	–	4	–	–	4	–	24
SYRIA	1	1	5	5	–	5	–	–	–	–	–	2	3	–	–	67
THAILAND	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	4
TUNISIA	3	3	7	3	4	3	2	–	–	–	5	–	1	5	–	126
TURKEY	6	2	7	3	3	7	3	–	2	4	1	–	–	1	6	124
U.K.	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	6
U.S.A.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5
YEMEN A.R.	–	–	–	–	2	–	–	–	–	–	1	1	–	1	1	9
P.D.R. YEMEN	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	5
ZAMBIA	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
ZIMBAWE	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	4
ICARDA-SYRIA	2	2	1	1	1	1	1	1	–	–	–	–	–	–	–	42
ICARDA-TERBOL	1	1	1	1	1	1	–	–	–	–	–	–	–	–	–	21
TOTAL	65	37	68	43	60	56	17	20	18	28	15	13	7	22	25	1249

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3. Dr. S.P.S. Beniwal (Joined January 1986)
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4. Dr. William Erskine
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5. Dr. Salim Hanounik
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6. Dr. Larry D. Robertson
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8. Dr. K.B. Singh
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9. Dr. Mahmoud Solh (Joined July 1986)
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10. Dr. Sussane Weigand (Joined January 1987)
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11. Dr. Mohamed El-Sherbeeny
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12. Dr. Said N. Silim
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13. Dr. Akhlaq Hussein (Joined June 1986)
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14. Dr. Karl H. Linke
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Table 2.2.4. Latitude, longitude, altitude and rainfall for some of the international nursery locations for 1986/87 season.

COUNTRY	LOCATION	LATITUDE	LONGITUDE	ALTITUDE (m)	RAINFALL (mm)
AFGHANISTAN	Darul Aman	34.27 N	69.06 E	1825	303
AFGHANISTAN	Kabul	34.27 N	69.08 E	1825	280
AFGHANISTAN	Takhar	36.44 N	69.30 E	804	392
ALGERIA	Guelma	36.29 N	07.29 E	300	NA
ALGERIA	Khroub	36.25 N	06.67 E	640	587
ALGERIA	Setif	36.09 N	05.21 W	1023	324
ALGERIA	Sidi Bel Abbes	35.11 N	03.80 W	488	267
AUSTRALIA	Horsham	36.44 S	142.13E	240	95
AUSTRALIA	Walpeup	35.10 S	142 E	250	248
ARGENTINA	Mendoza	33.44 S	69.07 W	940	426
ARGENTINA	Perico	24.23 S	65.05 W	900	107
BANGLADESH	Joydebpur	24.00 N	90.25 E		49
BANGLADESH	Mymensingh	24.70 N	90.00 E	18	220
BRAZIL	Brasilia	15.56 S	48.08 W	1000	911
BRAZIL	Santa Maria	29.41 S	34.34 W	95	1147
BULGARIA	Toshevo	43.40 N	28.02 E	236	649
BURMA	Aungban			1446	NA
CANADA	Quebec	47.21 N	70.02 W	30	397
CANADA	Saskatchewan	52.09 N	106.36W	497	140
CHILE	Chillan	36.21 S	71.55 W	217	453
CHILE	Graneros	34.00 S	73.00 W	479	71
CHILE	Hidango	34.07 S	71.44 W	304	1057
CHILE	Temuco	38.41 S	72.25 W	200	324
CHILE	Valdivia	38.48 S	72.24 W	12	521
CHINA	Shanxi	37.47 N	112.33E	780	363
CHINA	Xining	36.45 N	101.38E	2309	363
COLOMBIA	Surbata	05.49 N	73.04 W	2535	699
COSTA RICA	Santa Lucia	10.16 N	84.71 W		579
COSTA RICA	Tierra Blanca	09.55 N	83.53 W	2250	320
CYPRUS	Athalassa	35.08 N	33.24 E	150	301
CYPRUS	Dromolaxia	34.52 N	33.36 E	25	320
CYPRUS	Laxia	35.06 N	33.20 E	150	236
ECUADOR	Cunchibamba	01.10 S	78.45 W	3650	NA
ECUADOR	Santa Catalina	00.22 S	78.33 W	3050	686
EGYPT	Bahteem	30.09 N	31.16 E	30	NA
EGYPT	Gemmiza	27.39 N	33.35 E	NA	NA
EGYPT	Giza	30.45 N	31.00 E	25	NA
EGYPT	Sakha	30.45 N	31.00 E	6	
EGYPT	Shandaweel	26.30 N	31.42 E	45	NA
EGYPT	Sids	31.00 N	23.30 E	30	NA
ETHIOPIA	Akaki	-	-	2080	NA

Cont'd. ...

Table 2.2.4. Cont'd. ...

ETHIOPIA	Debre Zeit	08.50 N	38.58 E	1900	368
ETHIOPIA	Holetta	NA	NA	2390	NA
FRANCE	Montboucher	44.34 N	40.48 E	136	340
FRANCE	Montpellier	43.37 N	01.33 E	50	521
GREECE	Larissa	39.07 N	22.05 E	70	224
INDIA	New Delhi	28.08 N	77.12 E	229	0
IRAN	Ghazvin	-	-	-	58
IRAN	Hassan Abad	28.29 N	54.55 E	1080	502
IRAN	Hamadan	34.47 N	48.03 E	1877	239
IRAN	Karaj	35.48 N	51.02 E	1321	264
IRAN	Oroumieh	37.55 N	45.01 E	1325	239
IRAN	Zerghan	29.48 N	52.43 E	1603	523
IRAQ	Al Taamym				69
IRAQ	Baghdad	33.20 N	44.25 E	35	NA
IRAQ	Dohuk	33.19 N	47.18 E	480	449
IRAQ	Kurkok				NA
IRAQ	Meesan	32.00 N	47.00 E	NA	NA
IRAQ	Mosul	36.43 N	43.09 E	226	460
ITALY	Catania	37.28 N	14.14 E	700	341
ITALY	Papiano	42.57 N	00.04 E	165	183
ITALY	Tarquinia	42.15 N	00.41 E	50	157
JORDAN	Irbid (Marow)	34.32 N	35.51 E	620	510
JORDAN	Jubeiha	32.01 N	35.52 E	980	550
JORDAN	Jordan Univ.	32.33 N	35.51 E	580	450
JORDAN	Mushagar	31.43 N	35.48 E	850	370
LEBANON	Terbol	33.49 N	35.59 E	890	665
LIBYA	Banghazi	26.30 N	21.30 E	169	NA
LIBYA	El Safsaf	32.49 N	21.56 E	650	NA
LIBYA	Tagura	32.53 N	13.17 E	650	NA
MEXICO	Culiacan	24.48 N	107.24W	40	258
MEXICO	Hermosillo	28.05 N	110.32W	40-200	47
MEXICO	Obregon	26.45 N	109.30W	40	84
MEXICO	Navojoa	27.28 N	109.40W	39	47
MOROCCO	Douyet	34.02 N	05.00 W	416	364
MOROCCO	Marchouch	33.33 N	06.42 W	450	329
MOROCCO	Zememra	NA	NA	450	196
NEPAL	Khumaltar	27.40 N	85.20 E	1360	464
PAKISTAN	Bahawalpur	29.25 N	70.40 E	170	NA
PAKISTAN	Chakwal	33.00 N	74.00 E	575	227
PAKISTAN	Faisalabad	31.26 N	73.06 E	184	143
PAKISTAN	Islamabad	33.29 N	72.49 E	683	NA
PAKISTAN	Karak	33.40 N	71.20 E		318
PAKISTAN	Peshawar	34 N	70.72 E	NA	496
PAKISTAN	Quetta-1 (Sariab)	29.52 N	66.15 E	1650	215
PAKISTAN	Quetta-2 (ARI)	30.14 N	67.02 E	1738	238

Cont'd. ...

Table 2.2.4. Cont'd. ...

POLAND	Pulawy	51.25	N	21.58	E	142	290
POLAND	Strzelce	52.19	N	19.24	E	130	367
PORTUGAL	Elvas	38.53	N	07.09	W	208	509
PORTUGAL	Oeiras	38.41	N	09.19	W	50	488
SPAIN	Badajoz	38.49	N	06.39	W	237	133
SPAIN	Carmona	37.38	N	05.38	W	72	500
SPAIN	Cordoba	37.51	N	04.51	W	110	471
SPAIN	El Encin	40.31	N	03.17	W	610	544
SPAIN	Granada	37.20	N	03.35	W	950	NA
SPAIN	Sevilla	37.30	N	05.57	W	20	337
SUDAN	Shambat	15.40	N	32.32	E	375	17
SYRIA	Al Ghab	35.30	N	36.20	E	170	723
SYRIA	Deir-ez-zor	32.50	N	36.00	E		43
SYRIA	Gelline	32.80	N	35.60	E	NA	NA
SYRIA	Hama	35.08	N	36.45	E	316	322
SYRIA	Heimo	37.03	N	41.13	E	402	335
SYRIA	Homs	34.45	N	36.43	E	485	398
SYRIA	Idleb	36.56	N	36.67	E	446	446
SYRIA	Izra'a	32.51	N	36.15	E	575	405
SYRIA	Jableh	35.40	N	35.40	E	7	970
SYRIA	Jindiress	36.24	N	36.44	E	210	601
SYRIA	Tel Hadya	36.01	N	36.56	E	284	357
TUNISIA	Beja	36.52	N	09.13	E	NA	NA
TUNISIA	El Kef	36.10	N	08.40	E	NA	NA
TUNISIA	Krib	36.19	N	09.10	E	NA	NA
TUNISIA	Mateur	37.03	N	09.37	E	NA	NA
TUNISIA	Oued Meliz	37.55	N	09.00	E	NA	NA
TUNISIA	Ras Rajel	NA				NA	NA
TUNISIA	Tunis	36.50	N	10.13	E	165	NA
TURKEY	Adana	37	N	35.05	E	35	537
TURKEY	Amasya	40.47	N	36.20	E	425	236
TURKEY	Ankara	39.55	N	32.40	E	860	407
TURKEY	Antalya	36.52	N	30.50	E	15	439
TURKEY	Diyarbakir	37.55	N	40.12	E	660	NA
TURKEY	Haymana	39.36	N	32.36	E	1055	
TURKEY	Erzurum	39.55	N	41.16	E	1950	485
TURKEY	Eskisehir	40	N	30.05	E	800	333
TURKEY	Izmir	38.05	N	27.34	E	100	347
TURKEY	Urfa	36.42	N	38.58	E	410	NA
U.K.	Cambridgeshire	52.10	N	00.05	E	15	NA
YEMEN A.R.	Dhamar	14.32	N	44.24	E	2360	255
ZAMBIA	Msekera	13.39	S	32.37	E	1025	9

NA = not available.

In addition, cooperators were requested to send information on the altitute, latitude, longitude, temperature, rainfall, number and dates of irrigations, dates of planting and harvest, herbicides, pesticides and fertilizers applied (indicating type, rate and date of application), names and titles of people conducting the nursery and any other relevant information which could be of value in interpreting the data.

3. CHICKPEA INTERNATIONAL TRIALS AND NURSERIES

Fourteen chickpea international trials and nurseries were available to the cooperators in 1986/87 season. These included yield trials, screening nurseries, segregating populations, stress nurseries including insect-pest, disease and cold tolerance nurseries, and agronomic trials. Except the agronomic trials all other nurseries and trials are discussed in this section. Cooperators were free to use these materials directly or indirectly for the improvement of chickpea in their own national programs.

3.1. CHICKPEA INTERNATIONAL YIELD TRIAL - SPRING (CIYT-SP)

Material

The Chickpea International Yield Trial - Spring comprised 23 test entries and one local check to be supplied by the cooperator. Twenty two of the test entries were the advanced breeding lines developed through hybridization at ICARDA and one originated from Turkey and were selected on the basis of their superior performance either in international, regional, or local trials.

Methods and Management

The trial design was a randomized complete block with four replications. The suggested plot size was 4 rows, each 4 m long. Forty four sets were sent to cooperators in 21 countries. The results were, however, received for 28 trials from 15 countries, out of which 27 reported seed yield. The agronomic information received from the cooperators is given in Table 3.1.1.

Results and Discussion

On an average over locations the entry means ranged from 77 to 82 days for time to flowering (Table 3.1.2.), 135 to 141 days for time to maturity (Table 3.1.3.), and 37 to 45 cm for plant height (Table 3.1.4.). The overall mean for 100-seed weight, for the entries varied from 29 to 35 g, FLIP84- 78C being with the largest seed size (Table 3.1.5). Also wide the variation in the location means for 100-seed weight was 28 g for Darul Aman in Afghanistan to 34 g for Adana in Turkey and Chipata in Zambia.

The highest mean seed yield (Table 3.1.6) was obtained at El Kef (3176 kg/ha) in Tunisia which was followed by Beja (3143 kg/ha) in Tunisia, Khroub (2813 kg/ha) in Algeria, Ras Rajel (2599 kg/ha) in Tunisia and Adana (2577 kg/ha) in Turkey. The seed yields at Sidi Bel Abbes in Algeria, Dohuk in Iraq, Elvas in Porugal and Heimo in Syria were very poor (less than 500 kg/ha). On an average over locations ILC 482 gave the highest seed yield (1576 kg/ha) and was closely followed by FLIP84-155C, FLIP84-149C, FLIP84-60C and FLIP84-164C with seed yields of 1575, 1525, 1494 and 1486 kg/ha respectively.

The ANOVA for seed yield revealed that the local check was excelled by 18, 4, 1, 12, 23, 20, 13, 23 and 17 entries at 9 respective locationsi, namely, Khroub on Algeria; Dohuk in Iraq; Tel Hadya in Syria, Beja, El Kef, Oued Meliz and Ras Rajel in Tunisia; and Adana and Ankara in turkey by a significant margin ($P \leq 0.05$) .

Table 3.1.1. Agronomic data for different locations in the CIYT-SP during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman	16.04.87	05.09.87	30	60		7	-	Lablanan-L
ALGERIA	Khroub	07.12.86	12.07.87	17	45			Treflan	Rabat-9
ALGERIA	Sidi Bel Abbes	16.02.87	NA	15	90		-	Maloran, Kerb	161-4
CHINA	Shanxi	19.03.87	01.08.87	-			-	-	NA
COLOMBIA	Surbata	23.03.87	30.10.87	100			-	Afalon, Actellic, Tecto	Garbanzo Amarillo
ETHIOPIA	Debre Zeit-1	22.07.87	12.11.87	-			-	-	Dubie
ETHIOPIA	Debre Zeit-2	05.08.87	15.12.87	-			-	-	Dubie
IRAN	Karaj	10.03.87	23.08.87	-			10	Diazinon	Jam
IRAQ	Dohuk	12.03.87	12.07.07	40	46		-	Actellic, Tecto	NA
JORDAN	Jubeiha	NA	NA	20	40			NA	NA
LEBANON	Terbol	08.04.87	15.07.87		50		1	Kerb, Igran	NA
PAKISTAN	Bahawalpur	10.11.86	07.04.87	25	62		-	-	C - 235
PORTUGAL	Elvas	26.03.87	02.08.87		72	60	-	-	Chk 256
SYRIA	Al Ghab	23.02.87	20.06.87	30	50		-	-	Local
SYRIA	Hama	17.02.87	15.06.87	25	80		-	-	Local
SYRIA	Heimo	23.03.87	01.07.87	-			-	-	Local
SYRIA	Idleb	13.03.87	NA		60		-	-	Local
SYRIA	Jindiress	03.03.87	05.07.87	-			-	-	-
SYRIA	Tel Hadya	23.02.87	25.06.87	30	50		-	Igran, Malathion	ILC 1929
TUNISIA	Beja	NA	NA	NA			NA		NA
TUNISIA	El Kef	NA	NA	NA			NA		NA
TUNISIA	Oued Meliz	NA	NA	NA			NA		NA
TUNISIA	Ras Rajel	NA	NA	NA			NA		NA
TURKEY	Adana	15.11.86	16.06.87	30	50		-	-	NA
TURKEY	Diyarbakir	03.03.87	30.06.87	40	60		-	-	ILC - 482
TURKEY	Eskisehir	21.04.87	06.08.87	40	60		-	-	Caniter 87
TURKEY	Haymana	NA		NA			NA		NA
ZAMBIA	Msekera	14.04.87	15.08.87	20	40		-	-	BG - 1 (Kabuli)

NA = Not available.

Table 3.1.2. Time to flowering (days) of entries at different locations in the CIYT-SP during 1986/87.

Entry Name	Pedigree	Origin	AFGHANISTAN	ALGERIA		CHINA	COLOMBIA
			Darul Aman	Khroub	Sidi Bel-Abbes	Shanxi	Surbata
FLIP 82-73C	X 80 TH 167/ILC 1919XILC 202	ICARDA/ICRISAT	69	158	69	61	85
FLIP 83-42C	X 79 TH 221/ILC 72XILC 1922	ICARDA/ICRISAT	80	153	69	61	90
FLIP 83-99C	X 80 TH 263/(ILC 72XILC263)XILC 1919	ICARDA/ICRISAT	77	150	70	61	90
FLIP 84-60C	X 80 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	69	145	68	64	90
FLIP 84-68C	X 80 TH 221/ILC 72XILC 1922	ICARDA/ICRISAT	78	154	72	64	85
FLIP 84-78C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	77	162	68	66	85
FLIP 84-81C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	75	157	69	64	95
FLIP 84-82C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	72	152	69	61	90
FLIP 84-91C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	75	159	70	61	88
FLIP 84-96C	X 80 TH 181/ILC 3279XILC 1108	ICARDA/ICRISAT	75	158	69	61	85
FLIP 84-126C	X 81 TH 53/ILC 1920XILC 2506	ICARDA/ICRISAT	70	162	70	61	88
FLIP 84-146C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	78	156	69	61	88
FLIP 84-148C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	67	149	70	61	88
FLIP 84-149C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	72	155	68	61	85
FLIP 84-155C	X 81 TH 165/ILC 3279XILC 484	ICARDA/ICRISAT	74	140	68	61	80
FLIP 84-159C	X 81 TH 104/ILC 72XILC 482	ICARDA/ICRISAT	78	151	70	61	93
FLIP 84-161C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	80	149	70	61	88
FLIP 84-164C	X 82 TH 101/ILC 215(WH)XILC 195(WH)	ICARDA/ICRISAT	72	144	68	61	83
FLIP 84-167C	X 79 TH 123/ILC 1929XILC 200	ICARDA/ICRISAT	73	161	68	64	88
FLIP 84-175C	X 79 TH 59/ILC 16XILC 191	ICARDA/ICRISAT	72	160	70	61	88
FLIP 84-181C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	79	143	68	61	93
FLIP 84-293C	(Improved check)	ICARDA/ICRISAT	72	151	70	64	93
ILC 482	(Long term check)	Turkey	76	162	68	61	85
Local Check	-	-	73	149	68	-	80
Location Mean			**74**	**153**	**69**	**62**	**87**
S.E. of Mean			2.6		0.32		1.99
LSD at 5%			7.34		1.89		5.83
C.V. %			7.01		1.92		3.22
Error d.f.			69		69		23
Significance			*		*		*

Cont'd. ...

Table 3.1.2. Cont'd. ...

Entry Name	ETHIOPIA		IRAN	IRAQ	JORDAN	LEBANON	PORTUGAL	SYRIA		
	Debre Zeit-1	Debre Zeit-2	Karaj	Dohuk	Jubeiha	Terbol	Elvas	Al Ghab	Hama	Heimo
FLIP 82-73C	61	63	63	67	109	49	63	79	81	59
FLIP 83-42C	61	66	64	68	108	50	62	79	80	59
FLIP 83-99C	62	59	67	66	110	51	63	78	79	60
FLIP 84-60C	64	63	63	60	107	48	64	74	77	56
FLIP 84-68C	63	66	64	63	108	49	65	77	80	60
FLIP 84-78C	58	57	64	62	105	46	63	79	79	56
FLIP 84-81C	65	66	65	67	108	53	62	80	81	59
FLIP 84-82C	63	63	62	66	108	47	63	81	80	56
FLIP 84-91C	63	63	64	64	108	50	63	76	79	56
FLIP 84-96C	65	65	63	67	108	49	63	79	79	56
FLIP 84-126C	66	63	64	70	108	50	63	80	80	61
FLIP 84-146C	66	61	63	67	107	47	64	74	77	54
FLIP 84-148C	63	64	61	65	109	48	63	74	78	55
FLIP 84-149C	62	62	63	64	108	49	64	77	79	56
FLIP 84-155C	59	58	61	62	107	45	64	73	76	53
FLIP 84-159C	64	67	64	60	108	53	65	79	80	60
FLIP 84-161C	64	63	65	64	107	47	63	75	78	58
FLIP 84-164C	59	57	61	69	108	45	65	73	76	51
FLIP 84-167C	65	61	65	66	107	50	63	76	78	57
FLIP 84-175C	65	66	64	67	107	50	62	81	83	59
FLIP 84-181C	62	61	63	62	109	47	63	75	78	55
FLIP 84-293C	67	68	63	70	106	51	64	80	80	60
ILC 482	55	51	60	64	109	45	63	72	75	50
Local Check	49	46	63	64	107	43	63	73	75	50
Location Mean	**63**	**61**	**63**	**65**	**107**	**48**	**63**	**76**	**78**	**56**
S.E. of Mean	1.85	1.55	0.82	1.99	1.03	0.52	0.83	0.85	0.43	0.64
LSD at 5%	5.41	4.52	2.32	5.60	-	1.47	-	2.41	1.20	1.81
C.V. %	4.23	3.56	2.60	6.10	1.92	2.15	2.61	2.22	1.08	2.28
Error d.f.	23	23	69	69	69	69	69	69	69	69
Significance	*	*	*	*	NS	*	NS	*	*	*

Cont'd. ...

Tabie 3.1.2.Cont'd. ...

Entry Name	SYRIA			TURKEY				ZAMBIA	Overall Mean
	Idleb	Jindiress	Tel Hadya	Adana	Diyarbakir	Eskisehir	Haymana	Chipata	
FLIP 82-73C	64	73	76	112	180	67	80	74	81
FLIP 83-42C	63	73	77	113	179	66	79	71	81
FLIP 83-99C	63	77	77	111	180	67	80	72	81
FLIP 84-60C	59	71	75	112	178	66	77	66	79
FLIP 84-68C	61	71	77	112	180	68	79	71	81
FLIP 84-78C	65	75	76	112	182	64	79	60	80
FLIP 84-81C	63	74	77	113	180	67	80	75	82
FLIP 84-82C	60	72	75	111	179	64	78	73	80
FLIP 84-91C	64	72	77	112	179	66	79	74	81
FLIP 84-96C	61	71	75	111	179	66	79	78	81
FLIP 84-126C	63	73	76	112	180	67	79	70	81
FLIP 84-146C	59	70	75	112	178	66	77	70	80
FLIP 84-148C	58	69	75	112	178	67	79	70	79
FLIP 84-149C	64	71	75	112	179	67	79	67	80
FLIP 84-155C	57	67	72	112	177	63	78	66	77
FLIP 84-159C	64	75	77	112	180	66	79	75	82
FLIP 84-161C	64	72	76	112	179	66	78	69	80
FLIP 84-164C	58	67	71	111	178	64	77	61	77
FLIP 84-167C	66	74	77	113	180	66	80	70	81
FLIP 84-175C	65	76	79	112	183	68	80	77	82
FLIP 84-181C	61	72	75	112	178	64	80	70	79
FLIP 84-293C	67	74	77	113	180	67	80	71	82
ILC 482	56	68	73	112	178	63	78	58	77
Local Check	55	71	73	110	178	64	77	47	
Location Mean	**61**	**71**	**75**	**112**	**179**	**66**	**79**	**69**	
S.E. of Mean	1.90	0.74	0.59	0.71	0.44	0.88	0.64	2.32	
LSD at 5%	5.37	2.07	1.66	-	1.23	2.49	1.83	6.54	
C.V. %	6.19	2.05	1.56	1.27	0.49	2.69	1.41	6.73	
Error d.f.	69	69	69	69	69	69	46	69	
Significance	*	*	*	NS	*	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.1.3. Time to maturity (days) of entries at different locations in the CIYT-SP during 1986/87.

	AFGHANISTAN	ALGERIA			COLOMBIA	ETHIOPIA		IRAN	IRAQ	JORDAN	LEBANON	SYRIA
Entry Name	Darul - Aman	Khroub	Sidi-Bel Abbes	Shanxi	Surbata	Debre Zeit-1	Debre Zeit-2	Karaj	Dohuk	Jubeiha	Terbol	Al Ghab
FLIP 82-73C	115	202	113	126	165	112	118	106	102	152	95	116
FLIP 83-42C	117	205	113	126	178	125	122	113	103	150	97	117
FLIP 83-99C	112	207	113	126	165	117	117	109	101	148	91	114
FLIP 84-60C	115	203	113	126	165	124	118	110	96	150	89	112
FLIP 84-68C	116	207	113	127	178	117	121	117	103	150	96	115
FLIP 84-78C	118	207	113	137	190	112	112	111	107	149	93	117
FLIP 84-81C	114	207	113	126	190	127	122	112	106	147	100	116
FLIP 84-82C	115	202	113	127	178	118	122	110	101	152	87	115
FLIP 84-91C	116	206	113	126	190	124	119	115	106	148	96	114
FLIP 84-96C	113	203	108	126	178	125	119	118	102	149	93	114
FLIP 84-126C	117	207	113	128	190	126	121	113	107	152	97	117
FLIP 84-146C	113	202	108	126	165	126	116	108	100	148	87	113
FLIP 84-148C	112	206	108	126	178	118	121	111	97	152	90	112
FLIP 84-149C	115	203	108	127	165	121	117	112	100	148	95	113
FLIP 84-155C	116	200	108	126	165	109	113	107	122	154	86	112
FLIP 84-159C	115	202	113	126	190	126	123	114	102	153	104	116
FLIP 84-161C	114	206	108	126	178	123	120	109	99	147	90	113
FLIP 84-164C	124	204	113	126	165	109	111	105	104	148	86	112
FLIP 84-167C	115	205	108	127	165	118	119	109	100	149	91	113
FLIP 84-175C	111	204	113	126	165	119	121	105	103	147	88	115
FLIP 84-181C	112	205	108	128	165	119	112	108	97	150	91	114
FLIP 84-293C	115	203	113	126	165	119	120	108	103	146	90	116
ILC 482	115	200	113	127	165	103	104	108	102	148	85	109
Local Check	117	205	108	-	165	94	95	107	98	149	83	111
Location Mean	**115**	**204**	**111**	**127**	**173**	**118**	**117**	**110**	**102**	**149**	**91**	**114**
S.E. of Mean	1.53		0.00		6.02	4.22	2.27	1.45	5.21	1.97	0.69	0.80
LSD at 5%	4.31		0.00		17.61	12.34	6.63	4.08	-	-	1.95	2.26
C.V. %	2.66		0.00		4.91	5.06	2.75	2.63	10.17	2.63	1.51	1.41
Error d.f.	69		69		23	23	23	69	69	69	69	69
Significance	*		*		*	*	*	*	NS	NS	*	*

Cont'd. ...

Table 3.1.3. Cont'd. ...

Entry Name	SYRIA					TURKEY			ZAMBIA	Overall Mean
	Hama	Heimo	Idleb	Jindiress	Tel Hadya	Adana	Diyarbakir	Haymana	Chipata	
FLIP 82-73C	118	82	100	115	117	169	215	109	142	138
FLIP 83-42C	119	84	101	118	118	169	215	110	141	140
FLIP 83-99C	117	84	101	115	117	168	230	108	138	138
FLIP 84-60C	115	83	96	115	116	167	211	106	139	137
FLIP 84-68C	118	83	97	116	118	168	230	109	140	140
FLIP 84-78C	119	84	103	121	119	170	215	109	138	140
FLIP 84-81C	119	86	101	118	118	170	213	108	140	141
FLIP 84-82C	117	83	99	115	117	169	215	108	137	138
FLIP 84-91C	118	82	100	117	118	169	215	108	146	141
FLIP 84-96C	116	85	100	115	116	168	215	114	138	139
FLIP 84-126C	119	86	105	117	118	168	213	108	138	141
FLIP 84-146C	115	82	96	114	116	169	211	109	140	136
FLIP 84-148C	115	82	93	114	118	168	211	115	131	137
FLIP 84-149C	116	83	100	116	118	169	211	111	138	138
FLIP 84-155C	114	80	96	116	116	168	211	114	137	137
FLIP 84-159C	117	85	102	116	117	168	217	111	140	141
FLIP 84-161C	114	83	96	115	116	170	211	114	141	138
FLIP 84-164C	115	82	95	115	117	168	211	115	144	137
FLIP 84-167C	116	84	100	117	117	168	215	113	134	137
FLIP 84-175C	117	85	99	114	118	168	215	108	142	137
FLIP 84-181C	115	80	96	115	118	170	211	115	133	136
FLIP 84-293C	116	85	103	114	116	169	215	108	146	138
ILC 482	114	80	92	116	116	170	211	118	141	135
Local Check	115	80	96	118	116	170	211	115	128	
Location Mean	**116**	**83**	**99**	**116**	**117**	**169**	**214**	**111**	**139**	
S.E. of Mean	0.38	0.94	2.12	0.81	0.51	0.96	1.02	0.68	1.32	
LSD at 5%	1.08	2.64	5.99	2.28	1.44	-	2.88	1.95	3.72	
C.V. %	0.66	2.26	4.31	1.40	0.87	1.13	0.95	1.07	1.91	
Error d.f.	69	69	69	69	69	69	69	46	69	
Significance	*	*	*	*	*	NS	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.1.4. Plant height (cm) of entries at different locations in the CIYT-SP during 1986/87.

Entry Name	AFGHANISTAN	ALGERIA		CHINA	COLOMBIA	ETHIOPIA		IRAN	IRAQ	JORDAN	LEBANON	PORTUGAL
	Darul - Aman	Khroub	Sidi Bel Abbes	Shanxi	Surbata	Debre Zeit-1	Debre Zeit-2	Karaj	Dohuk	Jubeiha	Terbol	Elvas
FLIP 82-73C	35	70	17	64	62	58	51	46	24	50	41	27
FLIP 83-42C	32	63	20	73	56	57	50	41	25	48	40	23
FLIP 83-99C	33	60	19	65	51	52	48	39	30	50	39	28
FLIP 84-60C	30	50	19	77	59	54	50	40	25	48	38	25
FLIP 84-68C	35	58	19	65	58	56	52	48	25	50	43	28
FLIP 84-78C	44	50	18	65	65	51	46	49	24	50	43	27
FLIP 84-81C	31	70	20	56	54	48	46	45	19	49	42	24
FLIP 84-82C	33	68	20	63	52	53	48	46	23	47	41	26
FLIP 84-91C	36	58	20	70	54	55	50	48	19	51	38	28
FLIP 84-96C	28	68	19	69	54	59	52	48	23	52	41	32
FLIP 84-126C	34	60	18	40	57	51	47	40	22	53	37	28
FLIP 84-146C	36	60	19	60	54	51	49	38	22	49	35	25
FLIP 84-148C	31	50	20	60	48	51	52	38	25	47	36	25
FLIP 84-149C	30	60	18	57	46	50	46	38	23	49	40	25
FLIP 84-155C	30	70	19	44	52	47	42	39	22	49	36	27
FLIP 84-159C	36	68	20	58	56	64	58	45	28	51	42	25
FLIP 84-161C	33	48	20	69	48	52	50	34	25	49	38	26
FLIP 84-164C	33	63	21	40	52	50	44	33	21	49	36	30
FLIP 84-167C	35	68	17	78	52	52	47	38	25	45	38	26
FLIP 84-175C	25	60	20	44	57	59	59	43	23	52	41	26
FLIP 84-181C	30	55	20	62	48	49	44	38	24	50	37	26
FLIP 84-293C	38	70	17	77	55	52	52	35	22	49	39	23
ILC 482	26	68	20	58	53	47	39	28	22	45	35	28
Local Check	33	-	18	-	46	44	34	35	21	48	32	27
Location Mean	**33**	**62**	**19**	**61**	**54**	**52**	**48**	**40**	**23**	**49**	**39**	**26**
S.E. of Mean	2.01		1.39		3.08	2.01	2.45	1.85	1.18	2.32	1.70	1.82
LSD at 5%	5.66		-		9.01	5.87	7.17	5.22	3.33	-	4.80	-
C.V. %	12.26		14.65		8.12	5.41	7.21	9.16	10.13	9.46	8.81	13.83
Error d.f.	69		69		23	23	23	69	69	69	69	69
Significance	*		NS		*	*	*	*	*	NS	*	NS

Cont'd. ...

Table 3.1.4. Cont'd. ...

Entry Name	SYRIA						TUNISIA		TURKEY			Overall Mean
	Al Ghab	Hama	Heimo	Idleb	Jindiress	Tel Hadya	Ras Rajel	Adana	Diyarbakir	Eskisehir	Haymana	
FLIP 82-73C	46	43	30	32	31	34	66	80	36	48	37	45
FLIP 83-42C	46	40	27	33	27	32	60	75	34	45	29	42
FLIP 83-99C	39	36	28	32	28	30	58	74	33	42	30	41
FLIP 84-60C	39	36	28	31	26	28	46	65	30	40	35	40
FLIP 84-68C	45	43	29	30	28	30	50	70	35	44	32	42
FLIP 84-78C	49	44	35	35	33	34	70	81	37	48	41	45
FLIP 84-81C	41	39	28	32	27	30	49	74	32	38	35	40
FLIP 84-82C	46	39	27	33	28	32	56	73	35	42	34	42
FLIP 84-91C	46	36	33	34	30	30	51	70	33	40	33	42
FLIP 84-96C	40	38	29	30	31	30	56	73	32	44	34	43
FLIP 84-126C	40	36	29	29	25	28	53	63	34	36	33	39
FLIP 84-146C	38	38	24	28	26	27	46	68	31	40	32	39
FLIP 84-148C	36	35	28	26	23	29	50	65	29	37	31	38
FLIP 84-149C	36	44	30	28	25	30	50	71	30	36	34	39
FLIP 84-155C	34	35	23	28	25	28	50	75	28	34	29	38
FLIP 84-159C	46	40	29	33	30	32	55	78	38	47	35	44
FLIP 84-161C	38	34	29	27	27	26	48	68	29	37	30	38
FLIP 84-164C	40	39	29	27	26	28	49	75	29	40	32	39
FLIP 84-167C	41	38	25	28	29	28	35	67	32	40	36	40
FLIP 84-175C	40	43	34	32	30	31	62	74	34	42	27	41
FLIP 84-181C	35	34	29	28	25	28	48	68	30	35	37	38
FLIP 84-293C	41	41	28	30	29	31	53	72	31	42	38	42
ILC 482	35	34	33	24	25	26	43	71	26	34	27	37
Local Check	31	34	25	27	24	25	49	87	27	42	29	
Location Mean	**40**	**38**	**29**	**30**	**27**	**29**	**52**	**72**	**32**	**40**	**33**	
S.E. of Mean	1.33	1.46	0.87	1.44	1.42	0.98	3.03	2.75	1.20	1.90	1.86	
LSD at 5%	3.74	4.11	2.44	4.07	4.02	2.76	8.54	7.77	3.38	5.36	5.30	
C.V. %	6.57	7.64	6.06	9.70	10.47	6.65	11.58	7.61	7.56	9.40	9.81	
Error d.f.	69	69	69	69	69	69	69	69	69	69	46	
Significance	*	*	*	*	*	*	*	*	*	*	*	

* = Significant at $P \leq 0.05$, NS = not Significant.

Table 3.1.5. 100-seed weight (g) of entries at different locations in the CIYT-SP during 1986/87.

Entry Name	AFGHANISTAN	CHINA	COLOMBIA	ETHIOPIA		IRAN	IRAQ	LEBANON
	Darul Aman	Shanxi	Surbata	Debre Zeit-1	Debre Zeit-2	Karaj	Dohuk	Terbol
FLIP 82-73C	27	35	35	31	33	31	32	34
FLIP 83-42C	30	36	31	29	31	30	33	34
FLIP 83-99C	29	30	32	33	33	30	32	34
FLIP 84-60C	29	28	25	29	32	32	32	31
FLIP 84-68C	29	33	33	34	34	33	34	36
FLIP 84-78C	32	38	30	40	37	34	34	39
FLIP 84-81C	26	33	29	31	35	28	30	34
FLIP 84-82C	23	30	26	30	30	29	32	32
FLIP 84-91C	28	30	26	28	33	30	31	32
FLIP 84-96C	28	10	30	27	33	30	33	35
FLIP 84-126C	26	20	28	30	33	29	34	32
FLIP 84-146C	29	21	26	34	35	34	33	32
FLIP 84-148C	30	33	24	30	35	35	32	34
FLIP 84-149C	28	29	27	27	30	31	34	31
FLIP 84-155C	30	33	29	30	32	33	33	32
FLIP 84-159C	30	36	30	34	36	31	32	37
FLIP 84-161C	25	34	22	29	30	32	35	31
FLIP 84-164C	30	39	33	31	34	32	35	34
FLIP 84-167C	27	29	30	30	32	28	31	31
FLIP 84-175C	29	36	28	32	33	34	31	31
FLIP 84-181C	25	29	32	29	33	34	34	32
FLIP 84-293C	24	26	29	29	32	27	32	31
ILC 482	25	29	25	27	29	27	33	28
Local Check	25	–	36	20	24	31	34	39
Location Mean	**28**	**30**	**29**	**30**	**32**	**31**	**33**	**33**
S.E. of Mean	0.67		1.49	2.44	1.36	1.78	1.20	0.68
LSD at 5%	1.88		4.35	7.14	3.99	2.21	–	1.91
C.V. %	4.79		7.33	11.45	5.95	5.05	7.31	4.09
Error d.f.	69		23	23	23	69	69	69
Significance	*		*	*	*	*	NS	*

Cont'd. ...

Table 3.1.5. Cont'd. ...

Entry Name	PORTUGAL	SYRIA				TURKEY		ZAMBIA	Overall Mean
	Elvas	Heimo	Idleb	Jindiress	Tel Hadya	Adana	Haymana	Chipata	
FLIP 82-73C	31	32	29	31	33	37	33	38	33
FLIP 83-42C	31	32	29	29	33	38	33	38	32
FLIP 83-99C	32	32	31	31	32	37	34	37	32
FLIP 84-60C	31	29	33	27	28	29	29	32	30
FLIP 84-68C	31	35	31	32	38	37	36	39	34
FLIP 84-78C	31	34	30	37	35	40	34	36	35
FLIP 84-81C	32	27	28	28	31	35	30	33	31
FLIP 84-82C	31	30	27	29	30	34	30	35	30
FLIP 84-91C	32	29	29	29	30	33	31	31	30
FLIP 84-96C	31	31	27	30	31	33	32	35	30
FLIP 84-126C	30	28	28	27	29	34	31	34	29
FLIP 84-146C	32	31	28	29	31	32	31	34	31
FLIP 84-148C	31	28	28	26	29	31	33	34	31
FLIP 84-149C	35	31	27	28	29	31	30	34	30
FLIP 84-155C	32	32	29	29	31	35	34	35	32
FLIP 84-159C	30	32	28	29	30	33	30	35	32
FLIP 84-161C	32	31	29	28	29	31	33	34	30
FLIP 84-164C	31	31	30	31	32	36	35	36	33
FLIP 84-167C	32	30	29	31	30	33	32	35	31
FLIP 84-175C	32	33	29	29	29	36	30	33	32
FLIP 84-181C	31	32	31	31	31	33	31	37	32
FLIP 84-293C	36	30	26	27	28	31	27	33	29
ILC 482	31	28	26	25	27	32	31	33	29
Local Check	37	29	39	37	37	31	30	23	
Location Mean	**32**	**31**	**29**	**30**	**31**	**34**	**32**	**34**	
S.E. of Mean	2.02	0.54	1.39	0.56	0.71	0.78	0.67	0.94	
LSD at 5%	-	1.53	3.93	1.58	2.00	2.20	1.90	2.66	
C.V. %	12.70	3.53	9.56	3.78	4.60	4.59	3.65	5.50	
Error d.f.	69	69	69	69	69	69	46	69	
Significance	NS	*	*	*	*	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.1.6. Seed Yield (Y=Kg/ha) and rank (R) of entries at different locations in the CIYT-SP during 1986/87.

Entry Name	ALGERIA				CHINA		COLOMBIA		ETHIOPIA				IRAN	
	Khroub		Sidi Bel Abbes		Shanxi		Surbata		Debre Zeit 1		Debre Zeit 2		Karaj	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-73C	2550	18	61	20	2245	2	1219	4	1454	13	577	18	1093	21
FLIP 83-42C	2979	10	59	21	1676	14	376	23	1913	4	556	19	734	24
FLIP 83-99C	3017	8	73	14	1163	21	1141	6	1294	17	1021	7	874	23
FLIP 84-60C	3622	3	104	6	1814	11	1356	3	2617	2	1265	3	1815	13
FLIP 84-68C	2031	21	56	23	1504	18	600	18	1642	8	642	16	2017	7
FLIP 84-78C	2094	20	53	24	1624	16	568	19	1360	15	879	10	1057	22
FLIP 84-81C	2599	17	90	10	1835	10	633	17	502	24	535	21	1139	20
FLIP 84-82C	2270	19	87	11	2902	1	726	16	833	22	598	17	2040	6
FLIP 84-91C	2885	12	59	22	1839	9	528	20	1588	10	663	15	2015	8
FLIP 84-96C	3390	4	94	7	1539	17	789	14	1619	9	406	24	2521	1
FLIP 84-126C	2981	9	67	18	1205	20	496	22	1713	6	1379	2	1840	12
FLIP 84-146C	2705	15	94	9	1880	8	1150	5	1571	11	544	20	2048	5
FLIP 84-148C	2955	11	115	5	1989	6	732	15	1654	7	979	9	2425	2
FLIP 84-149C	3648	2	76	13	1946	7	886	12	1190	21	690	13	2335	3
FLIP 84-155C	3727	1	69	16	2196	3	1500	1	1285	19	848	12	1735	14
FLIP 84-159C	3122	6	68	17	1756	13	522	21	773	23	690	14	1922	10
FLIP 84-161C	3067	7	115	4	1379	19	293	24	1756	5	1256	4	1530	15
FLIP 84-164C	2827	13	76	12	637	23	1472	2	1365	14	877	11	1495	16
FLIP 84-167C	2811	14	135	2	839	22	988	9	1531	12	1208	5	1444	17
FLIP 84-175C	-	-	71	15	2039	4	1034	8	1281	20	529	22	1879	11
FLIP 84-181C	2011	22	118	3	1808	12	844	13	1285	18	994	8	1928	9
FLIP 84-293C	3221	5	136	1	1648	15	941	10	1344	16	496	23	1139	19
ILC 482	2616	16	66	19	2006	5	1075	7	2125	3	1144	6	1327	18
Local Check	1577	23	94	8	-	-	924	11	3165	1	2498	1	2249	4
Location Mean	**2813**		**85**		**1644**		**866**		**1536**		**886**		**1692**	
S.E. of Mean	330.44		21.13				238.03		440.76		324.17		201.24	
LSD at 5%	941.82		-				-		-		-		567.67	
C.V. %	20.34		49.87				38.86		40.59		51.72		23.79	
Error d.f.	44		69				23		23		23		69	
Significance	*		NS				NS		NS		NS		*	
Ent. > L. Check	18		-				-		-		-		0	

Cont'd. ...

Table 3.1.6. Cont'd. ...

Entry Name	IRAQ		JORDAN		LEBANON		PAKISTAN		PORTUGAL		SYRIA	
	Dohuk		Jubeiha		Terbol		Bahawalpur		Elvas		Al Ghab	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-73C	47	21	675	21	1198	14	1563	5	514	7	1813	21
FLIP 83-42C	131	14	867	10	1319	4	1948	3	447	13	1861	19
FLIP 83-99C	327	2	1032	7	1397	2	1458	10	535	2	1758	22
FLIP 84-60C	294	4	1190	2	1290	8	1167	14	452	11	1901	17
FLIP 84-68C	116	15	744	13	963	20	1198	13	494	9	1956	14
FLIP 84-78C	7	24	298	24	1018	19	1042	18	416	16	1833	20
FLIP 84-81C	21	23	717	19	852	24	958	23	374	22	1984	11
FLIP 84-82C	203	6	629	22	1301	6	1469	9	422	15	2016	10
FLIP 84-91C	24	22	711	20	1295	7	938	24	517	6	2087	4
FLIP 84-96C	59	18	1017	8	1216	13	969	21	529	3	2147	3
FLIP 84-126C	61	17	732	15	924	21	1042	17	388	21	1698	23
FLIP 84-146C	193	7	848	11	1265	9	1042	16	519	5	1980	12
FLIP 84-148C	375	1	1052	5	1226	11	979	20	393	19	2087	5
FLIP 84-149C	152	12	727	16	920	22	1094	15	367	23	1940	15
FLIP 84-155C	307	3	1067	3	1218	12	1802	4	487	10	2294	2
FLIP 84-159C	161	11	722	17	864	23	1479	7	443	14	2063	6
FLIP 84-161C	191	8	1038	6	1096	17	1510	6	523	4	1873	18
FLIP 84-164C	73	16	788	12	1314	5	990	19	395	18	2317	1
FLIP 84-167C	163	10	1298	1	1320	3	958	22	451	12	2063	7
FLIP 84-175C	49	20	568	23	1123	16	1375	11	390	20	1611	24
FLIP 84-181C	204	5	719	18	1577	1	1323	12	552	1	2036	8
FLIP 84-293C	50	19	1058	4	1022	18	2083	2	317	24	1917	16
ILC 482	134	13	740	14	1179	15	1479	8	502	8	2024	9
Local Check	182	9	896	9	1245	10	2604	1	411	17	1976	13
Location Mean	**147**		**839**		**1173**		**1353**		**452**		**1968**	
S.E. of Mean	33.75		159.68		143.40		202.99		73.34		129.62	
LSD at 5%	95.21		450.42		-		572.59		-		-	
C.V. %	45.99		38.07		24.46		30.01		32.48		13.17	
Error d.f.	69		69		69		69		69		69	
Significance	*		*		NS		*		NS		NS	
Ent. > L. Check	4		0		-		0		-		-	

Cont'd. ...

Table 3.1.6. Cont'd. ...

	SYRIA										TUNISIA	
	Hama		Heimo		Idleb		Jindiress		Tel Hadya		Beja	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-73C	1143	23	524	12	1133	22	956	6	786	14	2950	15
FLIP 83-42C	1171	22	366	22	1334	19	892	11	851	6	3494	6
FLIP 83-99C	1409	6	478	14	1570	10	1098	3	940	2	2731	19
FLIP 84-60C	1337	16	566	9	1613	7	775	19	649	24	3550	5
FLIP 84-68C	1381	12	403	20	1627	5	857	12	812	11	2913	17
FLIP 84-78C	1302	17	626	3	1116	23	846	13	833	7	2556	23
FLIP 84-81C	1302	18	420	19	1537	11	832	15	1056	1	3244	11
FLIP 84-82C	1286	19	554	10	1468	15	833	14	782	16	2950	16
FLIP 84-91C	1425	5	575	6	1595	8	900	10	853	5	3019	14
FLIP 84-96C	1345	14	474	15	1530	13	961	5	831	8	2731	20
FLIP 84-126C	1111	24	242	24	1374	18	693	23	821	10	3044	13
FLIP 84-146C	1405	7	567	8	1634	4	779	18	748	19	3888	1
FLIP 84-148C	1357	13	544	11	1581	9	825	16	782	17	3494	7
FLIP 84-149C	1242	21	500	13	1302	21	944	7	754	18	3656	4
FLIP 84-155C	1464	3	572	7	1783	2	678	24	808	12	3344	9
FLIP 84-159C	1405	8	322	23	1434	16	905	9	857	4	3344	10
FLIP 84-161C	1337	15	421	18	1470	14	740	20	688	22	3219	12
FLIP 84-164C	1389	11	613	5	1618	6	915	8	724	21	3756	3
FLIP 84-167C	1440	4	441	16	1382	17	963	4	784	15	2613	22
FLIP 84-175C	1266	20	436	17	1310	20	800	17	823	9	2800	18
FLIP 84-181C	1599	2	614	4	1717	3	1100	2	808	13	2206	24
FLIP 84-293C	1393	10	372	21	929	24	730	21	677	23	3425	8
ILC 482	1401	9	655	2	1536	12	728	22	746	20	3806	2
Local Check	1627	1	662	1	1887	1	1258	1	907	3	2700	21
Location Mean	**1356**		**498**		**1478**		**875**		**805**		**3143**	
S.E. of Mean	100.67		57.66		182.22		66.86		49.00		169.90	
LSD at 5%	-		162.63		-		188.60		138.22		476.44	
C.V. %	14.85		23.16		24.66		15.28		12.17		10.75	
Error d.f.	69		69		69		69		69		69	
Significance	NS		*		NS		*		*		*	
Ent. > L. Check	-		0		-		0		1		12	

Cont'd. ...

Table 3.1.6. Cont'd. ...

	TUNISIA						TURKEY			
	El Ref		Oued Meliz		Ras Rajel		Adana		Ankara	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-73C	3069	18	1670	12	2996	8	2993	3	1685	8
FLIP 83-42C	3354	9	1597	14	3313	6	2924	5	1705	7
FLIP 83-99C	2983	19	1229	20	2529	13	2898	7	2018	2
FLIP 84-60C	3288	13	1437	19	2183	18	2681	15	1774	6
FLIP 84-68C	3222	14	1778	9	2371	16	2727	13	1327	15
FLIP 84-78C	2767	20	1667	13	1934	20	2832	11	1786	5
FLIP 84-81C	3375	8	2014	1	2847	10	2818	12	2089	1
FLIP 84-82C	3177	15	1917	6	2401	14	3550	1	1833	3
FLIP 84-91C	3306	12	1774	10	2252	17	2834	10	1821	4
FLIP 84-96C	3323	10	1587	16	4652	1	2955	4	1018	21
FLIP 84-126C	2356	23	951	22	2143	19	2250	21	1658	9
FLIP 84-146C	3455	6	1892	7	2588	12	2468	19	1589	14
FLIP 84-148C	3316	11	1580	17	2758	11	2582	17	961	22
FLIP 84-149C	3903	2	1923	4	4246	2	2697	14	1601	13
FLIP 84-155C	3444	7	1920	5	3670	4	2629	16	1119	19
FLIP 84-159C	3590	5	1733	11	3839	3	2919	6	1637	11
FLIP 84-161C	3146	16	1465	18	2926	9	2313	20	1298	16
FLIP 84-164C	3708	4	1976	2	3065	7	3465	2	1214	18
FLIP 84-167C	2663	21	983	21	297	24	1493	22	1283	17
FLIP 84-175C	2646	22	1590	15	1698	21	2877	8	1649	10
FLIP 84-181C	3073	17	882	23	615	23	1435	23	1089	20
FLIP 84-293C	3726	3	1948	3	2381	15	2524	18	1634	12
ILC 482	3910	1	1833	8	3651	5	2842	9	764	24
Local Check	1431	24	606	24	1012	22	151	24	893	23
Location Mean	**3176**		**1581**		**2599**		**2577**		**1477**	
S.E. of Mean	254.13		145.14		521.37		271.51		122.49	
LSD at 5%	716.84		409.42		1470.67		765.86		348.68	
C.V. %	16.00		18.36		40.13		21.07		14.37	
Error d.f.	69		69		69		69		46	
Significance	*		*		*		*		*	
Ent. > L. Check	23		20		13		23		17	

Cont'd. ...

Table 3.1.6. Cont'd. ...

Entry Name	TURKEY				ZAMBIA		Overall Mean (1)	
	Diyarbakir		Eskisehir		Chipata			
	Y	R	Y	R	Y	R	Y	R
FLIP 82-73C	1034	21	2045	10	753	17	1392	14
FLIP 83-42C	1182	17	2080	9	800	14	1421	11
FLIP 83-99C	1198	16	1738	23	676	19	1368	15
FLIP 84-60C	1063	19	1852	19	813	13	1494	4
FLIP 84-68C	1281	11	1760	22	1053	7	1363	16
FLIP 84-78C	1182	18	2203	4	509	24	1243	21
FLIP 84-81C	1344	9	1872	16	576	20	1345	18
FLIP 84-82C	1208	14	1859	17	909	10	1459	9
FLIP 84-91C	1292	10	1774	21	530	22	1393	13
FLIP 84-96C	1063	20	1856	18	1025	9	1471	8
FLIP 84-126C	969	24	1948	15	868	11	1230	22
FLIP 84-146C	1260	13	1970	13	1029	8	1477	7
FLIP 84-148C	1573	3	2092	6	1186	5	1486	6
FLIP 84-149C	1203	15	2217	3	1153	6	1525	3
FLIP 84-155C	1406	6	2085	7	1233	4	1575	2
FLIP 84-159C	1542	4	1958	14	745	18	1450	10
FLIP 84-161C	1015	22	1981	12	776	16	1360	16
FLIP 84-164C	1375	7	2247	1	783	15	1486	5
FLIP 84-167C	1281	12	2122	5	516	23	1179	23
FLIP 84-175C	1359	8	1823	20	553	21	1292	19
FLIP 84-181C	1645	2	1573	24	835	12	1253	20
FLIP 84-293C	1000	23	1995	11	1473	3	1398	12
ILC 482	1520	5	2082	8	1699	1	1576	1
Local Check	1661	1	2238	2	1633	2		
Location Mean	**1277**		**1974**		**922**			
S.E. of Mean	145.74		140.46		150.39			
LSD at 5%	411.10		396.22		424.23			
C.V. %	22.82		14.23		33.63			
Error d.f.	69		69		69			
Significance	*		NS		*			
Ent. > L. Check	0		0		0			

(1) Khroub is excluded from the overall mean, * = Significant at $P \leq 0.05$, NS = not significant.

Table 3.1.7. The five heaviest seed yielding entries at the individual locations in the CIYT-SP during 1986/87.

	ALGERIA		CHINA	COLOMBIA	ETHIOPIA		IRAN	IRAQ	JORDAN
Rank	Khroub	Sidi Bel-Abbes	Shanxi	Surbata	Debre Zeit-1	Debre Zeit-2	Karaj	Dohuk	Jubeiha
1	FLIP84-155C	FLIP81-293C	FLIP84- 82C	FLIP84-155C	Local Check	Local Check	FLIP84- 96C	FLIP84-148C	FLIP84-167C
2	FLIP84-149C	FLIP84-167C	FLIP82- 73C	FLIP84-164C	FLIP84- 60C	FLIP84-126C	FLIP84-148C	FLIP83- 99C	FLIP84- 60C
3	FLIP84- 60C	FLIP84-181C	FLIP84-155C	FLIP84- 60C	ILC 482	FLIP84- 60C	FLIP84-149C	FLIP84-155C	FLIP84-155C
4	FLIP84- 96C	FLIP84-161C	FLIP84-175C	FLIP82- 73C	FLIP83- 42C	FLIP84-161C	Local Check	FLIP84- 60C	FLIP81-293C
5	FLIP81-293C	FLIP84-148C	ILC 482	FLIP84-146C	FLIP84-161C	FLIP84-167C	FLIP84-146C	FLIP84-181C	FLIP84-148C

Cont'd 2/..

	LEBANON	PAKISTAN	PORTUGAL	SYRIA					
Rank	Terbol	Bahawalpur	Elvas	Al Ghab	Hama	Heimo	Idleb	Jindiross	Tel Hadya
1	FLIP84-181C	Local Check	FLIP84-181C	FLIP84-164C	Local Check	local Check	local Check	local Check	FLIP84- 81C
2	FLIP83- 99C	FLIP81-293C	FLIP83- 99C	FLIP84-155C	FLIP84-181C	ILC 482	FLIP84-155C	FLIP84-181C	FLIP83- 99C
3	FLIP84-167C	FLIP83- 42C	FLIP84- 96C	FLIP84- 96C	FLIP84-155C	FLIP84- 78C	FLIP84-181C	FLIP83- 99C	Local Check
4	FLIP83- 42C	FLIP84-155C	FLIP84-161C	FLIP84- 91C	FLIP84-167C	FLIP84-181C	FLIP84-146C	FLIP84-167C	FLIP84-159C
5	FLIP84-164C	FLIP82- 73C	FLIP84-146C	FLIP84-148C	FLIP84- 91C	FLIP84-164C	FLIP84- 68C	FLIP84- 96C	FLIP84- 91C

Cont'd 2/..

	TUNISIA				TURKEY				ZAMBIA
Rank	Beja	El Kef	Oued Meliz	Ras Rajel	Adana	Diyarbakir	Eskisehir	Hymana	Msekera
1	FLIP84-146C	ILC 482	FLIP84- 81C	FLIP84- 96C	FLIP84- 82C	Local Check	FLIP84-164C	FLIP84- 81C	ILC 482
2	ILC 482	FLIP84-149C	FLIP84-164C	FLIP84-149C	FLIP84-164C	FLIP84-181C	Local Check	FLIP83- 99C	Local Check
3	FLIP84-164C	FLIP81-293C	FLIP81-293C	FLIP84-159C	FLIP82- 73C	FLIP84-148C	FLIP84-149C	FLIP84- 82C	FLIP81-293C
4	FLIP84-149C	FLIP84-164C	FLIP84-149C	FLIP84-155C	FLIP84- 96C	FLIP84-159C	FLIP84- 78C	FLIP84- 91C	FLIP84-155C
5	FLIP84- 60C	FLIP84-159C	FLIP84-155C	ILC 482	FLIP83- 42C	ILC 482	FLIP84-167C	FLIP84- 78C	FLIP84-148C

The five heaviest seed yielders at each location are given in Table 3.1.7. The entry FLIP84-155C was among the top five at 12 locations and seemed more adaptable than others.

On the basis of average over two years among the four common entries during 1985/86 and 1986/87 (Table 3.1.8), ILC 482 ranked number 1 and was followed by FLIP83- 42C, FLIP83- 99C and FLIP82- 73C with respective seed yields of 1501, 1303, 1292 and 1279 kg/ha.

Table 3.1.8. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-Sp conducted during 1985/86 and 1986/87.

Entry Name	1985/86		1986/87		Mean	
	Y	R	Y	R	Y	R
FLIP 82- 73C	1122	4	1435	3	1279	4
FLIP 83- 42C	1127	3	1479	2	1303	2
FLIP 83- 99C	1155	2	1429	4	1292	3
ILC 482	1387	1	1614	1	1501	1

3.2. CHICKPEA INTERNATIONAL YIELD TRIAL-WINTER-MEDITERRANEAN REGION (CIYT-W-MR)

Material

The Chickpea International Yield Trial Winter Mediterranean Region (CIYT-W-MR) comprised 23 test entries and one local check to be supplied by the cooperator. Twenty two entries from these were the advanced breeding lines developed through hybridization at ICARDA. All these lines were selected on the basis of their superior performance at least once either in local, regional or international trials.

Methods and Management

The trial design was a randomized complete block with four replications. The suggested plot size was four rows, each 4 m long with an inter row spacing of 30 cm. Sixty two sets of trials were distributed to cooperators in 20 countries. Results were returned from 45 sets covering 16 countries. The agronomic practices employed at different locations are shown in Table 3.2.1.

Results and Discussion

The entry means for time to flowering, time to maturity, plant height and 100-seed weight at various locations are given in Tabels 3.2.2, 3.2.3, 3.2.4 and 3.2.5, respectively. The time taken to flowering was least at Quadah (83 days) and Guelma (84 days) in Algeria, Zememra in Morocco and Laxia in Cyprus (105 days). Papiona in Italy (191 days) and Toshevo in Bulgaria (208 days) were the locations where the entries took maximum time to flower. The entry means across locations for time to flowering ranged from 131 days for ILC 482, and 138 days for FLIP84- 85C. In general, early flowering locations were earlier in maturity (Table 3.2.4).

Table 3.2.1. Agronomic data for different locations in the CIYT-W-MR during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
ALGERIA	Guelma	NA	20.06.87		70		-	-	Rabat - 9
ALGERIA	Quadah	27.01.87	20.06.87		60		-	-	Sebdou
ALGERIA	Setif	NA	NA		100		-	Treflan	Rabat - 9
ALGERIA	Sidi Bel Abbes	16.02.87	05.06.87	15	90		-	Maloran, Kerb	Sebdou
BULGARIA	Toshevo	12.11.86	13.08.87	40	80		-	Aphalon, Gesagard	Stepnoj - 1
CYPRUS	Laxia	03.12.86	18.06.87	21	48		-	-	Local
FRANCE	Montboucher	03.12.86	20.07.87		100		-	Nitrofen, Neburon	Cascari
FRANCE	Montpellier	24.11.86	22.07.87		100		-	Nitrofen, Neburon	INRA - 199
ITALY	Catania	09.12.86	08.07.87	45	90		-	-	11 EN
ITALY	Papiona	14.11.86	14.07.87		100		-	Linuron	-
ITALY	Tarquinia	26.12.86	20.07.87	54	138		-	Nebutrin, Targa	La Molara
JORDAN	Marow	26.11.86	28.05.87	20	40		-	-	NA
JORDAN	Irbid	18.12.86	01.06.87	20	60		-	-	Jazaereo
LEBANON	Terbol	25.11.86	15.07.87		50		-	Bladex, Kerb	NA
LIBYA	El Safsaf	11.12.86	07.07.87	-			-	-	ILC 482
MOROCCO	Zememra	08.12.86	18.06.87	30	60		1	Systoate, Daconil	Local
PORTUGAL	Elvas	05.11.86	26.06.87		70		-	-	Chk - 256
SPAIN	Cordoba	11.12.86	24.07.87		84	42	-	-	Zegri
SPAIN	Granada	NA	NA	20	20		-	-	Pedrosillanos
SPAIN	Madrid	27.11.86	15.07.87	-			-	Prometryne	GEC - 38
SPAIN	Sevilla (Carmona)	19.11.86	15.07.87	-			-	Topogard	NA
SYRIA	Al Ghab	27.11.86	13.06.86	30	50		-	-	Local
SYRIA	Deir-ez-zor	02.12.86	20.06.87	-			-	-	-
SYRIA	Gelline	06.12.86	02.06.87				-	-	-
SYRIA	Hama	21.12.86	04.06.87	25	80		-	-	Local
SYRIA	Heimo	20.11.86	06.06.87		50		-	-	Local
SYRIA	Homs	16.12.86	04.06.87		50		-	-	NA
SYRIA	Idleb	02.12.86	20.07.87		50		-	-	NA
SYRIA	Izra'a	07.12.86	15.06.87	12	38		-	-	NA
SYRIA	Jindiress	01.12.86	11.06.87	30	50		-	-	F 82-150
SYRIA	Tel Hadya	01.12.86	09.06.87	30	50		-	Igran, Malathion	ILC 1929
TUNISIA	Beja	NA	NA	NA			NA		NA
TUNISIA	El Kef	NA	NA	NA			NA		NA
TUNISIA	Oued Meliz	NA	NA	NA			NA		NA
TUNISIA	Ras Rajel	NA	NA	NA			NA		NA
TURKEY	Adana (UAF)	20.11.86	19.06.87	30	50		-	-	NA
TURKEY	Adana (TAE)	10.12.86	16.06.87	NA			NA	NA	NA
TURKEY	Balikesin	29.01.87	10.07.87	30	60		-	Igran	ILC 195-2
TURKEY	Diyarbakir	20.11.86	22.06.87	40	60		-	-	ILC 482
TURKEY	Izmir (Menemen)	17.01.87	09.07.87	30	60		-	Igran	ILC 195-2

NA = Not available.

Table 3.2.2. Time to flowering (days) of entries at different locations in the CIYT-W-MR during 1986/87.

Entry Name	Pedigree	Origin	ALGERIA				BULGARIA
			Guelma	Quadah	Setif	Sidi Bel Abbes	Toshevo
FLIP 82-101C	X 79 TH 151/ILC 73XILC 897	ICARDA/ICRISAT	89	83	129	111	208
FLIP 82-161C	X 79 TH 216/ILC 202XILC 577	ICARDA/ICRISAT	87	84	129	111	209
FLIP 83-7C	X 80 TH 264/(ILC 480XILC 72)XILC 263	ICARDA/ICRISAT	89	87	130	114	210
FLIP 83-41C	X 79 TH 221/ILC 72XILC 1922	ICARDA/ICRISAT	85	83	127	113	207
FLIP 83-47C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	85	84	129	111	209
FLIP 83-48C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	89	82	129	111	210
FLIP 83-49C	X 80 TH 181/ILC 3279XILC 1108	ICARDA/ICRISAT	86	86	130	111	208
FLIP 83-71C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	87	83	130	111	210
FLIP 83-97C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	92	85	131	114	209
FLIP 83-98C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	77	82	128	104	208
FLIP 84-79C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	87	84	129	114	209
FLIP 84-80C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	86	80	129	107	208
FLIP 84-85C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	89	84	131	114	211
FLIP 84-92C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	87	86	135	114	209
FLIP 84-93C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	86	87	131	114	210
FLIP 84-99C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	86	84	125	111	208
FLIP 84-102C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	91	84	130	114	209
FLIP 84-109C	X 81 TH 44/ILC 1920XILC 187	ICARDA/ICRISAT	76	80	138	104	207
FLIP 84-144C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	75	83	128	111	207
FLIP 84-145C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	75	83	130	111	208
FLIP 84-158C	X 81 TH 247/ILC 482XILC 2956	ICARDA/ICRISAT	77	83	130	111	207
FLIP 81-293C	(Improved check)	ICARDA/ICRISAT	79	84	127	111	209
ILC 482	(Long term check)	Turkey	76	82	125	107	205
Local Check	–	–	78	82	139	104	209
Location Mean			**84**	**83**	**130**	**111**	**208**
S.E. of Mean			0.05	0.89	0.26	0.53	0.46
LSD at 5%			0.14	2.52	0.72	1.50	1.31
C.V. %			0.12	2.14	0.39	0.96	0.45
Error d.f.			69	69	69	69	69
Significance			*	*	*	*	*

Cont'd. ...

Table 3.2.2. Cont'd. ...

Entry Name	CYPRUS	FRANCE		ITALY			JORDAN		LEBANON	MOROCCO	PORTUGAL	SPAIN		SYRIA
	Laxia	Mont-boucher	Mont - pellier	Catania	Papiona	Tarqu-inia	Marow	Irbid	Terbol	Zememra	Elvas	Granada	Madrid	Al Ghab
FLIP 82-101C	109	168	168	150	191	133	133	124	147	106	153	156	153	132
FLIP 82-161C	105	166	168	148	189	130	130	123	145	106	150	156	149	128
FLIP 83-7C	106	170	168	151	188	132	130	131	148	106	155	155	152	131
FLIP 83-41C	106	166	168	152	189	133	130	123	147	106	152	153	152	127
FLIP 83-47C	105	169	168	150	188	132	129	125	147	106	152	154	152	130
FLIP 83-48C	107	168	168	148	189	132	132	125	147	106	152	154	154	131
FLIP 83-49C	107	167	168	151	189	132	132	125	148	106	149	154	148	130
FLIP 83-71C	106	169	168	148	192	133	129	128	148	106	147	153	154	131
FLIP 83-97C	106	168	168	149	190	134	132	125	150	101	155	155	153	131
FLIP 83-98C	102	165	168	147	188	128	129	122	141	101	153	150	155	122
FLIP 84-79C	109	167	168	149	189	133	131	125	147	106	153	156	150	131
FLIP 84-80C	107	167	168	148	188	132	130	125	147	106	152	151	154	131
FLIP 84-85C	109	170	168	153	194	139	131	125	151	106	152	151	155	132
FLIP 84-92C	108	167	168	150	188	133	130	124	147	106	157	154	150	131
FLIP 84-93C	106	169	168	150	189	133	129	125	149	106	160	152	156	132
FLIP 84-99C	105	165	168	147	189	133	130	125	145	101	150	152	148	122
FLIP 84-102C	105	170	168	149	194	131	132	124	148	101	156	156	147	131
FLIP 84-109C	104	165	166	146	184	122	130	123	143	101	148	154	150	122
FLIP 84-144C	105	162	161	147	189	129	130	123	141	101	149	156	149	121
FLIP 84-145C	102	168	161	146	190	125	129	122	143	106	148	153	148	121
FLIP 84-158C	105	167	168	149	187	129	128	122	147	115	152	158	152	123
FLIP 81-293C	103	167	168	147	187	129	126	123	145	106	148	153	155	130
ILC 482	99	158	161	146	206	125	131	122	139	101	142	156	150	117
Local Check	104	166	173	147	216	131	128	122	143	101	148	150	151	129
Location Mean	**105**	**167**	**167**	**149**	**191**	**131**	**130**	**124**	**146**	**105**	**151**	**154**	**151**	**128**
S.E. of Mean	1.10	0.59	0.36	0.84	0.70	0.77	1.68		0.50	0.03	2.40	0.26	0.91	0.52
LSD at 5%	3.09	1.68	1.01	2.36	1.97	2.18	-		1.41	0.07	7.77	0.73	2.55	1.47
C.V. %	2.08	0.71	0.43	1.13	0.73	1.18	2.58		0.68	0.05	3.17	0.34	1.20	0.82
Error d.f.	69	69	69	69	69	69	69		69	69	69	69	69	69
Significance	*	*	*	*	*	*	NS		*	*	*	*	*	*

Cont'd. ...

Table 3.2.2. Cont'd. ...

	SYRIA									TURKEY				
Entry Name	Deir-ez-zor	Hama	Heimo	Homs	Idleb	Izra'a	Gelline	Jindi-ress	Tel - Hadya	Adana U.A.F.	Adana T.A.E.	Diyar-bakir	Menemen	**Overall Mean**
FLIP 82-101C	130	124	157	124	147	134	129	141	121	111	139	167	111	137
FLIP 82-161C	125	120	155	122	143	133	127	138	121	110	139	166	109	135
FLIP 83-7C	129	124	158	123	142	134	130	140	120	111	139	167	111	137
FLIP 83-41C	126	123	156	124	143	136	130	139	120	111	140	168	110	136
FLIP 83-47C	127	123	157	123	147	136	129	143	123	110	141	166	109	136
FLIP 83-48C	127	123	157	124	150	132	130	142	123	110	139	167	109	136
FLIP 83-49C	129	124	157	123	145	132	130	139	121	110	140	167	110	136
FLIP 83-71C	130	123	157	123	145	131	130	141	122	111	140	167	111	136
FLIP 83-97C	128	125	159	125	150	135	131	144	123	110	139	168	112	137
FLIP 83-98C	126	118	155	123	142	129	126	134	116	110	141	166	109	133
FLIP 84-79C	128	123	157	124	151	136	129	145	122	111	139	167	111	137
FLIP 84-80C	126	124	155	123	144	131	128	142	119	112	140	166	109	135
FLIP 84-85C	131	124	158	124	151	137	132	144	127	111	139	170	112	138
FLIP 84-92C	128	124	156	123	149	134	130	144	122	111	140	167	110	137
FLIP 84-93C	128	123	156	124	145	135	129	142	122	110	140	167	111	137
FLIP 84-99C	125	122	156	122	141	129	128	137	119	110	139	167	109	134
FLIP 84-102C	126	124	157	124	145	131	130	140	120	110	139	167	110	136
FLIP 84-109C	126	114	153	122	142	128	126	135	114	110	139	165	108	133
FLIP 84-144C	124	115	155	119	139	128	126	131	115	110	139	167	109	132
FLIP 84-145C	124	114	155	119	138	129	127	132	115	110	139	165	109	133
FLIP 84-158C	125	118	155	123	142	130	127	138	119	110	140	166	110	135
FLIP 81-293C	126	119	155	122	144	131	128	136	118	110	139	168	109	134
ILC 482	122	114	150	115	132	125	125	129	113	110	137	164	108	131
Local Check	-	120	150	122	148	129	125	136	118	110	141	164	111	
Location Mean	**127**	**121**	**156**	**122**	**144**	**132**	**128**	**138**	**120**	**110**	**139**	**167**	**110**	
S.E. of Mean	0.68	0.61	0.69	0.20	1.67	0.92	0.61	0.83	0.74	0.44	0.67	0.82	0.70	
LSD at 5%	1.91	1.73	1.94	0.55	4.70	2.60	1.71	2.34	2.08	-	-	0.90	1.98	
C.V. %	1.07	1.01	0.88	0.32	2.31	1.40	0.94	1.19	1.24	0.79	0.96	0.38	1.28	
Error d.f.	66	69	69	69	69	69	69	69	69	69	69	69	69	
Significance	*	*	*	*	*	*	*	*	*	NS	NS	*	*	

* = Significant at P $\leq$ 0.05 , NS = not significant .

Table 3.2.3. Time to maturity (days) of entries at different locations in the CIYT-W-MR during 1986/87.

Entry Name	ALGERIA				BULGARIA	FRANCE	ITALY			JORDAN
	Guelma	Quadah	Setif	Sidi Bel Abbes	Toshevo	Montb-oucher	Catania	Papiona	Tarquinia	Marow
FLIP 82-101C	145	143	193	160	268	220	204	239	198	171
FLIP 82-161C	140	143	191	165	268	224	200	241	200	176
FLIP 83-7C	140	143	201	160	269	223	204	236	199	172
FLIP 83-41C	140	142	194	155	268	221	201	237	194	173
FLIP 83-47C	140	144	197	160	268	220	204	237	194	171
FLIP 83-48C	144	142	193	158	269	223	203	239	199	174
FLIP 83-49C	140	141	192	160	268	216	201	238	194	169
FLIP 83-71C	141	141	198	160	270	225	204	236	198	171
FLIP 83-97C	143	141	198	158	268	223	204	239	203	171
FLIP 83-98C	140	142	192	158	268	221	203	240	201	172
FLIP 84-79C	140	142	194	158	268	220	204	236	198	174
FLIP 84-80C	140	141	191	158	268	223	204	212	199	171
FLIP 84-85C	140	143	205	158	270	223	204	241	206	175
FLIP 84-92C	138	142	205	158	269	221	205	239	199	174
FLIP 84-93C	140	142	200	158	269	221	204	239	205	172
FLIP 84-99C	140	143	185	158	264	215	198	237	195	171
FLIP 84-102C	144	143	197	158	269	223	204	235	199	169
FLIP 84-109C	140	142	190	165	265	230	201	231	205	169
FLIP 84-144C	140	142	190	158	268	216	198	236	194	177
FLIP 84-145C	141	143	190	160	268	215	198	236	194	172
FLIP 84-158C	140	142	190	158	268	216	198	231	194	175
FLIP 81-293C	140	143	186	158	268	215	200	230	194	175
ILC 482	140	141	190	155	264	215	198	256	192	175
Local Check	140	142	203	158	266	215	200	268	197	173
Location Mean	**141**	**142**	**194**	**159**	**268**	**220**	**202**	**238**	**198**	**172**
S.E. of Mean	0.26	0.60	0.51	0.00	0.82	1.02	0.87	5.09	1.41	2.14
LSD at 5%	0.74	1.69	1.44	0.00	2.32	2.88	2.45	14.37	3.99	-
C.V. %	0.37	0.85	0.53	0.00	0.61	0.93	0.86	4.28	1.43	2.48
Error d.f.	69	69	69	69	69	69	69	69	69	69
Significance	*	*	*	*	*	*	*	*	*	NS

Cont'd. ...

Table 3.2.3. Cont'd. ...

Entry Name	JORDAN	LEBANON	MOROCCO	PORTUGAL	SPAIN		SYRIA			
	Irbid	Terbol	Zememra	Elvas	Cordoba	Madrid	Al Ghab	Deir-ez-zor	Hama	Heimo
FLIP 82-101C	159	199	156	214	213	202	173	177	167	186
FLIP 82-161C	158	198	154	214	217	201	175	175	165	185
FLIP 83-7C	163	198	156	214	216	213	176	177	167	185
FLIP 83-41C	159	199	156	214	213	202	171	173	165	186
FLIP 83-47C	160	197	156	214	218	203	174	178	167	187
FLIP 83-48C	160	198	156	214	215	208	175	176	167	186
FLIP 83-49C	160	196	153	214	212	198	174	173	166	186
FLIP 83-71C	162	196	154	214	215	208	174	176	167	186
FLIP 83-97C	161	201	156	214	218	218	174	175	167	188
FLIP 83-98C	157	197	156	214	215	205	175	177	167	186
FLIP 84-79C	160	199	156	214	216	211	175	178	168	187
FLIP 84-80C	160	198	156	214	213	213	174	178	166	186
FLIP 84-85C	160	199	156	214	215	213	176	177	167	187
FLIP 84-92C	159	199	156	214	215	199	176	178	166	187
FLIP 84-93C	160	199	161	214	216	216	176	178	167	186
FLIP 84-99C	160	195	154	214	214	202	170	174	163	186
FLIP 84-102C	159	198	156	214	218	203	174	177	167	187
FLIP 84-109C	159	196	152	214	218	199	173	175	165	182
FLIP 84-144C	159	196	154	214	213	202	169	176	165	184
FLIP 84-145C	157	195	154	214	215	199	173	175	165	185
FLIP 84-158C	157	195	156	214	215	208	172	175	165	184
FLIP 81-293C	159	195	153	214	213	205	171	173	164	182
ILC 482	157	195	150	214	213	201	167	174	162	181
Local Check	-	198	152	214	213	202	174	-	165	181
Location Mean	159	197	155	214	215	205	173	176	166	185
S.E. of Mean		0.47	0.03		0.19	1.18	0.65	1.17	0.49	0.66
LSD at 5%		1.33	0.07		0.55	3.33	1.83	3.31	1.37	1.85
C.V. %		0.48	0.03		0.18	1.15	0.75	1.33	0.59	0.71
Error d.f.		69	69		69	69	69	66	69	69
Significance		*	*		*	*	*	*	*	*

Cont'd. ...

Table 3.2.3. Cont'd. ...

Entry Name	SYRIA					TURKEY				Overall Mean
	Homs	Idleb	Izra'a	Gelline	Tel Hadya	Adana UAF	Adana TAE	Diyar-bakir	Menemen	
FLIP 82-101C	168	189	186	175	167	162	194	204	149	185
FLIP 82-161C	167	187	183	173	165	162	198	202	149	185
FLIP 83-7C	168	189	185	176	165	162	198	203	149	186
FLIP 83-41C	167	189	184	173	165	162	194	202	149	184
FLIP 83-47C	168	189	185	174	166	162	198	202	149	186
FLIP 83-48C	168	188	184	177	166	162	198	203	149	186
FLIP 83-49C	167	189	183	173	166	162	198	202	149	184
FLIP 83-71C	169	188	184	173	166	162	198	203	149	186
FLIP 83-97C	169	189	186	176	167	162	198	204	149	187
FLIP 83-98C	167	189	184	174	166	162	198	203	149	185
FLIP 84-79C	169	189	186	175	167	162	198	203	149	186
FLIP 84-80C	169	189	186	173	166	162	198	203	149	185
FLIP 84-85C	169	189	185	177	168	162	198	204	149	187
FLIP 84-92C	169	191	186	177	167	162	198	202	149	186
FLIP 84-93C	169	191	186	174	167	162	198	203	149	187
FLIP 84-99C	166	187	181	174	165	162	194	203	149	183
FLIP 84-102C	169	189	184	173	166	162	198	203	149	186
FLIP 84-109C	166	188	181	173	164	162	198	202	149	185
FLIP 84-144C	164	188	181	172	164	162	194	203	149	184
FLIP 84-145C	165	189	181	172	164	162	194	203	149	184
FLIP 84-158C	165	187	182	172	165	162	198	203	149	184
FLIP 81-293C	165	186	181	172	164	162	194	203	149	183
ILC 482	164	187	180	170	163	162	194	206	149	183
Local Check	168	190	183	172	165	162	198	203	149	
Location Mean	**167**	**189**	**183**	**174**	**165**	**162**	**197**	**203**	**149**	
S.E. of Mean	0.31	0.72	0.69	0.36	0.42		0.10	0.47		
LSD at 5%	0.88	1.79	1.94	1.00	1.18		0.29	1.34		
C.V. %	0.37	0.67	0.75	0.41	0.51		0.10	0.47		
Error d.f.	69	46	69	69	69		69	69		
Significance	*	*	*	*	*		*	*		

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.2.4. Plant height (cm) of entries at different locations in the CIYT-W-MR during 1986/87.

Entry Name	ALGERIA				BULGARIA	CYPRUS	FRANCE	ITALY		
	Guelma	Quadah	Setif	Sidi Bel Abbes	Toshevo	Laxia	Montb-oucher	Catania	Papiona	Tarquinia
FLIP 82-101C	70	26	44	36	57	52	11	57	47	49
FLIP 82-161C	70	22	35	34	54	46	11	54	48	45
FLIP 83-7C	68	30	48	37	66	55	13	59	57	57
FLIP 83-41C	70	26	39	39	55	55	11	56	52	52
FLIP 83-47C	67	29	36	31	53	41	13	53	50	49
FLIP 83-48C	70	26	35	35	54	48	11	51	50	53
FLIP 83-49C	67	31	37	39	56	49	12	55	51	55
FLIP 83-71C	60	25	37	31	52	45	13	53	47	51
FLIP 83-97C	63	28	40	36	61	54	11	57	53	52
FLIP 83-98C	60	25	37	33	54	47	12	56	53	51
FLIP 84-79C	80	28	36	30	44	41	11	48	46	50
FLIP 84-80C	80	29	35	31	53	42	11	49	51	50
FLIP 84-85C	65	29	47	37	57	49	13	57	51	49
FLIP 84-92C	72	26	38	35	55	42	12	52	50	53
FLIP 84-93C	68	28	37	35	61	45	11	51	51	52
FLIP 84-99C	80	27	48	40	45	55	11	55	47	47
FLIP 84-102C	63	30	40	35	53	47	11	55	51	54
FLIP 84-109C	65	25	39	30	50	41	11	54	49	50
FLIP 84-144C	80	33	37	34	51	47	11	53	47	46
FLIP 84-145C	82	29	37	35	54	49	11	55	52	50
FLIP 84-158C	67	27	34	34	52	45	10	53	48	45
FLIP 81-293C	63	24	38	37	48	51	10	56	46	51
ILC 482	75	30	34	34	33	43	10	51	55	40
Local Check	62	22	35	30	54	41	14	54	57	51
Location Mean	69	27	38	34	53	47	11	54	50	50
S.E. of Mean	0.00	2.08	0.31	1.16	3.57	2.37	1.06	1.88	1.95	1.60
LSD at 5%	0.00	-	0.87	3.26	10.07	4.90	-	5.29	5.50	4.52
C.V. %	0.00	15.26	1.61	6.72	13.49	7.15	18.68	6.95	7.76	6.43
Error d.f.	69	69	69	69	69	23	69	69	69	69
Significance	*	NS	*	*	*	*	NS	*	*	*

Cont'd. ...

Table 3.2.4. Cont'd. ...

	JORDAN		LEBANON	MOROCCO	PORTUGAL	SPAIN	SYRIA			
Entry Name	Marow	Irbid	Terbol	Zememra	Elvas	Madrid	Al Ghab	Deir-ez-zor	Hama	Heimo
FLIP 82-101C	69	47	55	44	81	53	61	54	51	44
FLIP 82-161C	64	45	52	46	76	59	66	42	48	45
FLIP 83-7C	65	42	63	53	87	65	68	48	60	59
FLIP 83-41C	70	47	60	48	86	52	68	51	53	52
FLIP 83-47C	60	40	50	44	74	46	60	46	49	44
FLIP 83-48C	59	44	49	44	71	48	60	36	51	45
FLIP 83-49C	67	35	54	44	82	55	63	48	51	47
FLIP 83-71C	60	27	49	45	77	49	61	41	51	46
FLIP 83-97C	70	43	50	46	77	47	59	43	48	44
FLIP 83-98C	61	42	52	50	79	54	64	44	53	45
FLIP 84-79C	60	35	45	46	69	45	61	41	46	43
FLIP 84-80C	62	40	50	43	73	52	59	44	45	46
FLIP 84-85C	68	55	55	48	85	55	65	43	55	51
FLIP 84-92C	59	40	51	49	73	45	63	45	50	49
FLIP 84-93C	58	45	52	45	80	55	62	38	50	46
FLIP 84-99C	70	43	58	50	79	56	65	53	55	51
FLIP 84-102C	63	42	49	50	77	52	64	44	49	44
FLIP 84-109C	65	40	46	43	71	49	58	44	46	42
FLIP 84-144C	56	45	48	42	73	49	55	37	51	44
FLIP 84-145C	56	50	52	43	78	55	63	43	54	48
FLIP 84-158C	60	55	52	44	76	57	61	46	51	47
FLIP 81-293C	63	45	53	45	75	49	65	35	53	48
ILC 482	59	30	50	46	73	56	54	39	48	41
Local Check	47	43	49	44	71	59	38	-	45	42
Location Mean	**62**		**52**	**46**	**77**	**53**	**61**	**43**	**50**	**46**
S.E. of Mean	2.99		1.40	2.46	2.14	2.03	1.75	3.27	1.45	1.25
LSD at 5%	8.43		3.95	-	6.03	5.72	4.93	9.24	4.10	3.53
C.V. %	9.63		5.42	10.74	5.58	7.72	5.75	15.05	5.76	5.41
Error d.f.	69		69	69	69	69	69	66	69	69
Significance	*		*	NS	*	*	*	*	*	*

Cont'd. ...

Table 3.2.4. Cont'd. ...

Entry Name	SYRIA						TURKEY					Overall Mean
	Homs	Idleb	Izra'a	Gelline	Jindiress	Tel - Hadya	Adana UAE	Adana TAE	Balikesin	Diyar-bakir	Menemen	
FLIP 82-101C	74	50	65	56	43	45	68	80	37	39	41	52
FLIP 82-161C	69	46	60	59	43	45	76	74	34	40	43	50
FLIP 83-7C	83	47	68	70	51	52	69	103	46	49	47	57
FLIP 83-41C	76	39	68	64	50	53	72	84	41	43	43	54
FLIP 83-47C	64	48	48	55	35	49	73	66	38	39	37	48
FLIP 83-48C	65	43	56	56	38	42	71	71	38	39	40	48
FLIP 83-49C	73	43	61	57	41	47	71	74	38	41	38	51
FLIP 83-71C	69	47	59	62	36	40	70	65	41	39	41	48
FLIP 83-97C	66	47	56	57	42	46	76	84	37	42	39	51
FLIP 83-98C	70	43	60	60	43	46	71	70	41	40	40	50
FLIP 84-79C	64	47	45	54	33	38	77	65	36	39	42	47
FLIP 84-80C	68	40	54	54	36	40	72	65	39	39	38	48
FLIP 84-85C	75	51	65	62	48	45	67	84	40	42	43	53
FLIP 84-92C	69	51	54	60	38	45	75	65	36	40	38	49
FLIP 84-93C	66	39	53	57	37	44	73	71	41	40	40	49
FLIP 84-99C	78	51	65	60	46	48	71	69	39	43	44	53
FLIP 84-102C	68	47	56	53	39	45	69	70	34	39	37	49
FLIP 84-109C	63	41	52	51	33	38	76	68	32	36	39	47
FLIP 84-144C	69	45	60	58	35	38	72	69	33	39	36	48
FLIP 84-145C	71	45	58	63	38	41	70	73	36	40	39	51
FLIP 84-158C	68	44	61	61	36	42	73	68	34	40	43	49
FLIP 81-293C	71	46	58	51	42	44	77	70	34	40	42	49
ILC 482	66	41	56	56	33	35	73	66	32	38	38	46
Local Check	64	49	48	53	34	43	71	80	43	40	41	
Location Mean	**69**	**45**	**58**	**58**	**39**	**44**	**72**	**73**	**37**	**40**	**40**	
S.E. of Mean	1.56	3.33	2.03	2.13	1.62	1.52	2.47	4.13	2.01	1.38	1.93	
LSD at 5%	4.40	-	5.73	6.02	4.56	4.28	-	11.65	5.67	3.89	5.45	
C.V. %	4.50	12.69	7.06	7.38	8.19	6.92	6.83	11.32	10.74	6.88	9.59	
Error d.f.	69	46	69	69	69	69	69	69	69	69	69	
Significance	*	NS	*	*	*	*	NS	*	*	*	*	

* = Significant at $P \leq 0.05$,NS = not significant.

Table 3.2.5 100-Seed weight (g) of entries at different locations in the CIYT-W-MR during 1986/87.

	BULGARIA	CYPRUS	FRANCE	ITALY			JORDAN	LEBANON	PORTUGAL	SPAIN
Entry Name	Toshevo	Laxia	Montboucher	Catania	Papiona	Tarquinia	Irbid	Terbol	Elvas	Madrid
FLIP 82-101C	31	28	34	28	40	46	32	35	35	34
FLIP 82-161C	28	28	34	28	33	45	33	35	34	35
FLIP 83-7C	34	32	35	31	46	45	33	39	41	36
FLIP 83-41C	33	32	37	32	43	44	30	39	39	37
FLIP 83-47C	32	30	32	32	41	40	30	34	36	34
FLIP 83-48C	31	28	32	31	42	42	32	34	34	34
FLIP 83-49C	30	27	30	26	35	37	27	31	32	30
FLIP 83-71C	27	30	32	30	41	43	29	35	37	35
FLIP 83-97C	31	30	34	32	41	47	32	35	37	34
FLIP 83-98C	32	31	33	31	41	46	31	35	40	36
FLIP 84-79C	31	30	33	30	40	43	29	33	36	33
FLIP 84-80C	31	29	31	31	39	42	32	33	37	32
FLIP 84-85C	29	29	32	31	41	44	30	35	38	34
FLIP 84-92C	31	31	32	32	44	43	34	36	41	35
FLIP 84-93C	31	30	33	32	43	44	32	37	43	36
FLIP 84-99C	33	30	35	29	41	43	31	37	37	34
FLIP 84-102C	30	30	32	31	40	42	32	35	36	33
FLIP 84-109C	30	29	34	26	40	43	29	32	34	34
FLIP 84-144C	32	30	35	27	40	40	30	34	36	35
FLIP 84-145C	31	31	32	26	39	38	31	34	36	32
FLIP 84-158C	31	26	32	27	39	37	26	35	36	34
FLIP 81-293C	27	28	30	25	36	39	27	30	36	32
ILC 482	29	26	31	24	43	37	27	33	30	31
Local Check	24	28	31	34	45	50	22	39	50	23
Location Mean	**30**	**29**	**33**	**29**	**41**	**42**	**30**	**35**	**37**	**33**
S.E. of Mean	0.75	1.05	0.72	0.80	0.73	0.74		0.90	0.98	0.55
LSD at 5%	2.11	2.17	2.04	2.25	2.07	2.10		2.53	2.77	1.54
C.V. %	4.91	5.08	4.40	5.43	3.61	3.51		5.16	5.29	3.27
Error d.f.	69	23	69	69	69	69		69	69	69
Significance	*	*	*	*	*	*		*	*	*

Cont'd. ...

Table 3.2.5. Cont'd. ...

Entry Name	SYRIA					TURKEY				Overall Mean
	Heimo	Homs	Idleb	Jindiress	Tel Hadya	Adana UAF	Adana TAE	Balikesin	Menemen	
FLIP 82-101C	32	34	33	31	31	37	35	33	30	34
FLIP 82-161C	33	34	31	29	32	35	34	28	29	32
FLIP 83-7C	39	38	34	34	34	37	34	36	35	36
FLIP 83-41C	35	38	33	30	33	37	36	37	36	36
FLIP 83-47C	31	36	30	28	32	34	32	32	31	33
FLIP 83-48C	32	35	34	29	33	38	36	31	32	34
FLIP 83-49C	29	31	29	26	29	34	33	27	27	30
FLIP 83-71C	32	35	30	29	33	35	34	30	31	33
FLIP 83-97C	33	35	32	29	34	35	35	33	31	34
FLIP 83-98C	32	37	31	31	34	36	37	33	33	35
FLIP 84-79C	31	37	32	28	33	36	33	29	30	33
FLIP 84-80C	32	36	29	28	32	35	33	29	29	33
FLIP 84-85C	32	39	32	29	32	36	32	34	30	34
FLIP 84-92C	33	36	35	32	35	37	35	31	32	35
FLIP 84-93C	33	39	35	31	34	37	33	32	34	35
FLIP 84-99C	34	36	33	30	33	37	35	34	35	35
FLIP 84-102C	32	35	30	29	33	33	35	29	30	33
FLIP 84-109C	31	32	31	30	31	35	35	29	32	32
FLIP 84-144C	32	33	26	27	30	34	33	32	32	32
FLIP 84-145C	33	31	28	28	30	33	31	30	30	32
FLIP 84-158C	32	33	28	26	31	34	32	29	31	32
FLIP 81-293C	28	30	25	27	28	31	29	29	29	30
ILC 482	33	30	26	24	27	34	31	29	29	30
Local Check	32	38	26	25	28	44	27	25	24	
Location Mean	32	35	31	29	32	36	33	31	31	
S.E. of Mean	0.59	0.78	0.96	0.63	0.58	1.01		1.08	0.88	
LSD at 5%	1.66	2.19	2.71	1.77	1.64	2.84		3.05	2.49	
C.V. %	3.63	4.48	6.27	4.37	3.66	5.66		7.05	5.74	
Error d.f.	69	69	69	69	69	69		69	69	
Significance	*	*	*	*	*	*		*	*	

* = Significant at $P \leq 0.05$, NS = not significant

Table 3.2.6. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CIYT-W-MR during 1986/87.

	ALGERIA								BULGARIA		CYPRUS		FRANCE	
	Guelma		Quadah		Setif		Sidi Bel Abbes		Toshevo		Laxia		Montboucher	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-101C	2579	4	172	23	828	22	932	7	1107	8	1283	22	870	15
FLIP 82-161C	1954	10	284	17	1054	8	792	19	798	16	1242	23	866	17
FLIP 83-7C	1852	13	401	4	1016	11	750	21	690	22	1369	18	728	24
FLIP 83-41C	1238	19	132	24	1023	10	625	24	1250	5	1589	8	948	7
FLIP 83-47C	2207	7	382	5	880	21	818	17	1000	12	1632	6	891	13
FLIP 83-48C	2931	2	313	14	1111	5	917	8	1000	11	1464	12	819	21
FLIP 83-49C	1875	12	328	10	773	23	932	6	988	13	1452	13	926	10
FLIP 83-71C	2598	3	556	1	1078	6	875	14	536	24	1478	11	870	16
FLIP 83-97C	2148	8	281	18	918	18	766	20	643	23	1445	14	953	6
FLIP 83-98C	1704	16	276	20	1240	2	826	15	750	20	1888	1	855	18
FLIP 84-79C	2941	1	318	13	1153	4	792	18	774	18	1287	21	903	12
FLIP 84-80C	2556	5	427	3	1000	14	719	22	905	15	1333	20	851	20
FLIP 84-85C	906	22	270	21	979	15	818	16	690	21	1047	24	884	14
FLIP 84-92C	2285	6	293	15	905	19	693	23	1024	9	1422	17	1046	3
FLIP 84-93C	2117	9	326	11	1005	13	906	9	1012	10	1436	16	853	19
FLIP 84-99C	1783	14	481	2	943	16	875	13	1321	4	1342	19	945	8
FLIP 84-102C	1445	17	286	16	882	20	891	11	774	17	1523	10	939	9
FLIP 84-109C	1729	15	349	7	1036	9	1109	2	929	14	1735	4	813	22
FLIP 84-144C	803	23	280	19	1182	3	1099	3	1774	1	1774	3	975	5
FLIP 84-145C	1903	11	333	9	1262	1	1219	1	1214	7	1872	2	1053	1
FLIP 84-158C	1441	18	354	6	1059	7	1026	4	1464	3	1570	9	975	4
FLIP 81-293C	929	21	229	22	925	17	958	5	762	19	1596	7	799	23
ILC 482	1015	20	339	8	1014	12	896	10	1560	2	1633	5	910	11
Local Check	789	24	321	12	764	24	880	12	1238	6	1438	15	1047	2
Location Mean	**1822**		**322**		**1001**		**880**		**1008**		**1494**		**905**	
S.E. of Mean	356.92		82.67		100.70		110.47		190.54		140.20		44.64	
LSD at 5%	1003.97		-		284.06		-		537.48		395.47		125.92	
C.V. %	39.07		51.33		20.12		25.12		37.79		18.77		9.87	
Error d.f.	69		69		69		69		69		69		69	
Significance	*		NS		*		NS		*		*		*	
Ent. > L. Check	13		-		8		-		0		2		0	

Cont'd. ...

Table 3.2.6. Cont'd. ...

	FRANCE		ITALY						JORDAN				LEBANON	
	Montpellier		Catania		Papiona		Tarquinia		Marow		Irbid		Terbol	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-101C	2551	14	2460	8	2070	19	4742	12	968	21	289	14	1583	17
FLIP 82-161C	2477	19	2167	21	1649	23	4071	20	885	23	302	11	1429	22
FLIP 83-7C	2501	17	1905	24	2078	18	4226	19	958	22	200	21	1371	23
FLIP 83-41C	2390	23	2167	22	2160	16	4516	15	1529	5	302	12	1280	24
FLIP 83-47C	2457	21	2262	17	2407	6	5230	3	1338	14	213	20	1661	9
FLIP 83-48C	2908	5	2468	7	2168	14	3992	22	1412	10	461	5	1796	2
FLIP 83-49C	2468	20	2452	10	1885	22	4440	16	1382	12	144	23	1734	6
FLIP 83-71C	2539	15	2254	18	2000	20	5167	4	1046	18	92	24	1641	11
FLIP 83-97C	2680	10	2444	11	2187	13	5103	7	1480	7	224	18	1530	20
FLIP 83-98C	2314	24	2365	14	2236	9	5262	2	1354	13	176	22	1700	7
FLIP 84-79C	2480	18	2238	19	2165	15	4607	13	1525	6	251	17	1599	14
FLIP 84-80C	2442	22	2325	16	2197	11	4603	14	1098	16	221	19	1599	15
FLIP 84-85C	2677	11	2127	23	2218	10	3421	24	1432	8	395	7	1540	19
FLIP 84-92C	2598	12	2452	9	1977	21	5333	1	1662	2	363	8	1631	12
FLIP 84-93C	2518	16	2349	15	2694	1	5163	5	1387	11	396	6	1621	13
FLIP 84-99C	2791	8	2429	12	1607	24	3619	23	1613	4	268	16	1772	4
FLIP 84-102C	2553	13	2476	6	2190	12	5040	8	1742	1	636	2	1591	16
FLIP 84-109C	2906	6	2183	20	2414	5	4750	11	1615	3	343	10	1520	21
FLIP 84-144C	2864	7	2659	2	2432	4	5103	6	1250	15	349	9	1669	8
FLIP 84-145C	3363	1	2643	3	2085	17	4853	9	1076	17	482	4	1841	1
FLIP 84-158C	2966	4	2595	4	2508	2	4766	10	1419	9	669	1	1738	5
FLIP 81-293C	3068	3	2397	13	2306	8	4353	17	1023	19	299	13	1651	10
ILC 482	2776	9	2484	5	2325	7	4270	18	1005	20	278	15	1774	3
Local Check	3159	2	2786	1	2438	3	4024	21	505	24	504	3	1569	18
Location Mean	**2685**		**2379**		**2183**		**4611**		**1279**		**327**		**1618**	
S.E. of Mean	163.60		136.45		158.15		334.32		304.91		18.39		57.62	
LSD at 5%	461.49		384.90		446.10		943.05		-		51.87		162.54	
C.V. %	12.19		11.47		14.49		14.50		47.67		11.23		7.12	
Error d.f.	69		69		69		69		69		69		69	
Significance	*		*		*		*		NS		*		*	
Ent. > L. Check	0		0		0		8		-		2		6	

Cont'd. ...

Table 3.2.6. Cont'd. ...

	LIBYA		MOROCCO		PORTUGAL		SPAIN							
	El Safasf		Zememra		Elvas		Cordoba		Granada		Madrid		Sevilla	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-101C	615	23	917	13	1642	22	2691	3	598	15	2194	19	2066	6
FLIP 82-161C	688	22	1142	4	1856	19	2688	4	693	3	2495	8	2117	5
FLIP 83-7C	892	17	833	15	1627	23	2106	20	610	12	2191	20	1699	15
FLIP 83-41C	486	24	591	21	1976	15	1684	24	587	17	1914	24	1389	21
FLIP 83-47C	1542	8	467	24	2158	6	1981	22	674	4	2125	22	1480	20
FLIP 83-48C	1920	2	983	9	2056	9	2466	12	654	5	2681	4	1965	8
FLIP 83-49C	1149	14	955	10	2005	12	2600	6	488	24	2369	12	1622	16
FLIP 83-71C	1264	12	953	11	2010	11	2506	10	640	7	2158	21	1556	19
FLIP 83-97C	1490	9	933	12	1910	18	2559	8	565	20	2023	23	1773	11
FLIP 83-98C	1045	16	547	23	1913	17	2156	19	568	19	2311	14	1241	24
FLIP 84-79C	1813	5	707	19	1855	20	2756	2	565	21	2437	10	1719	13
FLIP 84-80C	1601	6	553	22	1799	21	2481	11	603	14	2665	5	1262	23
FLIP 84-85C	1132	15	908	14	2013	10	2275	16	607	13	2491	9	2137	3
FLIP 84-92C	1858	3	1223	1	2273	4	2369	13	629	10	2277	15	1288	22
FLIP 84-93C	2007	1	732	17	1934	16	2588	7	640	8	2247	17	1723	12
FLIP 84-99C	830	19	1009	8	2002	13	1784	23	547	23	2414	11	1940	9
FLIP 84-102C	1462	11	715	18	2151	7	2506	9	561	22	2798	2	1607	17
FLIP 84-109C	1566	7	1027	6	1995	14	2350	15	590	16	2520	7	2211	1
FLIP 84-144C	1833	4	1150	3	2281	3	2609	5	772	1	2698	3	1582	18
FLIP 84-145C	1465	10	1013	7	2269	5	2353	14	635	9	2986	1	2184	2
FLIP 84-158C	1174	13	693	20	2066	8	2075	21	620	11	2337	13	2051	7
FLIP 81-293C	694	21	805	16	2349	2	2791	1	756	2	2270	16	1801	10
ILC 482	767	20	1128	5	2606	1	2269	17	650	6	2620	6	1716	14
Local Check	872	18	1218	2	1188	24	2244	18	579	18	2197	18	2118	4
Location Mean	**1257**		**883**		**1997**		**2370**		**618**		**2392**		**1760**	
S.E. of Mean	174.80		211.37		146.33		267.93		65.76		196.99		316.95	
LSD at 5%	493.07		-		412.78		-		-		556.67		-	
C.V. %	27.82		48.86		14.65		22.61		21.28		16.47		36.01	
Error d.f.	69		69		69		69		69		69		69	
Significance	*		NS		*		NS		NS		*		NS	
Ent. > L. Check	11		-		23		-		-		2		-	

Cont'd. ...

Table 3.2.6. Cont'd. ...

	SYRIA													
	Al Ghab		Deir-ez-zor		Hama		Heimo		Homs		Idleb		Izra'a	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-101C	2714	13	1556	11	1417	24	1478	20	2147	22	2343	14	1956	16
FLIP 82-161C	2718	11	1444	17	1448	23	1445	21	2263	20	2317	15	1837	21
FLIP 83-7C	2238	23	1190	22	1718	13	1436	22	2407	16	2065	22	1861	18
FLIP 83-41C	2214	24	1730	8	1536	21	1556	15	2690	4	2291	18	1762	22
FLIP 83-47C	2718	12	2389	1	1587	18	1677	9	2627	6	2486	3	1857	19
FLIP 83-48C	2702	14	1429	18	1671	15	1758	3	2362	18	2783	1	2179	5
FLIP 83-49C	2857	10	1873	3	1575	19	1420	23	2508	10	2349	13	2048	10
FLIP 83-71C	3171	2	1810	5	1980	2	1745	4	2486	11	2385	10	2067	9
FLIP 83-97C	3044	6	1270	21	1595	17	1575	14	2048	24	2448	6	1623	23
FLIP 83-98C	3119	4	1635	9	1750	10	1723	6	2337	19	2424	7	2071	8
FLIP 84-79C	3175	1	1556	12	1532	22	1575	13	2714	3	2370	12	1960	14
FLIP 84-80C	3151	3	1389	20	1742	11	1644	11	2629	5	2076	21	2210	4
FLIP 84-85C	2405	20	1167	23	1639	16	1493	18	2548	8	2422	8	1845	20
FLIP 84-92C	2996	8	1746	7	1548	20	1722	7	2417	15	2381	11	1944	17
FLIP 84-93C	3044	5	1508	14	1734	12	1882	1	2524	9	2304	16	2123	7
FLIP 84-99C	2365	21	1825	4	1817	5	1741	5	2575	7	2214	20	1956	15
FLIP 84-102C	3044	7	1389	19	1813	6	1778	2	2468	12	2584	2	2250	3
FLIP 84-109C	2663	15	1452	16	1798	8	1493	19	2222	21	2064	23	1988	13
FLIP 84-144C	2520	19	1619	10	1841	3	1576	12	3222	1	2292	17	2353	2
FLIP 84-145C	2587	18	1548	13	1810	7	1718	8	2389	17	2389	9	2163	6
FLIP 84-158C	2611	17	1770	6	1778	9	1511	17	2460	13	2257	19	2020	11
FLIP 81-293C	2933	9	1460	15	1837	4	1360	24	2427	14	2466	5	2000	12
ILC 482	2290	22	1897	2	2187	1	1657	10	2849	2	2482	4	2385	1
Local Check	2631	16	-	-	1687	14	1552	16	2083	23	1789	24	1532	24
Location Mean	**2746**		**1594**		**1710**		**1605**		**2475**		**2333**		**2000**	
S.E. of Mean	207.94		253.97		120.31		86.82		226.78		147.49		155.51	
LSD at 5%	586.54		-		339.37		244.89		-		416.04		438.67	
C.V. %	15.14		31.88		14.07		10.82		18.33		12.65		15.55	
Error d.f.	69		66		69		69		69		69		69	
Significance	*		NS		*		*		NS		*		*	
Ent. > L. Check	0		-		1		1		-		20		13	

Cont'd. ...

Table 3.2.6. Cont'd. ...

	SYRIA						TUNISIA							
	Gelline		Jindiress		Tel Hadya		Beja		El Kef		Oued Meliz		Ras Rajel	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-101C	1863	14	1367	5	1683	17	2769	17	2858	15	3254	10	2675	5
FLIP 82-161C	1792	16	1500	3	1554	23	3125	12	2677	20	2802	21	2387	6
FLIP 83-7C	1596	20	1261	16	1633	22	2681	21	3014	12	3016	18	225	20
FLIP 83-41C	1442	24	1240	18	1669	18	2525	22	2618	21	2444	23	-	-
FLIP 83-47C	2313	1	1288	14	1911	3	2700	20	3729	1	3365	9	837	14
FLIP 83-48C	2150	7	1513	2	1794	8	3275	9	3337	4	3643	3	1062	10
FLIP 83-49C	1918	12	1319	12	1780	10	2806	16	2778	18	3119	13	375	17
FLIP 83-71C	2033	8	1353	8	1873	5	3050	13	2882	14	3460	6	912	13
FLIP 83-97C	1933	11	1335	9	1637	20	2850	15	2833	16	3405	8	712	15
FLIP 83-98C	1971	10	1540	1	1764	12	2944	14	3108	9	3151	12	350	18
FLIP 84-79C	2150	6	1145	23	1829	7	3438	8	3240	6	3016	17	1687	9
FLIP 84-80C	1829	15	1079	24	1736	16	2750	18	2743	19	2873	20	612	16
FLIP 84-85C	1763	17	1256	17	1500	24	2519	23	2427	23	2952	19	2762	4
FLIP 84-92C	1983	9	1411	4	2105	1	3519	4	3280	5	3532	4	1812	8
FLIP 84-93C	1754	18	1329	10	1865	6	3706	1	3441	3	3246	11	325	19
FLIP 84-99C	1450	23	1236	19	1637	21	2744	19	3188	8	4024	1	3087	2
FLIP 84-102C	2208	4	1365	6	1756	13	3169	11	2611	22	3492	5	1025	11
FLIP 84-109C	2158	5	1357	7	1770	11	3531	3	2802	17	2698	22	2962	3
FLIP 84-144C	1575	21	1163	22	1738	15	3550	2	3191	7	3032	16	925	12
FLIP 84-145C	2279	3	1220	21	1667	19	3250	10	3556	2	3651	2	2162	7
FLIP 84-158C	1875	13	1284	15	1752	14	3481	7	3097	10	3460	7	3362	1
FLIP 81-293C	1567	22	1225	20	1792	9	3488	6	2951	13	3040	15	-	-
ILC 482	2296	2	1319	11	1927	2	3506	5	3063	11	3056	14	75	21
Local Check	1613	19	1310	13	1905	4	1950	24	1931	24	810	24	-	-
Location Mean	**1896**		**1309**		**1761**		**3055**		**2973**		**3106**		**1274**	
S.E. of Mean	194.92		136 .24		91.51		270.67		292.13		369.72			
LSD at 5%	547.00		-		258.12		763.50		824.04		1042.89			
C.V. %	20.45		20.82		10.39		17.72		19.65		24.81			
Error d.f.	69		69		69		69		69		69			
Significance	*		NS		*		*		*		*			
Ent. > L. Check	4		-		0		19		18		23			

Cont'd. ...

Table 3.2.6. Cont'd. ...

	TURKEY											
	Adana U.A.F.		Adana T.A.E.		Balikesin		Diyarbakir		Menemen		Overall Mean (1)	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-101C	2212	10	1910	19	972	16	2125	5	1283	17	1793	15
FLIP 82-161C	2124	16	1719	22	1300	3	1958	12	1425	10	1737	20
FLIP 83-7C	2064	19	1910	20	1017	14	2010	7	1694	3	1626	22
FLIP 83-41C	2710	1	1476	24	767	24	1552	24	1194	21	1580	23
FLIP 83-47C	2146	15	1927	18	904	21	2365	1	1200	20	1846	12
FLIP 83-48C	2688	2	2240	2	956	19	2010	9	1711	2	1944	2
FLIP 83-49C	2247	7	2049	9	1225	5	1729	22	1300	15	1756	17
FLIP 83-71C	2307	6	2066	8	867	22	2094	6	1756	1	1853	9
FLIP 83-97C	2059	20	1944	16	961	18	1979	10	1300	16	1765	16
FLIP 83-98C	2317	5	2014	11	1194	6	2010	8	1603	5	1794	14
FLIP 84-79C	2242	8	2361	1	972	17	1969	11	1689	4	1888	6
FLIP 84-80C	1892	22	1979	14	1058	13	1927	13	1000	24	1739	19
FLIP 84-85C	2224	9	2118	5	1150	8	1823	20	1167	22	1704	21
FLIP 84-92C	2106	18	2014	10	994	15	1823	19	1406	11	1908	5
FLIP 84-93C	2169	14	1997	12	1150	9	1792	21	1303	14	1871	8
FLIP 84-99C	2414	3	1840	21	1161	7	1885	14	1367	12	1821	13
FLIP 84-102C	2198	11	2170	3	906	20	1875	15	1100	23	1849	10
FLIP 84-109C	2378	4	1927	17	1117	10	1573	23	1483	9	1878	7
FLIP 84-144C	1866	23	1962	15	1317	2	2229	3	1494	8	1915	4
FLIP 84-145C	2179	12	2101	6	1083	12	2188	4	1494	7	1988	1
FLIP 84-158C	2056	21	2153	4	1094	11	1844	18	1317	13	1919	3
FLIP 81-293C	2108	17	1979	13	856	23	1875	16	1578	6	1742	18
ILC 482	2170	13	2101	7	1467	1	1865	17	1222	19	1846	11
Local Check	1242	24	1649	23	1280	4	2323	2	1244	18		
Location Mean	**2172**		**1984**		**1074**		**1951**		**1389**			
S.E. of Mean	219.76		130.93		151.92		178.73		188.26			
LSD at 5%	-		369.33		-		-		-			
C.V. %	20.24		13.20		28.30		18.32		27.11			
Error d.f.	69		69		69		69		69			
Significance	NS		*		NS		NS		NS			
Ent. > L. Check	-		9		-		-		-			

(1) Ras Rajel is excluded from the overall mean, * = Significant at $P < 0.05$, NS = not significant.

Table 3.2.7. The five heaviest seed yielding entries at the individual locations in the CIYT-W-MR during 1986/87.

	ALGERIA				BULGARIA	CYPRUS	FRANCE		ITALY	
Rank	Guelma	Quadah	Setif	Sidi Bel Abbes	Toshevo	Laxia	Montboucher	Montpellier	Catania	Papiona
1	FLIP84- 79C	FLIP83- 71C	FLIP84-145C	FLIP84-145C	FLIP84-144C	FLIP83- 98C	FLIP84-145C	FLIP84-145C	Local Check	FLIP84- 93C
2	FLIP83- 48C	FLIP84- 99C	FLIP83- 98C	FLIP84-109C	ILC 482	FLIP84-145C	Local Check	Local Check	FLIP84-144C	FLIP84-158C
3	FLIP83- 71C	FLIP84- 80C	FLIP84-144C	FLIP84-144C	FLIP84-158C	FLIP84-144C	FLIP84- 92C	FLIP81-293C	FLIP84-145C	Local Check
4	FLIP82-101C	FLIP83- 7C	FLIP84- 79C	FLIP84-158C	FLIP84- 99C	FLIP84-109C	FLIP84-158C	FLIP84-158C	FLIP84-158C	FLIP84-144C
5	FLIP84- 80C	FLIP83- 47C	FLIP83- 48C	FLIP81-293C	FLIP83- 41C	ILC 482	FLIP84-144C	FLIP83- 48C	ILC 482	FLIP84-109C

Cont'd 2/..

	ITALY	JORDAN		LEBANON	LIBYA	MOROCCO	PORTUGAL	SPAIN		
Rank	Tarquinia	Marow	Irbid	Terbol	El Safsaf	Zemamra	Elvas	Cordoba	Granada	Madrid
1	FLIP84- 92C	FLIP84-102C	Local Check	FLIP84-145C	FLIP84- 93C	FLIP84- 92C	ILC 482	FLIP81-293C	FLIP84-144C	FLIP84-145C
2	FLIP83- 98C	FLIP84- 92C	FLIP84-102C	FLIP83- 48C	FLIP83- 48C	Local Check	FLIP81-293C	FLIP84- 79C	FLIP81-293C	FLIP84-102C
3	FLIP83- 47C	FLIP84-109C	FLIP84-158C	ILC 482	FLIP84- 92C	FLIP84-144C	FLIP84-144C	FLIP82-101C	FLIP82-161C	FLIP84-144C
4	FLIP83- 71C	FLIP84- 99C	FLIP84-145C	FLIP84- 99C	FLIP84-144C	FLIP82-161C	FLIP84- 92C	FLIP82-161C	FLIP83- 47C	FLIP83- 48C
5	FLIP84- 93C	FLIP83- 41C	FLIP83- 48C	FLIP84-158C	FLIP84- 79C	ILC 482	FLIP84-145C	FLIP84-144C	FLIP83- 48C	FLIP84- 80C

Cont'd 2/..

	SPAIN	SYRIA								
Rank	Sevilla	Al Ghab	Deir-ez-zor	Gelline	Hama	Heimo	Homs	Idleb	Izra'a	Jindiress
1	FLIP84-109C	FLIP84- 79C	FLIP83- 47C	FLIP83- 47C	ILC 482	FLIP84- 93C	FLIP84-144C	FLIP83- 48C	ILC 482	FLIP83- 98C
2	FLIP84-145C	FLIP83- 71C	ILC 482	ILC 482	FLIP83- 71C	FLIP84-102C	ILC 482	FLIP84-102C	FLIP84-144C	FLIP83- 48C
3	FLIP84- 85C	FLIP84- 80C	FLIP83- 49C	FLIP84-145C	FLIP84-144C	FLIP83- 48C	FLIP84- 79C	FLIP83- 47C	FLIP84-102C	FLIP82-161C
4	Local Check	FLIP83- 98C	FLIP84- 99C	FLIP84-102C	FLIP81-293C	FLIP83- 71C	FLIP83- 41C	ILC 482	FLIP84- 80C	FLIP84- 92C
5	FLIP82-161C	FLIP84- 93C	FLIP83- 71C	FLIP84-109C	FLIP84- 99C	FLIP84- 99C	FLIP84- 80C	FLIP81-293C	FLIP83- 48C	FLIP82-101C

Cont'd 2/..

	SYRIA	TUNISIA				TURKEY				
Rank	Tel Hadya	Beja	El Kef	Oued Meliz	Ras Rajel	Adana (UAF)	Adana (TAE)	Balikesin	Diyarbakir	Izmir
1	FLIP84- 92C	FLIP84- 93C	FLIP83- 47C	FLIP84- 99C	FLIP84-158C	FLIP83- 41C	FLIP84- 79C	ILC 482	FLIP83- 47C	FLIP83- 71C
2	ILC 482	FLIP84-144C	FLIP84-145C	FLIP84-145C	FLIP84- 99C	FLIP83- 48C	FLIP83- 48C	FLIP84-144C	Local Check	FLIP83- 48C
3	FLIP83- 47C	FLIP84-109C	FLIP84- 93C	FLIP83- 48C	FLIP84-109C	FLIP84- 99C	FLIP84-102C	FLIP82-161C	FLIP84-144C	FLIP83- 7C
4	Local Check	FLIP84- 92C	FLIP83- 48C	FLIP84- 92C	FLIP84- 85C	FLIP84-109C	FLIP84-158C	Local Check	FLIP84-145C	FLIP84- 79C
5	FLIP83- 71C	ILC 482	FLIP84- 92C	FLIP84-102C	FLIP82-101C	FLIP83- 98C	FLIP84- 85C	FLIP83- 49C	FLIP82-101C	FLIP83- 98C

The plant height varied from 46 cm for ILC 482 to 57 cm for FLIP83- 7C. The entries were tallest at Elvas in Portugal (77 cm) and Adana in Turkey (72-73 cm), and shortest at Montboucher in France (11 cm), and Quadah in Algeria (27 cm).

The location means for 100-seed weight varied from 29g for Laxia (Cyprus), Catania (Italy) and Jindiress in (Syria) to 41-42 g for Papiona and Tarquinia (Italy). The range in average 100-seed weight for entries was between 30 and 36 g, and the entries FLIP83- 7C and FLIP83- 41C had the largest seed size.

The seed yield and the rank of entries at each location are given in Table 3.2.6. The seed yield varied from 322 kg/ha at Quadah (Algeria) to 4611 kg/ha at Tarquinia (Italy). The CV was very high at Quadah in Algeria (51%) and was closely followed by Zememra in Morocco (49 %), Marow in Jordan (48%), Guelma in Algeria (39%), Toshevo in Bulgaria (38%), Sevilla in Spain (36%) and Deir-ez-zor in Syria (32%). At other locations, it was comparatively lower.

The ANOVA for seed yield revealed that at 18 locations some of the test entries exceeded the respective local check by a significant margin. Across locations, the highest yield was recorded for FLIP84-145C (1988 kg/ha) which was closely followed by FLIP83- 48C, FLIP84-158C, FLIP84-144C and FLIP84-92C with respective yields of 1944, 1919, 1915 and 1908 kg/ha. The top five yielding lines at each location are given in Table 3.1.7. Among these lines FLIP84-144C occured most frequently among the top five (20 times) and was closely followed by FLIP83- 48C (17 times), FLIP84-145C (16 times) and ILC 482 (15 times). Theses lines were thus comparatively more adaptable.

On the basis of average over two years for the 11 common entries (Table 3.2.8), FLIP83- 48C (2106 kg/ha) ranked number 1 in seed yield and was closely followed by FLIP83- 47C (2067 kg/ha) and ILC 482 (2039 kg/ha).

Table 3.2.8. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-W-MR during 1985/86 and 1986/87.

Entry Name	1985/86		1986/87		Mean	
	Y	R	Y	R	Y	R
FLIP 82-101C	1793	6	2042	8	1918	8
FLIP 83- 7C	1626	10	2012	10	1819	10
FLIP 83- 41C	1580	11	1944	11	1762	11
FLIP 83- 47C	1846	4	2288	1	2067	2
FLIP 83- 48C	1944	1	2268	2	2106	1
FLIP 83- 49C	1756	8	2137	7	1947	6
FLIP 83- 71C	1853	2	2200	4	2027	4
FLIP 83- 97C	1765	7	2018	9	1892	9
FLIP 83- 98C	1794	5	2152	5	1973	5
FLIP 81-293C	1742	9	2149	6	1946	7
ILC 482	1846	3	2232	3	2039	3

3.3. CHICKPEA INTERNATIONAL YIELD TRIAL-WINTER SUB TROPICAL REGION (CIYT-W-STR)

Material

The material for the Chickpea International Yield Trial-Winter Sub Tropical Region comprised 23 test entries, and one local check to be supplied by the cooperators. The test entries were resistant to ascochyta blight and were selected from the local and regional yield trials based on their superior yield performance. Out of these 23 test entries, 22 were developed through hybridization at ICARDA.

Methods and Management

The trial design was a randomized complete block with four replications. The suggested plot size was four rows each 4 m long with an inter- and intra row spacing of 30- and 10 cm, respectively.

Thirty two sets of trial were distributed to cooperators in 12 countries and the result were returned from 19 sets covering 7 countries. The agronomic practices employed at different locations are shown in Table 3.3.1.

Results and Discussion

Mean for time to flowering, time to maturity, plant height, and 100-seed weight are compiled in Tables 3.3.2, 3.3.3, 3.3.4 and 3.3.5, respectively. Time to flowering ranged from 89 days for ILC 482 to 96 days for FLIP81- 29W and FLIP84-133C. The location means for time to flowering varied from 59 days at Debre Zeit in Ethiopia to 129 days at Jindiress in Syria. The locations which flowered earlier were also earlier in maturity. The time to maturity ranged from 146 days to 151 days. The entry FLIP84-185C matured earliest in 146 days and was closely followed by ILC 482, FLIP81- 26W, FLIP84- 67C and FLIP84- 75C maturing in 148 days.

The plant height data revealed that the entry FLIP84- 67C (67cm) was the tallest and was followed by FLIP82-115C and FLIP84- 56C (64 cm). Among the locations, the entries were tallest at Chakwal (79 cm) and Faisalabd (80cm) in Pakistan. The 100-seed weight for entries varied from 23 g for FLIP81- 26W to 31 g for FLIP84- 62C, and for locations from 22 g for Shandaweel in Egypt to 37 g for Chakwal in Pakistan.

The mean seed yield at different locations (Table 3.3.6) revealed that highest seed yield per hactare was obtained at El Kef (4613 kg/ha) in Tunisia and was followed by Beja (2928 kg/ha) in Tunisia. The seed yield at locations in Faisalabad, Karak and Serai Nawrang in Pakistan ranged from 401 to 533 kg/ha. The coefficient of variation at five of the seven Pakistan locations was between 44.70 to 107.69 percent. The ANOVA of the seed yield revealed that 6, 5, 15, 2 and 23 entries, respectively, at Chakwal and Faisalabad-1 in Pakistan; and Beja, El Kef and Oued Meliz in Tunisia out-yielded the respective local check by a significant margin. The five heaviest yielders at different locations are given in Table 3.3.7. Two entries namely ILC 482 and FLIP84-163C occured most frequently among the top five heaviest yielders and were comparatively more stable.

Table 3.3.1. Agronomic data for different locations in the CIYT-W-STR during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman	15.04.87	30.08.87	30	60		7	-	Labnon L.
EGYPT	Shandaweel	09.12.86	10.05.87	15	30		NA	NA	NA
ETHIOPIA	Debre Zeit-1	22.07.87	12.11.87	-			-	-	Dubic
ETHIOPIA	Debre Zeit-2	05.08.87	15.12.87	-			-	-	Dubic
PAKISTAN	Bahawalpur	10.11.86	07.04.87	25	62		3	-	PB.1
PAKISTAN	Chakwal	08.10.86	11.05.87	35	70		-	-	C - 235
PAKISTAN	Faisalabad -1 (AARI)	17.11.86	26.04.87	27	91		1	BHC	PB.1
PAKISTAN	Faisalabad -2 (NIAB)	19.11.86	14.05.87	25	60		1	Nuvacron	CM 72
PAKISTAN	Faisalabad -3 (UAF)	03.11.86	22.04.87	40	16		-	-	CM 72
PAKISTAN	Karak	12.10.86	25.04.87		50		-	-	CM 72
PAKISTAN	Sarai Nawrang	21.10.86	17.04.87	20	50		1	-	ILC 195
SPAIN	Cordoba	12.11.86	24.07.87		84	42	-	-	ZEGRI
SYRIA	Jindiress	07.12.86	11.06.87	-			-	-	FLIP82-150C
SYRIA	Tel Hadya	01.12.86	09.06.87	30	50		-	Igran, Malathion	ILC 1929
TUNISIA	Beja	NA					NA		NA
TUNISIA	El Kef	NA					NA		NA
TUNISIA	Oued Meliz	NA					NA		NA
TURKEY	Adana	20.11.86	18.06.87	30	50		-	-	NA

NA = Not available.

Table 3.3.2. Time to flowering (days) of entries at different locations in the CIYT-W-STR during 1986/87.

Entry Name	Pedigree	Origin	AFGHANISTAN	EGYPT	ETHIOPIA
			Darul Aman	Shandaweel	Debre Zeit-1
FLIP 81-26W	X 79 TH 50/ILC 262XILC 783	ICARDA/ICRISAT	77	75	58
FLIP 81-29W	X 79 TH 25/ILC 262XILC 194	ICARDA/ICRISAT	74	90	67
FLIP 82-104C	X 79 TH 101/ILC 523XILC 183	ICARDA/ICRISAT	71	76	60
FLIP 82-115C	X 80 TH 199/ILC 3279XICC 78184	ICARDA/ICRISAT	71	77	61
FLIP 82-127C	X 79 TH 8/ILC 191XILC 496	ICARDA/ICRISAT	77	77	69
FLIP 83-22C	X 80 TH 177/ILC 195XILC 482	ICARDA/ICRISAT	77	74	65
FLIP 83-73C	X 80 TH 177/ILC 195XILC 482	ICARDA/ICRISAT	73	75	63
FLIP 84-56C	X 81 TH 234/ILC 482XILC 72	ICARDA/ICRISAT	72	73	61
FLIP 84-62C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	68	75	57
FLIP 84-64C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	73	86	61
FLIP 84-67C	X 79 TH 219/ILC 201XILC 3279	ICARDA/ICRISAT	75	75	58
FLIP 84-75C	X 80 TH 264/(ILC 480XILC 72)XILC 263	ICARDA/ICRISAT	65	77	60
FLIP 84-87C	X 80 TH 176/ILC 176XILC 215	ICARDA/ICRISAT	73	73	63
FLIP 84-112C	X 81 TH 53/ILC 1920XILC 2506	ICARDA/ICRISAT	70	75	63
FLIP 84-133C	X 81 TH 127/ILC 202XILC 262	ICARDA/ICRISAT	73	87	69
FLIP 84-148C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	70	76	66
FLIP 84-161C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	70	73	67
FLIP 84-163C	X 81 TH 113/ILC 191XILC 484	ICARDA/ICRISAT	72	75	70
FLIP 84-178C	X 80 TH 113/ILC 192XILC 202	ICARDA/ICRISAT	75	76	60
FLIP 84-185C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	74	71	56
FLIP 84-188C	X 81 TH 48/ILC 1920XILC 201	ICARDA/ICRISAT	69	78	61
FLIP 81-293C	(Improved check)	ICARDA/ICRISAT	71	85	69
ILC 482	(long term check)	TURKEY	76	68	57
Local Check	(local check)	-	74	71	49
Location Mean			72	76	62
S.E. of Mean			3.06	0.29	1.72
LSD at 5%			-	0.81	3.56
C.V. %			8.46	0.75	3.94
Error d.f.			69	69	23
Significance			NS	*	*

Cont'd. ...

Table 3.3.2. Cont'd. ...

Entry Name	ETHIOPIA	PAKISTAN				SYRIA		TURKEY	(1) Overall Mean
	Debre Zeit-2	Chakwal	Faisalabad (UAF)	Karak	Serai Naurang	Jindiress	Tel Hadya	Adana	
FLIP 81-26W	58	107	85	108	89	128	114	110	92
FLIP 81-29W	63	106	89	113	89	135	120	112	96
FLIP 82-104C	61	107	85	109	83	128	116	110	91
FLIP 82-115C	59	107	84	110	82	130	117	111	92
FLIP 82-127C	66	106	91	111	92	131	118	110	95
FLIP 83-22C	62	107	84	107	84	127	115	110	92
FLIP 83-73C	63	108	85	110	90	128	116	110	93
FLIP 84-56C	61	110	88	108	92	129	119	112	93
FLIP 84-62C	57	108	85	109	91	127	115	110	91
FLIP 84-64C	58	108	88	110	93	129	117	112	94
FLIP 84-67C	49	107	79	110	78	131	119	107	90
FLIP 84-75C	57	111	85	110	88	128	117	110	92
FLIP 84-87C	63	107	85	110	87	127	115	110	92
FLIP 84-112C	61	107	87	112	89	129	116	110	93
FLIP 84-133C	62	107	89	114	88	132	118	111	96
FLIP 84-148C	63	108	88	109	89	127	116	110	93
FLIP 84-161C	60	107	86	110	83	129	116	110	92
FLIP 84-163C	65	109	87	115	89	128	114	110	94
FLIP 84-178C	59	107	87	108	88	128	116	110	92
FLIP 84-185C	49	108	77	104	71	123	113	110	87
FLIP 84-188C	58	108	85	113	-	130	118	111	92
FLIP 81-293C	64	110	90	112	88	133	116	110	95
ILC 482	53	112	79	107	83	122	113	110	89
Local Check	40	110	85	94	88	128	118	110	
Location Mean	**59**	**108**	**85**	**109**	**87**	**129**	**116**	**110**	
S.E. of Mean	1.14	1.35	0.72	1.47	3.24	0.40	0.54	0.84	
LSD at 5%	2.35	-	2.04	4.13	9.14	1.13	1.52	-	
C.V. %	2.74	2.50	1.69	2.68	7.47	0.62	0.92	1.52	
Error d.f.	23	69	69	69	66	69	69	69	
Significance	*	NS	*	*	*	*	*	NS	

(1) Serai Naurang is excluded from overall mean, * = Significant at $P \leq 0.05$,NS = not significant.

Table 3.3.3. Time to maturity (days) of entries at different locations in the CIYT-STR during 1986/87.

Entry Name	AFGHANISTAN	EGYPT	ETHIOPIA		PAKISTAN				SYRIA	Overall Mean
	Darul Aman	Shand-aweel	Debre Zeit-1	Debre Zeit-2	Chakwal	Fisal-abad-2	Fisal-abad-1	Karak	Tel - Hadya	
FLIP 81-26W	116	145	109	114	198	148	154	188	163	148
FLIP 81-29W	120	147	120	119	199	138	153	190	164	150
FLIP 82-104C	120	142	122	118	200	141	155	188	164	150
FLIP 82-115C	124	145	112	117	200	148	154	188	166	150
FLIP 82-127C	121	142	116	120	199	149	154	190	165	151
FLIP 83-22C	122	143	119	118	200	145	155	189	165	151
FLIP 83-73C	121	146	114	119	199	149	155	189	164	151
FLIP 84-56C	119	142	123	118	201	142	156	189	166	150
FLIP 84-62C	120	142	116	117	201	143	153	189	165	149
FLIP 84-64C	117	146	122	122	198	148	153	189	164	151
FLIP 84-67C	120	142	106	109	201	142	155	189	166	148
FLIP 84-75C	117	141	113	115	202	145	153	187	164	148
FLIP 84-87C	119	140	119	115	200	142	155	188	164	149
FLIP 84-112C	123	141	110	112	200	148	155	187	163	149
FLIP 84-133C	114	147	115	121	199	145	153	186	164	149
FLIP 84-148C	121	147	115	117	201	147	155	189	165	151
FLIP 84-161C	119	142	122	117	200	150	156	188	164	151
FLIP 84-163C	116	143	127	118	199	146	153	188	163	150
FLIP 84-178C	119	146	120	115	200	145	156	188	165	150
FLIP 84-185C	123	140	108	104	200	138	153	188	164	146
FLIP 84-188C	119	146	109	119	200	152	154	189	163	150
FLIP 81-293C	118	147	116	117	201	148	154	188	164	150
ILC 482	121	141	107	112	203	140	153	189	164	148
Local Check	122	144	90	90	201	142	154	180	165	
Location Mean	**120**	**144**	**114**	**115**	**200**	**145**	**154**	**188**	**164**	
S.E. of Mean	1.96	0.59	2.53	3.10	1.17	3.17	0.59	0.90	0.55	
LSD at 5%	-	1.67	5.23	6.41	-	-	1.68	2.54	1.55	
C.V. %	3.28	0.83	3.12	3.81	1.17	4.38	0.77	1.96	0.67	
Error d.f.	69	69	23	23	69	69	69	69	69	
Significance	NS	*	*	*	NS	NS	*	*	*	

* = Significant at $P \leq 0.05$, NS = not signififcant.

Table 3.3.4. Plant height (cm) of entries at different locations in the CIYT-W-STR during 1986/87.

Entry Name	AFGHANISTAN	EGYPT	ETHIOPIA		PAKISTAN			SYRIA		TURKEY	Overall Mean
	Darul Aman	Shand-aweel	Debre Zeit-1	Debre Zeit-2	Chakwal	Faisal-abad-1	Karak	Jind-iress	Tel Hadya	Adana	
FLIP 81-26W	26	69	50	50	77	78	61	33	41	77	56
FLIP 81-29W	23	73	56	46	86	75	64	34	41	77	57
FLIP 82-104C	30	71	54	48	80	87	61	41	44	74	59
FLIP 82-115C	39	88	50	48	84	85	76	45	51	72	64
FLIP 82-127C	34	76	55	54	80	82	72	43	48	72	62
FLIP 83-22C	31	69	53	52	85	89	77	38	42	80	61
FLIP 83-73C	33	69	59	55	83	81	58	41	45	74	60
FLIP 84-56C	35	84	62	53	83	81	74	48	45	78	64
FLIP 84-62C	38	80	55	56	90	78	65	48	49	75	63
FLIP 84-64C	35	81	59	57	87	80	62	45	50	75	63
FLIP 84-67C	41	79	57	49	97	96	76	47	52	79	67
FLIP 84-75C	31	71	58	56	77	85	59	41	47	79	60
FLIP 84-87C	29	65	52	49	80	80	69	34	41	74	57
FLIP 84-112C	33	71	45	42	67	67	60	33	36	72	52
FLIP 84-133C	35	73	50	49	78	68	63	35	43	72	56
FLIP 84-148C	26	65	49	49	79	87	71	36	42	71	58
FLIP 84-161C	24	64	54	44	71	83	68	36	38	75	56
FLIP 84-163C	31	79	55	56	86	82	65	36	45	77	61
FLIP 84-178C	33	58	49	45	82	80	62	34	39	73	55
FLIP 84-185C	17	61	47	40	62	75	66	39	38	75	52
FLIP 84-188C	38	64	56	56	84	86	67	41	50	76	62
FLIP 81-293C	38	68	54	50	81	81	61	39	47	77	59
ILC 482	30	68	48	42	60	78	54	32	35	71	52
Local Check	28	70	39	37	58	68	47	38	43	73	
Location Mean	**31**	**71**	**53**	**49**	**79**	**80**	**65**	**39**	**44**	**75**	
S.E. of Mean	2.24	4.43	2.39	2.68	3.94	3.50	0.86	1.41	1.89	2.51	
LSD at 5%	6.31	12.51	4.94	5.55	11.12	9.87	2.13	3.97	5.34	-	
C.V. %	14.20	12.43	6.40	7.71	10.01	8.71	2.31	7.24	8.66	7.08	
Error d.f.	69	69	23	23	69	69	46	69	69	69	
Significance	*	*	*	*	*	*	*	*	*	NS	

* = Significant at $P \leq 0.05$,NS = not significant.

Table 3.3.5. 100-seed weight (g) of entries at different locations in the CIYT-W-STR during 1986/87.

Entry Name	AFGHANISTAN	EGYPT	ETHIOPIA		PAKISTAN		SYRIA		TURKEY	Overall Mean
	Darul Aman	Shand-aweel	Debre Zeit-1	Debre Zeit-2	Chakwal	Karak	Jind-iress	Tel Hadya	Adana	
FLIP 81-26W	19	26	22	21	32	20	18	22	25	23
FLIP 81-29W	27	20	31	32	36	17	32	32	36	29
FLIP 82-104C	23	23	24	25	39	24	22	26	30	26
FLIP 82-115C	20	22	24	23	37	26	24	28	28	26
FLIP 82-127C	27	17	30	33	38	30	26	27	29	29
FLIP 83-22C	27	20	29	30	34	32	25	29	29	28
FLIP 83-73C	27	20	28	29	42	22	23	25	28	27
FLIP 84-56C	25	22	29	31	42	27	25	28	31	29
FLIP 84-62C	31	23	32	35	40	31	26	30	30	31
FLIP 84-64C	28	21	32	32	38	32	25	29	31	30
FLIP 84-67C	25	23	25	26	33	20	24	28	30	26
FLIP 84-75C	27	21	28	31	31	23	24	28	31	27
FLIP 84-87C	27	24	28	32	35	26	25	29	30	28
FLIP 84-112C	21	20	23	24	34	22	22	24	26	24
FLIP 84-133C	24	22	26	27	38	26	23	27	27	27
FLIP 84-148C	29	23	31	32	37	31	27	29	30	30
FLIP 84-161C	29	24	29	29	40	38	26	27	30	30
FLIP 84-163C	26	21	27	27	41	29	24	26	27	27
FLIP 84-178C	23	21	24	26	32	28	22	24	25	25
FLIP 84-185C	26	23	30	31	32	32	28	31	31	29
FLIP 84-188C	23	22	24	26	42	28	22	24	27	26
FLIP 81-293C	26	20	29	32	40	25	27	28	30	29
ILC 482	26	22	28	30	41	28	25	28	29	28
Local Check	24	22	18	18	37	19	25	28	39	
Location Mean	**25**	**22**	**27**	**28**	**37**	**27**	**25**	**27**	**29**	
S.E. of Mean	0.81	0.34	1.11	1.12	0.44	0.58	0.56	0.51	1.07	
LSD at 5%	2.29	0.97	2.30	2.31	1.23	2.64	1.58	1.44	3.02	
C.V. %	6.40	3.16	5.80	5.57	2.36	4.39	4.55	3.73	7.26	
Error d.f.	69	69	23	23	69	69	69	69	69	
Significance	*	*	*	*	*	*	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.3.6. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CIYT-W-STR during 1986/87.

Entry Name	EGYPT		ETHIOPIA				PAKISTAN					
	Shandaweel		Debre Zeit-1		Debre Zeit-2		Bahawalpur		Chakwal		Faisalabad-1	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 81-26W	549	17	1529	9	771	8	365	20	646	22	365	15
FLIP 81-29W	549	18	1444	14	608	16	396	17	422	24	182	22
FLIP 82-104C	660	16	1648	7	490	19	469	16	1063	13	422	13
FLIP 82-115C	792	10	1663	6	658	14	938	4	1271	9	354	17
FLIP 82-127C	861	9	1831	3	363	23	802	7	1310	7	583	8
FLIP 83-22C	354	23	923	23	429	21	167	24	987	16	266	20
FLIP 83-73C	931	7	1473	12	750	10	802	8	1307	8	589	7
FLIP 84-56C	778	11	1319	18	412	22	229	22	863	19	318	19
FLIP 84-62C	965	6	1358	15	550	18	823	6	1042	14	693	4
FLIP 84-64C	1132	2	1819	4	856	6	573	12	781	20	547	10
FLIP 84-67C	722	14	1937	2	1092	2	385	19	995	15	172	23
FLIP 84-75C	1000	5	1240	20	660	13	469	15	536	23	521	11
FLIP 84-87C	736	13	1240	19	473	20	1073	2	1427	5	677	5
FLIP 84-112C	1125	3	1465	13	771	7	625	11	1099	12	156	24
FLIP 84-133C	458	19	1340	16	769	9	219	23	1146	11	344	18
FLIP 84-148C	313	24	969	22	573	17	563	13	1146	10	573	9
FLIP 84-161C	715	15	1131	21	710	11	1031	3	1375	6	354	16
FLIP 84-163C	424	21	852	24	627	15	677	10	1510	2	807	2
FLIP 84-178C	410	22	1508	10	969	5	344	21	1427	4	219	21
FLIP 84-185C	910	8	1558	8	1035	3	385	18	953	17	703	3
FLIP 84-188C	458	20	1723	5	696	12	500	14	1490	3	667	6
FLIP 81-293C	771	12	1323	17	344	24	917	5	1568	1	818	1
ILC 482	1083	4	1475	11	1004	4	760	9	708	21	479	12
Local Check	1424	1	2190	1	2223	1	2188	1	896	18	375	14
Location Mean	**755**		**1457**		**743**		**654**		**1082**		**466**	
S.E. of Mean	71.93		227.15		168.73		233.27		159.60		104.12	
LSD at 5%	202.90		-		349.09		658.01		450.19		293.71	
C.V. %	19.06		22.06		32.11		71.33		29.50		44.70	
Error d.f.	69		23		23		69		69		69	
Significance	*		NS		*		*		*		*	
Ent. > L. Check	0		-		0		0		6		5	

Cont'd. ...

Table 3.3.6. Cont'd. ...

Entry Name	PAKISTAN								SPAIN		SYRIA	
	Faisalabad-3		Faisalabad-2		Karak		Serai Naurang		Cordoba		Jindiress	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 81-26W	214	14	405	7	231	22	417	11	1745	20	1179	17
FLIP 81-29W	120	20	167	17	522	13	1511	1	2130	4	1294	11
FLIP 82-104C	40	24	190	16	516	14	385	12	1790	18	1373	8
FLIP 82-115C	109	21	1071	3	489	17	521	7	1800	17	1200	14
FLIP 82-127C	198	17	750	4	896	1	521	6	1933	10	1361	9
FLIP 83-22C	172	19	238	13	656	5	317	14	2180	2	1343	10
FLIP 83-73C	927	2	274	11	674	4	787	2	1970	9	1425	5
FLIP 84-56C	203	15	333	9	633	8	250	17	1763	19	1409	6
FLIP 84-62C	260	13	155	23	455	19	456	8	1818	16	1593	1
FLIP 84-64C	417	10	155	21	462	18	235	19	2088	7	1187	16
FLIP 84-67C	83	23	167	19	205	23	130	22	1595	21	1194	15
FLIP 84-75C	385	11	369	8	646	7	339	13	1383	24	1093	18
FLIP 84-87C	427	9	107	24	424	20	271	16	2068	8	1236	13
FLIP 84-112C	198	16	155	20	529	12	151	21	1823	15	1014	22
FLIP 84-133C	177	18	226	14	193	24	275	15	1860	13	962	23
FLIP 84-148C	609	5	155	22	494	16	442	9	1860	12	1452	4
FLIP 84-161C	479	7	202	15	656	6	246	18	2200	1	1291	12
FLIP 84-163C	604	6	238	12	513	15	750	3	1858	14	1084	19
FLIP 84-178C	89	22	310	10	560	11	438	10	2100	5	923	24
FLIP 84-185C	703	4	1071	2	357	21	637	5	1903	11	1377	7
FLIP 84-188C	365	12	750	5	604	10	-	-	1573	23	1026	21
FLIP 81-293C	729	3	536	6	604	9	742	4	2088	6	1033	20
ILC 482	448	8	167	18	717	3	125	23	2175	3	1496	3
Local Check	1656	1	2345	1	747	2	224	20	1585	22	1536	2
Location Mean	**401**		**439**		**533**		**442**		**1887**		**1253**	
S.E. of Mean	29.83		201.31		119.95		238.08		173.41		124.21	
LSD at 5%	84.14		567.85		338.36		-		-		350.84	
C.V. %	14.90		91.72		45.05		107.69		18.38		19.79	
Error d.f.	69		69		69		66		69		69	
Significance	*		*		*		NS		NS		*	
Ent. > L. Check	0		0		0		-		-		0	

Cont'd. ...

Table 3.3.6. Cont'd. ...

Entry Name	SYRIA		TUNISIA						TURKEY		(1) Overall Mean	
	Tel Hadya		Beja		El Kef		Oued Meliz		Adana			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 81-26W	1835	6	3213	7	4719	11	1760	23	1978	21	1344	19
FLIP 81-29W	1746	10	3306	6	4542	13	1771	22	2334	8	1346	18
FLIP 82-104C	1944	3	2750	17	4901	9	2078	21	2342	7	1417	13
FLIP 82-115C	1421	23	2419	22	3734	23	2302	18	2111	20	1396	16
FLIP 82-127C	1724	11	3469	2	5109	5	2599	6	2228	12	1626	1
FLIP 83-22C	1746	9	3000	13	4007	20	2458	11	2194	15	1320	21
FLIP 83-73C	1663	16	3325	4	4693	12	2438	12	2722	1	1623	2
FLIP 84-56C	1577	19	3144	8	4000	21	2615	5	2215	13	1363	17
FLIP 84-62C	1865	5	2863	15	5135	4	2786	4	2467	3	1552	8
FLIP 84-64C	1629	18	2969	14	3495	24	2385	15	1846	23	1396	15
FLIP 84-67C	1385	24	2525	20	3802	22	2203	20	2215	14	1292	23
FLIP 84-75C	2083	1	2025	24	4484	16	2323	17	2161	17	1336	20
FLIP 84-87C	1696	13	2588	19	5057	6	2281	19	2494	2	1500	10
FLIP 84-112C	1675	15	3044	11	5000	7	2438	14	2115	19	1452	12
FLIP 84-133C	1575	20	3025	12	4188	19	2344	16	1908	22	1296	22
FLIP 84-148C	1702	12	3644	1	4917	8	2505	10	2171	16	1478	11
FLIP 84-161C	1696	14	3106	9	5318	3	2568	9	2416	4	1578	4
FLIP 84-163C	1929	4	3363	3	5432	2	2865	2	2141	18	1558	7
FLIP 84-178C	1544	21	2669	18	4802	10	2438	13	2308	9	1414	14
FLIP 84-185C	1423	22	3069	10	4500	14	2802	3	2290	10	1565	6
FLIP 84-188C	1657	17	2775	16	4495	15	2943	1	2408	6	1508	9
FLIP 81-293C	1790	7	3313	5	4396	17	2589	8	2287	11	1569	5
ILC 482	2067	2	2494	21	5656	1	2594	7	2413	5	1609	3
Local Check	1782	8	2181	23	4323	18	1089	24	1843	24		
Location Mean	**1715**		**2928**		**4613**		**2382**		**2234**			
S.E. of Mean	113.44		214.36		372.80		1787.54		190.45			
LSD at 5%	319.98		604.66		1052.59		500.80		-			
C.V. %	13.23		14.64		16.16		14.91		17.05			
Error d.f.	69		69		69		69		69			
Significance	*		*		*		*		NS			
Ent. > L. Check	0		15		2		23		-			

(1) Serai Naurang was excluded from tthe overall mean., * = Significant at $P \leq 0.05$, NS = not significant.

Table 3.3.7. The five heaviest seed yielding entries at the individual locations in the CIYT-W-STR during 1986/87.

	EGYPT	ETHIOPIA		PAKISTAN					
Rank	Shandaweel	Debre Zeir-1	Debre Zeit-2	Bahawalpur (ARS)	Chakwal	Faisalabad-1 (AARI)	Faisalabad-2 (NIAB)	Faisalabad-3 (UAF)	Karak
1	Local Check	Local Check	Local Check	Local Check	FLIP81-293C	FLIP81-293C	Local Check	Local Check	FLIP82-127C
2	FLIP84- 64C	FLIP84- 67C	FLIP84- 67C	FLIP84- 87C	FLIP84-163C	FLIP84-163C	FLIP83- 73C	FLIP84-185C	Local Check
3	FLIP84-112C	FLIP84-127C	FLIP84-185C	FLIP84-161C	FLIP84-188C	FLIP84-185C	FLIP81-293C	FLIP82-115C	ILC 482
4	ILC 482	FLIP84- 64C	ILC 482	FLIP82-115C	FLIP84-178C	FLIP84- 62C	FLIP84-185C	FLIP82-127C	FLIP83- 73C
5	FLIP84- 75C	FLIP84-188C	FLIP84-178C	FLIP81-293C	FLIP84- 87C	FLIP84- 87C	FLIP84-148C	FLIP84-188C	FLIP83- 22C

Cont'd 2/..

	PAKISTAN	SPAIN	SYRIA		TUNISIA			TURKEY
Rank	Sarai-Nawrang	Cordoba	Jinidiross	Tel Hadya	Beja	El Kef	Oued Meliz	Adana
1	FLIP81- 29W	FLIP84-161C	FLIP84- 62C	FLIP84- 75C	FLIP84-148C	ILC 482	FLIP84-188C	FLIP83- 73C
2	FLIP83- 73C	FLIP83- 22C	Local Check	ILC 482	FLIP82-127C	FLIP84-163C	FLIP84-163C	FLIP84- 87C
3	FLIP84-163C	ILC 482	ILC 482	FLIP82-104C	FLIP84-163C	FLIP84-161C	FLIP84-185C	FLIP84- 62C
4	FLIP81-293C	FLIP81- 29W	FLIP84-148C	FLIP84-163C	FLIP83- 73C	FLIP84- 62C	FLIP84- 62C	FLIP84-161C
5	FLIP84-185C	FLIP84-178C	FLIP83- 73C	FLIP84- 62C	FLIP81-293C	FLIP82-127C	FLIP84- 56C	ILC 482

On the basis of average over two years, the entry ILC 482 ranked number 1 and was followed by FLIP83- 73C, FLIP83- 22C, FLIP82-104C, and FLIP81- 26W with the respective yields of 1983, 1923, 1873, 1811, and 1621 kg/ha.

Table 3.3.8. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-W-STR during 1985/86 and 1986/87.

Entry Name	1985/86		1986/87		Mean	
	Y	R	Y	R	Y	R
FLIP 81- 26W	1898	5	1344	4	1621	5
FLIP 82-104C	2204	4	1417	3	1811	4
FLIP 83- 22C	2425	1	1320	5	1873	3
FLIP 83- 73C	2222	3	1623	1	1923	2
ILC 482	2357	2	1609	2	1983	1

3.4. CHICKPEA INTERNATIONAL YIELD TRIAL-LARGE SEED (CIYT-L)

Material

The Chickpea International Yield Trial-Large Seed comprised of 15 test entries and one local check to be supplied by the cooperator. The test entries were derived through hybridization at ICARDA and were selected on the basis of their superior performance in regional, or local trials.

Methods and Management

The trial design was a randomized complete block with three replications. The suggested plot size was 4 rows, each 4 meter long with inter row spacing of 45 cm .

Sixty six sets were sent to cooperators in 29 countries. The results were, however, received for 45 trials from 22 countries, out of which 38 were worth analysis and are reported reported. The agronomic information received from the cooperators is given in Table 3.4.1.

Results and Discussion

The location means for time to flowering (Table 3.4.2), time to maturity (Table 3.4.3), and plant height (Table 3.4.4) ranged from 52 days (for Larissa, Greece) to 167 days (for Diyarbakir, Turkey), 93 days (for Heimo, Syria) to 215 days (for Elvas, Portugal), and 24 cm (for Al Taamym, Iraq) to 86 cm (for Culiacan, Mexico), respectively. On an average over locations, the entry means ranged from 97 to 104 days for time to flowering, 152 to 159 days for time to maturity, and 44 to 53 cm for plant height. The overall mean for 100-seed weight, for the entries varied from 36 to 47 g, the largest being for FLIP85- 5C (Table 3.4.5). Also wide variation in location means were observed for 100-seed weight, Surbata in Colombia exhibiting 34g and Culiacan in Mexico exhibiting 52 g.

Table 3.4.1. Agronomic data for different locations in the CIYT-L during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
ALGERIA	Khroub	11.11.86	15.07.87				-	Treflane	Rabat-9
ALGERIA	Guelma	NA	NA		70		-	Treflane	Rabat-9
ALGERIA	Setif	NA	NA		100		-	Treflane	Rabat-9
ALGERIA	Sidi Bel Abbes	16.02.87	NA	15	90		-	Maloran, Kerb	A.T 161/14
CANADA	Saskatchewan	19.05.87	NA	-			-	Treflan, Metribuzin	-
CHILE	Chillan	07.03.87	NA		90		-	-	California-INIA
CHILE	Graneros	03.09.87	15.01.88	-			1	-	CUSSDS-SNA
COLOMBIA	Surbata	23.04.87	09.09.87	-			-	Afalon, Actellic, Tecto	Graneros Amarillo
COSTA RICA	Tierra Blanca	27.11.86	18.05.87	20	60		2	Metribuzin, Carbofuran	-
CYPRUS	Laxia	03.12.86	18.06.87	21	48		-	-	Local
FRANCE	Montbouchor	03.03.87	07.08.87		100		-	Nitrofene, Neburon	CASCARI
FRANCE	Montpellier	18.02.87	21.07.87		100		-	Nitrofene, Neburon	INRA 199
GREECE	Larissa	09.04.87	27.07.87		60			Phosdrin	Thiva
IRAN	Karaj	10.03.87	23.08.87	-			10	Diazinon	Jam
IRAQ	Al Taamym	05.03.87	30.06.87	11	11		21	-	NA
IRAQ	Mosul	04.03.87	20.06.87	-			-	-	Local
ITALY	Papiano	21.03.87	15.07.87		100		-	Linuron	NA
ITALY	Tarquinia	29.12.86	20.07.87	54	138		-	Nebutrin, Targa	Principe
JORDAN	Jubeiha	18.01.87	30.06.87	20	40		-	-	-
LEBANON	Terbol	27.11.86	15.07.87		50		-	Kerb, Bladex	
MEXICO	Culiacan	19.11.87	15.05.88	-			2	-	Surutato-77
MOROCCO	Zemomra	28.12.86	18.06.87	50	60		1	-	ILC 482
PORTUGAL	Elvas	06.11.86	04.07.87		72	60	-	-	CHK 256
SPAIN	Badajoz	20.11.86	08.06.87	-			-	Terbutrine, Tecto, Actellic	Pedrosillano
SPAIN	Sevilla	05.11.86	26.06.87	32	60		2	Alachlor, Limson, Durbam	ILC 83
SYRIA	Hama	18.02.87	19.06.87	25	80		-	-	Local
SYRIA	Heimo	23.03.87	01.07.87	-			-	-	Local
SYRIA	Idleb	31.03.87	NA	NA			-	-	Local
SYRIA	Jindiress	02.02.87	11.06.87	-			-	-	FLIP82-150C
SYRIA	Tel Hadya (S)	23.02.87	25.06.87	30	50		-	Igran, Malathion	ILC 1929
SYRIA	Tel Hadya (W)	01.12.86	09.06.87	30	50		-	Igran, Malathion	FLIP82-150C
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA
TUNISIA	Ras Rajel	NA	NA	NA			NA	NA	NA
TURKEY	Adana U.A.F.	19.11.86	NA	-			-	-	NA
TURKEY	Amasya	22.04.87	18.08.87	40	60				Ispanyol
TURKEY	Haymana								
TURKEY	Diyarbakir	20.11.86	23.06.87	40	60				ILC 482
TURKEY	Erzurum	05.05.87	18.08.87	30	70		-	-	NA
TURKEY	Eskisehir	21.04.87	06.08.87	40	60				19/1-5
TURKEY	Kurfalli	NA	06.07.87	30	60		-	Igran	ILC 195/2
TURKEY	Menemen	16.01.87	09.07.87	30	60			Igran	ILC 195/2

NA = not available.

Table 3.4.2. Time to flowering (days) of entries at different locations in the CIYT-L during 1986/87.

Entry	Name	Pedigree	Origin	ALGERIA				CHILE		COLOMBIA	COSTA-RICA
				Khroub	Guelma	Setif	Sidi Bel Abbes	Chillan	Graneros	Surbata	Tierra Blanca
FLIP 83-77C		X80 TH 176/ILC 72XILC 215	ICARDA/ICRISA	152	127	140	114	105	68	95	82
FLIP 84-2C		X81 TH 116/ILC 191XILC 262	ICARDA/ICRISA	156	124	127	114	104	70	90	82
FLIP 84-12C		X82 TH 154/ILC 202XILC 254	ICARDA/ICRISA	156	128	143	111	106	68	95	82
FLIP 84-15C		X82 TH 199/ILC 202(WH)XILC 3355	ICARDA/ICRISA	154	116	124	111	100	75	90	82
FLIP 84-18C		X79 TH 221/ILC 72XILC 1922	ICARDA/ICRISA	148	129	141	114	107	68	95	82
FLIP 84-19C		X79 TH 221/ILC 72XILC 1922	ICARDA/ICRISA	154	122	128	111	102	68	90	82
FLIP 85-3C		X83 TH 115/FLIP 82XILC 3326	ICARDA/ICRISA	137	105	129	111	99	62	75	82
FLIP 85-5C		X81 TH 199/ILC 202(WH)XILC 3355	ICARDA/ICRISA	152	124	131	114	106	70	95	82
FLIP 85-7C		X79 TH 221/ILC 72XILC 1922	ICARDA/ICRISA	153	127	142	114	103	75	90	82
FLIP 85-17C		X83 TH 19/FLIP 82-65XFLIP 82-69	ICARDA/ICRISA	153	122	130	114	99	70	85	82
FLIP 85-54C		X83 TH 19/FLIP 82-65XFLIP 82-69	ICARDA/ICRISA	152	118	127	114	101	67	85	82
FLIP 85-55C		X83 TH 19/FLIP 82-65XFLIP 82-69	ICARDA/ICRISA	147	122	130	114	104	65	75	82
FLIP 85-56C		X83 TH 19/FLIP 82-65XFLIP 82-69	ICARDA/ICRISA	147	124	128	114	101	67	95	82
FLIP 85-61C		X83 TH 27/FLIP 82-72XFLIP 82-81	ICARDA/ICRISA	154	119	130	111	104	68	90	82
FLIP 85-135C		X79 TH 221/ILC 72XILC 1922	ICARDA/ICRISA	152	119	141	114	105	65	85	82
Local Check		-	ICARDA/ICRISA	143	126	144	107	99	65	90	82
Location Mean				**151**	**122**	**133**	**114**	**103**	**68**	**89**	**82**
S.E. of Mean					0.00	0.44	0.00	1.18			
LSD at .05					0.00	1.27	0.00	3.40			
C.V. %					0.00	0.57	0.00	1.99			
Error df					30	30	30	30			
Significance					*	*	*	*			

Cont. ...

Table 3.4.2. Cont'd. ...

Entry Name	CYPRUS	FRANCE	GREECE	IRAN	IRAQ	ITALY		JORDAN	LEBANON	MEXICO	MOROCCO	PORTUGAL	SPAIN
	Laxia	Mont - boucher	Larissa	Karaj	Al Taamym	Papiona	Tarqu-inia	Jube-iha	Terbol	Culiacan	Zememra	Elvas	Badajoz
FLIP 83-77C	109	90	52	71	73	76	130	106	148	69	115	157	139
FLIP 84-2C	110	91	49	72	72	76	130	107	146	63	106	157	141
FLIP 84-12C	110	96	52	71	72	76	129	107	150	64	115	155	140
FLIP 84-15C	103	88	49	63	69	72	125	108	146	61	101	148	135
FLIP 84-18C	111	90	50	68	72	76	131	106	153	66	105	159	138
FLIP 84-19C	106	88	49	67	70	76	125	107	146	63	101	147	133
FLIP 85-3C	101	87	49	62	71	71	119	107	137	56	115	154	133
FLIP 85-5C	110	89	52	53	75	76	128	106	150	72	106	157	138
FLIP 85-7C	112	91	50	69	70	76	130	107	152	65	115	156	140
FLIP 85-17C	106	88	55	67	72	76	126	108	147	67	115	146	135
FLIP 85-54C	107	88	56	69	75	76	126	106	146	62	115	147	140
FLIP 85-55C	108	88	56	68	70	77	127	106	147	62	115	147	137
FLIP 85-56C	108	88	56	68	76	76	126	109	148	67	115	146	135
FLIP 85-61C	107	89	51	66	73	77	126	107	147	65	106	154	137
FLIP 85-135C	111	91	51	67	74	76	130	106	152	65	115	163	139
Local Check	102	90	52	61	69	72	120	107	141	55	101	149	132
Location Mean	**108**	**89**	**52**	**66**	**72**	**75**	**127**	**107**	**147**	**64**	**110**	**153**	**137**
S.E. of Mean	1.21	0.58	0.84	4.30	0.84	0.78	0.78	1.32	0.70	2.69	0.32	2.11	1.12
LSD at .05	3.49	1.67	2.35	-	2.43	2.25	2.25	-	2.01	7.76	0.92	6.10	3.22
C.V. %	1.95	1.12	2.83	11.21	2.02	1.06	1.06	2.13	0.82	7.30	0.50	2.40	1.41
Error df	30	30	30	30	30	30	30	30	30	30	30	30	30
Significance	*	*	*	NS	*	*	*	NS	*	*	*	*	*

Cont'd. ...

Table 3.4.2. Cont'd. ...

Entry Name	SPAIN	SYRIA						TURKEY					Overall Mean
	Sevilla	Hama	Heimo	Idleb	Jindiress	Tel Hadya Spring	Tel Hadya Winter	Haymana	Diyar-bakir	Erzurum	Eskis-ehir	Menemen	
FLIP 83-77C	141	83	61	68	141	79	120	80	167	81	67	112	104
FLIP 84-2C	137	85	58	67	140	81	123	83	166	79	68	112	103
FLIP 84-12C	141	83	58	68	142	82	126	79	167	78	67	112	104
FLIP 84-15C	132	80	54	60	133	74	118	77	164	76	66	108	99
FLIP 84-18C	139	82	58	66	143	81	127	80	171	77	67	112	103
FLIP 84-19C	136	82	56	68	135	77	121	79	166	75	68	110	100
FLIP 85-3C	133	80	56	62	130	69	113	80	166	79	67	110	97
FLIP 85-5C	141	84	61	67	141	79	123	80	166	79	67	111	103
FLIP 85-7C	139	85	59	66	142	81	127	81	170	76	68	114	104
FLIP 85-17C	130	88	61	63	137	78	117	82	168	77	67	111	101
FLIP 85-54C	131	87	61	65	138	79	119	82	168	77	67	111	101
FLIP 85-55C	133	88	57	66	137	78	119	82	169	75	67	112	101
FLIP 85-56C	132	88	62	60	137	79	119	82	169	78	69	111	102
FLIP 85-61C	135	81	61	67	139	80	121	82	166	79	67	112	102
FLIP 85-135C	139	84	60	65	143	80	127	82	168	79	66	114	103
Local Check	127	75	55	59	133	73	120	77	163	78	66	111	
Location Mean	**135**	**83**	**58**	**64**	**138**	**78**	**121**	**80**	**167**	**78**	**67**	**111**	
S.E. of Mean	1.12	0.93	1.768	1.82	0.59	0.59	0.93	0.58	0.75	1.43	0.54	0.97	
LSD at .05	3.24	2.69	-	5.25	1.71	1.70	2.68	1.74	2.18	-	1.57	2.79	
C.V. %	1.43	1.93	5.241	4.87	0.74	1.30	1.32	1.02	0.78	3.19	1.40	1.50	
Error df	30	30	30	30	30	30	30	15	30	30	30	30	
Significance	*	*	NS	*	*	*	*	*	*	NS	*	*	

* = Significant at $P \leq 0.05$, NS = Not Significant.

Table 3.4.3. Time to maturity (days) of entries at different locations in the CIYT-L DURING 1987-88.

Entry Name	ALGERIA			CHILE	COLOMBIA	COSTA-RICA	FRANCE	CYPRUS	IRAN	IRAQ	ITALY
	Khroub	Setif	Sidi Bel-Abbes	Chillan	Surbata	Tierra Blanca	Mont-boucher	Larissa	Karaj	Al - Taamym	Papiona
FLIP 83-77C	201	196	158	147	190	165	135	107	111	122	112
FLIP 84-2C	195	191	160	150	165	165	137	107	109	112	109
FLIP 84-12C	200	198	163	148	165	165	140	99	120	124	111
FLIP 84-15C	193	194	165	147	165	165	128	90	113	113	108
FLIP 84-18C	201	201	163	152	190	165	143	98	115	114	115
FLIP 84-19C	197	192	165	147	165	172	135	91	118	114	112
FLIP 85-3C	195	191	160	150	165	172	140	107	118	116	115
FLIP 85-5C	198	199	158	148	190	172	140	107	121	114	115
FLIP 85-7C	200	203	158	153	190	172	145	97	113	113	114
FLIP 85-17C	198	190	158	146	165	172	130	105	116	120	109
FLIP 85-54C	198	189	158	146	190	172	130	107	120	114	110
FLIP 85-55C	196	192	158	146	165	165	133	107	115	110	110
FLIP 85-56C	199	190	161	146	165	165	133	104	114	-	109
FLIP 85-61C	198	191	158	147	165	165	138	101	111	-	109
FLIP 85-135C	199	202	165	152	165	165	145	98	112	-	113
Local Check	196	203	161	148	165	-	130	107	110	108	110
Location Mean	**198**	**195**	**161**	**148**	**173**	**168**	**136**	**102**	**115**	**115**	**111**
S.E. of mean		0.00	0.00	0.98			0.89	1.21	1.76	1.27	0.63
LSD at .05		0.00	0.00	2.82			2.56	3.48	5.08	3.72	1.82
C.V. %		0.00	0.00	1.14			1.13	2.05	2.66	1.92	0.98
Error df		30	30	30			30	30	30	24	30
Significance		*	*	*			*	*	*	*	*

Cont'd. ...

Table 3.4.3. Cont'd. ...

	ITALY	JORDAN	LEBANON	MEXICO	MOROCCO	PORTUGAL	SPAIN		SYRIA
Entry Name	Tarquinia	Jubeiha	Terbol	Culiacan	Zememra	Elvas	Badajoz	Sevilla	Hama
FLIP 83-77C	194	147	199	156	161	214	205	197	120
FLIP 84-2C	192	146	201	155	158	212	203	194	120
FLIP 84-12C	189	149	201	156	156	212	205	194	120
FLIP 84-15C	182	145	197	154	154	212	194	189	116
FLIP 84-18C	210	144	214	154	155	222	202	198	119
FLIP 84-19C	188	145	201	154	154	212	197	191	118
FLIP 85-3C	210	146	213	154	161	221	207	197	120
FLIP 85-5C	195	148	203	157	158	214	206	198	121
FLIP 85-7C	211	145	214	154	161	222	206	198	120
FLIP 85-17C	192	145	203	149	161	212	197	193	122
FLIP 85-54C	185	147	203	148	161	212	201	191	121
FLIP 85-55C	191	144	203	149	161	212	203	192	131
FLIP 85-56C	185	147	205	153	154	212	200	194	121
FLIP 85-61C	194	145	201	153	158	216	203	193	120
FLIP 85-135C	210	144	213	153	161	220	207	197	120
Local Check	195	144	201	147	151	217	194	194	115
Location Mean	**195**	**146**	**205**	**153**	**158**	**215**	**202**	**194**	**120**
S.E. of mean	1.47	1.76	0.24	1.42	0.70	1.30	1.83	1.26	2.56
LSD at .05	4.24	-	0.69	4.10	2.03	3.76	5.28	3.64	-
C.V. %	1.30	2.09	0.20	1.61	0.77	1.05	1.57	1.12	3.69
Error df	30	30	30	30	30	30	30	30	30
Significance	*	NS	*	*	*	*	*	*	NS

Cont'd. ...

Table 3.4.3. Cont'd. ...

Entry Name	SYRIA				TURKEY		(1)
	Heimo	Jindiress	Tel Hadya Spring	Tel Hadya Winter	Haymana	Erzurum	Overall Mean
FLIP 83-77C	95	188	119	167	115	121	157
FLIP 84-2C	96	188	117	169	114	118	155
FLIP 84-12C	96	188	118	166	109	121	156
FLIP 84-15C	91	184	116	166	117	117	152
FLIP 84-18C	91	190	118	170	109	119	158
FLIP 84-19C	92	186	116	165	110	116	154
FLIP 85-3C	93	188	118	169	120	121	158
FLIP 85-5C	96	189	118	169	118	122	158
FLIP 85-7C	94	190	117	170	110	119	159
FLIP 85-17C	91	186	119	165	115	118	154
FLIP 85-54C	91	186	117	165	111	120	155
FLIP 85-55C	92	187	118	167	110	118	155
FLIP 85-56C	91	186	118	166	109	120	154
FLIP 85-61C	93	188	118	168	111	119	155
FLIP 85-135C	93	189	117	170	112	117	158
Local Check	95	186	115	166	115	117	
Location Mean	93	187	117	167	113	119	
S.E. of mean	0.80	0.41	0.62	0.55	1.33	0.51	
LSD at .05	2.32	1.18	1.79	1.59	4.01	1.46	
C.V. %	1.50	0.38	0.92	0.57	1.67	0.74	
Error df	30	30	30	30	15	30	
Significance	*	*	*	*	*	*	

(1) Al Taamym was excluded from the overall mean.
* = Significant at $P \leq 0.05$, NS = not Significant.

Table 3.4.4. Plant height (cm) of entries at different locations in the CIYT-L during 1986/87.

Entry Name	ALGERIA				CHILE	COLOMBIA	COSTA RICA	CYPRUS	GREECE	IRAN	IRAQ
	Khroub	Guelma	Setif	Sidi Bel Abbas	Chillan	Surbata	Tierra-Blanca	Laxia	Larissa	Karaj	Al Taamym
FLIP 83-77C	60	80	37	33	47	49	57	43	48	37	19
FLIP 84-2C	70	90	48	38	45	55	78	52	55	42	28
FLIP 84-12C	47	68	32	32	38	50	78	42	48	36	18
FLIP 84-15C	60	85	47	38	45	52	75	50	52	41	29
FLIP 84-18C	60	64	37	36	42	48	78	41	53	45	21
FLIP 84-19C	55	90	48	33	46	46	77	40	48	42	25
FLIP 85-3C	50	80	39	35	50	51	82	42	53	45	22
FLIP 85-5C	57	88	40	37	52	50	82	43	52	47	27
FLIP 85-7C	65	70	42	37	55	51	77	43	50	46	26
FLIP 85-17C	65	90	50	43	53	58	75	53	57	43	22
FLIP 85-54C	55	90	38	37	50	56	75	48	55	50	25
FLIP 85-55C	70	90	47	36	42	58	81	46	58	46	30
FLIP 85-56C	55	90	43	37	58	63	80	53	58	43	23
FLIP 85-61C	70	83	44	35	62	59	78	47	57	47	20
FLIP 85-135C	57	70	45	39	50	50	63	40	50	53	18
Local Check	52	70	33	32	43	43	0	41	45	34	22
Location Mean	59	81	42	36	49	52	75	45	53	44	24
S.E. of mean		0.00	0.42	1.81	4.57			1.78	1.82	2.01	3.65
LSD at .05		0.00	1.21	5.23	-			4.38	5.26	5.82	-
C.V. %		0.00	1.74	8.69	16.28			5.59	6.01	8.02	26.88
Error df		30	30	30	30			15	30	30	30
Significance		*	*	*	NS			*	*	*	NS

Cont'd. ...

Table 3.4.4. Cont'd. ...

	IRAQ	ITALY		JORDAN	LEBANON	MEXICO	MOROCCO	PORTUGAL	SPAIN		SYRIA
Entry Name	Mosul	Papiona	Tarquinia	Jubeiha	Terbol	Culiacan	Zememra	Elvas	Badajoz	Sevilla	Hama
FLIP 83-77C	27	51	54	47	54	80	45	83	54	68	33
FLIP 84-2C	33	59	54	48	64	99	58	92	63	73	37
FLIP 84-12C	28	53	55	46	53	83	44	79	57	67	53
FLIP 84-15C	34	57	56	47	53	99	47	83	65	70	35
FLIP 84-18C	29	50	57	45	52	87	46	82	60	72	35
FLIP 84-19C	34	52	56	46	58	92	46	89	57	70	30
FLIP 85-3C	30	55	61	49	52	82	49	87	58	72	37
FLIP 85-5C	35	57	57	51	56	80	55	91	67	72	33
FLIP 85-7C	30	52	58	42	54	84	55	84	54	78	32
FLIP 85-17C	35	58	57	44	55	89	47	87	63	82	32
FLIP 85-54C	32	57	60	44	55	85	53	86	58	75	30
FLIP 85-55C	37	60	60	46	60	86	51	88	60	77	28
FLIP 85-56C	36	58	61	46	57	82	46	86	58	82	30
FLIP 85-61C	28	54	58	49	64	93	55	90	66	85	40
FLIP 85-135C	26	51	60	46	57	82	51	84	60	75	33
Local Check	26	49	40	42	45	62	42	73	57	62	30
Location Mean	**31**	**55**	**56**	**46**	**56**	**86**	**49**	**85**	**60**	**74**	**33**
S.E. of mean	2.24	1.33	1.29	3.03	3.05	5.93	3.12	2.86	2.81	2.80	1.75
LSD at .05	6.75	3.83	3.73	-	8.82	17.13	9.00	8.27	-	8.08	5.04
C.V. %	10.20	4.20	3.95	11.37	9.51	11.96	10.94	5.82	8.15	6.58	9.12
Error df	15	30	30	30	30	30	30	30	30	30	30
Significance	*	*	*	NS	*	*	*	*	NS	*	*

Cont'd. ...

Table 3.4.4. Cont'd. ...

Entry Name	SYRIA					TURKEY						Overall Mean
	Heimo	Idleb	Jindiress	Tel Hadya Spring	Tel Hadya Winter	Amasya	Diyarbakir	Erzurum	Eskisehir	Kurfalli	Menemen	
FLIP 83-77C	25	31	41	30	47	32	39	25	48	34	34	45
FLIP 84-2C	35	40	55	37	51	36	44	27	54	34	46	53
FLIP 84-12C	24	30	47	27	47	29	39	25	42	24	37	44
FLIP 84-15C	27	33	54	31	46	41	47	25	53	31	39	50
FLIP 84-18C	28	32	54	31	47	38	37	26	51	31	38	47
FLIP 84-19C	29	30	53	32	44	31	43	23	49	33	38	48
FLIP 85-3C	24	31	51	32	47	30	41	23	52	33	40	48
FLIP 85-5C	27	34	51	34	49	27	42	26	48	35	41	50
FLIP 85-7C	25	35	53	30	48	38	41	24	46	30	39	48
FLIP 85-17C	35	34	55	37	50	33	43	24	52	38	44	52
FLIP 85-54C	31	33	56	37	51	37	44	24	49	38	48	50
FLIP 85-55C	31	32	57	38	50	31	45	23	55	34	44	51
FLIP 85-56C	29	34	55	36	48	44	42	24	56	38	45	51
FLIP 85-61C	30	38	60	37	54	41	43	23	50	37	45	53
FLIP 85-135C	29	33	51	31	52	35	41	24	44	30	39	48
Local Check	22	25	45	24	38	34	34	26	46	36	40	
Location Mean	**28**	**33**	**52**	**33**	**48**	**35**	**42**	**25**	**50**	**34**	**41**	
S.E. of mean	0.84	1.43	1.80	0.88	1.70	3.78	1.52	0.53	2.15	1.73	1.94	
LSD at .05	2.43	4.12	5.20	2.53	4.90	-	4.40	1.54	6.22	4.98	5.59	
C.V. %	5.18	7.53	5.96	4.63	6.13	15.48	6.35	3.75	7.49	8.90	8.16	
Error df	30	30	30	30	30	15	30	30	30	30	30	
Significance	*	*	*	*	*	NS	*	*	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.4.5. 100-Seed weight (g) of entries at different locations in the CIYT-L during 1986/87.

	CHILE	COLOMBIA	COSTA RICA	CYPRUS	FRANCE	IRAN	IRAQ	ITALY		LRBANON	MEXICO	PORTUGAL
Entry Name	Chillan	Surbata	Tierra Blanca	Laxia	Montb-oucher	Karaj	Al Taamym	Papiano	Tarquinia	Terbol	Culiacan	Elvas
FLIP 83-77C	35	25	44	31	41	36	37	44	47	46	49	44
FLIP 84-2C	35	28	38	33	37	36	30	38	47	40	45	42
FLIP 84-12C	34	29	39	31	38	34	25	38	42	40	47	42
FLIP 84-15C	41	39	49	40	42	43	38	54	47	45	56	48
FLIP 84-18C	42	40	36	38	47	39	36	51	57	46	54	49
FLIP 84-19C	42	38	36	38	46	41	37	51	51	46	57	52
FLIP 85-3C	47	41	43	42	47	44	40	55	55	47	55	53
FLIP 85-5C	48	36	36	43	54	36	35	51	60	51	57	56
FLIP 85-7C	43	37	34	38	48	38	37	50	58	44	54	50
FLIP 85-17C	41	36	40	38	39	39	37	48	46	44	51	49
FLIP 85-54C	40	33	41	39	37	35	32	44	46	41	49	48
FLIP 85-55C	42	34	47	39	40	39	33	47	48	45	51	49
FLIP 85-56C	-	37	45	37	40	39	-	47	46	42	51	47
FLIP 85-61C	-	31	40	31	37	36	-	41	47	42	43	54
FLIP 85-135C	-	37	43	39	51	41	-	48	58	44	55	50
Local Check	44	36	-	28	26	30	42	46	49	35	63	54
Location Mean	**41**	**34**	**40**	**37**	**42**	**38**	**35**	**47**	**50**	**44**	**52**	**49**
S.E. of Mean	0.87			0.93	0.76	1.97	0.69	0.68	0.49	0.90	1.08	3.57
LSD at .05	2.55			2.30	2.19	5.69	2.00	1.95	1.41	2.60	3.11	-
C.V. %	3.68			3.61	3.13	9.00	3.36	2.49	1.68	3.58	3.57	12.57
Error df	24			15	30	30	24	30	30	30	30	30
Significance	*			*	*	*	*	*	*	*	*	NS

Cont'd. ...

Table 3.4.5. Cont'd. ...

Entry Name	SPAIN	SYRIA					TURKEY					(1)
	Sevilla	Heimo	Idleb	Jindiress	Tel Hadya Spring	Tel Hadya Winter	Amasya	Haymana	Erzurum	Kurfalli	Menemen	Overall Mean
FLIP 83-77C	48	32	36	36	37	40	39	36	29	40	38	39
FLIP 84-2C	43	31	32	33	35	36	37	33	31	38	35	36
FLIP 84-12C	46	33	34	33	33	35	35	32	35	36	34	36
FLIP 84-15C	47	41	41	38	43	41	47	46	43	44	43	45
FLIP 84-18C	48	36	36	42	40	42	47	38	37	41	40	43
FLIP 84-19C	48	37	39	44	41	41	46	42	40	42	43	44
FLIP 85-3C	53	41	42	44	45	46	48	40	39	42	46	46
FLIP 85-5C	58	39	45	41	46	48	51	46	41	40	46	47
FLIP 85-7C	51	36	35	41	39	42	49	38	35	41	41	43
FLIP 85-17C	45	37	35	37	42	40	42	38	36	39	39	41
FLIP 85-54C	44	36	35	37	39	41	39	38	35	40	37	40
FLIP 85-55C	44	33	36	38	40	42	40	39	36	41	40	42
FLIP 85-56C	43	35	36	38	41	41	42	40	31	42	42	41
FLIP 85-61C	41	33	34	35	37	36	40	37	35	36	35	38
FLIP 85-135C	52	33	36	44	39	42	46	40	32	41	41	43
Local Check	49	29	36	26	36	28	50	35	41	25	25	
Location Mean	**48**	**35**	**37**	**38**	**40**	**40**	**44**	**39**	**36**	**39**	**39**	
S.E. of Mean	1.16	1.26	1.76	0.71	0.88	0.86	1.45	1.69	2.89	1.93	0.79	
LSD at .05	3.35	3.62	5.09	2.06	2.54	2.49	4.19	5.10	-	5.58	2.29	
C.V. %	4.22	6.29	8.33	3.25	3.85	3.72	5.76	6.19	13.91	8.51	3.51	
Error df	30	30	30	30	30	30	30	15	30	30	30	
Significance	*	*	*	*	*	*	*	*	NS	*	*	

(1) Chillan and Al Taamym were excluded from the overall mean
* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.4.6. Seed yield (Y = kg/ha) and rank (R) of entries at different locations in the CIYT-L during 1986/87.

	ALGERIA								CANADA		CHILE	
	Khruob		Guelma		Setif		Sidi Bel Abbes		Saskatchewan		Chillan	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 83-77C	1718	12	2630	5	898	13	597	16	795	2	693	9
FLIP 84-2C	1625	15	1813	7	926	11	757	10	682	6	656	11
FLIP 84-12C	2320	3	1307	10	847	15	833	8	498	14	620	13
FLIP 84-15C	2127	7	-	-	1127	5	875	7	569	11	927	1
FLIP 84-18C	2210	6	771	14	981	8	785	9	609	9	469	16
FLIP 84-19C	2359	2	1120	11	1130	4	972	6	577	10	927	2
FLIP 85-3C	1689	13	875	13	1174	1	1042	4	432	15	797	5
FLIP 85-5C	2212	5	2073	6	998	7	715	11	997	1	828	4
FLIP 85-7C	1762	11	1349	9	1053	6	1132	2	706	5	557	14
FLIP 85-17C	1945	8	2875	2	917	12	618	15	666	8	682	10
FLIP 85-54C	1687	14	3109	1	938	9	1076	3	568	12	703	8
FLIP 85-55C	1937	9	2854	3	933	10	632	14	718	3	516	15
FLIP 85-56C	1875	10	2781	4	868	14	1319	1	505	13	755	6
FLIP 85-61C	2460	1	1042	12	1150	2	694	13	674	7	844	3
FLIP 85-135C	2250	4	1786	8	1132	3	715	12	707	4	656	12
Local Check	-	-	-	-	794	16	993	5	-	-	729	7
Location Mean	**2012**		**1885**		**992**		**860**		**647**		**710**	
S.E. of Mean			369.53		95.21		113.80		77.19		91.10	
LSD at .05			1074.44		-		328.63		223.56		263.07	
C.V. %			33.96		16.63		22.92		20.67		22.22	
Error df			26		30		30		28		30	
Significance			*		NS		*		*		*	
Ent. > L. Check			2		5		0		1		0	

Cont'd. ...

Table 3.4.6. Cont'd. ..._

	CHILE		COLOMBIA		COSTA RICA		CYPRUS		FRANCE			
	Graneros		Surbata		Tierra Blanca		Laxia		Montboucher		Montpellier	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 83-77C	479	12	278	16	409	12	1526	10	2003	1	4607	3
FLIP 84-2C	1521	1	450	14	506	9	1310	16	1646	10	3803	13
FLIP 84-12C	1354	2	800	7	985	2	1388	13	1629	11	4281	6
FLIP 84-15C	1021	5	631	11	846	3	2181	1	1989	2	4988	1
FLIP 84-18C	625	10	819	6	717	5	1344	15	1627	12	3540	16
FLIP 84-19C	1021	6	1150	3	451	10	1587	9	1823	5	4324	5
FLIP 85-3C	521	11	788	8	430	11	1652	6	1589	14	4126	7
FLIP 85-5C	1042	4	394	15	529	8	1631	7	1940	4	4561	4
FLIP 85-7C	1146	3	563	12	145	14	1384	14	1676	8	3547	15
FLIP 85-17C	417	14	1331	2	277	13	1713	4	1655	9	4112	8
FLIP 85-54C	417	15	469	13	809	4	1626	8	1616	13	3926	10
FLIP 85-55C	688	7	781	9	137	15	1746	3	1683	7	3797	14
FLIP 85-56C	625	9	1106	4	1643	1	1676	5	1385	16	3933	9
FLIP 85-61C	625	8	888	5	572	7	1522	11	1690	6	3901	11
FLIP 85-135C	479	13	656	10	593	6	1414	12	1578	15	3844	12
Local Check	1042	4	1419	1	-	-	1972	2	1965	3	4787	2
Location Mean	**814**		**783**		**603**		**1604**		**1718**		**4130**	
S.E. of Mean							130.43		91.80		335.16	
LSD at .05							376.67		265.09		-	
C.V. %							14.08		9.25		11.48	
Error df							30		30		15	
Significance							*		*		NS	
Ent. > L. Check							0		0		0	

Cont'd. ...

Table 3.4.6. Cont'd. ...

	GREECE		IRAN		IRAQ				ITALY			
	Larissa		Karaj		Al Taamym		Mosul		Papiano		Tarquinia	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 83-77C	2363	7	237	16	489	10	57	6	2311	5	5228	1
FLIP 84-2C	1817	15	411	15	691	6	28	14	2001	16	4212	11
FLIP 84-12C	2425	6	833	14	251	13	29	12	2354	4	4487	9
FLIP 84-15C	2583	2	1347	9	910	2	104	1	2690	1	4873	3
FLIP 84-18C	2521	3	1112	12	828	4	-	-	2225	10	3926	13
FLIP 84-19C	2508	4	1707	3	556	9	49	7	2132	14	4698	5
FLIP 85-3C	2267	9	1926	1	1049	1	67	2	2246	9	3968	12
FLIP 85-5C	2242	10	1601	5	279	12	48	8	2459	2	4979	2
FLIP 85-7C	2713	1	1226	11	684	7	66	3	2217	11	3825	14
FLIP 85-17C	2063	12	1633	4	409	11	22	15	2284	6	4450	10
FLIP 85-54C	1858	14	1545	6	751	5	32	11	2212	12	4624	7
FLIP 85-55C	1996	13	1280	10	868	3	58	5	2375	3	4646	6
FLIP 85-56C	2221	11	975	13	-	-	35	10	2257	8	4836	4
FLIP 85-61C	2283	8	1493	7	-	-	29	13	2106	15	4497	8
FLIP 85-135C	2467	5	1424	8	-	-	41	9	2200	13	3545	15
Local Check	1788	16	1878	2	658	8	64	4	2279	7	3365	16
Location Mean	2257		1239		648		48		2272		4385	
S.E. of Mean	115.19		177.33		199.06		20.47		65.74		300.17	
LSD at .05	332.65		512.09		581.05		-		189.84		866.82	
C.V. %	8.84		23.83		53.22		59.69		5.01		11.86	
Error df	30		33		24		14		30		30	
Significance	*		*		*		NS		*		*	
Ent. > L. Check	11		0		0		0		1		10	

Cont'd. ...

Table 3.4.6. Cont'd. ...

Entry Name	JORDAN Jubeiha Y	JORDAN Jubeiha R	LEBANON Terbol Y	LEBANON Terbol R	MEXICO Culiacan Y	MEXICO Culiacan R	MOROCCO Zememra Y	MOROCCO Zememra R	PORTUGAL Elvas Y	PORTUGAL Elvas R	SPAIN Badajoz Y	SPAIN Badajoz R
FLIP 83-77C	397	6	1632	3	3458	2	744	15	2634	5	1197	9
FLIP 84-2C	249	10	1460	7	2816	12	1100	6	2261	11	1092	13
FLIP 84-12C	244	11	1614	4	2820	11	822	12	2748	2	1375	5
FLIP 84-15C	587	2	1955	2	3482	1	789	14	2981	1	2007	1
FLIP 84-18C	235	12	1185	14	2846	10	1289	3	1505	15	1036	14
FLIP 84-19C	439	5	1614	5	3362	6	800	13	2421	9	1548	4
FLIP 85-3C	555	3	1336	13	3163	7	1000	8	1977	12	1123	12
FLIP 85-5C	889	1	1976	1	2850	9	1333	1	2567	7	1650	2
FLIP 85-7C	257	8	1132	16	2573	14	1033	7	1609	14	808	16
FLIP 85-17C	346	7	1370	10	3126	8	889	11	2610	6	1224	8
FLIP 85-54C	209	16	1341	12	3445	4	1167	5	2446	8	1182	10
FLIP 85-55C	221	14	1360	11	3455	3	1278	4	2663	4	1164	11
FLIP 85-56C	213	15	1429	8	2242	15	989	9	2721	3	1311	7
FLIP 85-61C	229	13	1529	6	3376	5	967	10	2329	10	1356	6
FLIP 85-135C	256	9	1172	15	2773	13	1300	2	1670	13	1005	15
Local Check	483	4	1407	9	2182	16	689	16	929	16	1598	3
Location Mean	**363**		**1470**		**2998**		**1012**		**2254**		**1292**	
S.E. of Mean	79.48		56.18		245.48		231.86		163.07		106.53	
LSD at .05	229.53		162.23		708.91		–		470.92		307.65	
C.V. %	37.92		6.62		14.18		39.69		12.53		14.28	
Error df	30		30		30		30		30		30	
Significance	*		*		*		NS		*		*	
Ent. > L. Check	1		5		8		0		15		1	

Cont'd. ...

Table 3.4.6. Cont'd. ...

	SPAIN		SYRIA									
	Sevilla		Hama		Heimo		Idleb		Jindiress		Tel Hadya-S	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 83-77C	752	2	1270	7	282	13	1692	10	2037	6	1029	3
FLIP 84-2C	633	11	1095	10	280	14	951	16	2303	3	868	7
FLIP 84-12C	753	1	1122	9	215	16	1263	15	2005	8	815	13
FLIP 84-15C	748	3	1481	1	518	3	1912	2	2553	1	852	9
FLIP 84-18C	531	15	1291	6	372	10	1826	7	2029	7	979	5
FLIP 84-19C	658	9	1328	5	436	7	1734	9	2344	2	1019	4
FLIP 85-3C	702	6	1381	3	404	9	1853	5	2119	4	1034	2
FLIP 85-5C	597	13	1476	2	310	12	1881	3	1853	11	1085	1
FLIP 85-7C	579	14	1042	13	492	5	1857	4	1537	16	775	16
FLIP 85-17C	698	7	899	15	470	6	1498	13	1737	13	839	10
FLIP 85-54C	729	4	1063	12	528	2	1536	12	1548	15	786	15
FLIP 85-55C	647	10	878	16	433	8	1264	14	2050	5	868	8
FLIP 85-56C	688	8	1005	14	494	4	1747	8	1598	14	817	11
FLIP 85-61C	715	5	1138	8	361	11	1622	11	1817	12	817	12
FLIP 85-135C	622	12	1095	11	556	1	1853	6	1894	10	812	14
Local Check	499	16	1376	4	248	15	2070	1	2001	9	870	6
Location Mean	**659**		**1184**		**400**		**1660**		**1964**		**892**	
S.E. of Mean	41.28		106.58		59.53		170.64		188.14		67.83	
LSD at .05	119.21		307.78		171.91		492.78		543.32		195.89	
C.V. %	10.84		15.59		25.78		17.81		16.59		13.18	
Error df	30		30		30		30		30		30	
Significance	*		*		*		*		*		*	
Ent. > L. Check	12		0		8		0		1		1	

Cont'd. ...

Table 3.4.6. Cont'd. ...

Entry Name	SYRIA		TUNISIA						TURKEY			
	Tel Hadya -W		Beja		El kef		Oued Meliz		Adana		Amasya	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 83-77C	2116	2	3200	2	2757	12	903	7	903	3	2067	15
FLIP 84-2C	1341	16	2133	13	2875	9	567	12	602	11	2358	12
FLIP 84-12C	1997	3	2692	8	2641	14	957	6	426	14	2352	13
FLIP 84-15C	2124	1	3125	3	3310	3	763	9	486	12	2984	2
FLIP 84-18C	1360	15	1908	15	2815	11	460	13	625	10	2201	14
FLIP 84-19C	1614	11	2308	11	2731	13	880	8	440	13	3099	1
FLIP 85-3C	1966	4	2242	12	3088	7	577	11	704	7	2785	7
FLIP 85-5C	1865	5	2825	6	3160	5	737	10	810	5	2720	8
FLIP 85-7C	1360	14	1892	16	2840	10	373	15	833	4	2665	9
FLIP 85-17C	1656	9	3092	4	3037	8	1070	4	741	6	2825	5
FLIP 85-54C	1667	8	3383	1	3769	1	1193	2	394	16	2933	3
FLIP 85-55C	1640	10	2900	5	3569	2	1008	5	1019	1	2601	10
FLIP 85-56C	1439	13	2792	7	3208	4	1203	1	625	9	2405	11
FLIP 85-61C	1833	6	2642	9	3093	6	1080	3	981	2	2916	4
FLIP 85-135C	1614	12	2067	14	2398	15	363	16	412	15	2786	6
Local Check	1759	7	2583	10	1903	16	407	14	685	8	1983	16
Location Mean	**1709**		**2611**		**2950**		**784**		**668**		**2605**	
S.E. of Mean	123.88		166.22		435.22		64.65		214.39		231.41	
LSD at .05	357.74		480.01		–		186.68		–		668.26	
C.V. %	12.55		11.02		25.56		14.28		55.60		15.39	
Error df	30		30		30		30		30		30	
Significance	*		*		NS		*		NS		*	
Ent. > L. Check	1		4		–		10		–		9	

Cont'd. ...

Table 3.4.6. Cont'd. ...

	TURKEY													
	Haymana		Diyarbakir		Erzurum		Eskisehir		Kurfalli		Menemen		Overall Mean	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 83-77C	1464	8	1722	6	777	15	1623	3	1194	8	1748	6	1546	4
FLIP 84-2C	1223	10	1139	14	851	13	1585	4	1315	5	1748	7	1374	14
FLIP 84-12C	1893	1	1840	4	1195	3	1575	5	1100	10	1489	13	1505	9
FLIP 84-15C	625	16	2014	3	1633	1	1680	2	1503	2	1830	2	1706	1
FLIP 84-18C	1536	6	1521	9	1168	4	1462	8	1336	4	1589	10	1384	12
FLIP 84-19C	1813	3	1653	7	1126	7	1378	11	1302	6	1648	8	1590	3
FLIP 85-3C	679	15	1778	5	778	14	1212	14	1069	13	1504	12	1468	11
FLIP 85-5C	991	12	2042	2	1126	6	1443	10	1657	1	1896	1	1649	2
FLIP 85-7C	1723	5	1431	11	1033	8	1233	13	611	16	1456	14	1355	15
FLIP 85-17C	1170	11	1118	16	950	9	1457	9	1069	12	1644	9	1514	8
FLIP 85-54C	857	14	1507	10	874	12	1210	15	1074	11	1822	3	1539	5
FLIP 85-55C	1429	9	1125	15	1158	5	1513	7	866	15	1407	15	1528	6
FLIP 85-56C	1848	2	1194	13	736	16	1548	6	1231	7	1807	4	1524	7
FLIP 85-61C	1518	7	1347	12	877	11	1295	12	1167	9	1578	11	1499	10
FLIP 85-135C	1786	4	1528	8	896	10	1165	16	944	14	1348	16	1374	13
Local Check	982	13	2153	1	1431	2	2107	1	1343	3	1759	5	-	
Location Mean	**1346**		**1569**		**1038**		**1468**		**1174**		**1642**			
S.E. of Mean	253.59		197.71		110.89		114.19		128.66		149.48			
LSD at .05	764.23		570.96		320.24		329.75		371.55		431.67			
C.V. %	26.64		21.82		18.50		13.47		18.98		15.77			
Error df	15		30		30		30		30		30			
Significance	*		*		*		*		*		NS			
Ent. > L. Check	4		0		0		0		0		-			

(1) Guelma, Al Taamym and Mosul were excluded from the overall mean
* = Significant at $P \leq 0.05$, NS = not Significant.

Table 3.4.7. The five heaviest seed yielding entries at the individual locations in the CIYT-L during 1986/87.

Rank	ALGERIA				CANADA	CHILE		COLOMBIA	COSTA RICA	CYPRUS	FRANCE
	Khroub	Guelma	Setif	Sidi Bol - Abbes	Saska - tchewan	Chillan	Graneros	Surbata	Tiorra - Blanca	Laxia	Montboucher
1	FLIP85- 61C	FLIP85- 54C	FLIP85- 3C	FLIP85- 56C	FLIP85- 5C	FLIP84- 18C	FLIP84- 2C	Local Check	FLIP85- 56C	FLIP84- 15C	FLIP83- 77C
2	FLIP84- 19C	FLIP85- 17C	FLIP85- 61C	FLIP85- 7C	FLIP83- 77C	FLIP84- 19C	FLIP84- 12C	FLIP85- 17C	FLIP84- 12C	Local Check	FLIP85- 15C
3	FLIP84- 12C	FLIP85- 55C	FLIP85-135C	FLIP85- 54C	FLIP85- 55C	FLIP85- 61C	FLIP85- 7C	FLIP84- 19C	FLIP84- 15C	FLIP85- 55C	Local Check
4	FLIP85-135C	FLIP85- 56C	FLIP84- 19C	FLIP85- 3C	FLIP85-135C	FLIP85- 5C	FLIP85- 5C	FLIP85- 56C	FLIP85- 54C	FLIP85- 17C	FLIP85- 5C
5	FLIP85- 5C	FLIP83- 77C	FLIP84- 15C	Local Check	FLIP85- 7C	FLIP85- 3C	FLIP84- 15C	FLIP85- 61C	FLIP84- 18C	FLIP85- 56C	FLIP84- 19C

Cont'd 2/..

Rank	FRANCE	GREECE	IRAN	IRAQ		ITALY		JORDAN	LEBANON	MEXICO	MOROCCO
	Montpellier	Larissa	Karaj	Al Taamym	Mosul	Papiona	Tarquinia	Jubeiha	Terbol	Culiacan	Zememra
1	FLIP84- 15C	FLIP85- 7C	FLIP85- 3C	FLIP85- 3C	FLIP84- 15C	FLIP84- 15C	FLIP83- 77C	FLIP85- 5C	FLIP85- 5C	FLIP84- 15C	FLIP85- 5C
2	Local Check	FLIP84- 15C	Local Check	FLIP84- 15C	FLIP85- 3C	FLIP85- 5C	FLIP85- 5C	FLIP84- 15C	FLIP84- 15C	FLIP83- 77C	FLIP85-135C
3	FLIP83- 77C	FLIP84- 18C	FLIP84- 19C	FLIP85- 55C	FLIP85- 7C	FLIP85- 55C	FLIP84- 15C	FLIP85- 3C	FLIP83- 77C	FLIP85- 55C	FLIP84- 18C
4	FLIP85- 5C	FLIP84- 19C	FLIP85- 17C	FLIP84- 18C	Local Check	FLIP84- 12C	FLIP85- 56C	Local Check	FLIP84- 12C	FLIP85- 54C	FLIP85- 55C
5	FLIP84- 19C	FLIP85-135C	FLIP85- 5C	FLIP85- 54C	FLIP85- 55C	FLIP83- 77C	FLIP84- 19C	FLIP84- 19C	FLIP84- 19C	FLIP85- 61C	FLIP85- 54C

Cont'd 2/..

Rank	PORTUGAL	SPAIN		SYRIA						TUNISIA
	Elvas	Badajoz	Sevilla	Hama	Heimo	Idlob	Jindiress	Tel Hadya Spring	Tel Hadya Winter	Beja
1	FLIP84- 15C	FLIP84- 15C	FLIP84- 12C	FLIP84- 15C	FLIP85-135C	Local Check	FLIP84- 15C	FLIP85- 5C	FLIP84- 15C	FLIP85- 54C
2	FLIP84- 12C	FLIP85- 5C	FLIP83- 77C	FLIP85- 5C	FLIP85- 54C	FLIP84- 15C	FLIP84- 19C	FLIP85- 3C	FLIP83- 77C	FLIP83- 77C
3	FLIP85- 56C	Local Check	FLIP84- 15C	FLIP85- 3C	FLIP84- 15C	FLIP85- 5C	FLIP84- 2C	FLIP83- 77C	FLIP84- 12C	FLIP84- 15C
4	FLIP85- 55C	FLIP84- 19C	FLIP85- 54C	Local Check	FLIP85- 56C	FLIP85- 7C	FLIP85- 3C	FLIP84- 19C	FLIP85- 3C	FLIP85- 17C
5	FLIP83- 77C	FLIP84- 12C	FLIP85- 61C	FLIP84- 19C	FLIP85- 7C	FLIP85- 3C	FLIP85- 55C	FLIP84- 18C	FLIP85- 5C	FLIP85- 55C

Cont'd 2/..

Rank	TUNISIA		TURKEY							
	El Kef	Oued Meliz	Adana UAP	Amasya	Al Taamym	Diyarbakir	Erzurum	Eskisehir	Kurfalli	Menemen
1	FLIP85- 54C	FLIP85- 61C	FLIP85- 55C	FLIP84- 19C	FLIP84- 12C	Local Check	FLIP84- 15C	Local Check	FLIP85- 5C	FLIP85- 7C
2	FLIP85- 55C	FLIP85- 54C	FLIP85- 61C	FLIP84- 15C	FLIP85- 56C	FLIP85- 5C	Local Check	FLIP84- 15C	FLIP84- 15C	FLIP84- 15C
3	FLIP84- 15C	FLIP85- 61C	FLIP83- 77C	FLIP85- 54C	FLIP84- 19C	FLIP84- 15C	FLIP83- 77C	FLIP83- 77C	Local Check	FLIP85- 54C
4	FLIP85- 56C	FLIP85- 17C	FLIP85- 7C	FLIP85- 61C	FLIP85-135C	FLIP84- 12C	FLIP84- 2C	FLIP84- 2C	FLIP84- 18C	FLIP85- 56C
5	FLIP85- 5C	FLIP85- 55C	FLIP85- 5C	FLIP85- 17C	FLIP85- 7C	FLIP85- 3C	FLIP84- 12C	FLIP84- 12C	FLIP84- 2C	Local Check

The highest mean seed yield (Table 3.4.6) was obtained at Tarquinia in Italy (4385 kg/ha) and were followed by Montpellier in France (4130 kg/ha), Culiacan in Mexico (2998 kg/ha), El Kef in Tunisia (2950 kg/ha), Amasya in Turkey (2605 kg/ha) and Beja in Tunisia (2611 kg/ha). The seed yields at Mosul in Iraq, Jubeiha in Jordan and Heimo in Syria were extremely poor (ranging between 40 and 400 kg/ha). One of the entries, FLIP83- 77C at Tarquinia in Italy gave as high as 5228 kg/ha. On average over locations, the five best entries included FLIP84- 15C, FLIP85- 5C, FLIP84- 19C, FLIP83-77C, FLIP85- 54C with respective seed yields of 1706, 1649, 1590, 1546 and 1539 kg/ha. The ANOVA for seed yield revealed that the local check was excelled by a significant margin ($P < 0.05$) by some entries at 19 locations: Guelma and Setif in Algeria, Saskatchewan in Canada, Larissa in Greece, Papiona and Tarquinia in Italy, Jubeiha in Jordan, Terbol in Lebanon, Culiacan in Mexico, Elvas in Portugal, Sevilla and Badajoz on Spain, Heimo, Jindiress and Tel Hadya in Syria; Beja and Oued Meliz in Tunisia; Amasya and Haymana in Turkey.

The five best entries in each of the locations are given in Table 3.4.7. The entry FLIP85- 5C occured most frequently (22 times) among the five heaviest yielders and was followed by FLIP84- 19C (17 times), FLIP83-77C, and FLIP85- 55C (15 times). These lines were comparatively better in adaptation.

3.5. CHICKPEA INTERNATIONAL YIELD TRIAL-TALL (CIYT-T)

Material

The Chickpea International Yield Trial - Tall comprised of 23 test entries and one local check to be supplied by the cooperators. This trial was initiated this season and being reported for the first time. Twenty two of the test entries originated from the materials developed through hybridization at ICARDA. All these lines were selected on the basis of their superior performance at least once in international, regional, or local trials.

Methods and Management

The trial design was a randomised complete block with three replications. The suggested plot size was 4 rows, each 4 meter long with inter- and intra row spacings of 30- and 10 cm, respectively. Forty seven, sets were sent to cooperators in 17 countries. The results were, however, received for 36 trials from 13 countries. The agronomic information received from the cooperators is given in Table 3.5.1.

Results and Discusion

The location means for time to flowering (Table 3.5.2), time to maturity (Table 3.5.3), plant height (Table 3.5.4) and 100-seed weight (Table 3.5.5) ranged from 53 days (for Terbol, Lebanon) to 169 days (for Montpellier, France), 94 days (for Terbol, Lebanon) to 215 days (for Elvas, Portugal), 32 cm (for Al Taamym in Iraq and Quadah in Algeria) to 85 cm (for Elvas, Portugal), and 29 g/100-seed (for Tagura, Libya) to 45 g/100-seed (for

Table 3.5.1. Agronomic data for different locations in the CIYT-T during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman	16.04.87	05.09.87	30	60		7	-	Labnan Local
ALGERIA	Khroub	08.12.86	13.07.87	17	45		-	Treflan	Rabat-9
ALGERIA	Quadah	27.01.87	-		46		-	-	Sebdau
ALGERIA	Setif	NA	NA		100				Rabat-9
ALGERIA	Sidi Bel Abbes	16.02.87	10.06.87	15	90		-	-	Sebdan
CYPRUS	Laxia	03.12.86	18.06.87	21	48		-	-	Local
FRANCE	Montpellier	25.11.86	22.07.87		100		-	Nitrofene, Neburon	INRA 199
IRAQ	Al Taamym	09.03.87	12.07.87	40	40		8	-	Local
IRAQ	Mosul	21.01.87	20.06.87	-			-	-	Local
ITALY	Catania	10.12.86	08.07.87	45	90		-	-	11 EN
ITALY	Tarquinia	26.12.86	19.07.87	54	138		-	Nebutrin, Targa	La Molara
JORDAN	Marow			20	40		-	-	
JORDAN	Mushagar	29.12.86	10.06.87	20	60		-	-	Jazaeree
LEBANON	Terbol/W	25.11.86	15.07.87		50		-	Kerb, Bladex	NA
LEBANON	Terbol/S	08.04.87	15.07.87		50		1	Kerb, Igran	NA
LIBYA	Tagura	08.11.86		30	60		-	-	NA
PORTUGAL	Elvas	05.11.86	22.06.87		72	60	-	-	CHK 256
PORTUGAL	Oeiras	24.11.86	09.07.87	21	63	63	-	-	Odrinhas
SPAIN	Badajoz	20.11.86	08.06.87	-			-	Terbutrina, Tecto, Actellic	Pedrosillano
SPAIN	Sevilla	30.10.86	24.06.87	28	128		1	Lazo, Limben, Durban	Mulata Badajoz
SYRIA	Al Ghab	27.11.86	13.06.87	30	50		-	-	Local
SYRIA	Idleb	02.12.86	10.06.87		60		-	-	NA
SYRIA	Gelline	07.12.86	04.06.87	20	50			-	-
SYRIA	Jindiress/S	04.03.87	05.07.87	-			-	-	ILC 1929
SYRIA	Jindiross/W	02.12.86	11.06.87	-			-	-	FLIP82-150C
SYRIA	Tel Hadya/S	23.02.87	25.06.87	30	50		-	Igran, Malathion	ILC 1929
SYRIA	Tel Hadya/W	01.12.86	09.06.87	30	50		-	Igran, Malathion	FLIP82-150C
TUNISIA	Beja	NA					NA		NA
TUNISIA	El Kef	NA					NA		NA
TUNISIA	Oued Meliz	NA					NA		NA
TUNISIA	Ras Rajel	NA					NA		NA
TURKEY	Adana (U.A.F.)	14.11.86	16.06.87	30	50		-	-	NA
TURKEY	ADANA (T.A.E.)	14.11.86	15.06.87	NA			NA	NA	NA
TURKEY	Balikesin	29.01.87	10.07.87	30	60		-	-	NA
TURKEY	Diyarbakir	20.11.86	22.06.87	40	60		-	-	ILC 482
TURKEY	Menemen (Izmir)	16.01.86	08.07.87	30	60		-	Igran	ILC 195/2

NA = Not available, S = Spring, W = Winter

Table 3.5.2. Time to flowering (days) of entries at different locations in the CIYT-T during 1986/87.

Entry Name	Pedeigree	Origin	AFGHANISTAN	ALGERIA			CYPRUS
			Darul - Aman	Khroub	Quadah	Setif	Sidi - Bel Abbes	Laxia
FLIP 81-26W	X 79 TH 50/ILC 262XILC 783	ICARDA/ICRISAT	69	159	119	132	114	113
FLIP 81-29W	X 79 TH 25/ILC 262XILC 194	ICARDA/ICRISAT	63	158	111	130	111	107
FLIP 82-104C	X 79 TH 101/ILC 523XILC 183	ICARDA/ICRISAT	68	154	119	132	111	107
FLIP 82-115C	X 80 TH 199/ILC 3279XICC 78184	ICARDA/ICRISAT	69	162	123	139	116	113
FLIP 82-127C	X 79 TH 8/ILC 191XILC 496	ICARDA/ICRISAT	68	162	119	132	114	114
FLIP 83-22C	X 80 TH 177/ILC 195XILC 482	ICARDA/ICRISAT	64	160	121	136	116	106
FLIP 83-73C	X 80 TH 177/ILC 195XILC 482	ICARDA/ICRISAT	72	143	113	132	111	105
FLIP 84-56C	X 81 TH 234/ILC 482XILC 72	ICARDA/ICRISAT	62	143	110	128	107	104
FLIP 84-62C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	63	161	119	129	114	107
FLIP 84-64C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	73	158	112	135	111	108
FLIP 84-67C	X 79 TH 219/ILC 201XILC 3279	ICARDA/ICRISAT	62	159	121	130	116	108
FLIP 84-75C	X 80 TH 264/(ILC 480XILC 72)XILC 263	ICARDA/ICRISAT	62	154	123	131	116	104
FLIP 84-87C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	64	161	120	130	116	108
FLIP 84-112C	X 81 TH 53/ILC 1920XILC 2506	ICARDA/ICRISAT	69	154	123	131	116	106
FLIP 84-133C	X 81 TH 129/ILC 202XILC 262	ICARDA/ICRISAT	65	160	123	131	111	106
FLIP 84-148C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	76	161	122	130	116	112
FLIP 84-161C	X 81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	69	159	123	130	116	108
FLIP 84-163C	X 81 TH 113/ILC 191XILC 484	ICARDA/ICRISAT	61	161	115	130	116	110
FLIP 84-178C	X 80 TH 113/ILC 192XILC 202	ICARDA/ICRISAT	65	159	122	140	116	109
FLIP 84-185C	X 80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	64	157	118	133	116	112
FLIP 84-188C	X 81 TH 48/ILC 1920XILC 201	ICARDA/ICRISAT	66	162	120	130	116	109
FLIP 81-293C	(Improved check)	ICARDA/ICRISAT	67	157	115	129	114	110
ILC 482	(Long term check)	Turkey	72	156	118	137	114	115
Local Check	(Local check)	-	66	151	111	138	107	102
Location Mean			**67**	**157**	**118**	**132**	**114**	**108**
S.E. of Mean			3.06		1.23	1.02	0.68	1.88
LSD at 5%			-		3.49	2.92	1.94	5.36
C.V. %			7.97		1.80	1.34	1.04	3.01
Error d.f.			46		46	46	46	46
Significance			NS		*	*	*	*

Cont'd. ...

Table 3.5.2. Cont'd. ...

Entry Name	FRANCE	IRAQ	ITALY		JORDAN	LEBANON		LIBYA	PORTUGAL		SPAIN	
	Mont - pellier	Al Ta- amym	Catania	Tarqu- inia	Marow	Terbol Spring	Terbol Winter	Tagura	Elvas	Oeiras	Badajoz	Sevilla
FLIP 81-26W	168	73	152	129	102	55	148	136	161	99	139	145
FLIP 81-29W	168	73	146	133	100	47	145	134	152	110	135	138
FLIP 82-104C	168	73	149	132	100	54	147	135	153	96	133	140
FLIP 82-115C	168	72	155	132	104	61	153	137	158	97	141	141
FLIP 82-127C	172	72	149	129	100	55	148	139	159	99	140	143
FLIP 83-22C	168	71	146	129	100	54	147	133	153	97	136	141
FLIP 83-73C	168	69	144	132	101	49	145	129	152	98	135	142
FLIP 84-56C	168	72	145	129	99	47	145	126	150	105	132	137
FLIP 84-62C	168	70	146	130	106	52	146	131	158	97	133	137
FLIP 84-64C	168	74	147	129	100	52	145	136	156	99	133	140
FLIP 84-67C	168	70	147	130	103	50	147	131	152	109	136	141
FLIP 84-75C	168	72	149	129	99	54	147	134	150	97	135	140
FLIP 84-87C	168	72	147	129	102	54	147	132	149	103	136	137
FLIP 84-112C	168	68	150	130	103	53	147	131	149	97	132	139
FLIP 84-133C	168	71	146	129	99	52	147	132	148	96	136	138
FLIP 84-148C	171	73	155	130	103	56	151	134	154	99	143	142
FLIP 84-161C	168	70	153	130	105	55	147	134	154	101	137	141
FLIP 84-163C	168	74	150	130	104	49	148	135	155	99	135	143
FLIP 84-178C	168	70	147	129	102	51	148	135	156	98	133	140
FLIP 84-185C	168	70	150	129	101	54	147	134	149	107	135	139
FLIP 84-188C	171	70	152	132	101	56	159	134	169	97	138	145
FLIP 81-293C	168	71	147	132	105	53	144	134	157	97	137	141
ILC 482	172	72	155	133	100	62	153	137	159	98	138	145
Local Check	172	73	144	129	101	45	143	125	149	108	130	141
Location Mean	**169**	**72**	**149**	**130**	**102**	**53**	**148**	**133**	**154**	**100**	**136**	**141**
S.E. of Mean	0.39	1.54	1.65	0.95	1.64	0.80	0.47	1.64	1.64	1.20	1.26	0.77
LSD at 5%	1.11	-	4.71	2.71	-	2.28	1.35	4.67	4.66	3.41	3.60	2.18
C.V. %	0.40	3.73	1.92	1.27	2.80	2.62	0.56	2.13	1.84	2.07	1.61	0.94
Error d.f.	46	46	46	46	46	46	46	46	46	46	46	46
Significance	*	NS	*	*	NS	*	*	*	*	*	*	*

Cont'd. ...

Table 3.5.2. Cont'd. ...

Entry Name	SYRIA							TURKEY				Overall Mean
	Al Ghab	Idleb	Gelline	Jindi-ress-S	Jindi-ress-W	Tel Hadya-S	Tel Hadya-W	Adana-1	Adana-2	Diyar-bakir	Menemen	
FLIP 81-26W	134	146	128	75	140	78	126	113	157	171	112	124
FLIP 81-29W	129	145	129	69	134	75	119	113	157	167	111	121
FLIP 82-104C	129	145	129	74	136	77	121	112	156	167	112	122
FLIP 82-115C	133	154	135	78	144	82	128	113	156	169	117	126
FLIP 82-127C	134	145	132	75	139	77	121	110	156	167	114	124
FLIP 83-22C	130	146	129	76	137	77	120	112	157	169	112	122
FLIP 83-73C	124	142	126	70	133	74	118	110	158	171	111	120
FLIP 84-56C	123	143	126	69	131	74	117	112	156	165	111	118
FLIP 84-62C	129	144	127	73	137	77	120	113	156	167	113	121
FLIP 84-64C	129	144	126	73	139	77	120	112	157	167	112	122
FLIP 84-67C	128	145	128	75	138	80	119	112	157	170	113	122
FLIP 84-75C	129	143	127	77	137	77	119	113	157	168	111	121
FLIP 84-87C	126	143	127	75	137	77	118	112	157	168	112	122
FLIP 84-112C	126	142	128	74	137	78	118	113	157	168	113	121
FLIP 84-133C	128	142	126	74	137	78	118	112	157	168	111	121
FLIP 84-148C	132	145	133	79	143	82	122	113	157	168	114	125
FLIP 84-161C	131	145	127	77	139	79	120	113	157	167	113	123
FLIP 84-163C	131	146	133	75	138	77	121	113	156	169	113	123
FLIP 84-178C	130	144	128	77	139	78	119	112	158	167	111	122
FLIP 84-185C	129	143	129	77	138	78	119	113	156	168	112	122
FLIP 84-188C	133	174	130	78	142	80	121	111	157	174	117	126
FLIP 81-293C	127	145	126	72	139	78	118	111	157	168	112	122
ILC 482	136	142	133	77	143	81	128	113	157	168	112	125
Local Check	131	147	125	67	133	72	118	113	158	163	113	
Location Mean	**130**	**146**	**129**	**74**	**138**	**78**	**120**	**112**	**157**	**168**	**113**	
S.E. of Mean	1.09	0.72	0.75	0.89	0.46	0.54	0.91	0.66	0.65	0.68	0.83	
LSD at 5%	3.11	2.50	2.14	2.52	1.30	1.55	2.59	1.87	-	1.93	2.37	
C.V. %	1.46	0.85	1.01	2.06	0.57	1.31	1.31	1.01	0.72	0.70	1.21	
Error d.f.	46	46	46	46	46	46	46	46	46	46	46	
Significance	*	*	*	*	*	*	*	*	NS	*	*	

* = Significant at P $\leq$0.05, NS = not significant.

Table 3.5.3. Time to maturity (days) of entries at different locations in the CIYT-T during 1986/87.

Entry Name	AFGHANISTAN	ALGERIA			IRAQ	ITALY		JORDAN	LEBANON
	Darul Aman	Khroub	Setif	Sidi - Bel Abbes	Al Taamym	Catania	Tarquinia	Marow	Terbol Winter
FLIP 81-26W	124	206	194	155	118	205	197	127	207
FLIP 81-29W	119	205	197	160	117	199	202	121	196
FLIP 82-104C	126	203	203	158	117	200	197	129	197
FLIP 82-115C	124	207	197	160	116	202	189	125	197
FLIP 82-127C	126	208	198	158	112	205	198	128	203
FLIP 83-22C	122	208	188	158	120	204	191	125	197
FLIP 83-73C	124	200	186	160	114	197	195	127	195
FLIP 84-56C	117	204	185	160	116	197	195	125	195
FLIP 84-62C	117	207	189	160	114	204	194	128	198
FLIP 84-64C	132	205	200	158	118	206	198	131	199
FLIP 84-67C	122	205	189	158	116	204	192	126	201
FLIP 84-75C	118	206	189	158	112	205	194	127	198
FLIP 84-87C	117	207	187	160	116	199	194	129	197
FLIP 84-112C	124	203	188	165	119	202	194	126	198
FLIP 84-133C	121	206	196	165	115	199	194	128	201
FLIP 84-148C	131	205	202	158	117	205	197	127	201
FLIP 84-161C	122	206	189	165	110	206	198	125	198
FLIP 84-163C	123	206	201	160	119	205	198	127	202
FLIP 84-178C	123	202	197	160	-	204	194	125	198
FLIP 84-185C	121	206	200	158	112	205	194	128	201
FLIP 84-188C	120	208	201	155	-	206	198	127	211
FLIP 81-293C	121	203	190	158	117	199	199	131	197
ILC 482	122	205	186	160	116	204	192	126	197
Local Check	119	206	203	158	118	202	195	126	198
Location Mean	**122**	**205**	**194**	**159**	**116**	**203**	**195**	**127**	**199**
S.E. of Mean	3.29		0.81	0.00	0.64	1.37	2.01	2.23	0.39
LSD at 5%	-		2.32	0.00	1.83	3.91	5.73	-	1.10
C.V. %	4.66		0.73	0.00	0.96	1.17	1.79	3.05	0.34
Error d.f.	46		46	46	42	46	46	46	46
Significance	NS		*	*	*	*	*	NS	*

Cont'd. ...

Table 3.5.3. Cont'd. ...

Entry Name	LEBANON	LIBYA	PORTUGAL		SPAIN		SYRIA		
	Terbol-S	Tagura	Elvas	Oeiras	Badajoz	Sevilla	Al Ghab	Idleb	Gelline
FLIP 81-26W	100	191	214	193	201	203	174	189	173
FLIP 81-29W	96	191	214	202	199	196	171	187	171
FLIP 82-104C	95	191	217	190	204	195	173	188	173
FLIP 82-115C	100	192	214	191	200	197	173	190	173
FLIP 82-127C	95	192	224	193	204	203	176	190	176
FLIP 83-22C	100	191	214	191	197	200	172	188	172
FLIP 83-73C	88	188	214	192	191	195	168	187	169
FLIP 84-56C	85	189	214	198	191	198	172	186	171
FLIP 84-62C	96	188	214	191	199	199	172	188	172
FLIP 84-64C	97	190	214	193	204	203	174	189	172
FLIP 84-67C	91	189	214	202	201	201	174	187	172
FLIP 84-75C	95	189	214	191	200	200	175	188	174
FLIP 84-87C	93	190	214	197	198	202	175	188	171
FLIP 84-112C	93	189	214	191	200	200	174	188	172
FLIP 84-133C	91	191	214	190	200	200	174	189	171
FLIP 84-148C	97	190	215	193	202	202	174	189	174
FLIP 84-161C	95	190	214	195	201	202	176	189	173
FLIP 84-163C	93	192	216	193	203	202	177	189	175
FLIP 84-178C	94	190	214	192	198	201	175	187	173
FLIP 84-185C	91	191	214	201	196	200	175	187	172
FLIP 84-188C	95	191	214	191	194	203	175	189	174
FLIP 81-293C	97	191	214	191	196	196	171	188	170
ILC 482	102	192	214	192	202	199	173	189	172
Local Check	84	192	216	201	198	207	172	189	171
Location Mean	**94**	**190**	**215**	**194**	**199**	**200**	**173**	**188**	**172**
S.E. of Mean	1.02	1.27	1.00	1.05	1.58	1.57	1.01	1.78	0.87
LSD at 5%	2.91	–	2.84	3.00	4.51	4.47	2.86	–	2.49
C.V. %	1.88	1.15	0.80	0.94	1.38	1.36	1.00	0.72	0.88
Error d.f.	46	46	46	46	46	46	46	46	46
Significance	*	NS	*	*	*	*	*	NS	*

Cont'd. ...

Table 3.5.3. Cont'd. ...

Entry Name	SYRIA			TURKEY				(1) Overall Mean
	Jindi-ress-S	Tel Hadya-S	Tel Hadya-W	Adana-1	Adana-2	Diyar-bakir	Menemen	
FLIP 81-26W	115	117	166	167	207	203	150	174
FLIP 81-29W	114	117	166	170	207	203	150	173
FLIP 82-104C	116	116	166	167	207	203	155	174
FLIP 82-115C	115	116	170	169	207	203	155	174
FLIP 82-127C	117	117	169	169	207	206	150	175
FLIP 83-22C	114	118	165	170	207	203	150	173
FLIP 83-73C	115	115	164	167	207	203	145	170
FLIP 84-56C	114	117	165	170	207	203	150	171
FLIP 84-62C	114	117	165	167	207	208	150	173
FLIP 84-64C	116	117	167	169	207	203	155	175
FLIP 84-67C	114	118	166	170	207	208	150	173
FLIP 84-75C	114	118	166	169	207	208	150	173
FLIP 84-87C	114	118	165	167	207	208	150	173
FLIP 84-112C	114	119	166	167	207	212	150	173
FLIP 84-133C	116	117	165	170	207	208	150	173
FLIP 84-148C	117	119	169	169	211	208	155	175
FLIP 84-161C	116	118	165	170	211	204	155	174
FLIP 84-163C	115	120	169	170	207	208	155	175
FLIP 84-178C	114	118	166	169	207	203	155	173
FLIP 84-185C	114	117	166	169	207	209	150	174
FLIP 84-188C	114	118	166	169	207	207	150	174
FLIP 81-293C	114	117	166	169	210	203	150	172
ILC 482	114	117	169	170	211	203	150	173
Local Check	116	115	165	170	211	203	150	
Location Mean	**115**	**117**	**166**	**169**	**208**	**205**	**151**	
S.E. of Mean	0.83	0.53	0.40	1.07	0.27	0.44		
LSD at 5%	2.36	1.50	1.15	-	0.78	1.26		
C.V. %	1.25	0.78	0.42	1.10	0.23	0.37		
Error d.f.	46	46	46	46	46	46		
Significance	*	*	*	NS	*	*		

(1) Al Taamym is excluded from the overall mean, * = Significant at P $\leq$0.05 ,NS = not significant.

Table 3.5.4. Plant height (cm) of entries at different locations in the CIYT-T during 1986/87.

	AFGHANISTAN	ALGERIA				CYPRUS	IRAQ		ITALY		JORDAN
Entry Name	Darul - Aman	Quadah	Khroub	Setif	Sidi Bel-Abbes	Laxia	Al Taamym	Mosul	Catania	Tarquinia	Marow
FLIP 81-26	50	26	58	45	38	47	38	26	57	51	59
FLIP 81-29	43	31	40	50	38	53	23	37	60	49	59
FLIP 82-104	50	30	58	49	39	51	44	37	57	51	65
FLIP 82-115	43	33	55	43	36	54	21	32	60	53	54
FLIP 82-127	50	25	60	56	37	50	31	37	57	58	62
FLIP 83-22	50	32	65	44	37	47	46	37	64	57	57
FLIP 83-73	35	35	60	46	35	48	44	31	58	47	65
FLIP 84-56	38	36	50	45	36	52	30	35	60	46	51
FLIP 84-62	40	33	45	50	34	51	32	31	61	53	56
FLIP 84-64	33	31	65	45	34	42	42	30	58	52	62
FLIP 84-67	53	36	45	47	39	58	26	40	65	55	58
FLIP 84-75	40	31	55	50	39	53	29	32	63	56	67
FLIP 84-87	40	33	40	42	36	50	27	31	62	53	59
FLIP 84-112	40	30	58	48	38	54	21	33	62	54	56
FLIP 84-133	38	33	48	46	35	54	37	36	63	55	66
FLIP 84-148	40	35	55	50	39	63	24	39	64	59	57
FLIP 84-161	38	25	65	52	41	51	41	35	64	58	60
FLIP 84-163	45	33	65	52	39	49	27	35	62	53	58
FLIP 84-178	43	33	58	47	37	51	39	32	63	55	70
FLIP 84-185	38	36	58	50	35	53	22	36	61	56	61
FLIP 84-188	50	33	55	46	35	54	38	32	62	53	65
FLIP 81-293	38	35	53	45	37	54	25	29	59	44	59
ILC 482	53	35	60	51	42	63	34	28	65	55	66
Local Check	30	30	53	40	30	47	21	22	56	51	66
Location Mean	**42**	**32**	**55**	**47**	**37**	**52**	**32**	**33**	**61**	**53**	**61**
S.E. of Mean	3.17	2.01		2.81	1.65	2.11	3.92	2.86	2.07	1.78	4.12
LSD at 5%	7.57	5.71		–	4.71	5.04	11.15	–	–	5.07	–
C.V. %	10.62	10.81		10.26	7.77	5.76	21.35	12.27	5.88	5.83	11.77
Error d.f.	23	46		46	46	23	46	23	46	46	46
Significance	*	*		NS	*	*	*	NS	NS	*	NS

Cont'd. ...

Table 3.5.4. Cont'd. ...

	LEBANON		LIBYA	PORTUGAL		SPAIN		SYRIA			
Entry Name	Terbol-S	Terbol-W	Tagura	Elvas	Oeiras	Badajoz	Sevilla	Al Ghab	Idleb	Gelline	Jindiress-S
FLIP 81-26W	42	55	58	80	61	62	73	68	55	57	31
FLIP 81-29W	44	60	59	86	70	69	85	73	59	73	36
FLIP 82-104C	47	60	58	87	75	65	85	75	55	69	33
FLIP 82-115C	43	58	56	83	60	62	77	73	54	67	33
FLIP 82-127C	40	62	63	83	78	68	80	75	60	68	33
FLIP 83-22C	46	57	63	83	62	66	82	73	61	67	32
FLIP 83-73C	44	61	56	83	61	64	68	67	52	64	36
FLIP 84-56C	43	56	56	83	62	64	78	72	60	61	30
FLIP 84-62C	41	58	56	83	63	63	80	68	55	65	35
FLIP 84-64C	35	50	41	79	58	59	70	65	48	64	29
FLIP 84-67C	42	58	56	84	63	66	78	70	64	66	37
FLIP 84-75C	45	55	55	88	72	59	78	73	62	69	33
FLIP 84-87C	43	59	58	83	80	61	80	70	58	64	33
FLIP 84-112C	46	60	52	87	68	67	75	72	58	68	37
FLIP 84-133C	44	60	51	89	67	60	80	68	53	64	37
FLIP 84-148C	47	65	68	96	78	71	82	77	60	74	37
FLIP 84-161C	45	62	60	94	72	68	80	72	54	67	36
FLIP 84-163C	41	59	59	87	67	59	72	70	58	65	35
FLIP 84-178C	42	57	55	83	72	64	78	68	56	64	36
FLIP 84-185C	44	58	51	80	70	61	78	73	52	64	33
FLIP 84-188C	47	66	68	90	76	69	85	75	56	74	37
FLIP 81-293C	44	60	51	79	59	65	73	68	51	67	34
ILC 482	47	65	68	99	75	77	88	75	60	73	35
Local Check	34	50	46	80	49	55	73	42	63	51	25
Location Mean	**43**	**59**	**57**	**85**	**67**	**64**	**78**	**70**	**57**	**66**	**34**
S.E. of Mean	2.12	2.11	2.85	2.31	4.24	2.88	3.26	1.93	3.41	2.54	1.25
LSD at 5%	6.02	6.02	8.11	6.57	12.07	8.20	9.28	5.48	-	7.22	3.56
C.V. %	8.48	6.23	8.70	4.69	10.89	7.75	7.21	4.76	10.39	7.66	6.39
Error d.f.	46	46	46	46	46	46	46	46	46	46	46
Significance	*	*	*	*	*	*	*	*	NS	*	*

Cont'd. ...

Table 3.5.4. Cont'd. ...

Entry Name	SYRIA			TUNISIA	TURKEY					Overall Mean
	Jindi-ress-W	Tel Hadya-S	Tel Hadya-W	Ras Rajel	Adana-1	Adana-2	Balikesin	Diyar-bakir	Mene-men	
FLIP 81-26W	52	36	45	55	72	80	43	42	45	52
FLIP 81-29W	53	36	52	55	80	78	38	48	40	54
FLIP 82-104C	52	36	49	63	80	80	34	47	43	56
FLIP 82-115C	50	35	48	50	75	73	37	46	45	52
FLIP 82-127C	55	38	55	70	81	82	39	45	53	56
FLIP 83-22C	54	38	53	52	82	83	44	46	45	56
FLIP 83-73C	49	35	49	48	77	68	42	46	41	52
FLIP 84-56C	49	34	47	49	73	70	43	42	42	51
FLIP 84-62C	53	35	50	50	76	82	40	44	45	53
FLIP 84-64C	43	34	44	49	73	67	37	46	43	49
FLIP 84-67C	56	40	58	62	82	78	40	49	48	56
FLIP 84-75C	53	38	53	53	77	78	37	45	50	54
FLIP 84-87C	54	40	51	62	76	70	46	49	45	53
FLIP 84-112C	57	38	52	58	79	73	42	45	48	54
FLIP 84-133C	54	38	52	57	79	80	39	45	48	54
FLIP 84-148C	61	39	57	56	84	88	45	49	51	58
FLIP 84-161C	56	38	54	57	81	88	41	48	47	56
FLIP 84-163C	54	40	54	62	75	80	40	46	47	54
FLIP 84-178C	55	39	50	59	77	78	44	44	45	55
FLIP 84-185C	53	39	54	58	77	70	48	44	48	54
FLIP 84-188C	55	40	56	60	86	82	48	47	52	58
FLIP 81-293C	45	35	49	52	74	70	38	41	43	51
ILC 482	57	38	54	62	86	93	48	47	47	60
Local Check	46	24	39	54	68	75	39	40	40	
Location Mean	53	37	51	56	78	78	41	45	46	
S.E. of Mean	1.50	0.62	1.77	3.89	2.94	6.17	3.92	1.82	2.01	
LSD at 5%	4.26	1.76	5.02	11.07	8.36	–	–	5.17	5.72	
C.V. %	4.93	2.91	5.98	11.95	6.54	13.73	16.45	6.92	7.59	
Error d.f.	46	46	46	46	46	46	46	46	46	
Significance	*	*	*	*	*	NS	NS	*	*	

* = Significant at P $\leq$0.05, NS = not significant.

Table 3.5.5. 100-seed weight (g) of entries at different locations in the CIYT-T during 1986/87.

Entry Name	AFGHANISTAN	CYPRUS	IRAQ	ITALY		LEBANON		LIBYA	PORTUGAL
	Darul Aman	Laxia	Al Taamym	Catania	Tarquinia	Terbol-S	Terbol-W	Tagura	Elvas
FLIP 81-26W	29	30	38	31	39	31	35	24	39
FLIP 81-29W	30	28	43	26	37	31	33	24	36
FLIP 82-104C	30	28	31	25	39	30	33	25	42
FLIP 82-115C	30	27	40	23	31	29	29	22	30
FLIP 82-127C	26	31	28	29	42	32	36	27	42
FLIP 83-22C	32	31	39	31	39	36	36	26	39
FLIP 83-73C	31	28	-	26	37	29	35	26	36
FLIP 84-56C	26	27	35	25	38	27	30	29	36
FLIP 84-62C	31	31	36	26	41	33	36	31	40
FLIP 84-64C	30	32	32	27	41	34	35	28	43
FLIP 84-67C	33	34	38	29	42	37	40	29	42
FLIP 84-75C	34	37	44	32	45	40	41	31	47
FLIP 84-87C	39	40	41	41	49	39	44	33	47
FLIP 84-112C	37	39	40	37	47	39	42	31	49
FLIP 84-133C	35	38	34	34	47	42	44	34	49
FLIP 84-148C	32	34	60	34	47	40	41	32	46
FLIP 84-161C	34	32	41	31	45	38	37	31	43
FLIP 84-163C	34	35	40	33	45	36	39	30	42
FLIP 84-178C	34	36	-	34	45	41	39	28	46
FLIP 84-185C	35	39	36	36	47	40	43	35	47
FLIP 84-188C	37	37	-	32	48	38	42	38	52
FLIP 81-293C	25	26	35	20	33	27	28	23	35
ILC 482	27	27	-	27	34	32	32	22	32
Local Check	29	28	36	36	48	39	38	30	46
Location Mean	**32**	**32**	**38**	**30**	**42**	**35**	**37**	**29**	**42**
S.E. of Mean	1.64	1.21	2.31	1.39	0.91	1.02	0.84	2.05	2.28
LSD at 5%	4.66	2.88	6.61	3.96	2.58	2.91	2.38	5.82	6.48
C.V. %	8.96	5.27	10.42	7.98	3.74	5.07	3.91	12.36	9.44
Error d.f.	46	23	38	46	46	46	46	46	46
Significance	*	*	*	*	*	*	*	*	*

Cont'd. ...

Table 3.5.5. Cont'd. ...

Entry Name	PORTUGAL	SPAIN	SYRIA					TURKEY				(1)
	Oeiras	Sevilla	Idleb	Jindi-ress-S	Jindi ress-W	Tel Hadya-S	Tel Hadya-W	Adana-1	Adana-2	Balik-esin	Mene-men	Overall Mean
FLIP 81-26W	47	39	32	28	29	32	34	33	35	32	31	33
FLIP 81-29W	43	34	26	27	27	27	28	31	30	30	28	30
FLIP 82-104C	45	36	27	28	29	29	33	34	30	29	29	32
FLIP 82-115C	37	31	27	26	26	26	27	28	30	24	24	28
FLIP 82-127C	48	39	30	30	30	30	32	37	34	31	30	33
FLIP 83-22C	45	39	28	27	30	33	33	38	36	33	31	34
FLIP 83-73C	48	36	25	27	27	28	28	36	36	26	28	31
FLIP 84-56C	38	36	29	26	24	27	27	31	30	26	26	29
FLIP 84-62C	47	38	31	32	32	34	32	34	40	31	31	34
FLIP 84-64C	47	41	31	32	33	33	35	39	36	30	31	35
FLIP 84-67C	43	39	28	31	31	35	33	35	36	33	31	35
FLIP 84-75C	47	44	35	37	38	40	40	43	37	36	35	39
FLIP 84-87C	50	47	36	40	40	42	40	43	40	41	40	42
FLIP 84-112C	52	44	31	41	38	42	41	45	40	38	39	41
FLIP 84-133C	47	46	37	39	39	39	41	39	38	39	38	40
FLIP 84-148C	43	46	38	34	36	38	38	40	38	34	35	38
FLIP 84-161C	50	42	32	36	33	37	34	41	34	34	34	37
FLIP 84-163C	45	41	33	34	33	36	38	38	37	35	35	37
FLIP 84-178C	42	42	34	34	34	38	37	39	37	36	35	37
FLIP 84-185C	48	44	35	37	38	41	41	42	42	36	38	40
FLIP 84-188C	52	48	40	38	37	37	38	44	47	35	38	41
FLIP 81-293C	35	29	22	24	22	24	24	29	27	23	24	26
ILC 482	43	34	27	26	26	25	28	32	29	26	25	29
Local Check	50	44	24	37	26	39	28	39	27	22	23	
Location Mean	45	40	31	32	32	34	34	37	35	32	32	
S.E. of Mean	3.56	0.94	2.99	0.64	0.92	0.84	0.86	1.42		1.44	0.88	
LSD at 5%	-	2.69	8.52	1.83	2.63	2.38	2.44	-		4.11	2.51	
C.V. %	13.56	4.09	16.87	3.46	5.05	4.28	4.40	6.61		7.90	4.83	
Error d.f.	NS	46	46	46	46	46	46	NS		46	46	
Significance	-	*	*	*	*	*	*	-		*	*	

(1) Al Taamym is excluded from the overall mean., * = Significant at P $\leq$0.05, NS = not significant.

Table 3.5.6. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in CIYT-T during 1986/87.

Entry Name	ALGERIA						CYPRUS		FRANCE		IRAQ			
	Khroub		Setif		Sidi Bel Abbes		Laxia		Montpellier		Al Taamym		Mosul	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 81-26W	2794	4	1157	2	778	9	1454	19	2425	21	249	11	145	7
FLIP 81-29W	2895	2	870	14	729	12	1735	7	2912	3	273	8	107	12
FLIP 82-104C	2421	17	1160	1	1021	1	1865	2	2607	14	298	5	82	14
FLIP 82-115C	2804	3	766	20	694	16	874	24	2696	9	270	10	73	15
FLIP 82-127C	2291	21	826	18	472	23	1422	20	2528	17	411	3	186	3
FLIP 83-22C	2765	6	926	9	771	10	1684	8	2873	5	383	4	54	19
FLIP 83-73C	2528	14	1028	3	819	7	1677	9	2462	20	-	-	110	11
FLIP 84-56C	2585	12	900	12	632	19	1389	21	2508	18	231	13	147	5
FLIP 84-62C	2468	16	579	24	660	17	1588	13	2699	8	238	12	48	21
FLIP 84-64C	3088	1	1021	4	882	3	1779	5	2649	11	202	18	57	18
FLIP 84-67C	2291	20	757	22	851	5	1588	12	3119	1	210	16	208	1
FLIP 84-75C	2789	5	866	15	729	11	1759	6	2587	15	293	6	58	17
FLIP 84-87C	2286	22	921	11	660	18	1656	10	2466	19	272	9	146	6
FLIP 84-112C	2544	13	977	7	819	6	1872	1	2666	10	471	2	208	2
FLIP 84-133C	2369	19	840	17	875	4	1849	4	2633	12	228	14	126	8
FLIP 84-148C	2473	15	935	8	708	15	1572	14	2394	22	86	20	96	13
FLIP 84-161C	2721	7	1012	6	944	2	1537	16	2882	4	220	15	116	10
FLIP 84-163C	2080	23	877	13	576	20	1123	23	2630	13	204	17	120	9
FLIP 84-178C	2669	11	843	16	462	24	1292	22	2325	23	-	-	63	16
FLIP 84-185C	2708	8	764	21	569	21	1526	17	2788	7	-	-	151	4
FLIP 84-188C	2680	10	736	23	479	22	1546	15	2815	6	545	1	53	20
FLIP 81-293C	2682	9	822	19	813	8	1512	18	2207	24	283	7	25	23
ILC 482	2374	18	1014	5	715	14	1642	11	2533	16	-	-	20	24
Local Check	-	-	926	10	722	13	1862	3	2976	2	168	19	40	22
Location Mean	**2579**		**897**		**724**		**1575**		**2641**		**277**		**102**	
S.E. of Mean	234.78		108.79		123.32		158.59		181.62		43.40		48.05	
LSD at 5%	-		-		-		451.42		-		124.25		-	
C.V. %	15.70		21.01		29.49		17.44		11.91		27.16		66.85	
Error d.f.	44		46		46		46		46		38		23	
Significance	NS		NS		NS		*		NS		*		NS	
Ent. > L. Check	-		-		-		0		-		6		-	

Cont'd. ...

Table 3.5.6. Cont'd. ...

Entry	ITALY				JORDAN				LEBANON				LIBYA	
	Catania		Tarquinia		Marow		Mushagar		Terbol-W		Terbol-S		Tagura	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 81-26W	1714	13	4111	2	847	3	1173	6	1320	19	656	20	1092	4
FLIP 81-29W	1810	11	2079	22	500	13	921	14	1474	10	867	8	734	16
FLIP 82-104C	1407	22	3831	4	302	21	842	18	1635	2	1012	4	1152	1
FLIP 82-115C	1460	20	3524	7	343	18	1208	4	1283	22	595	22	636	20
FLIP 82-127C	1333	24	3868	3	838	4	797	20	1095	23	765	15	615	21
FLIP 83-22C	1810	10	3217	15	574	8	982	11	1354	17	592	23	833	12
FLIP 83-73C	1905	5	1455	23	453	15	1099	10	1548	3	1311	1	1098	3
FLIP 84-56C	1905	4	1397	24	269	24	746	21	1505	8	846	11	911	7
FLIP 84-62C	1725	12	2878	20	676	6	380	24	1513	6	813	14	938	6
FLIP 84-64C	1852	8	4265	1	300	22	1223	3	1728	1	837	12	898	8
FLIP 84-67C	1979	3	3153	17	524	11	910	15	1373	15	830	13	895	9
FLIP 84-75C	1820	9	3550	6	305	20	1322	1	1386	13	953	6	729	17
FLIP 84-87C	1862	7	2974	19	762	5	1118	8	1434	11	920	7	1007	5
FLIP 84-112C	1481	19	3270	14	914	1	904	16	1368	16	860	10	816	14
FLIP 84-133C	2011	2	3201	16	421	16	896	17	1421	12	998	5	795	15
FLIP 84-148C	1386	23	3402	10	878	2	1181	5	1378	14	673	18	679	18
FLIP 84-161C	1524	17	3810	5	643	7	930	12	1545	4	726	16	884	11
FLIP 84-163C	1524	16	3354	12	500	12	632	23	1288	21	658	19	483	24
FLIP 84-178C	1683	14	3497	8	531	10	1108	9	1328	18	862	9	598	22
FLIP 84-185C	1640	15	3291	13	467	14	928	13	1505	7	623	21	560	23
FLIP 84-188C	1503	18	3370	11	312	19	732	22	841	24	1136	2	816	13
FLIP 81-293C	1884	6	2381	21	278	23	821	19	1537	5	718	17	893	10
ILC 482	1429	21	3460	9	562	9	1237	2	1304	20	562	24	658	19
Local Check	2042	1	3011	18	393	17	1163	7	1474	9	1106	3	1102	2
Location Mean	**1695**		**3181**		**525**		**969**		**1402**		**830**		**826**	
S.E. of Mean	165.99		380.65		163.05		171.31		57.87		79.48		152.00	
LSD at 5%	-		1083.54		-		-		164.73		226.25		-	
C.V. %	16.96		20.73		53.83		30.62		7.15		16.59		31.88	
Error d.f.	46		46		46		46		46		46		46	
Significance	NS		*		NS		NS		*		*		NS	
Ent. > L. Check	-		2		-		-		1		0		-	

Cont'd. ...

Table 3.5.6. Cont'd. ...

Entry Name	PORTUGAL				SPAIN				SYRIA					
	Elvas		Oeiras		Badajoz		Sevilla		Al Ghab		Idleb		Gelline	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 81-26W	1884	22	1933	8	1432	16	2833	19	2772	11	1870	24	1759	14
FLIP 81-29W	2532	2	2257	3	1493	13	3489	6	2460	21	1941	22	1728	16
FLIP 82-104C	2480	6	1962	7	1640	7	3394	8	2540	17	2274	6	2111	1
FLIP 82-115C	2124	18	1400	19	1473	14	3781	2	2905	6	2309	4	1938	4
FLIP 82-127C	2016	19	1738	12	1526	11	2070	23	2466	20	2006	19	1484	21
FLIP 83-22C	2192	15	1305	22	1560	9	2821	20	2714	12	2211	9	2012	2
FLIP 83-73C	2564	1	1638	15	2091	1	3368	10	2952	3	2120	13	1784	12
FLIP 84-56C	2381	10	1800	10	1429	17	3384	9	2455	22	2308	5	1484	22
FLIP 84-62C	2014	20	1681	14	1238	21	2886	16	2603	14	2212	8	1852	11
FLIP 84-64C	2293	12	2314	2	1678	4	3630	3	3032	1	2032	17	1907	7
FLIP 84-67C	2479	7	1362	20	1810	3	3571	4	2831	7	2202	10	1864	10
FLIP 84-75C	2481	5	1505	18	1337	19	3263	13	2571	15	1961	20	1932	5
FLIP 84-87C	2508	3	1857	9	1253	20	3935	1	2794	8	2127	12	1512	20
FLIP 84-112C	2201	14	1748	11	1436	15	2857	17	2519	18	2026	18	1895	8
FLIP 84-133C	2423	9	1348	21	1390	18	3288	12	2667	13	2332	2	1710	17
FLIP 84-148C	2181	16	1114	23	1022	24	2281	22	2566	16	2056	14	1753	15
FLIP 84-161C	2478	8	1600	16	1962	2	3252	14	2926	5	2052	15	2006	3
FLIP 84-163C	2140	17	1529	17	1543	10	3065	15	2783	9	1939	23	1772	13
FLIP 84-178C	1812	23	2229	4	1498	12	3338	11	2778	10	2043	16	1685	18
FLIP 84-185C	2489	4	2057	5	1232	22	2835	18	2466	19	2183	11	1562	19
FLIP 84-188C	2007	21	1724	13	1030	23	2557	21	2937	4	2380	1	1420	23
FLIP 81-293C	2341	11	2486	1	1672	5	3506	5	2952	2	2311	3	1920	6
ILC 482	2244	13	2014	6	1606	8	3451	7	2370	23	2267	7	1407	24
Local Check	1498	24	938	24	1642	6	969	24	2206	24	1960	21	1895	9
Location Mean	2240		1731		1500		3076		2678		2130		1766	
S.E. of Mean	210.74		350.16		135.97		295.18		146.31		182.66		248.42	
LSD at 5%	-		-		387.04		840.25		416.47		-		-	
C.V. %	16.30		35.04		15.70		16.62		9.46		14.85		24.36	
Error d.f.	46		46		46		46		46		46		46	
Significance	NS		NS		*		*		*		NS		NS	
Ent. > L. Check	-		-		1		23		13		-		-	

Cont'd. ...

Table 3.5.6. Cont'd. ...

Entry Name	SYRIA								TUNISIA					
	Jindiress-S		Jindiress-W		Tel Hadya-S		Tel Hadya-W		Beja		Oued Meliz		El Kef	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 81-26W	872	13	1492	11	955	2	1619	14	2825	11	830	15	3199	7
FLIP 81-29W	857	17	1394	17	614	21	1587	15	2558	18	937	8	3051	11
FLIP 82-104C	960	8	1601	8	799	7	1683	10	2667	16	813	17	2574	20
FLIP 82-115C	881	12	1684	5	706	19	1582	16	2433	20	997	3	2593	18
FLIP 82-127C	858	16	1397	16	757	13	1561	18	2692	14	663	22	2120	24
FLIP 83-22C	830	19	1405	15	720	16	1571	17	2958	8	940	7	3611	2
FLIP 83-73C	870	14	1630	7	603	22	1521	20	2533	19	1127	1	3690	1
FLIP 84-56C	632	24	1415	14	590	24	1299	23	2125	24	847	14	3134	9
FLIP 84-62C	806	21	1540	9	659	20	1696	9	2975	7	757	20	2769	15
FLIP 84-64C	1042	4	2085	1	960	1	1743	4	3275	1	910	11	3551	3
FLIP 84-67C	937	9	1328	22	762	11	1696	8	3033	4	930	9	2741	16
FLIP 84-75C	804	22	1357	18	743	15	1664	12	3033	3	913	10	3255	5
FLIP 84-87C	979	5	1497	10	796	8	1817	2	3017	5	1017	2	3116	10
FLIP 84-112C	968	7	1712	4	823	6	1706	6	3050	2	953	5	2579	19
FLIP 84-133C	971	6	1827	3	833	4	1680	11	2858	10	950	6	3174	8
FLIP 84-148C	839	18	1442	13	831	5	1429	22	2208	23	747	21	2162	23
FLIP 84-161C	1066	3	1348	19	712	18	1701	7	3008	6	800	18	2824	14
FLIP 84-163C	910	10	1302	23	778	9	1622	13	2687	15	880	12	2486	22
FLIP 84-178C	825	20	1461	12	762	12	1476	21	2767	12	767	19	2514	21
FLIP 84-185C	868	15	1336	20	765	10	1810	3	2867	9	980	4	3204	6
FLIP 84-188C	1079	2	1659	6	876	3	1857	1	2558	17	637	23	2884	13
FLIP 81-293C	889	11	1288	24	601	23	1532	19	2700	13	820	16	3343	4
ILC 482	788	23	1331	21	720	17	1270	24	2400	21	877	13	2718	17
Local Check	1198	1	1905	2	754	14	1712	5	2358	22	157	24	2931	12
Location Mean	**906**		**1518**		**755**		**1618**		**2733**		**844**		**2926**	
S.E. of Mean	68.89		122.11		68.30		92.85		250.51		79.59		279.10	
LSD at 5%	196.11		347.59		194.41		264.30		-		226.57		794.46	
C.V. %	13.18		13.93		15.67		9.94		15.88		16.34		16.52	
Error d.f.	46		46		46		46		46		46		46	
Significance	*		*		*		*		NS		*		*	
Ent. > L. Check	0		0		2		0		-		23		0	

Cont'd. ...

Table 3.5.6. Cont'd. ...

Entry Name	TUNISIA		TURKEY										Overal Mean (1)	
	Ras Rajel		Adana-1		Adana-2		Balikesin		Diyarbakir		Menemen			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 81-26W	466	9	1973	21	1875	11	1144	1	1611	9	1693	1	1616	6
FLIP 81-29W	743	5	2868	3	1736	17	919	6	1653	7	1089	23	1583	12
FLIP 82-104C	857	1	2806	5	2153	3	893	8	1653	6	1378	16	1673	2
FLIP 82-115C	222	20	2332	17	2176	2	811	15	1375	19	1222	20	1535	15
FLIP 82-127C	317	15	2413	13	1597	22	785	18	1389	18	1600	3	1438	22
FLIP 83-22C	233	19	3142	1	1481	24	822	14	1750	1	1219	21	1597	10
FLIP 83-73C	677	7	2650	8	1690	19	926	5	1556	12	1211	22	1606	9
FLIP 84-56C	333	14	2829	4	1806	13	937	3	1361	20	1270	19	1464	20
FLIP 84-62C	370	13	2333	16	1875	10	781	20	1514	15	1493	11	1507	17
FLIP 84-64C	767	3	2304	19	2315	1	789	17	1681	5	1526	7	1783	1
FLIP 84-67C	688	6	2553	10	1991	4	633	24	1264	23	1515	9	1614	7
FLIP 84-75C	381	12	2793	6	1944	6	800	16	1569	11	1578	4	1619	5
FLIP 84-87C	392	11	2320	18	1898	9	841	10	1569	10	1519	8	1625	4
FLIP 84-112C	169	21	2583	9	1759	16	852	9	1319	22	1563	6	1585	11
FLIP 84-133C	143	23	2986	2	1829	12	741	23	1556	14	1319	18	1608	8
FLIP 84-148C	148	22	2525	11	1551	23	785	19	1389	17	1470	13	1422	23
FLIP 84-161C	825	2	2748	7	1713	18	756	22	1625	8	1452	14	1657	3
FLIP 84-163C	746	4	1489	23	1968	5	759	21	1264	24	1422	15	1445	21
FLIP 84-178C	423	10	2401	14	1759	15	822	13	1389	16	1341	17	1507	18
FLIP 84-185C	249	17	2465	12	1667	20	837	11	1694	4	1507	10	1544	14
FLIP 84-188C	74	24	1863	22	1944	8	830	12	1556	13	1667	2	1503	19
FLIP 81-293C	238	18	2161	20	1944	7	933	4	1347	21	1474	12	1568	13
ILC 482	545	8	2350	15	1620	21	911	7	1736	2	1574	5	1518	16
Local Check	275	16	1348	24	1759	14	1022	2	1722	3	985	24		
Location Mean	**428**		**2426**		**1835**		**847**		**1523**		**1420**			
S.E. of Mean	153.77		391.52		153.57		122.89		212.96		126.04			
LSD at 5%	437.71		-		-		-		-		358.78			
C.V. %	62.17		27.95		14.49		25.13		24.23		15.37			
Error d.f.	46		46		46		46		46		46			
Significance	*		NS		NS		NS		NS		*			
Ent. > L. Check	5		-		-		-		-		16			

(1) Al Taamym is excluded from overall mean, * = Significant at P $\leq$0.05 ,NS = not significant.

Table 3.5.7. The five heaviest seed yielding entries at the individual locations in the CIYT-T during 1986/87.

Rank	ALGERIA			CYPRUS	FRANCE	IRAQ		ITALY	
	Khroub	Setif	Sidi Bel Abbes	Laxia	Montpellier	Al Taamym	Mosul	Catania	Tarquinia
1	FLIP84-182C	FLIP84- 32C	FLIP84- 32C	FLIP85- 15C	FLIP85- 12C	FLIP85- 62C	FLIP85- 12C	Local Check	FLIP84-182C
2	FLIP84- 28C	FLIP84- 20C	FLIP85- 19C	FLIP84- 32C	Local Check	FLIP85- 15C	FLIP85- 15C	FLIP85- 16C	FLIP84- 20C
3	FLIP84- 40C	FLIP84- 53C	FLIP84-182C	Local Check	FLIP84- 28C	FLIP84- 46C	FLIP84- 46C	FLIP85- 12C	FLIP84- 46C
4	FLIP84- 20C	FLIP84-182C	FLIP85- 16C	FLIP85- 16C	FLIP85- 19C	FLIP84- 48C	FLIP85- 60C	FLIP84- 58C	FLIP84- 32C
5	FLIP85- 13C	ILC 195	FLIP85- 12C	FLIP84-182C	FLIP84- 48C	FLIP84- 32C	FLIP84- 58C	FLIP84- 53C	FLIP85- 19C

Cont'd 2/..

Rank	JORDAN		LEBANON		LIBYA	PORTUGAL		SPAIN	
	Marow	Mushagar	Terbol (S)	Terbol (W)	Tagura	Elvas	Oeiras	Badajoz	Sevilla
1	FLIP85- 15C	FLIP85- 13C	FLIP84- 53C	FLIP84-182C	FLIP84- 32C	FLIP84- 53C	ILC 195	FLIP84- 53C	FLIP85- 14C
2	FLIP85- 18C	ILC 195	FLIP85- 62C	FLIP84- 32C	Local Check	FLIP84- 28C	FLIP84-182C	FLIP85- 19C	FLIP84- 40C
3	FLIP84- 20C	FLIP84-182C	Local Check	FLIP84- 53C	FLIP84- 53C	FLIP85- 14C	FLIP84- 28C	FLIP85- 12C	FLIP84-182C
4	FLIP84- 46C	FLIP84- 40C	FLIP84- 32C	FLIP85- 19C	FLIP84- 20C	FLIP85- 60C	FLIP85- 59C	FLIP84-182C	FLIP85- 12C
5	FLIP85- 14C	FLIP85- 18C	FLIP85- 16C	ILC 195	FLIP85- 14C	FLIP85- 13C	FLIP85- 60C	ILC 195	ILC 195

Cont'd 2/..

Rank	SYRIA							TUNISIA
	Al Ghab	Gelline	Idleb	Jindiress (Spring)	Jindiress (Winter)	Tel Hadya (Winter)	Tel Hadya (Spring)	Beja
1	FLIP84-182C	FLIP84- 32C	FLIP85- 62C	Local Check	FLIP84-182C	FLIP85- 62C	FLIP84-182C	FLIP84-182C
2	ILC 195	FLIP84- 48C	FLIP85- 16C	FLIP85- 62C	Local Check	FLIP85- 14C	FLIP84- 20C	FLIP85- 15C
3	FLIP84- 53C	FLIP85- 19C	ILC 195	FLIP85- 19C	FLIP85- 16C	FLIP85- 60C	FLIP85- 62C	FLIP85- 13C
4	FLIP85- 62C	FLIP84- 40C	FLIP84- 40C	FLIP84-182C	FLIP85- 15C	FLIP84-182C	FLIP85- 16C	FLIP85- 12C
5	FLIP85- 19C	FLIP85- 13C	FLIP84- 58C	FLIP85- 14C	FLIP84- 40C	Local Check	FLIP85- 18C	FLIP85- 14C

Cont'd 2/..

Rank	TUNISIA			TURKEY				
	El Kef	Oued Meliz	Ras Rajel	Adana-1	Adana-2	Balikesin	Diyarbakir	Menomen
1	FLIP84- 53C	FLIP84- 53C	FLIP84- 32C	FLIP84- 48C	FLIP84-182C	FLIP84- 20C	FLIP84- 48C	FLIP84- 20C
2	FLIP84- 48C	FLIP85- 14C	FLIP85- 19C	FLIP85- 16C	FLIP84- 40C	Local Check	ILC 195	FLIP85- 62C
3	FLIP84-182C	FLIP84- 40C	FLIP84-182C	FLIP84- 28C	FLIP84- 32C	FLIP84- 58C	Local Check	FLIP84- 46C
4	ILC 195	FLIP85- 60C	FLIP85- 57C	FLIP84- 58C	FLIP85- 12C	ILC 195	FLIP85- 60C	FLIP85- 13C
5	FLIP85- 13C	FLIP85- 15C	FLIP84- 28C	FLIP84- 32C	FLIP85- 57C	FLIP84- 53C	FLIP84-182C	ILC 3279

Oeiras, Portugal) respectively. On an average over locations, the entry means ranged from 118 to 126 days for time to flowering, 170 to 175 days for time to maturity, 49 to 60 cm for plant height and 26 to 42 g for 100-seed weight.

The highest mean seed yield (Table 3.5.6) was obtained at Tarquinia in Italy (3181 kg/ha) and was followed by Sevilla in Spain (3076 kg/ha); El Kef (2926 kg/ha), and Beja (2733 kg/ha) in Tunisia; and Al Ghab (2678 kg/ha) in Syria. The seed yields at Mosul and Al Taamym in Iraq were extremely poor. An entry FLIP 84-64C at Tarquinia in Italy gave as high as 4265 kg/ha. On average over locations, the entries, namely, FLIP 84-64C, FLIP 82-104C, FLIP 84-161C, FLIP 84-87C and FLIP 84-75C with respective seed yields of 1783, 1673, 1657, 1625 and 1619 kg/ha were among the five best yielders. The ANOVA for seed yield revealed that the local check was excelled by a significant margin ($P < 0.05$) by some entries at 10 locations: Al Taamym (Iraq), Tarquinia (Italy), Terbol-winter (Lebanon), Badajoz and Sevilla (Spain), Al Ghab and Tel Hadya-spring (Syria), Oued Meliz and Ras Rajel (Tunisia), and Menemen, Izmir (Turkey). The five heaviest yielding entries in each of the locations are given in Table 3.5.7. The relative frequency of occurence among the top five heaviest yielders revealed that FLIP 84-64C was the most adaptable line.

3.6. CHICKPEA INTERNATIONAL SCREENING NURSERY - WINTER (CISN-W)

Material

The Chickpea International Screening Nursery-Winter comprised 60 test entries which originated from the materials developed through hybridization at ICARDA. The nursery also included three checks namely FLIP 81-293C, ILC 482 and one local check to be supplied by the cooperators. All the test entries were almost homozygous and had shown superior performance in local or regional trials at ICARDA.

Methods and Management

The entries were sown in single row non-replicated plots of 4 m length. The three checks were repeatedly sown in each block with 12 test entries. The suggested spacings between and within rows were 45- and 10 cm, respectively.

Sixty four sets of nursery were distributed to cooperators in 28 countries and the results were received from 41 locations in 19 countries. However, only 36 sets were worth analysis and are presented. The agronomic details received from the cooperators are given in Table 3.6.1.

Results and Discussion

The data on time to flowering, time to maturity, plant height and 100-seed weight are given in Tables 3.6.2, 3.6.3, 3.6.4, and 3.6.5, respectively. The location mean for time to flowering, time to maturity, plant height, and 100-seed weight ranged from 68 days at Takhar in Afghanistan to 208 days at Toshevo in Bulgaria, 101 days at Takhar in Afghanistan to 268 days at Toshevo in Bulgaria, 21 cm at Oroumieh in Iran to 106 cm at Xining in China,

Table 3.6.1. Agronomic data for different locations in the CISN-W during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman	10.03.87	18.08.87	30	60		6	-	Lebanon Local
AFGHANISTAN	Takhar	05.03.87	19.08.87	40	30		-	-	Local
ALGERIA	Quadah	02.03.87	N.H.		46		-	-	Sebdou
ALGERIA	Sidi Bel Abbes	16.02.87	04.06.87	15	90		-	-	Sebdou
BULGARIA	Toshevo	13.11.86	15.08.87	40	80		-	Aphalon, Gesagard	Stepway -1
CHINA	Xinig	08.04.87	14.10.87	69	138		-	-	NA
CYPRUS	Laxia	05.12.86	18.06.87	21	48		-	-	Local
EGYPT	Sids	03.12.86	28.04.87	37	75		-	-	NA
FRANCE	Montboucher	03.12.86	08.08.87		100		-	Nitrofene, Neburon	CASCAE
FRANCE	Montpellier-1	16.12.86	16.07.87		100		-	-	INRA - 199
FRANCE	Montpellier-2	07.11.86	16.07.87		100		-	-	INRA - 199
IRAN	Karaj	14.01.87	11.07.87	24	72		8	Treflan, Metasystox	Jam
IRAN	Hamadan	22.11.86	25.07.87		69		4	-	Jam
IRAN	Oroumieh	13.12.86	23.06.87	-			-	Ambosh	Jam
ITALY	Tarquinia	26.12.86	20.07.87	54	138		-	Nobutrin, Targa	La Molara
LEBANON	Terbol	27.11.86	15.08.87		50		-	Korb, Bladex	Lebanese Local
LIBYA	Tagura	05.11.86	01.06.87	30	60		-	-	NA
MEXICO	Hermosillo		NA		60		-	Nitrazan -D	Tabutamo Line
PAKISTAN	Bahawalpur	10.11.86	07.04.87	25	62		3	-	PB - 1
PAKISTAN	Peshawar	25.10.86	21.05.87	-			-	Ripcard, Thiodan	C 727
PORTUGAL	Elvas	06.11.86	16.06.87		72		-	-	ILC 262
PORTUGAL	Oeiras	26.11.86	30.06.87	21	63	63	-	-	Odrinhas
SPAIN	Cordoba	05.12.86	24.07.87		84	42	-	-	NA
SPAIN	Madrid	26.11.86	15.07.87	32	96		-	Prometryne	GEC 38
SYRIA	Gelline	11.12.87	02.06.87				-	-	NA
SYRIA	Heimo	20.11.86	03.06.87		50		-	-	Local
SYRIA	Homs	20.12.86	01.06.87		50		-	-	NA
SYRIA	Jindiress	02.12.86	11.06.87	-			-	-	FLIP82-150C
SYRIA	Tel Hadya-1 (W)	30.11.86	07.06.87	-			-	-	FLIP82-150C
SYRIA	Tel Hadya-2 (S)	23.02.87	25.06.87	-			-	-	ILC 1929
TUNISIA	Beja - 1	NA	NA	NA			NA	NA	NA
TUNISIA	Beja - 2	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef - 1	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef - 2	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz - 1	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz - 2	NA	NA	NA			NA	NA	NA
TURKEY	Menemen	16.01.87	09.07.87	30	60		-	Igran	Ispanyol Pop.
ZAMBIA	Chipata	14.04.87	15.08.87	20	40		5	-	BG-1 (Kabuli)

NA = Not available., N.H. = Not harvested.

Table 3.6.2. Adjusted time to flowering (days) of entries at different locations in the CISN-W during 1986/87.

Entry	Name	Pedigree	Origin	AFGHANISTAN		ALGERIA		BULGARIA	CHINA	CYPRUS
				Darul Aman	Takhar	Quadah	Sidi Bel Abbes	Toshevo	Xining	Laxia
FLIP 84-5C		X81 TH 129/ILC 202XILC 262	ICARDA/ICRISAT	93	71	67	112	209	94	110
FLIP 84-6C		X80 TH 265/(ILC 72XILC 196)XILC 262	ICARDA/ICRISAT	95	68	70	114	207	92	-
FLIP 84-7C		X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	97	66	69	114	209	83	101
FLIP 84-8C		X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	96	64	65	111	207	92	102
FLIP 84-22C		X81 TH 55/ILC 1920XILC 2956	ICARDA/ICRISAT	98	72	69	111	210	92	-
FLIP 84-33C		X81 TH 146/ILC 72XILC 73	ICARDA/ICRISAT	97	73	69	114	209	86	104
FLIP 84-71C		X79 TH 118/ILC 1920XILC 195	ICARDA/ICRISAT	97	73	83	114	208	91	-
FLIP 84-73C		X79 TH 203/ILC 953XILC 201	ICARDA/ICRISAT	96	64	85	114	209	94	108
FLIP 84-86C		X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	94	66	65	111	207	92	-
FLIP 84-104C		X81 TH 9/ILC 480XILC 202	ICARDA/ICRISAT	95	69	70	114	207	93	-
FLIP 84-120C		X81 TH 15/ILC 480XILC 2956	ICARDA/ICRISAT	97	73	69	111	211	93	-
FLIP 84-124C		X81 TH 53/ILC 1920XILC 2506	ICARDA/ICRISAT	96	68	-	109	207	93	105
FLIP 84-137C		X81 TH 214/ILC 482XILC 201	ICARDA/ICRISAT	96	64	65	109	207	91	108
FLIP 84-168C		X79 TH 123/ILC 1929XILC 200	ICARDA/ICRISAT	95	68	65	111	206	99	105
FLIP 85-4C		X82 TH 66/ILC 2593XILC 3279	ICARDA/ICRISAT	97	74	-	116	208	88	110
FLIP 85-44C		X82 TH 77/ILC 3346XILC 464	ICARDA/ICRISAT	96	73	85	117	211	93	112
FLIP 85-47C		X83 TH 5/FLIP 81-41XFLIP 82-72	ICARDA/ICRISAT	98	71	83	114	207	94	105
FLIP 85-48C		X83 TH 19/FLIP 82-65XFLIP 82-69	ICARDA/ICRISAT	92	70	69	112	207	91	105
FLIP 85-51C		X81 TH 55/ILC 1920XILC 2956	ICARDA/ICRISAT	97	69	67	111	207	85	109
FLIP 85-53C		X81 TH 55/ILC 1920XILC 2956	ICARDA/ICRISAT	96	69	85	115	208	90	104
FLIP 85-58C		X83 TH 22/FLIP 82-65XFLIP 82-81	ICARDA/ICRISAT	98	71	83	111	211	93	106
FLIP 85-65C		X83 TH 25/FLIP 82-69XFLIP 82-81	ICARDA/ICRISAT	98	73	85	115	207	93	111
FLIP 85-66C		X83 TH 25/FLIP 82-69XFLIP 82-81	ICARDA/ICRISAT	93	72	83	116	208	91	-
FLIP 85-69C		X82 TH 155/(ILC 3279XILC 790)XILC2555	ICARDA/ICRISAT	93	67	67	109	209	92	108
FLIP 85-70C		X82. TH 128/ILC 482XILC 3279	ICARDA/ICRISAT	95	64	67	109	208	93	108
FLIP 85-71C		X83 TH 5/FLIP 81-41WXFLIP 82-72	ICARDA/ICRISAT	98	71	70	116	206	92	108
FLIP 85-72C		X83 TH 5/FLIP 81-41WXFLIP 82-72	ICARDA/ICRISAT	98	70	65	116	209	92	107
FLIP 85-73C		X83 TH 10/FLIP 81-56XFLIP 82-69	ICARDA/ICRISAT	96	71	83	114	206	99	105
FLIP 85-79C		X83 TH 81/ILC 2593XFLIP 81-67	ICARDA/ICRISAT	97	70	69	112	207	91	106
FLIP 85-81C		X83 TH 81/ILC 2593XFLIP 81-67	ICARDA/ICRISAT	95	69	65	111	205	91	-
FLIP 85-83C		X80 TH 113/ILC 1920XILC 200	ICARDA/ICRISAT	98	70	85	117	209	93	111
FLIP 85-84C		X80 TH 113/ILC 1920XILC 200	ICARDA/ICRISAT	97	71	83	111	209	86	104
FLIP 85-85C		X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	93	66	67	109	207	91	106
FLIP 85-86C		X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	94	66	65	111	208	92	-
FLIP 85-87C		X80 TH 263/(ILC 72XILC 263)XILC 1919	ICARDA/ICRISAT	99	73	-	111	207	92	102
FLIP 85-88C		X80 TH 263/(ILC 72XILC 263)XILC 1919	ICARDA/ICRISAT	93	68	65	111	206	82	106
FLIP 85-89C		X80 TH 263/(ILC 72XILC 263)XILC 1919	ICARDA/ICRISAT	95	71	83	116	207	80	105
FLIP 85-90C		X83 TH 4/FLIP 81-42XFLIP 82-69	ICARDA/ICRISAT	93	69	85	109	207	92	110
FLIP 85-93C		X83 TH 23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	95	69	83	111	206	86	112

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	Pedigree	Origin	AFGHANISTAN		ALGERIA		BULGARIA	CHINA	CYPRUS
			Darul Aman	Takhar	Quadah	Sidi Bel Abbes	Toshevo	Xining	Laxia
FLIP 85-94C	X81 TH 248/ILC 482XILC 3279	ICARDA/ICRISAT	94	65	63	107	206	106	103
FLIP 85-95C	X81 TH 104/ILC 72XILC 482	ICARDA/ICRISAT	95	65	67	112	207	90	103
FLIP 85-97C	X81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	96	66	65	111	207	82	105
FLIP 85-98C	X81 TH 35/ILC 610XILC 2956	ICARDA/ICRISAT	93	70	-	114	207	89	108
FLIP 85-99C	X81 TH 49/ILC 1920XILC 202	ICARDA/ICRISAT	98	70	69	114	207	86	109
FLIP 85-100C	X81 TH 15/ILC 480XILC 2956	ICARDA/ICRISAT	94	71	70	114	207	92	-
FLIP 85-101C	X81 TH 234/ILC 482XILC 72	ICARDA/ICRISAT	93	65	63	107	207	82	107
FLIP 85-102C	X81 TH 234/ILC 482XILC 72	ICARDA/ICRISAT	92	67	65	111	206	92	105
FLIP 85-105C	X81 TH 165/ILC 3279XILC 482	ICARDA/ICRISAT	92	65	65	111	207	91	-
FLIP 85-112C	X81 TH 125/ILC 202XILC 482	ICARDA/ICRISAT	94	71	65	111	208	94	-
FLIP 85-114C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	93	61	67	109	207	89	106
FLIP 85-115C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	92	68	65	111	207	91	103
FLIP 85-116C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	92	65	65	112	207	90	104
FLIP 85-117C	X80 TH 177/ILC 195XILC 482	ICARDA/ICRISAT	95	67	69	112	207	90	105
FLIP 85-122C	L 550 X ILC 72	ICARDA/ICRISAT	99	66	65	111	207	91	107
FLIP 85-123C	L 550 X ILC 72	ICARDA/ICRISAT	94	68	69	115	208	91	107
FLIP 85-124C	L 550 X ILC 72	ICARDA/ICRISAT	96	66	67	109	209	92	105
FLIP 85-128C	ICCC 25 X ILC 202	ICARDA/ICRISAT	92	65	67	112	207	90	102
FLIP 85-129C	ICCC 25 X ILC 202	ICARDA/ICRISAT	92	67	67	112	208	91	107
FLIP 85-132C	X82 TH 66/ILC 2593XILC 3279	ICARDA/ICRISAT	96	64	67	109	212	93	111
FLIP 85-133C	X83 TH 23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	98	71	-	116	209	85	105
FLIP 81-293C	(Improved check)	ICARDA/ICRISAT	96	71	69	112	207	89	106
ILC 482	(Long term check)	Turkey	91	64	66	110	206	93	104
Local Check	-	-	95	65	66	111	208	89	101
Location Mean			**95**	**68**	**71**	**112**	**208**	**91**	**106**
S.E. of Mean			0.75	0.74	0.54	0.69	0.22	2.90	1.17
L.S.D. at 5% for :									
Checks			2.44	2.41	1.75	2.26	0.70	9.45	3.82
Test entries in the same block			5.46	5.39	3.90	5.05	1.58	21.14	8.54
Test entries in different blockT			6.30	6.23	4.51	5.83	1.82	24.41	9.87
Check Vs test entries			4.88	4.82	3.49	4.52	1.41	18.91	7.64
C.V. %			1.76	2.42	1.38	1.38	0.23	7.15	3.59

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	EGYPT	FRANCE	IRAN			ITALY	LEBANON	LIBYA	MEXICO	PAKISTAN	PORTUGAL
	Sids	Mont - boucher	Karaj	Hamadan	Oroumieh	Tarquinia	Terbol	Tagura	Sonora	Peshawar	Elvas
FLIP 84-5C	99	169	122	191	149	128	149	132	86	134	162
FLIP 84-6C	96	169	124	199	148	142	150	144	87	133	148
FLIP 84-7C	104	169	130	195	151	140	152	141	80	134	142
FLIP 84-8C	95	167	114	188	151	128	145	136	78	142	150
FLIP 84-22C	94	170	122	189	148	135	146	136	88	132	157
FLIP 84-33C	96	169	126	191	151	133	152	147	83	141	150
FLIP 84-71C	93	167	122	192	148	128	157	135	93	134	148
FLIP 84-73C	96	169	124	186	149	132	149	139	84	134	162
FLIP 84-86C	92	165	121	192	148	132	146	143	87	132	157
FLIP 84-104C	93	167	122	190	148	132	146	142	91	135	157
FLIP 84-120C	96	167	122	197	148	132	146	144	98	137	157
FLIP 84-124C	93	164	126	186	149	124	145	131	89	135	161
FLIP 84-137C	95	167	126	186	149	132	147	140	87	131	153
FLIP 84-168C	98	165	120	184	151	128	145	136	83	136	148
FLIP 85-4C	107	172	120	190	146	133	153	138	97	144	167
FLIP 85-44C	-	167	132	197	151	143	153	171	98	141	155
FLIP 85-47C	100	169	124	187	151	128	147	136	87	137	156
FLIP 85-48C	95	164	120	190	151	132	147	137	87	136	143
FLIP 85-51C	100	167	128	192	151	129	142	142	81	135	150
FLIP 85-53C	94	163	118	194	151	132	145	137	86	138	143
FLIP 85-58C	105	171	129	192	151	132	153	136	85	140	167
FLIP 85-65C	95	165	121	193	146	136	151	138	88	139	151
FLIP 85-66C	93	167	124	198	148	128	150	137	88	140	157
FLIP 85-69C	99	168	126	202	149	132	149	138	82	133	162
FLIP 85-70C	93	166	122	183	149	132	147	139	89	131	162
FLIP 85-71C	105	169	126	192	151	132	147	132	85	133	160
FLIP 85-72C	103	172	129	188	151	128	147	136	89	136	157
FLIP 85-73C	100	167	120	181	151	128	147	131	82	133	146
FLIP 85-79C	98	165	118	195	151	132	145	138	79	144	152
FLIP 85-81C	93	161	112	188	148	124	142	130	91	136	160
FLIP 85-83C	100	165	126	201	151	132	147	161	93	145	152
FLIP 85-84C	96	170	128	189	151	129	148	146	88	135	151
FLIP 85-85C	95	164	113	184	149	132	145	131	86	131	162
FLIP 85-86C	91	165	122	198	148	132	146	145	85	140	169
FLIP 85-87C	103	169	125	192	151	132	145	131	85	131	167
FLIP 85-88C	95	167	120	188	151	129	142	127	88	136	151
FLIP 85-89C	104	169	123	187	151	136	148	128	81	142	151
FLIP 85-90C	97	165	121	188	149	128	147	132	89	137	151
FLIP 85-93C	100	165	123	188	151	129	148	142	81	141	161

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	EGYPT	FRANCE	IRAN			ITALY	LEBANON	LIBYA	MEXICO	PAKISTAN	PORTUGAL
	Sids	Mont - boucher	Karaj	Hamadan	Oroumieh	Tarquinia	Terbol	Tagura	Sonora	Peshawar	Elvas
FLIP 85-94C	95	165	114	186	151	133	146	129	81	143	142
FLIP 85-95C	95	161	118	190	151	132	145	137	81	133	143
FLIP 85-97C	96	167	119	191	151	133	142	131	78	144	142
FLIP 85-98C	93	166	121	185	149	132	147	139	89	137	161
FLIP 85-99C	104	170	128	198	151	133	148	145	81	133	154
FLIP 85-100C	94	167	120	189	148	-	146	137	91	135	148
FLIP 85-101C	88	165	111	192	151	133	148	128	77	145	142
FLIP 85-102C	100	165	120	187	146	132	147	136	85	143	150
FLIP 85-105C	90	165	117	192	148	128	144	130	81	138	160
FLIP 85-112C	94	172	124	198	148	135	148	144	85	137	150
FLIP 85-114C	95	164	115	178	149	128	143	140	87	141	155
FLIP 85-115C	98	165	121	186	146	132	147	135	86	138	156
FLIP 85-116C	95	164	115	189	151	-	147	138	77	139	151
FLIP 85-117C	94	163	118	201	151	143	141	137	79	141	143
FLIP 85-122C	100	169	114	185	146	128	145	135	76	137	157
FLIP 85-123C	94	165	118	194	151	132	147	145	77	137	151
FLIP 85-124C	93	167	121	190	149	126	147	131	78	138	162
FLIP 85-128C	95	161	114	188	146	132	143	131	75	142	143
FLIP 85-129C	92	165	121	193	151	136	143	137	77	134	143
FLIP 85-132C	103	167	126	191	149	132	147	140	90	138	162
FLIP 85-133C	104	172	134	192	151	129	152	128	87	138	161
FLIP 81-293C	95	167	120	187	149	130	144	134	86	137	152
ILC 482	87	160	111	184	149	129	139	123	76	138	144
Local Check	89	165	121	195	150	132	141	133	50	136	156
Location Mean	**97**	**166**	**121**	**190**	**149**	**132**	**146**	**136**	**82**	**137**	**153**
S.E. of Mean	1.35	1.34	0.73	2.19	1.26	1.60	0.59	1.97	0.84	1.53	2.87
L.S.D. at 5% for :											
Checks	4.41	4.37	2.37	7.12	4.10	5.23	1.92	6.42	2.74	4.98	9.37
T.E. in S.B.	9.85	9.76	5.29	15.93	9.17	11.70	4.29	14.36	6.13	11.15	20.96
T.E. in D.B.	11.38	11.27	6.11	18.39	10.59	13.51	4.96	16.58	7.08	12.87	24.20
Check Vs T.E.	8.82	8.73	4.73	14.25	8.21	10.46	3.84	12.84	5.48	9.97	18.75
C.V. %	1.33	1.80	1.35	2.57	1.88	2.87	0.90	3.24	2.29	2.50	4.19

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	PORTUGAL	SPAIN	SYRIA						TURKEY	ZAMBIA	(1)
	Oeiras	El Encin	Heimo	Homs	Gelline	Jindiress	Tel Hadya-1	Tel Hadya-2	Menemen	Chipata	Overall Mean
FLIP 84-5C	103	151	158	129	123	141	125	153	108	84	131
FLIP 84-6C	110	149	162	130	126	143	127	152	108	77	132
FLIP 84-7C	106	154	158	125	130	143	127	157	111	65	131
FLIP 84-8C	108	157	158	125	124	133	121	150	109	65	129
FLIP 84-22C	110	154	160	130	123	141	119	148	108	80	131
FLIP 84-33C	104	156	158	128	132	145	128	158	113	80	133
FLIP 84-71C	108	151	158	127	121	139	120	148	108	79	131
FLIP 84-73C	103	158	158	126	128	145	128	153	113	73	132
FLIP 84-86C	102	155	156	125	120	141	121	148	108	79	130
FLIP 84-104C	108	154	157	125	126	140	121	151	110	79	131
FLIP 84-120C	104	163	162	130	129	146	122	150	110	77	133
FLIP 84-124C	107	153	156	119	121	136	114	151	108	69	129
FLIP 84-137C	109	144	158	126	128	135	123	153	108	73	130
FLIP 84-168C	102	156	156	123	121	135	120	150	109	81	129
FLIP 85-4C	108	153	158	131	134	148	128	162	118	85	135
FLIP 85-44C	103	156	158	126	127	148	127	134	122	85	135
FLIP 85-47C	108	155	160	126	127	140	122	157	114	85	132
FLIP 85-48C	101	159	158	123	125	139	120	128	114	81	129
FLIP 85-51C	106	154	158	125	126	134	119	154	108	86	130
FLIP 85-53C	107	157	160	124	124	141	119	131	112	81	130
FLIP 85-58C	100	151	158	130	128	143	123	158	118	83	133
FLIP 85-65C	105	160	160	126	126	143	121	128	118	80	131
FLIP 85-66C	104	157	160	127	127	139	128	151	108	75	132
FLIP 85-69C	103	153	158	129	127	145	129	152	108	58	131
FLIP 85-70C	109	146	158	126	123	136	124	153	108	69	130
FLIP 85-71C	102	155	158	125	123	142	122	158	112	86	132
FLIP 85-72C	108	155	158	126	125	140	120	157	109	81	132
FLIP 85-73C	106	157	158	123	123	139	119	150	114	83	130
FLIP 85-79C	101	159	160	124	122	136	118	128	112	82	129
FLIP 85-81C	102	153	154	120	119	132	119	139	108	75	128
FLIP 85-83C	109	157	158	126	126	143	126	130	112	85	133
FLIP 85-84C	104	158	158	124	126	141	123	155	111	85	132
FLIP 85-85C	103	150	156	121	118	133	120	150	106	79	128
FLIP 85-86C	100	153	158	125	121	142	121	149	108	77	131
FLIP 85-87C	104	159	156	126	121	143	120	158	112	78	131
FLIP 85-88C	104	160	156	125	124	133	119	152	111	78	129
FLIP 85-89C	108	148	156	126	124	139	123	154	113	85	130
FLIP 85-90C	105	152	158	123	123	141	120	151	111	84	130
FLIP 85-93C	102	151	160	125	131	136	121	154	111	81	131

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	PORTUGAL	SPAIN	SYRIA						TURKEY	ZAMBIA	(1) Overall Mean
	Oeiras	El Encin	Heimo	Homs	Gelline	Jindiress	Tel Hadya-1	Tel Hadya-2	Menemen	Chipata	
FLIP 85-94C	104	155	158	118	124	129	115	143	108	85	128
FLIP 85-95C	109	155	160	123	124	133	118	128	109	65	127
FLIP 85-97C	102	159	156	123	124	133	116	151	108	65	128
FLIP 85-98C	107	147	160	126	125	140	121	153	106	71	130
FLIP 85-99C	102	153	160	125	128	139	123	155	108	83	132
FLIP 85-100C	108	152	158	124	126	140	119	148	108	79	130
FLIP 85-101C	102	156	158	118	126	133	120	152	108	86	128
FLIP 85-102C	106	162	160	123	124	135	119	156	112	78	130
FLIP 85-105C	102	153	158	122	119	129	114	148	103	64	127
FLIP 85-112C	100	151	160	125	124	143	126	151	108	77	131
FLIP 85-114C	109	153	154	123	124	133	116	143	108	73	128
FLIP 85-115C	102	156	164	124	123	139	121	156	112	79	130
FLIP 85-116C	101	161	164	123	124	133	119	120	109	67	127
FLIP 85-117C	107	155	158	124	125	135	119	128	109	67	128
FLIP 85-122C	102	156	160	123	121	137	118	156	107	81	129
FLIP 85-123C	107	156	158	123	122	143	123	130	107	85	130
FLIP 85-124C	105	159	158	126	126	142	124	155	106	69	130
FLIP 85-128C	103	159	160	123	118	133	118	120	109	67	126
FLIP 85-129C	105	155	158	122	122	132	122	128	109	63	127
FLIP 85-132C	105	156	160	127	128	143	126	153	108	80	132
FLIP 85-133C	104	149	160	126	133	142	123	155	113	83	133
FLIP 81-293C	104	158	158	125	124	136	119	157	110	80	130
ILC 482	105	155	154	116	121	129	113	140	106	66	125
Local Check	108	161	155	125	123	134	120	-	110	51	
Location Mean	**105**	**155**	**158**	**124**	**124**	**138**	**121**	**149**	**110**	**75**	
S.E. of Mean	0.92	1.32	0.04	0.51	0.94	0.61	0.31	7.60	1.25	0.87	
L.S.D. at 5% for :											
Checks	2.10	4.30	1.30	1.67	3.06	1.99	1.00	29.83	4.07	2.83	
T.E. in S.B.	6.70	9.61	2.92	3.74	6.84	4.46	2.23	66.70	9.14	6.31	
T.E. in D.B.	7.74	11.10	3.37	4.32	7.90	5.14	2.57	81.69	10.55	7.29	
Check Vs T.E.	5.99	8.60	2.61	3.35	6.12	3.99	1.99	63.29	8.17	5.65	
C.V. %	1.96	1.90	0.57	0.92	1.69	0.99	0.57	11.52	2.55	2.59	

(1) Quadah,Laxia,Sids and Tarquinia were excluded from the overall mean
S.B. = same block, D.B. = different block, T.E. = Test entries.

Table 3.6.3. Adjusted time to maturity (days) of entries at different locations in the CISN-W during 1986/87.

Entry Name	AFGHANISTAN		ALGERIA	BULGARIA	CHINA	FRANCE			IRAN			ITALY	LEBANON
	Darul Aman	Takhar	Sidi Bel Abbes	Toshevo	Xining	Mont-boucher	Montp-ellier-1	Montp-ellier-2	Karaj	Hamad-an	Orou-mieh	Tarqu-inia	Terbol
FLIP 84-5C	139	96	152	264	188	215	193	231	168	243	182	198	198
FLIP 84-6C	141	101	143	269	187	224	195	233	167	239	174	194	197
FLIP 84-7C	145	102	211	270	182	225	196	229	180	242	177	196	202
FLIP 84-8C	146	100	150	267	187	215	194	230	169	245	182	198	195
FLIP 84-22C	142	102	149	271	189	219	195	231	166	241	174	206	197
FLIP 84-33C	142	107	145	270	190	215	196	231	166	240	177	196	206
FLIP 84-71C	138	102	158	270	187	214	193	233	165	244	174	194	211
FLIP 84-73C	139	101	154	270	188	215	195	231	167	243	182	194	196
FLIP 84-86C	141	101	146	269	188	224	195	233	171	242	179	194	197
FLIP 84-104C	140	100	152	269	187	214	193	231	166	242	179	194	197
FLIP 84-120C	142	105	154	273	187	214	195	231	171	244	179	206	203
FLIP 84-124C	133	103	145	264	190	215	190	231	173	243	182	194	196
FLIP 84-137C	142	101	145	268	188	218	193	233	167	240	182	194	194
FLIP 84-168C	137	101	150	265	184	215	191	230	169	248	182	189	195
FLIP 85-4C	148	111	165	268	184	232	199	238	180	246	182	202	213
FLIP 85-44C	145	111	162	272	187	230	198	233	179	248	180	196	205
FLIP 85-47C	146	102	156	267	184	215	194	230	171	249	182	191	201
FLIP 85-48C	143	102	151	268	188	225	195	233	170	248	175	192	201
FLIP 85-51C	145	102	209	264	190	215	194	229	171	240	182	183	198
FLIP 85-53C	141	102	149	266	188	220	193	230	168	246	175	183	195
FLIP 85-58C	146	109	161	271	184	230	194	235	173	245	182	208	213
FLIP 85-65C	141	109	160	267	189	215	193	230	172	241	175	192	218
FLIP 85-66C	139	101	159	268	183	214	195	233	167	241	174	194	213
FLIP 85-69C	140	102	154	268	188	215	193	236	173	239	177	198	194
FLIP 85-70C	140	101	148	268	190	220	193	236	167	242	177	194	196
FLIP 85-71C	142	108	152	266	187	215	191	235	169	249	182	198	197
FLIP 85-72C	143	102	156	269	184	225	191	233	171	244	182	198	201
FLIP 85-73C	137	101	157	265	184	215	191	230	168	240	182	189	197
FLIP 85-79C	145	101	149	268	183	215	190	230	172	245	180	183	205
FLIP 85-81C	138	102	146	269	189	214	193	231	166	241	174	194	197
FLIP 85-83C	145	108	149	270	189	220	195	233	170	244	180	192	205
FLIP 85-84C	142	108	207	265	190	220	194	229	169	244	177	192	204
FLIP 85-85C	136	103	145	264	186	215	193	-	173	240	177	194	196
FLIP 85-86C	139	102	149	269	186	224	195	233	176	239	179	194	197
FLIP 85-87C	142	108	154	267	184	230	194	235	168	248	182	210	197
FLIP 85-88C	142	102	205	264	190	225	196	229	171	241	177	202	196
FLIP 85-89C	145	106	205	268	180	215	194	231	171	237	177	196	196
FLIP 85-90C	136	102	156	266	188	215	195	231	180	242	182	194	206
FLIP 85-93C	145	107	210	267	190	215	194	229	176	239	177	192	200

Cont'd. ...

Table 3.6.3. Cont'd. ...

Entry Name	AFGHANISTAN		ALGERIA	BULGARIA	CHINA	FRANCE			IRAN			ITALY	LEBANON
	Darul Aman	Takhar	Sidi Bel Abbes	Toshevo	Xining	Mont - boucher	Montp- ellier-1	Montp- ellier-2	Karaj	Hamad- an	Orou- mieh	Tarqu- inia	Terbol
FLIP 85-94C	142	101	207	267	180	215	191	229	171	238	182	192	196
FLIP 85-95C	139	100	156	268	189	215	193	230	167	246	180	192	195
FLIP 85-97C	145	100	203	268	181	215	194	231	171	239	182	196	196
FLIP 85-98C	138	96	145	267	188	220	190	231	167	236	182	194	196
FLIP 85-99C	142	102	209	264	190	215	194	229	171	242	182	183	200
FLIP 85-100C	138	101	-	269	187	214	193	231	165	242	179	-	195
FLIP 85-101C	145	96	205	268	182	215	191	229	171	237	182	192	196
FLIP 85-102C	140	101	150	266	179	215	191	233	167	244	177	198	197
FLIP 85-105C	137	96	143	270	187	214	193	231	165	244	174	194	195
FLIP 85-112C	141	101	146	270	187	214	193	233	167	240	174	194	197
FLIP 85-114C	140	102	150	268	191	215	193	233	167	240	177	194	194
FLIP 85-115C	140	99	152	266	190	215	194	233	168	247	177	198	197
FLIP 85-116C	140	100	151	268	186	215	193	233	172	243	180	-	197
FLIP 85-117C	141	100	149	268	189	215	190	230	167	248	180	192	195
FLIP 85-122C	140	96	159	267	190	220	194	233	167	245	177	198	197
FLIP 85-123C	140	101	151	269	189	230	193	233	166	247	180	196	195
FLIP 85-124C	133	97	151	266	191	228	195	233	173	243	182	204	200
FLIP 85-128C	139	101	149	266	184	215	190	230	168	241	175	192	197
FLIP 85-129C	139	101	153	267	188	215	190	230	166	244	180	192	195
FLIP 85-132C	140	101	156	272	188	225	198	236	173	241	182	194	210
FLIP 85-133C	142	109	218	270	190	232	199	231	180	236	177	196	208
FLIP 81-293C	138	102	162	267	186	216	192	231	169	243	178	193	196
ILC 482	140	96	162	266	187	215	190	230	166	242	178	194	195
Local Check	140	95	128	268	187	215	190	228	167	243	180	194	199
Location Mean	**140**	**101**	**162**	**268**	**187**	**218**	**193**	**236**	**170**	**243**	**179**	**195**	**199**
S.E. of Mean	1.07	0.12	18.07	0.85	1.21	0.58	0.42	0.78	0.76	0.88	1.16	1.08	0.65
L.S.D. at 5% for :													
Checks	3.48	0.38	58.93	2.75	3.94	1.88	1.38	2.55	2.47	2.87	3.77	3.51	2.13
T.E. in S.B.	7.79	0.84	131.77	6.16	8.80	4.21	3.09	5.71	5.52	6.41	8.42	7.85	4.76
T.E. in D.B.	8.99	0.97	152.15	7.11	10.16	4.86	3.57	6.59	6.38	7.40	9.72	9.07	5.50
Check Vs T.E.	6.96	0.75	117.87	5.51	7.87	3.77	2.77	5.11	4.94	5.74	7.53	7.03	4.26
C.V. %	1.70	0.26	25.87	0.71	1.45	0.59	0.49	0.77	0.99	0.81	1.44	1.29	0.73

Cont'd. ...

Table 3.6.3. Cont'd. ...

Entry Name	LIBYA	MEXICO	PAKISTAN	PORTUGAL	SPAIN	SYRIA						ZAMBIA	(1)
	Tagura	Sonora	Pesh-awar	Oeiras	El Encin	Gelline	Heimo	Homs	Jind-iress	Tel Hadya-1	Tel Hadya-2	Chipata	Overall Mean
FLIP 84-5C	174	149	186	167	194	166	184	169	187	165	191	137	180
FLIP 84-6C	174	156	184	176	194	167	188	170	189	166	189	142	181
FLIP 84-7C	175	143	184	171	204	173	186	168	189	167	192	151	183
FLIP 84-8C	176	154	188	173	201	168	182	169	187	165	186	146	182
FLIP 84-22C	173	151	186	176	199	167	188	170	189	166	192	136	181
FLIP 84-33C	177	138	181	169	201	170	188	170	191	168	195	141	182
FLIP 84-71C	173	154	183	174	203	161	186	169	187	163	186	136	181
FLIP 84-73C	175	144	182	167	213	169	184	169	186	165	189	143	181
FLIP 84-86C	172	146	195	168	201	168	186	168	189	166	186	134	181
FLIP 84-104C	174	151	182	174	200	164	186	170	187	165	192	147	181
FLIP 84-120C	175	151	194	170	216	167	188	171	189	167	194	148	184
FLIP 84-124C	175	149	186	171	196	168	181	166	186	163	183	147	180
FLIP 84-137C	175	144	178	173	192	165	184	168	186	165	189	137	180
FLIP 84-168C	175	141	189	167	204	166	182	167	185	164	186	146	180
FLIP 85-4C	177	146	187	173	196	170	195	172	189	168	194	150	186
FLIP 85-44C	175	154	190	168	200	170	183	171	189	167	188	137	184
FLIP 85-47C	173	141	183	173	199	170	185	169	187	165	189	150	182
FLIP 85-48C	174	146	188	166	196	168	187	171	187	165	187	135	181
FLIP 85-51C	175	153	182	171	203	168	186	167	186	165	188	147	182
FLIP 85-53C	176	141	189	172	196	167	187	170	186	163	185	141	180
FLIP 85-58C	176	146	187	165	199	170	188	172	189	167	190	138	183
FLIP 85-65C	174	146	184	170	213	168	187	170	187	165	188	133	182
FLIP 85-66C	171	156	186	170	204	165	186	170	188	166	189	146	181
FLIP 85-69C	175	139	182	167	193	179	187	169	188	166	192	143	180
FLIP 85-70C	176	144	182	173	193	167	184	168	187	166	189	135	180
FLIP 85-71C	174	146	191	167	202	168	185	170	188	165	189	146	182
FLIP 85-72C	175	146	185	173	197	171	185	169	188	165	189	146	182
FLIP 85-73C	172	141	189	171	211	167	182	167	185	163	189	150	180
FLIP 85-79C	175	141	185	166	213	167	187	170	186	164	185	135	181
FLIP 85-81C	173	151	194	168	201	159	183	166	186	163	186	146	180
FLIP 85-83C	174	154	186	174	204	168	189	171	187	165	191	131	183
FLIP 85-84C	174	148	178	169	199	170	183	170	188	166	192	147	182
FLIP 85-85C	170	149	181	167	198	167	181	166	185	165	186	135	179
FLIP 85-86C	175	146	186	166	197	165	186	168	189	165	186	136	180
FLIP 85-87C	173	141	191	169	207	167	185	172	188	164	189	150	183
FLIP 85-88C	175	153	181	169	212	166	186	168	187	165	188	143	182
FLIP 85-89C	174	153	175	173	199	171	183	167	186	165	189	141	180
FLIP 85-90C	175	144	184	169	196	166	187	169	188	166	186	131	181
FLIP 85-93C	176	143	186	167	202	169	191	168	188	167	189	139	182

Cont'd. ...

Table 3.6.3. Cont'd. ...

Entry Name	LIBYA	MEXICO	PAKISTAN	PORTUGAL	SPAIN	SYRIA						ZAMBIA	(1) Overall Mean
	Tagura	Sonora	Pesh-awar	Oeiras	El Encin	Gelline	Heimo	Homs	Jind-iress	Tel Hadya-1	Tel Hadya-2	Chipata	
FLIP 85-94C	173	143	186	169	197	167	183	165	186	163	189	143	179
FLIP 85-95C	177	141	189	174	196	165	181	167	186	164	185	143	180
FLIP 85-97C	172	143	186	167	209	167	186	167	185	165	189	143	181
FLIP 85-98C	174	154	186	171	190	166	184	166	184	164	183	141	179
FLIP 85-99C	174	151	184	167	201	176	183	167	187	165	189	141	181
FLIP 85-100C	174	151	183	174	200	166	183	168	187	164	186	147	180
FLIP 85-101C	171	143	185	167	205	166	183	165	185	162	186	139	179
FLIP 85-102C	174	146	182	171	218	166	185	166	185	162	186	138	180
FLIP 85-105C	172	151	193	168	200	160	183	168	185	162	186	134	179
FLIP 85-112C	173	146	182	166	192	169	186	168	188	165	186	148	180
FLIP 85-114C	174	144	187	173	194	167	184	167	184	163	189	147	180
FLIP 85-115C	175	141	192	167	202	166	185	167	186	164	186	142	180
FLIP 85-116C	173	146	181	166	214	166	187	169	186	164	185	129	180
FLIP 85-117C	178	154	185	172	197	166	187	168	186	164	188	145	181
FLIP 85-122C	176	136	187	167	203	167	185	167	186	163	186	140	180
FLIP 85-123C	173	141	180	172	193	169	181	168	187	163	188	137	180
FLIP 85-124C	174	144	180	169	210	166	187	169	187	166	186	135	181
FLIP 85-128C	172	141	189	168	195	165	184	167	185	164	185	137	179
FLIP 85-129C	174	141	190	170	194	168	181	166	185	163	185	133	179
FLIP 85-132C	177	149	180	169	208	172	189	171	189	168	192	135	183
FLIP 85-133C	174	148	177	169	194	171	190	170	189	168	195	143	183
FLIP 81-293C	174	144	185	170	204	167	184	168	185	164	186	141	180
ILC 482	175	144	184	170	200	164	183	165	185	162	185	140	179
Local Check	173	145	183	173	214	166	183	170	187	165	-	128	
Location Mean	**174**	**146**	**185**	**170**	**202**	**167**	**185**	**169**	**187**	**165**	**188**	**140**	
S.E. of Mean	0.55	1.68	1.60	1.12	2.32	0.92	0.88	0.36	0.40	0.53	0.83	1.28	
L.S.D. at 5% for :													
Cecks	1.81	5.49	5.20	3.66	6.56	3.01	2.88	1.18	1.30	1.73	3.24	4.16	
T.E. in S.B.	4.04	12.27	11.63	8.18	16.91	6.74	6.44	2.63	2.92	3.86	7.24	9.30	
T.E. in D.B.	4.66	14.17	13.43	9.44	19.52	7.78	7.44	3.04	3.37	4.46	8.86	10.74	
Check Vs T.E.	3.61	10.98	10.40	7.31	15.12	6.03	5.76	2.35	2.61	3.45	6.87	8.32	
C.V. %	0.71	2.58	1.92	1.48	2.57	1.24	1.07	0.48	0.48	0.72	0.98	2.03	

(1) Sidi Bel Abbes, Montpellier-2 and Tarquinia were excluded from the overall mean
T.E. = Test entries, S.B. = same block, D.B. = different blocks

Table 3.6.4. Adjusted plant height (cm) of entries at different locations in the CISN-W during 1986/87.

Entry Name	AFGHANISTAN		ALGERIA		BULGARIA	CHINA	FRANCE			IRAN			ITALY	LEBANON
	Darul Aman	Takhar	Quadah	Sidi Bel Abbes	Toshevo	Xining	Mont - boucher	Montp- ellier-1	Montp ellier-2	Karaj	Hamadan	Orou- mieh	Tarq- uinia	Terbol
FLIP 84-5C	38	45	33	34	42	111	46	63	61	51	22	18	39	51
FLIP 84-6C	56	59	24	41	70	135	59	70	76	59	33	21	43	51
FLIP 84-7C	41	32	33	29	63	109	58	62	68	65	26	26	39	51
FLIP 84-8C	50	41	24	29	57	106	49	62	69	47	31	24	45	47
FLIP 84-22C	46	55	29	46	65	130	-	70	61	53	30	17	55	58
FLIP 84-33C	46	50	33	39	66	115	59	82	68	58	36	30	51	63
FLIP 84-71C	31	39	24	36	55	102	50	65	61	53	33	21	47	40
FLIP 84-73C	48	44	28	34	57	93	43	68	71	49	29	17	36	56
FLIP 84-86C	36	41	24	36	50	69	52	65	56	51	23	19	48	44
FLIP 84-104C	36	43	24	36	55	100	54	65	56	51	29	20	35	43
FLIP 84-120C	41	41	29	36	60	107	52	65	61	47	36	20	50	54
FLIP 84-124C	38	41	28	39	44	98	49	63	61	52	30	21	49	46
FLIP 84-137C	43	49	23	39	52	118	53	63	61	50	26	17	44	43
FLIP 84-168C	35	39	19	34	52	108	47	37	69	59	25	17	38	55
FLIP 85-4C	45	46	-	39	60	109	52	82	59	49	35	19	53	66
FLIP 85-44C	55	47	31	37	64	108	55	78	81	51	43	26	48	64
FLIP 85-47C	50	48	19	39	70	93	49	57	74	49	37	25	50	65
FLIP 85-48C	55	48	36	42	56	121	51	78	71	60	32	25	55	55
FLIP 85-51C	41	46	23	39	45	111	54	67	63	55	40	19	49	62
FLIP 85-53C	55	49	31	37	36	120	51	68	71	53	25	19	46	48
FLIP 85-58C	55	53	29	34	50	109	59	62	69	59	45	28	53	65
FLIP 85-65C	60	54	36	37	61	126	53	73	81	73	34	22	51	54
FLIP 85-66C	46	55	39	41	57	104	56	75	71	57	42	22	52	58
FLIP 85-69C	43	49	18	29	52	108	51	63	66	60	15	15	46	48
FLIP 85-70C	38	44	23	44	43	128	51	63	61	48	25	21	44	52
FLIP 85-71C	40	53	24	39	50	105	55	57	74	46	30	22	46	55
FLIP 85-72C	40	43	19	44	50	105	52	47	59	50	35	26	50	54
FLIP 85-73C	35	48	29	34	50	86	-	52	64	46	36	22	48	58
FLIP 85-79C	35	42	26	32	41	99	47	68	56	42	35	18	43	58
FLIP 85-81C	36	41	29	41	45	119	51	65	56	51	29	18	40	53
FLIP 85-83C	45	37	21	32	42	119	48	68	66	46	21	22	43	53
FLIP 85-84C	31	43	28	34	53	113	55	72	63	55	27	24	51	50
FLIP 85-85C	33	45	23	34	44	99	49	48	-	44	23	22	34	39
FLIP 85-86C	36	43	24	31	47	98	54	65	56	54	21	20	40	43
FLIP 85-87C	30	40	-	29	47	86	45	47	69	47	31	21	38	54
FLIP 85-88C	41	40	28	29	45	113	49	62	63	54	31	18	34	54
FLIP 85-89C	31	39	28	34	53	111	51	62	61	67	30	28	47	48
FLIP 85-90C	38	49	28	34	47	98	52	63	61	51	25	19	49	56
FLIP 85-93C	36	30	23	34	53	99	54	62	63	55	27	23	41	50

Cont'd. ...

Table 3.6.4. Cont'd. ...

Entry Name	AFGHANISTAN		ALGERIA		BULGARIA	CHINA	FRANCE			IRAN			ITALY	LEBANON
	Darul Aman	Takhar	Quadah Bel Abbes	Sidi	Toshevo	Xining	Mont - boucher	Montp- ellier-1	Montp ellier-2	Karaj	Hamadan	Orou- mieh	Tarq- uinia	Terbol
FLIP 85-94C	31	36	28	34	51	107	46	62	53	66	31	22	39	47
FLIP 85-95C	35	40	26	37	36	102	48	58	71	50	29	20	35	43
FLIP 85-97C	36	39	23	34	50	89	52	67	53	47	27	21	39	42
FLIP 85-98C	43	54	-	34	42	94	53	58	46	49	27	20	39	57
FLIP 85-99C	46	46	33	39	57	109	53	67	58	61	38	21	44	50
FLIP 85-100C	46	56	24	36	65	114	54	70	61	51	28	21	-	54
FLIP 85-101C	41	30	28	29	50	109	45	62	48	45	33	21	34	43
FLIP 85-102C	50	45	29	34	52	89	49	77	49	49	42	18	43	65
FLIP 85-105C	36	46	24	36	65	120	45	65	56	57	37	20	50	48
FLIP 85-112C	41	55	29	46	65	118	45	75	71	62	35	22	37	62
FLIP 85-114C	38	39	28	29	32	97	50	48	56	36	24	19	44	44
FLIP 85-115C	45	38	24	29	45	107	48	75	59	41	28	23	48	55
FLIP 85-116C	55	46	31	37	56	129	49	68	71	48	35	24	-	46
FLIP 85-117C	30	46	36	37	46	123	42	68	61	60	24	21	23	48
FLIP 85-122C	40	42	24	34	54	108	49	72	64	57	41	24	53	54
FLIP 85-123C	55	42	26	37	59	114	48	73	76	54	46	23	48	46
FLIP 85-124C	48	49	28	39	57	113	54	63	71	73	37	23	49	52
FLIP 85-128C	45	42	26	32	41	100	47	58	66	48	26	24	38	44
FLIP 85-129C	40	43	21	37	48	115	48	68	61	46	38	26	43	51
FLIP 85-132C	48	52	33	44	57	114	59	68	61	52	37	18	49	61
FLIP 85-133C	41	38	-	39	58	113	60	67	58	65	32	26	49	57
FLIP 81-293C	39	44	29	35	51	93	48	63	63	48	24	19	43	51
ILC 482	33	39	21	31	38	109	43	60	53	49	24	19	33	49
Local Check	32	42	23	31	50	97	50	62	57	51	24	20	47	48
Location Mean	**41**	**44**	**25**	**35**	**51**	**106**	**46**	**64**	**62**	**52**	**30**	**21**	**41**	**52**
S.E. of Mean	1.63	1.18	1.80	1.26	2.00	6.43	1.35	2.86	2.33	1.95	1.86	1.24	1.37	1.50
L.S.D. at 5% for :														
Checks	5.33	3.85	5.88	4.10	6.53	20.97	4.40	9.32	7.60	6.37	6.05	4.06	4.46	4.89
T.E. in S.B.	11.91	8.61	13.15	9.17	14.61	46.88	9.84	20.84	16.99	14.24	13.54	9.08	9.98	10.93
T.E. in D.B.	13.75	9.94	15.19	10.59	16.87	54.13	11.37	24.06	19.61	16.44	15.63	10.48	11.52	12.62
Check Vs T.E.	10.65	7.70	11.76	8.21	13.07	41.94	8.81	18.64	15.19	12.74	12.11	8.12	8.93	9.78
C.V. %	8.99	6.02	16.15	7.98	8.79	13.54	6.53	9.95	8.47	8.35	14.00	13.32	7.65	6.48

Cont'd. ...

Table 3.6.4. Cont'd. ...

Entry Name	LIBYA	MEXICO	PAKISTAN	PORTUGAL		SPAIN	SYRIA						TURKEY	(1)
	Tagura	Sonora	Pesha-war	Elvas	Oeiras	El Encin	Heimo	Homs	Gelline	Jindi-ress	Tel Hadya-1	Tel Hadya-2	Menemen	Overall Mean
FLIP 85-88C	45	63	84	85	61	47	34	52	41	40	41	42	32	50
FLIP 85-89C	55	56	95	92	56	60	37	57	59	45	49	45	37	54
FLIP 85-90C	50	-	95	78	80	54	42	57	43	44	45	54	38	53
FLIP 85-93C	56	61	89	92	76	47	37	62	65	47	46	42	37	53
FLIP 85-94C	53	66	89	87	61	50	33	57	59	44	47	40	32	51
FLIP 85-95C	49	66	117	67	63	53	37	55	45	42	45	44	29	51
FLIP 85-97C	50	73	94	75	86	53	36	57	54	37	45	31	32	50
FLIP 85-98C	50	-	100	80	73	44	37	57	51	48	49	54	33	52
FLIP 85-99C	64	58	94	85	81	57	43	67	60	48	49	52	42	58
FLIP 85-100C	57	81	95	87	91	55	40	65	65	51	41	53	37	59
FLIP 85-101C	51	53	94	75	61	48	33	57	49	37	38	37	32	49
FLIP 85-102C	42	50	94	79	71	52	46	60	56	47	52	49	35	55
FLIP 85-105C	46	61	95	86	76	53	41	70	58	54	45	48	32	56
FLIP 85-112C	56	86	100	91	76	51	41	65	66	51	52	63	32	61
FLIP 85-114C	39	-	95	73	85	41	35	47	48	37	41	49	28	47
FLIP 85-115C	36	55	104	81	76	51	46	55	54	47	47	49	37	54
FLIP 85-116C	49	63	122	72	63	52	42	60	60	60	55	44	29	58
FLIP 85-117C	44	66	127	74	43	49	37	60	42	39	49	44	29	52
FLIP 85-122C	61	30	99	81	76	51	46	55	55	50	51	41	32	56
FLIP 85-123C	48	68	127	77	73	51	41	55	55	49	51	44	31	58
FLIP 85-124C	46	-	95	90	70	40	45	57	49	50	45	53	41	56
FLIP 85-128C	47	58	107	72	58	49	33	55	53	50	43	44	34	51
FLIP 85-129C	51	63	112	75	78	51	41	65	44	50	49	47	29	55
FLIP 85-132C	66	-	90	93	61	50	47	62	48	57	57	64	48	59
FLIP 85-133C	69	58	89	82	61	53	45	72	63	54	50	47	42	57
FLIP 81-293C	49	55	100	72	54	53	37	56	50	42	44	41	32	51
ILC 482	49	54	92	73	68	49	34	51	44	34	38	40	34	48
Local Check	51	50	84	72	72	55	35	49	50	41	43	-	31	
Location Mean	**52**	**65**	**97**	**79**	**67**	**52**	**39**	**58**	**53**	**46**	**46**	**48**	**35**	
S.E. of Mean	2.20	1.68	5.07	2.95	3.68	1.96	1.12	1.32	2.74	1.43	0.99	1.49	1.32	
L.S.D. at 5% for :														
Checks	7.17	5.49	16.53	9.61	11.98	6.39	3.65	4.31	8.93	4.67	3.24	5.86	4.32	
T.E. in S.B.	16.04	12.27	36.96	21.48	26.80	14.28	8.16	9.65	20.00	10.45	7.24	13.11	9.65	
T.E. in D.B.	18.52	14.17	42.68	24.80	30.94	16.49	9.43	11.14	23.05	12.06	8.36	16.05	11.15	
Check Vs T.E.	14.34	10.98	33.06	19.21	23.97	12.78	7.30	8.63	17.85	9.35	6.48	12.44	8.64	
C.V. %	9.51	10.15	11.63	8.29	12.19	8.35	6.37	5.08	12.00	6.96	5.00	7.14	8.52	

(1) Quadah,Montebouchet,Montpellier-2,Tarquinia and Sonora were excluded from the overall mean.
T.E. = Test entries, S.B. = same block, D.B. = different block.

Table 3.6.4. Cont'd. ...

Entry Name	LIBYA	MEXICO	PAKISTAN	PORTUGAL		SPAIN	SYRIA						TURKEY	
	Tagura	Sonora	Pesha-war	Elvas	Oeiras	El Encin	Heimo	Homs	Gelline	Jindi-ress	Tel Hadya-1	Tel Hadya-2	Monemon	(1) Overall Meran
FLIP 84-5C	53	-	90	76	48	52	42	52	45	43	45	61	33	51
FLIP 84-6C	54	96	95	99	86	64	45	65	77	56	56	58	35	64
FLIP 84-7C	68	65	94	77	51	51	45	62	55	45	47	40	36	54
FLIP 84-8C	52	60	94	82	61	53	38	55	44	47	40	41	37	53
FLIP 84-22C	53	86	90	94	81	51	42	70	62	58	52	58	35	60
FLIP 84-33C	70	53	89	82	81	72	46	72	75	56	54	52	37	63
FLIP 84-71C	51	73	91	74	61	52	36	60	67	49	47	48	37	53
FLIP 84-73C	61	-	105	80	55	54	40	57	50	43	48	49	33	54
FLIP 84-86C	53	55	95	81	71	49	35	50	55	41	41	45	32	49
FLIP 84-104C	48	85	90	76	76	50	35	60	63	63	47	38	37	53
FLIP 84-120C	61	68	105	87	86	58	38	60	64	48	46	49	32	57
FLIP 84-124C	47	-	75	75	60	43	35	57	40	40	45	52	34	49
FLIP 84-137C	55	-	95	83	80	45	35	52	48	41	46	44	33	53
FLIP 84-168C	41	60	104	79	76	48	46	60	41	44	48	41	37	52
FLIP 85-4C	56	55	114	91	56	59	43	60	58	47	53	46	42	58
FLIP 85-44C	64	83	112	74	73	63	45	65	58	55	55	54	39	62
FLIP 85-47C	44	50	104	74	71	61	44	60	45	45	48	51	32	56
FLIP 85-48C	58	73	117	84	61	53	45	70	60	59	57	52	34	61
FLIP 85-51C	60	63	89	82	71	60	35	67	65	60	49	55	37	57
FLIP 85-53C	54	68	109	75	68	51	45	65	54	54	53	49	39	57
FLIP 85-58C	53	49	104	99	46	57	57	65	64	62	59	46	37	60
FLIP 85-65C	60	73	107	82	68	59	47	65	66	52	56	54	39	62
FLIP 85-66C	48	81	90	84	82	60	45	70	65	56	55	58	37	60
FLIP 85-69C	60	-	95	80	58	51	38	57	44	45	42	54	33	52
FLIP 85-70C	56	-	80	86	80	49	37	52	48	47	46	49	38	54
FLIP 85-71C	46	63	104	82	51	56	42	65	50	52	46	41	32	54
FLIP 85-72C	47	60	99	84	66	54	39	60	44	47	48	41	37	53
FLIP 85-73C	47	65	104	84	81	60	36	55	38	44	48	39	40	53
FLIP 85-79C	52	63	112	72	73	51	45	55	60	52	51	44	34	54
FLIP 85-81C	57	76	100	84	71	50	33	60	59	41	45	48	37	54
FLIP 85-83C	49	88	107	67	53	54	35	55	48	41	42	42	29	51
FLIP 85-84C	51	78	84	82	76	50	34	57	56	42	44	37	32	53
FLIP 85-85C	30	-	90	70	55	40	32	52	31	38	39	44	33	43
FLIP 85-86C	40	61	90	74	54	46	35	50	54	38	40	48	34	48
FLIP 85-87C	49	53	104	84	56	59	42	55	44	38	42	51	32	50

Cont'd. ...

Table 3.6.5. Adjusted 100-Seed weight (g) of entries at different locations in the CISN-W during 1986/87.

Entry Name	AFGHANISTAN		BULGARIA	CHINA	FRANCE	IRAN		ITALY	LEBANON	LIBYA
	Darul Aman	Takhar	Toshevo	Xining	Mont - boucher	Karaj	Oroumieh *	Tarquina	Terbol	Tagura
FLIP 84-5C	39	33	27	29	32	32	-	39	37	26
FLIP 84-6C	34	31	29	37	37	33	12	31	37	24
FLIP 84-7C	35	29	32	15	40	37	-	44	42	30
FLIP 84-8C	40	28	32	17	35	35	22	49	34	16
FLIP 84-22C	31	32	31	17	34	32	-	41	31	23
FLIP 84-33C	33	32	11	21	38	33	18	43	42	29
FLIP 84-71C	28	28	29	15	31	31	15	32	38	21
FLIP 84-73C	26	22	29	25	31	30	58	34	33	12
FLIP 84-86C	29	27	29	23	31	31	19	34	32	21
FLIP 84-104C	31	27	28	20	31	30	-	35	32	25
FLIP 84-120C	28	28	27	14	31	28	-	35	33	20
FLIP 84-124C	27	25	24	14	28	23	55	30	30	21
FLIP 84-137C	27	23	26	15	28	27	-	31	30	21
FLIP 84-168C	33	21	29	13	30	27	14	34	31	40
FLIP 85-4C	50	41	41	23	48	38	-	56	48	16
FLIP 85-44C	43	39	33	14	39	45	-	49	48	-
FLIP 85-47C	38	22	26	16	27	26	23	35	30	16
FLIP 85-48C	38	28	38	23	35	38	-	46	43	-
FLIP 85-51C	29	27	28	21	33	26	-	37	38	24
FLIP 85-53C	32	35	30	16	29	30	-	35	32	-
FLIP 85-58C	43	33	34	19	38	32	23	49	39	44
FLIP 85-65C	38	39	34	25	36	31	-	47	44	-
FLIP 85-66C	32	34	31	14	39	37	3	41	44	25
FLIP 85-69C	30	25	25	19	29	27	-	33	50	18
FLIP 85-70C	33	29	28	15	32	31	-	35	34	-
FLIP 85-71C	34	28	31	26	30	30	17	39	34	46
FLIP 85-72C	38	25	26	23	31	31	19	43	37	42
FLIP 85-73C	32	31	35	19	35	31	18	43	36	44
FLIP 85-79C	37	33	37	21	31	33	61	40	39	-
FLIP 85-81C	26	31	30	11	31	31	18	34	32	20
FLIP 85-83C	31	28	30	10	28	30	-	34	32	20
FLIP 85-84C	33	27	29	17	34	30	12	38	37	26
FLIP 85-85C	35	29	29	23	31	28	55	37	34	24
FLIP 85-86C	30	31	27	18	31	29	17	34	32	20
FLIP 85-87C	33	26	27	15	31	29	18	44	33	45
FLIP 85-88C	33	25	28	24	33	29	17	39	36	26
FLIP 85-89C	34	32	32	29	38	34	17	41	38	30
FLIP 85-90C	38	37	35	26	39	38	-	46	46	24
FLIP 85-93C	40	37	35	29	41	36	19	43	44	34

Cont'd. ...

Table 3.6.5. Cont'd. ...

Entry Name	AFGHANISTAN		BULGARIA	CHINA	FRANCE	IRAN		ITALY	LEBANON	LIBYA
	Darul Aman	Takhar	Toshevo	Xining	Mont - boucher	Karaj	Oroumieh *	Tarquina	Terbol	Tagura
FLIP 85-94C	30	25	29	18	32	30	-	35	44	18
FLIP 85-95C	34	28	32	16	27	33	51	35	33	21
FLIP 85-97C	31	28	32	17	33	31	17	41	35	29
FLIP 85-98C	33	29	29	26	29	33	-	40	33	-
FLIP 85-99C	32	33	28	23	34	32	18	41	38	27
FLIP 85-100C	27	28	27	17	31	30	-	-	30	20
FLIP 85-101C	27	22	26	14	29	27	-	33	31	20
FLIP 85-102C	32	25	30	24	31	29	23	37	31	16
FLIP 85-105C	29	28	32	19	31	32	13	34	31	22
FLIP 85-112C	29	27	26	23	30	29	12	33	31	19
FLIP 85-114C	31	27	29	25	28	30	-	38	33	22
FLIP 85-115C	33	25	29	20	33	29	17	37	34	16
FLIP 85-116C	30	39	31	22	29	30	-	-	36	-
FLIP 85-117C	27	25	31	14	24	32	-	33	31	-
FLIP 85-122C	31	25	29	25	39	33	-	45	35	16
FLIP 85-123C	34	27	30	14	32	33	55	38	34	-
FLIP 85-124C	32	29	30	18	34	28	-	36	35	23
FLIP 85-128C	29	26	27	23	27	31	49	32	30	21
FLIP 85-129C	32	28	30	12	28	32	-	34	33	20
FLIP 85-132C	37	36	33	24	41	42	-	43	45	29
FLIP 85-133C	39	23	35	35	44	34	-	52	46	37
FLIP 81-293C	29	26	29	22	29	28	29	34	32	22
ILC 482	31	25	30	18	33	30	-	34	32	25
Local Check	34	17	26	14	27	30	30	46	39	23
Location Mean	**33**	**28**	**29**	**20**	**32**	**31**	**25**	**39**	**36**	**25**
S.E. of Mean	0.84	0.49	0.38	1.82	1.46	0.69	-	1.31	0.63	2.85
L.S.D. at 5% for :										
Checks	2.73	1.61	1.24	5.94	4.76	2.28	-	4.26	2.04	9.30
T.E. in S.B.	6.10	3.59	2.77	13.27	10.65	5.09	-	9.53	4.57	20.80
T.E. in D.B.	7.05	4.15	3.20	15.33	12.30	5.87	-	11.00	5.28	24.02
Check Vs T.E.	5.46	3.21	2.48	11.87	9.53	4.55	-	8.52	4.09	18.61
C.V. %	5.73	3.96	2.88	20.74	10.11	5.03	-	8.39	3.92	30.51

Cont'd. ...

Table 3.6.5. Cont'd. ...

Entry Name	MEXICO	PORTUGAL		SPAIN	SYRIA			TURKEY	ZAMBIA	Overall Mean
	Sonora	Elvas	Oeiras	El Encin	Heimo	Homs	Tel Hadya-2	Menemen	Chipata	
FLIP 84-5C	37	39	39	39	33	40	36	34	32	35
FLIP 84-6C	31	41	45	36	36	33	36	32	16	34
FLIP 84-7C	41	38	47	41	37	32	26	35	40	35
FLIP 84-8C	34	39	40	35	33	43	32	30	36	34
FLIP 84-22C	28	35	45	32	33	33	33	30	35	32
FLIP 84-33C	32	37	52	38	23	34	35	28	29	32
FLIP 84-71C	22	32	55	29	26	33	28	24	36	30
FLIP 84-73C	33	33	34	33	22	32	26	26	35	29
FLIP 84-86C	28	37	50	31	29	34	32	27	33	31
FLIP 84-104C	30	31	40	31	27	35	28	23	35	30
FLIP 84-120C	21	35	45	32	28	33	30	26	36	30
FLIP 84-124C	29	31	39	30	24	25	28	25	30	27
FLIP 84-137C	27	29	39	28	25	28	26	22	28	27
FLIP 84-168C	29	30	30	28	26	38	28	25	33	28
FLIP 85-4C	41	51	50	48	35	47	26	43	56	43
FLIP 85-44C	37	46	54	40	39	40	17	32	46	38
FLIP 85-47C	30	31	40	27	27	29	28	27	33	29
FLIP 85-48C	38	44	49	39	28	43	26	31	45	36
FLIP 85-51C	33	36	47	32	28	28	31	33	37	32
FLIP 85-53C	32	37	44	32	28	32	19	26	34	30
FLIP 85-58C	36	40	40	38	36	43	37	31	43	36
FLIP 85-65C	38	43	49	40	34	40	25	28	44	37
FLIP 85-66C	34	35	50	39	35	39	37	35	46	36
FLIP 85-69C	31	32	39	30	27	32	27	26	30	30
FLIP 85-70C	30	33	44	31	24	33	31	29	35	31
FLIP 85-71C	31	34	40	31	31	37	31	27	35	32
FLIP 85-72C	33	36	40	33	34	43	32	27	39	33
FLIP 85-73C	37	37	40	33	31	38	34	27	41	33
FLIP 85-79C	34	41	39	36	31	35	30	31	41	34
FLIP 85-81C	25	34	50	33	28	35	29	28	34	30
FLIP 85-83C	28	35	39	29	26	33	21	25	34	28
FLIP 85-84C	35	39	47	36	29	36	31	31	38	33
FLIP 85-85C	33	35	34	32	25	34	30	27	38	31
FLIP 85-86C	25	34	40	31	29	35	29	29	42	31
FLIP 85-87C	31	36	35	29	28	34	30	27	35	30
FLIP 85-88C	28	38	42	33	31	36	32	32	35	32
FLIP 85-89C	37	43	47	35	31	34	33	31	37	35
FLIP 85-90C	38	43	34	42	36	42	42	40	38	38
FLIP 85-93C	40	44	52	42	29	36	36	37	45	39

Cont'd. ...

Table 3.6.5. Cont'd. ...

Entry Name	MEXICO	PORTUGAL		SPAIN	SYRIA			TURKEY	ZAMBIA	Overall Mean
	Sonora	Elvas	Oeiras	El Encin	Heimo	Homs	Tel Hadya-2	Menemen	Chipata	
FLIP 85-94C	31	29	37	32	27	28	32	28	34	30
FLIP 85-95C	29	33	44	33	30	35	16	28	33	30
FLIP 85-97C	34	33	42	31	26	34	30	32	30	31
FLIP 85-98C	30	34	44	31	27	32	30	29	33	31
FLIP 85-99C	36	39	47	36	29	32	32	31	40	34
FLIP 85-100C	29	30	30	30	28	41	27	26	31	29
FLIP 85-101C	32	32	32	29	24	34	25	26	27	27
FLIP 85-102C	30	33	35	30	26	33	27	28	33	30
FLIP 85-105C	25	35	50	30	32	31	28	28	32	31
FLIP 85-112C	27	30	45	26	28	29	28	26	34	28
FLIP 85-114C	30	36	34	33	27	34	29	27	34	30
FLIP 85-115C	30	37	35	31	30	38	31	26	34	31
FLIP 85-116C	31	41	39	34	31	35	20	28	36	32
FLIP 85-117C	28	31	39	28	26	29	17	25	32	27
FLIP 85-122C	32	37	40	35	31	39	29	31	38	33
FLIP 85-123C	29	37	44	33	29	32	16	30	36	30
FLIP 85-124C	32	36	39	33	28	35	26	32	35	31
FLIP 85-128C	27	33	39	27	28	28	16	27	31	28
FLIP 85-129C	28	35	39	29	25	31	20	28	34	29
FLIP 85-132C	36	43	44	41	33	42	40	30	22	37
FLIP 85-133C	38	44	52	41	38	34	42	37	42	39
FLIP 81-293C	31	34	40	31	27	31	27	25	33	30
ILC 482	28	31	38	31	27	33	26	27	33	30
Local Check	51	32	48	24	26	38	-	32	23	
Location Mean	**33**	**36**	**42**	**32**	**29**	**35**	**29**	**29**	**34**	
S.E. of Mean	1.25	0.32	3.99	0.65	0.53	1.21	0.72	0.71	0.85	
L.S.D. at 5% for :										
Checks	4.09	1.03	13.01	2.11	1.71	3.95	2.82	2.31	2.78	
T.E. in S.B.	9.14	2.30	29.09	4.73	3.83	8.84	6.30	5.17	6.22	
T.E. in D.B.	10.55	2.66	33.59	5.46	4.42	10.21	7.72	5.97	7.18	
Check Vs T.E.	8.18	2.06	26.02	4.23	3.43	7.91	5.98	4.63	5.56	
C.V. %	8.58	1.98	21.14	4.47	4.07	7.85	5.70	5.50	5.57	

(1) Oroumieh, Tarquinia, and Tagura were excluded from the overall mean
T.E. = Test entries, S.B. = same block, D.B.= different block.
* = Locations not analysed and thus mean values are unadjusted.

Table 3.6.6. Adjusted seed yield (y=kg/ha) and rank (r) of entries at different locations in the CISN-W during 1986/87.

Entry Name	AFGHANISTAN				ALGERIA		BULGARIA		CHINA		CYPRUS		FRANCE	
	Darul Aman		Takhar		Sidi Bel Abbes		Toshevo		Xining		Laxia		Montboucher	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-5C	910	43	963	53	398	43	271	63	602	22	247	55	2190	63
FLIP 84-6C	891	44	1237	34	250	57	737	38	588	23	14	62	3006	60
FLIP 84-7C	1514	19	1054	46	334	51	927	30	465	31	519	43	5644	12
FLIP 84-8C	808	46	1730	3	377	46	652	46	142	50	2289	3	4314	45
FLIP 84-22C	275	61	1360	24	631	20	483	56	348	38	397	50	5330	22
FLIP 84-33C	1063	35	432	63	144	62	324	61	471	30	403	49	4872	30
FLIP 84-71C	319	59	1532	13	631	21	737	37	742	17	206	57	4063	49
FLIP 84-73C	560	53	986	51	398	44	715	40	1015	6	456	46	3380	59
FLIP 84-86C	1068	34	1565	12	885	10	673	42	532	27	547	39	3739	54
FLIP 84-104C	1411	21	1604	9	948	6	927	28	886	9	856	30	5568	13
FLIP 84-120C	319	58	1371	22	758	15	483	55	236	44	789	32	4644	39
FLIP 84-124C	560	54	1108	43	1160	3	1223	17	-	-	481	45	4542	40
FLIP 84-137C	2084	4	1102	44	906	7	1287	13	418	34	431	48	4009	52
FLIP 84-168C	1484	20	1713	4	504	36	1414	7	325	41	1389	12	5561	14
FLIP 85-4C	808	47	513	62	1012	5	525	52	511	28	997	24	7818	1
FLIP 85-44C	1595	15	1149	40	419	41	525	51	155	49	1606	8	5342	20
FLIP 85-47C	789	48	1374	21	567	31	906	32	136	51	1206	20	4076	48
FLIP 85-48C	1608	14	1132	41	1117	4	1223	14	627	20	1756	5	4771	34
FLIP 85-51C	1133	33	1015	48	588	29	990	27	538	26	286	54	5787	10
FLIP 85-53C	2370	1	1654	7	356	49	588	49	329	39	1347	13	5485	15
FLIP 85-58C	1002	39	1197	36	631	23	652	45	158	47	939	26	4466	43
FLIP 85-65C	1033	36	1232	35	356	48	652	44	376	36	872	29	5371	18
FLIP 85-66C	503	55	1526	14	313	54	673	41	325	40	756	33	6501	6
FLIP 85-69C	694	50	1241	33	779	14	525	54	-	-	389	51	3676	55
FLIP 85-70C	1141	31	997	50	1160	2	906	34	-	-	197	58	2314	62
FLIP 85-71C	1592	17	1830	2	250	59	1287	12	1108	4	1547	10	5218	25
FLIP 85-72C	1008	38	1408	17	694	16	271	62	301	43	1289	16	5228	24
FLIP 85-73C	1141	32	1286	31	885	11	1223	15	75	53	1639	6	5380	17
FLIP 85-79C	2145	3	1093	45	483	37	842	35	25	55	1281	18	4028	51
FLIP 85-81C	922	42	1654	6	885	9	1625	1	214	46	1281	17	6644	5
FLIP 85-83C	1891	7	821	58	610	24	1160	19	16	56	1456	11	5142	26
FLIP 85-84C	844	45	765	59	271	56	1117	23	460	32	544	40	4930	29
FLIP 85-85C	383	57	1391	19	334	50	398	60	-	-	-	-	3599	57
FLIP 85-86C	446	56	1582	11	631	19	419	59	1355	2	739	35	6330	7
FLIP 85-87C	691	51	1302	30	250	58	906	33	236	45	2589	1	4190	46
FLIP 85-88C	1990	6	1337	25	334	52	990	26	1145	3	503	44	4701	36
FLIP 85-89C	1244	28	926	56	398	45	1435	4	780	12	561	37	5349	19
FLIP 85-90C	986	40	986	52	652	18	1160	21	753	14	556	38	5285	23
FLIP 85-93C	1654	12	1021	47	588	30	1435	5	1093	5	528	41	6006	8

Cont'd. ...

Table 3.6.6. Cont'd. ...

	AFGHANISTAN				ALGERIA		BULGARIA		CHINA		CYPRUS		FRANCE	
	Darul Aman		Takhar		Sidi Bel Abbes		Toshevo		Xining		Laxia		Montboucher	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-94C	1323	24	1165	37	906	8	1308	10	415	35	78	61	5949	9
FLIP 85-95C	1716	10	1515	15	800	12	1414	6	-	57	2522	2	6799	3
FLIP 85-97C	2257	2	1243	32	588	28	1371	9	799	11	878	28	4844	31
FLIP 85-98C	929	41	1402	18	525	33	652	47	991	7	372	52	3380	58
FLIP 85-99C	1374	23	937	55	525	34	483	57	750	15	453	47	4520	41
FLIP 85-100C	1592	16	1649	8	-	63	927	29	478	29	756	34	4825	33
FLIP 85-101C	2034	5	1332	26	588	27	927	31	750	16	311	53	4701	35
FLIP 85-102C	1522	18	1158	39	504	35	1541	3	319	42	1631	7	5133	27
FLIP 85-105C	256	62	1865	1	313	53	1054	24	900	8	914	27	5339	21
FLIP 85-112C	1386	22	1382	20	1266	1	610	48	364	37	956	25	7015	2
FLIP 85-114C	1272	26	958	54	588	25	461	58	-	58	114	60	4685	38
FLIP 85-115C	1030	37	824	57	377	47	1160	20	626	21	1339	15	5437	16
FLIP 85-116C	1735	8	1326	27	229	61	652	43	541	25	1931	4	4037	50
FLIP 85-117C	738	49	999	49	292	55	1541	2	45	54	1256	19	2828	61
FLIP 85-122C	278	60	1313	29	631	22	588	50	155	48	572	36	3637	56
FLIP 85-123C	1627	13	1315	28	229	60	1287	11	705	18	1556	9	3761	53
FLIP 85-124C	614	52	1113	42	461	39	1223	16	-	62	231	56	4495	42
FLIP 85-128C	1722	9	1665	5	546	32	779	36	1726	1	1206	21	4447	44
FLIP 85-129C	1710	11	1371	23	483	38	715	39	94	52	1347	14	4685	37
FLIP 85-132C	-	63	658	61	779	13	525	53	773	13	189	59	5104	28
FLIP 85-133C	1244	29	715	60	588	26	1054	25	562	24	528	42	5653	11
FLIP 81-293C	1210	30	1162	38	686	17	1156	22	881	10	805	31	4095	47
ILC 482	1246	27	1593	10	419	40	1384	8	452	33	1122	23	4829	32
Local Check	1296	25	1512	16	406	42	1194	18	658	19	1190	22	6665	4
Location Mean	**1172**		**1272**		**555**		**963**		**499**		**915**		**4903**	
S.E. of Mean	142.92		130.33		82.95		98.77		271.04		206.82		388.35	
L.S.D. at 5% for :														
Checks	466.02		424.96		270.46		322.06		883.77		674.38		1266.28	
T.E. in S.B.	1042.06		950.23		604.77		720.15		1976.17		1507.96		2831.49	
T.E. in D.B.	1203.26		1097.23		698.32		831.55		2281.98		1741.24		3270.53	
Checks Vs T.E.	932.18		850.04		541.00		644.22		1767.81		1348.96		2533.95	
C.V. %	27.26		22.90		33.40		22.94		121.42		50.56		17.71	
Test > L. Check	2		0		6		0		0		1		0	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	FRANCE				IRAN						ITALY	
	Montpellier-1		Montpellier-2		Hamadan		Karaj		Oroumieh		Tarquinia	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-5C	1363	60	2270	42	471	41	1570	11	139	34	1289	49
FLIP 84-6C	1214	61	-	-	281	54	1002	40	73	47	739	55
FLIP 84-7C	2871	29	2817	34	1029	15	764	55	-	-	114	60
FLIP 84-8C	2440	44	1756	45	1500	4	1000	41	197	20	3342	18
FLIP 84-22C	1367	59	780	56	338	50	1317	21	-	-	2072	37
FLIP 84-33C	2785	36	2632	37	972	17	776	54	92	44	2400	35
FLIP 84-71C	2675	38	3003	31	852	23	1248	28	259	8	2866	26
FLIP 84-73C	2415	45	3636	23	1328	5	1398	16	167	29	2400	36
FLIP 84-86C	1635	56	1667	47	-	-	905	50	390	2	3786	15
FLIP 84-104C	1857	52	1554	50	738	29	979	45	-	-	1532	46
FLIP 84-120C	1823	55	1630	48	566	37	619	59	-	-	4834	5
FLIP 84-124C	3006	25	5223	6	471	42	1078	37	201	19	5384	1
FLIP 84-137C	2387	46	2517	39	871	20	993	43	98	42	1860	42
FLIP 84-168C	2875	28	3854	21	1157	10	1332	20	241	10	1818	43
FLIP 85-4C	3085	22	5989	3	-	-	326	62	32	49	4993	4
FLIP 85-44C	3968	5	4158	15	433	45	909	48	99	41	3405	17
FLIP 85-47C	2497	43	4357	14	928	18	1092	36	231	12	3088	19
FLIP 85-48C	3463	13	5019	8	-	-	1418	15	122	39	3501	16
FLIP 85-51C	2980	26	2518	38	1144	11	907	49	-	-	2940	23
FLIP 85-53C	2862	30	3324	25	605	35	1515	12	171	26	2802	27
FLIP 85-58C	2102	49	3130	29	300	53	543	60	246	9	2993	21
FLIP 85-65C	3109	21	3385	24	719	31	709	58	125	38	3088	20
FLIP 85-66C	2158	48	2651	35	509	39	1254	27	89	45	2929	25
FLIP 85-69C	2795	35	-	-	300	52	976	46	177	25	2559	32
FLIP 85-70C	2853	31	3982	18	1043	14	1284	25	148	31	4622	6
FLIP 85-71C	3758	9	3257	27	357	48	1138	33	348	6	3881	14
FLIP 85-72C	3490	12	4088	17	700	34	738	56	353	5	5374	2
FLIP 85-73C	3320	16	4395	12	757	27	1383	18	366	4	5215	3
FLIP 85-79C	3920	6	4121	16	1519	3	955	47	212	15	4294	9
FLIP 85-81C	2817	33	3192	28	452	43	1385	17	80	46	4294	8
FLIP 85-83C	4143	2	6062	1	-	-	1435	13	144	33	4231	12
FLIP 85-84C	2253	47	3727	22	1315	6	856	52	17	51	4400	7
FLIP 85-85C	957	62	-	-	414	47	1593	10	204	18	463	56
FLIP 85-86C	1845	53	-	-	-	-	1094	35	94	43	2072	38
FLIP 85-87C	3738	10	5571	4	243	56	1303	23	395	1	2485	33
FLIP 85-88C	3182	20	2993	32	1201	9	1433	14	126	37	1067	51
FLIP 85-89C	3021	23	4387	13	2001	2	1644	8	26	50	1511	47
FLIP 85-90C	2591	40	5301	5	871	21	781	53	170	27	3892	13
FLIP 85-93C	3266	17	2643	36	1144	12	1158	32	8	52	2686	29

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	FRANCE				IRAN						ITALY	
	Montpellier-1		Montpellier-2		Hamadan		Karaj		Oroumieh		Tarquinia	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-94C	3839	7	2478	40	2515	1	1781	6	-	-	1067	52
FLIP 85-95C	4187	1	5999	2	1290	7	2275	3	186	23	1183	50
FLIP 85-97C	3760	8	4853	9	1086	13	1313	22	-	-	2463	34
FLIP 85-98C	1840	54	-	-	414	46	1296	24	113	40	241	59
FLIP 85-99C	2022	51	3035	30	1029	16	998	42	-	-	1924	40
FLIP 85-100C	2029	50	-	-	338	51	1237	29	-	-	-	62
FLIP 85-101C	2900	27	2263	44	1258	8	2330	2	-	-	337	58
FLIP 85-102C	2570	41	1567	49	814	25	1732	7	178	24	929	53
FLIP 85-105C	1563	58	26	57	338	49	1019	39	49	48	1754	44
FLIP 85-112C	2644	39	1210	52	738	30	1802	5	379	3	1596	45
FLIP 85-114C	879	63	885	55	700	33	1101	34	129	36	2940	24
FLIP 85-115C	2677	37	1458	51	-	-	715	57	197	21	2612	31
FLIP 85-116C	2845	32	-	-	719	32	492	61	235	11	-	-
FLIP 85-117C	4044	3	-	-	-	-	2526	1	275	7	72	61
FLIP 85-122C	2521	42	4637	11	243	55	1178	31	211	17	2993	22
FLIP 85-123C	3324	15	3940	19	490	40	1263	26	152	30	2072	39
FLIP 85-124C	1584	57	1727	46	528	38	981	44	169	28	1892	41
FLIP 85-128C	3362	14	3305	26	833	24	863	51	220	14	1469	48
FLIP 85-129C	3737	11	2263	43	433	44	1360	19	145	32	421	57
FLIP 85-132C	2800	34	2393	41	871	22	1227	30	131	35	4273	10
FLIP 85-133C	3197	19	3890	20	744	28	10	63	-	-	4241	11
FLIP 81-293C	3209	18	4821	10	602	36	1066	38	193	22	2781	28
ILC 482	3014	24	2975	33	766	26	1970	4	223	13	787	54
Local Check	4038	4	5108	7	903	19	1599	9	212	16	2679	30
Location Mean	**2860**		**3087**		**706**		**1246**		**147**		**2422**	
S.E. of Mean	133.40		360.84		238.83		144.60		43.78		558.62	
L.S.D. at 5% for :												
Checks	434.97		1176.58		779.74		471.48		142.74		1821.49	
T.E. in S.B.	972.63		2630.90		1741.31		1054.26		319.18		4072.97	
T.E. in D.B.	1123.09		3037.90		2010.69		1217.35		368.56		4703.07	
Check Vs T.E.	870.07		2353.51		1557.71		943.10		285.53		3643.53	
C.V. %	10.43		26.14		75.62		25.94		66.39		51.57	
Test > L. Check	0		0		1		0		0		0	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	LEBANON		LIBYA		MEXICO		PAKISTAN				PORTUGAL	
	Torbol		Tagura		Sonora		Bahawalpur		Peshawar		Elvas	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-5C	1437	41	525	29	1525	30	861	16	67	46	1894	53
FLIP 84-6C	988	61	71	59	1253	43	-	-	179	24	2502	27
FLIP 84-7C	1797	15	303	50	1673	22	250	36	105	35	2763	17
FLIP 84-8C	1776	20	669	11	1442	32	194	45	616	3	3028	10
FLIP 84-22C	1395	45	225	53	1494	31	-	-	179	29	2297	36
FLIP 84-33C	1289	49	143	55	978	54	250	39	-	-	2667	22
FLIP 84-71C	1014	59	508	30	1353	39	-	-	179	30	2725	19
FLIP 84-73C	1564	35	1147	2	2104	7	861	15	567	4	1966	50
FLIP 84-86C	1776	21	6	61	1155	47	-	-	179	27	2309	35
FLIP 84-104C	1776	22	113	58	1937	11	-	-	179	21	3695	2
FLIP 84-120C	2030	8	508	31	443	60	-	-	179	26	2851	14
FLIP 84-124C	1628	31	487	34	1404	35	1194	6	67	42	2020	48
FLIP 84-137C	1723	24	888	4	1602	28	-	-	67	39	2592	25
FLIP 84-168C	2474	1	834	7	1234	45	528	30	303	15	3209	3
FLIP 85-4C	2093	5	541	26	92	63	-	-	741	2	2353	31
FLIP 85-44C	2072	7	385	45	1401	37	-	-	95	36	1602	59
FLIP 85-47C	2093	6	564	23	967	55	361	35	-	-	2456	28
FLIP 85-48C	1278	52	530	27	1768	18	194	40	-	-	2199	38
FLIP 85-51C	1670	26	378	47	996	53	1000	11	-	-	2342	33
FLIP 85-53C	1374	47	473	37	1847	15	-	-	470	8	2096	43
FLIP 85-58C	1014	58	1421	1	811	57	694	24	-	-	2028	47
FLIP 85-65C	643	63	480	36	1618	26	194	43	-	-	2000	49
FLIP 85-66C	1204	57	253	51	1428	33	-	-	179	31	1610	58
FLIP 85-69C	1437	40	442	39	1300	40	1444	2	67	44	3159	5
FLIP 85-70C	1628	30	-	-	1877	14	944	13	317	14	2339	34
FLIP 85-71C	1966	10	767	9	592	59	-	-	-	-	2034	46
FLIP 85-72C	2188	3	899	3	371	62	528	32	-	-	2377	30
FLIP 85-73C	1649	27	834	6	1059	50	694	23	-	-	2691	21
FLIP 85-79C	1786	18	545	25	2193	5	194	42	532	6	1385	60
FLIP 85-81C	2284	2	793	8	1401	36	-	-	179	25	2839	15
FLIP 85-83C	1469	39	635	15	2384	3	-	-	220	20	3060	7
FLIP 85-84C	1289	50	253	52	1067	49	583	28	168	33	2661	23
FLIP 85-85C	1501	38	45	60	1289	42	1028	8	67	41	1147	62
FLIP 85-86C	1268	53	136	56	1424	34	-	-	179	22	1641	56
FLIP 85-87C	1649	28	839	5	425	61	528	31	53	47	3173	4
FLIP 85-88C	1987	9	593	18	1000	52	1000	9	355	13	3028	9
FLIP 85-89C	1797	16	550	24	2021	9	250	37	230	18	2811	16
FLIP 85-90C	1881	13	487	35	1633	25	944	14	255	17	2171	41
FLIP 85-93C	1924	11	650	14	1119	48	667	26	-	-	2595	24

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	LEBANON		LIBYA		MEXICO		PAKISTAN				PORTUGAL	
	Terbol		Tagura		Sonora		Bahawalpur		Peshawar		Elvas	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-94C	1733	23	431	40	1752	19	833	17	-	-	2902	13
FLIP 85-95C	1596	33	635	16	2880	2	-	-	782	1	2048	45
FLIP 85-97C	1606	32	415	42	1926	12	1000	10	-	-	3823	1
FLIP 85-98C	1247	55	-	-	1775	17	944	12	67	43	1966	51
FLIP 85-99C	1416	43	307	49	1669	23	250	38	-	-	2167	42
FLIP 85-100C	1585	34	126	57	1714	20	-	-	179	32	2189	40
FLIP 85-101C	1797	17	566	22	2349	4	1250	4	-	-	2950	12
FLIP 85-102C	1776	19	586	19	1033	51	528	29	553	5	3034	8
FLIP 85-105C	1522	37	397	44	1384	38	-	-	179	28	3141	6
FLIP 85-112C	1839	14	385	46	1676	21	-	-	179	23	1634	57
FLIP 85-114C	1247	54	200	54	1246	44	-	-	67	45	1261	61
FLIP 85-115C	1522	36	526	28	652	58	694	25	-	-	2269	37
FLIP 85-116C	993	60	455	38	1588	29	444	33	220	19	2066	44
FLIP 85-117C	1342	48	405	43	3118	1	194	41	407	11	2578	26
FLIP 85-122C	1204	56	601	17	1613	27	-	-	428	9	3022	11
FLIP 85-123C	1278	51	418	41	2126	6	-	-	470	7	1892	54
FLIP 85-124C	1437	42	348	48	1789	16	1194	5	67	40	1900	52
FLIP 85-128C	1405	44	650	13	1905	13	1028	7	407	10	2349	32
FLIP 85-129C	961	62	580	21	2043	8	194	44	95	37	2193	39
FLIP 85-132C	1691	25	497	33	1198	46	-	20	67	38	1779	55
FLIP 85-133C	1384	46	583	20	863	56	1417	3	-	56	2402	29
FLIP 81-293C	1638	29	656	12	1648	24	617	27	363	12	2749	18
ILC 482	2159	4	698	10	1984	10	400	34	260	16	2710	20
Local Check	1911	12	506	32	1295	41	1900	1	131	34	197	63
Location Mean	**1639**		**505**		**1501**		**512**		**182**		**2295**	
S.E. of Mean	40.49		62.08		151.20		336.13		88.38		133.59	
L.S.D. at 5% for :												
Checks	132.02		202.41		493.01		1096.03		288.16		435.60	
T.E. in S.B.	295.21		452.60		1102.40		2450.79		644.35		974.02	
T.E. in D.B.	340.88		522.61		1272.94		2829.93		744.03		1124.71	
Check Vs T.E.	264.09		404.88		986.16		2192.39		576.41		871.33	
C.V. %	5.52		27.48		22.52		146.74		108.63		13.01	
Test > L. Check	3		2		4		0		2		60	

Cont'd. ...

Table 3.6.6. Cont'd. ...

	PORTUGAL		SPAIN				SYRIA					
	Oeiras		Cordoba		El Encin		Golline		Helmo		Homs	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-5C	1767	33	1877	62	1888	55	1243	16	1265	40	1412	61
FLIP 84-6C	835	60	1693	63	4035	1	898	47	896	63	1299	62
FLIP 84-7C	2853	5	3627	20	3272	7	1187	22	1565	17	3014	9
FLIP 84-8C	2348	19	2243	57	2633	28	974	42	1148	52	2267	30
FLIP 84-22C	920	57	2793	45	2527	33	1243	17	1258	41	1204	63
FLIP 84-33C	1653	37	3027	40	2899	17	1187	23	1553	19	2538	14
FLIP 84-71C	1292	49	3343	29	2622	29	1548	5	928	62	1490	60
FLIP 84-73C	1767	32	2777	46	2055	52	698	57	1360	37	2491	18
FLIP 84-86C	1949	27	4043	5	1693	61	798	52	1518	22	1553	59
FLIP 84-104C	920	58	3793	14	2342	44	1326	10	1353	38	2284	28
FLIP 84-120C	1635	40	3393	27	2673	24	1159	26	1563	18	1998	41
FLIP 84-124C	682	61	3127	37	2206	46	965	43	1049	58	1920	45
FLIP 84-137C	624	62	4177	3	2370	42	493	61	1424	31	2269	29
FLIP 84-168C	2720	8	2243	58	3118	12	1807	1	1447	29	3092	8
FLIP 85-4C	1863	28	2143	59	3623	3	1085	34	1148	51	2362	23
FLIP 85-44C	2510	14	3010	41	2809	19	1131	30	1848	6	2199	34
FLIP 85-47C	2091	25	3893	8	2980	15	1113	31	1516	23	1917	46
FLIP 85-48C	2967	3	3410	26	2749	22	1159	27	1378	36	2770	10
FLIP 85-51C	1653	36	2677	52	2514	34	1020	37	1083	55	2252	31
FLIP 85-53C	2225	20	3560	24	2404	40	743	55	1252	42	2326	26
FLIP 85-58C	2377	18	2093	60	1808	57	946	44	996	61	1727	54
FLIP 85-65C	1596	45	3110	38	1839	56	798	53	1734	7	1818	50
FLIP 85-66C	2035	26	2743	49	2153	47	1131	29	1194	47	1776	52
FLIP 85-69C	1653	38	2627	53	2658	25	1437	7	1443	30	1983	42
FLIP 85-70C	1196	50	4027	6	2100	49	1493	6	1386	35	2554	13
FLIP 85-71C	2434	17	3043	39	3438	5	1252	15	1612	13	3346	3
FLIP 85-72C	2605	10	2843	44	3460	4	974	41	1491	26	2171	36
FLIP 85-73C	2148	23	3743	16	2496	36	1391	8	1250	43	2203	33
FLIP 85-79C	1596	43	2760	47	1891	54	854	48	1690	10	1881	47
FLIP 85-81C	2149	22	3743	17	2989	14	1576	3	1169	50	2220	32
FLIP 85-83C	1825	29	3960	7	3628	2	831	50	1601	14	2516	16
FLIP 85-84C	1081	55	2927	43	2658	26	770	54	1184	48	1776	51
FLIP 85-85C	1596	42	3777	15	2134	48	1187	21	1049	59	1761	53
FLIP 85-86C	2835	6	4393	2	1474	63	559	60	1493	25	1617	58
FLIP 85-87C	2891	4	2743	48	3176	8	1224	20	2164	1	2457	20
FLIP 85-88C	1539	46	2927	42	3138	11	1020	38	1699	9	3141	7
FLIP 85-89C	2796	7	3227	32	1981	53	1131	28	1229	45	2093	39
FLIP 85-90C	1653	39	3827	11	3023	13	1159	24	1551	20	2618	12
FLIP 85-93C	3024	1	3377	28	2928	16	1298	14	1572	16	2411	22

Cont'd. ...

Table 3.6.6. Cont'd. ...

	PORTUGAL		SPAIN				SYRIA					
	Oeiras		Cordoba		El Encin		Gelline		Heimo		Homs	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-94C	1710	35	3227	33	2785	21	1576	4	1273	39	2696	11
FLIP 85-95C	2167	21	2710	51	1583	62	659	58	1867	4	2516	17
FLIP 85-97C	2967	2	3877	9	3323	6	1226	19	1718	8	3490	1
FLIP 85-98C	1196	51	3177	35	1733	60	1159	25	1202	46	1634	57
FLIP 85-99C	2567	11	3227	34	2450	39	715	56	1172	49	2093	38
FLIP 85-100C	863	59	3593	23	1783	59	1326	11	1118	54	1966	44
FLIP 85-101C	2624	9	3827	12	2714	23	1354	9	1527	21	3363	2
FLIP 85-102C	2548	13	3793	13	2619	30	1085	33	1135	53	2521	15
FLIP 85-105C	2435	16	3843	10	2514	35	1315	12	1067	56	1839	48
FLIP 85-112C	2092	24	4543	1	2463	38	798	51	1423	32	1649	55
FLIP 85-114C	396	63	4127	4	2378	41	381	63	1056	57	2301	27
FLIP 85-115C	1120	54	3143	36	2845	18	1613	2	1015	60	1968	43
FLIP 85-116C	1596	44	3610	21	2098	50	843	49	1867	5	2135	37
FLIP 85-117C	1196	52	3660	19	2296	45	437	62	1594	15	3228	5
FLIP 85-122C	1805	31	2393	56	2804	20	1057	35	1237	44	2489	19
FLIP 85-123C	2510	15	2560	54	1790	58	1020	39	1506	24	2021	40
FLIP 85-124C	1310	47	2727	50	2618	31	1048	36	1678	11	1824	49
FLIP 85-128C	1139	53	3410	25	2549	32	909	46	1613	12	2199	35
FLIP 85-129C	1825	30	3610	22	2087	51	604	59	1461	28	2453	21
FLIP 85-132C	1310	48	2527	55	3176	9	993	40	1462	27	1634	56
FLIP 85-133C	2567	12	1977	61	2464	37	1104	32	1400	34	2347	24
FLIP 81-293C	1623	41	3230	31	2344	43	939	45	1413	33	2343	25
ILC 482	1714	34	3690	18	3161	10	1239	18	1904	3	3343	4
Local Check	994	56	3310	30	2651	27	1300	13	2013	2	3196	6
Location Mean	**1786**		**3246**		**2590**		**1086**		**1468**		**2367**	
S.E. of Mean	371.71		143.85		229.70		193.18		76.91		234.35	
L.S.D. at 5% for :												
Checks	1212.03		469.04		748.96		629.89		250.79		764.13	
T.E. in S.B.	2710.18		1048.80		1674.73		1408.48		560.79		1708.65	
T.E. in D.B.	3129.45		1211.05		1933.81		1626.37		647.54		1972.98	
Check Vs T.E.	2424.43		938.21		1498.15		1259.97		501.66		1528.50	
C.V. %	46.55		9.91		19.83		39.79		11.71		22.14	
Test > L. Check	0		2		0		0		0		0	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	SYRIA						TUNISIA					
	Jindiress		Tel Hadya-1		Tel Hadya-2		Beja-1		Beja-2		El Kef-1	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-5C	1820	17	1208	53	1621	17	3703	11	2053	45	2585	43
FLIP 84-6C	1524	35	1621	25	1208	41	3753	9	1737	55	2368	53
FLIP 84-7C	1778	21	1431	37	1703	7	3620	13	2237	36	2668	37
FLIP 84-8C	1386	46	1261	49	1032	50	2870	32	2203	37	3360	13
FLIP 84-22C	1238	52	2002	7	685	60	2703	37	2137	41	2593	40
FLIP 84-33C	794	61	1018	62	951	53	2320	53	1137	62	2118	55
FLIP 84-71C	1143	54	1875	13	1120	48	3353	20	2637	21	2843	33
FLIP 84-73C	709	63	1621	26	1503	20	3603	14	3303	6	3235	18
FLIP 84-86C	1302	50	1907	10	1396	29	2753	35	1637	57	3393	12
FLIP 84-104C	2063	8	2447	2	434	61	3103	24	3337	5	3918	2
FLIP 84-120C	2000	10	2002	8	1481	22	2453	47	2937	13	3643	5
FLIP 84-124C	1471	39	2701	1	1679	11	3153	23	2353	32	2435	49
FLIP 84-137C	1915	14	1589	27	1567	18	3403	16	2653	20	2585	42
FLIP 84-168C	1450	42	1865	15	1211	40	2870	33	3153	10	4010	1
FLIP 85-4C	1799	18	1642	24	1234	37	3320	21	3153	11	3660	4
FLIP 85-44C	1937	13	1367	43	1680	10	2953	29	2870	15	2093	56
FLIP 85-47C	1450	41	1166	55	1121	47	2620	38	2453	28	3060	26
FLIP 85-48C	1937	12	1431	38	1747	6	3053	26	1570	59	2493	47
FLIP 85-51C	1683	25	1335	45	1326	33	2470	43	2137	40	2368	52
FLIP 85-53C	1492	38	1081	59	1233	38	1953	57	1920	49	1893	59
FLIP 85-58C	1735	23	912	63	795	56	2320	52	2603	24	2410	50
FLIP 85-65C	1460	40	1526	33	1474	24	1903	59	2320	33	2543	44
FLIP 85-66C	1429	43	1812	19	1014	51	2503	42	2687	18	3343	15
FLIP 85-69C	1090	57	1367	44	1874	4	4003	5	2453	27	2535	45
FLIP 85-70C	2074	7	1843	17	1698	8	4703	2	3503	3	3035	27
FLIP 85-71C	1767	22	1039	61	745	59	2570	40	2453	29	3110	22
FLIP 85-72C	1989	11	1865	16	1202	42	3070	25	2903	14	3210	20
FLIP 85-73C	1672	27	1769	20	1037	49	3770	8	4103	1	3485	8
FLIP 85-79C	2095	6	1907	11	1414	27	1603	61	2670	19	1493	61
FLIP 85-81C	2190	3	2351	3	1954	2	2353	51	2637	22	3443	9
FLIP 85-83C	1651	28	1367	42	1478	23	2903	31	2520	25	2593	41
FLIP 85-84C	1111	56	1462	35	1139	45	2170	55	1487	60	2393	51
FLIP 85-85C	836	60	1304	47	1651	14	2203	54	903	63	2460	48
FLIP 85-86C	1429	44	1875	12	1305	34	1353	62	1837	51	3418	10
FLIP 85-87C	1577	32	1484	34	768	57	4170	3	3303	7	2960	30
FLIP 85-88C	1905	15	1558	30	1403	28	3020	27	2787	16	2968	29
FLIP 85-89C	1333	49	1685	23	1294	35	3720	10	2087	44	2768	36
FLIP 85-90C	1884	16	2097	4	1943	3	4903	1	3153	9	3085	23
FLIP 85-93C	1587	31	1716	21	1218	39	3020	28	3237	8	1418	62

Cont'd. ...

Table 3.6.6. Cont'd. ...

	SYRIA						TUNISIA					
	Jindiress		Tel Hadya-1		Tel Hadya-2		Beja-1		Beja-2		El Kef-1	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-94C	2063	9	1716	22	1668	12	2420	49	2487	26	3218	19
FLIP 85-95C	1556	33	1272	48	1992	1	4153	4	3520	2	3893	3
FLIP 85-97C	1651	29	1558	29	1361	31	2070	56	1887	50	2793	34
FLIP 85-98C	1122	55	1462	36	1491	21	2703	36	2303	35	2985	28
FLIP 85-99C	984	59	1208	52	935	54	1320	63	1637	56	1418	63
FLIP 85-100C	1714	24	1558	31	1193	43	3953	7	1787	53	3393	11
FLIP 85-101C	1524	36	1208	51	1640	16	1920	58	2137	42	3118	21
FLIP 85-102C	1386	45	1166	54	753	58	2470	44	2203	39	3560	6
FLIP 85-105C	2222	2	1970	9	1011	52	3403	17	2087	43	3343	16
FLIP 85-112C	1492	37	1875	14	-	-	3353	19	2437	31	2643	39
FLIP 85-114C	772	62	2034	6	1546	19	3553	15	1253	61	2885	32
FLIP 85-115C	1640	30	1388	41	915	55	2370	50	1603	58	3260	17
FLIP 85-116C	2095	4	1113	58	1339	32	1803	60	1820	52	2493	46
FLIP 85-117C	1333	48	1399	39	1655	13	2453	48	1770	54	1943	58
FLIP 85-122C	1069	58	1166	56	1130	46	2470	46	2453	30	3510	7
FLIP 85-123C	1333	47	1145	57	1152	44	2753	34	2620	23	2143	54
FLIP 85-124C	1217	53	1399	40	1796	5	3353	18	2303	34	3085	24
FLIP 85-128C	2095	5	1240	50	1369	30	2603	39	2970	12	2643	38
FLIP 85-129C	1778	20	1081	60	1447	25	2903	30	1970	47	1793	60
FLIP 85-132C	1534	34	1589	28	1685	9	4003	6	2203	38	2785	35
FLIP 85-133C	1683	26	1335	46	1446	26	2470	45	1937	48	2018	57
FLIP 81-293C	1295	51	1549	32	1265	36	3270	22	3470	4	3065	25
ILC 482	1790	19	2070	5	1646	15	3670	12	2750	17	3350	14
Local Check	2279	1	1816	18	-	-	2520	41	1990	46	2915	31
Location Mean	**1611**		**1608**		**1333**		**2961**		**2449**		**2874**	
S.E. of Mean	142.87		174.90		90.92		270.19		232.52		231.53	
L.S.D. at 5% for :												
Checks	465.85		570.30		356.86		880.99		758.18		754.95	
T.E. in S.B.	1041.67		1275.22		787.97		1969.95		1695.35		1688.11	
T.E. in D.B.	1202.82		1472.50		977.31		2274.70		1957.62		1949.27	
Check Vs T.E.	931.84		1140.77		757.14		1762.24		1516.59		1510.12	
C.V. %	19.84		24.33		15.25		20.40		21.23		18.01	
Test > L. Check	0		0		4		2		2		0	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	TUNISIA						TURKEY		ZAMBIA		(1) Overall Mean	
	El Kef-2		Oued Meliz-1		Oued Meliz-2		Menemen		Chipata			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-5C	2037	60	1637	36	2615	15	868	20	597	40	1704	58
FLIP 84-6C	2670	41	1137	55	2115	32	457	63	901	29	1695	60
FLIP 84-7C	3937	5	2562	2	2553	19	739	41	926	25	2371	7
FLIP 84-8C	3287	19	1712	33	1203	55	776	35	642	38	2002	36
FLIP 84-22C	1870	62	1337	49	2240	29	591	56	1121	16	1813	55
FLIP 84-33C	2537	49	1312	50	1328	52	815	26	-	-	1755	56
FLIP 84-71C	3870	8	837	61	1940	37	724	43	1316	6	1991	39
FLIP 84-73C	2537	50	1862	25	4715	1	606	54	1397	3	2081	30
FLIP 84-86C	3370	18	1537	41	1715	43	1057	3	1061	18	1912	50
FLIP 84-104C	4170	2	1712	34	2465	22	880	17	961	23	2368	8
FLIP 84-120C	4120	3	937	60	840	60	1035	5	1106	17	2028	32
FLIP 84-124C	2587	48	1462	45	3015	9	495	61	927	24	1984	41
FLIP 84-137C	2587	43	2062	10	3165	7	983	8	642	37	2087	29
FLIP 84-168C	3737	10	2262	4	2878	11	887	15	-	-	2494	2
FLIP 85-4C	2837	37	1887	23	1278	54	1043	4	-	-	2159	21
FLIP 85-44C	3370	17	1278	52	1690	44	746	40	274	50	2121	27
FLIP 85-47C	2437	53	1812	30	2578	17	687	46	-	-	2054	31
FLIP 85-48C	2970	31	1553	40	2315	27	591	57	1219	10	2156	22
FLIP 85-51C	2887	35	1612	39	2003	35	868	21	756	33	1967	42
FLIP 85-53C	2970	29	1978	13	2415	23	880	19	1659	1	2022	34
FLIP 85-58C	1987	61	1362	47	1528	47	496	60	-	-	1657	61
FLIP 85-65C	3020	27	1478	44	3340	4	631	53	499	44	1933	45
FLIP 85-66C	3870	7	1012	57	1615	46	880	18	996	21	2023	33
FLIP 85-69C	2137	58	1912	19	2215	30	472	62	777	31	1961	43
FLIP 85-70C	2937	33	1812	28	1790	41	806	29	907	26	2150	24
FLIP 85-71C	2187	57	2237	6	2828	12	865	22	-	-	2261	13
FLIP 85-72C	3837	9	1937	18	1328	51	776	34	202	52	2197	18
FLIP 85-73C	2587	45	2262	5	1453	50	754	39	-	-	2308	11
FLIP 85-79C	3220	21	1528	42	2040	34	906	11	669	36	1928	46
FLIP 85-81C	3620	12	1662	35	1865	39	1169	1	1206	12	2425	5
FLIP 85-83C	2620	42	1803	31	1765	42	791	32	569	42	2260	14
FLIP 85-84C	2737	39	1912	20	2578	16	592	55	481	45	1816	53
FLIP 85-85C	1537	63	987	59	1965	36	561	59	562	43	1571	62
FLIP 85-86C	2970	30	1287	51	1465	49	857	23	881	30	1933	44
FLIP 85-87C	2937	32	1937	17	978	58	816	24	-	-	2239	15
FLIP 85-88C	3987	4	1962	14	1103	56	903	12	1021	19	2231	16
FLIP 85-89C	3537	13	2287	3	1528	48	575	58	1326	5	2217	17
FLIP 85-90C	2587	47	1812	29	2340	25	783	33	907	27	2303	12
FLIP 85-93C	3887	6	1512	43	3253	5	970	9	306	49	2336	10

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	TUNISIA						TURKEY		ZAMBIA		(1) Overall Mean	
	El Kef-2		Oued Meliz-1		Oued Meliz-2		Menemen		Chipata			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-94C	4837	1	1937	15	2503	21	815	25	361	48	2421	6
FLIP 85-95C	3670	11	1903	21	2340	24	1013	7	1289	7	2502	1
FLIP 85-97C	3537	14	1937	16	3503	3	663	51	676	35	2439	4
FLIP 85-98C	2587	46	1437	46	3515	2	806	28	902	28	1851	52
FLIP 85-99C	3037	26	1637	37	753	61	1059	2	156	53	1717	57
FLIP 85-100C	2870	36	1137	54	2165	31	724	44	996	20	2005	35
FLIP 85-101C	3437	15	2562	1	2578	18	703	45	996	22	2343	9
FLIP 85-102C	2287	54	2162	7	1828	40	732	42	767	32	2151	23
FLIP 85-105C	3170	23	762	62	1315	53	769	36	1236	9	2128	26
FLIP 85-112C	3420	16	1337	48	1065	57	1013	6	1206	11	2183	20
FLIP 85-114C	2287	55	1187	53	1915	38	672	49	467	46	1697	59
FLIP 85-115C	2687	40	1837	27	1628	45	887	14	-	54	1924	48
FLIP 85-116C	3270	20	1628	38	2940	10	680	48	714	34	1913	49
FLIP 85-117C	3120	24	2128	8	3065	8	680	47	1379	4	2143	25
FLIP 85-122C	2587	44	1987	12	2778	13	812	27	-	61	1987	40
FLIP 85-123C	2770	38	1853	26	2740	14	902	13	414	47	1996	37
FLIP 85-124C	2437	52	1737	32	2340	26	668	50	627	39	1925	47
FLIP 85-128C	3070	25	1903	22	2265	28	769	37	1494	2	2094	28
FLIP 85-129C	2520	51	1878	24	2040	33	791	31	1154	15	1994	38
FLIP 85-132C	2187	56	1087	56	965	59	886	16	572	41	1884	51
FLIP 85-133C	2987	28	1012	58	353	62	792	30	256	51	1814	54
FLIP 81-293C	3190	22	2025	11	3195	6	768	38	1165	13	2193	19
ILC 482	2890	34	2120	9	2535	20	907	10	1156	14	2469	3
Local Check	2130	59	140	63	-	-	631	52	1266	8		
Location Mean	**2944**		**1622**		**2218**		**783**		**780**			
S.E. of Mean	309.35		110.46		148.39		40.88		129.92			
L.S.D. at 5% for :												
Checks	1008.71		360.19		582.46		133.29		423.62			
T.E. in S.B.	2255.54		805.40		1302.42		298.05		947.25			
T.E. in D.B.	2604.47		929.99		1595.13		344.16		1093.79			
Check Vs T.E.	2017.72		720.48		1235.77		266.62		847.37			
C.V. %	23.50		15.23		14.96		11.68		37.27			
Test > L. Check	2		58		4		12		0			

(1) Darul Aman, Xining, Laxia, Montpellier-2, Hamadan, Oroumieh, Tarquinia, Tagura, Bahawalpur, Peshawar, Chipata, Sidi Bel Abbes, and Tel Hadya-2 were excluded from the overall mean

T.E. = Test entries, S.B. = same block, D.B. = different block.

Table 3.6.7. The five heaviest seed yielding entries at the individual locations in the CISN-W during 1986/87.

Rank	AFGHANISTAN		ALGERIA	BULGARIA	CHINA	CYPRUS	FRANCE		
	Darul Aman	Takhar	Sidi Bel - Abbes	Toshevo	Xining	Laxia	Montboucher	Montpellier-1	Montpellier-2
1	FLIP85- 53C	FLIP85-105C	FLIP85-112C	FLIP85- 81C	FLIP85-128C	FLIP85- 87C	FLIP85- 4C	FLIP85- 95C	FLIP85- 83C
2	FLIP85- 97C	FLIP85- 71C	FLIP85- 70C	FLIP85-117C	FLIP85- 86C	FLIP85- 95C	FLIP85-112C	FLIP85- 83C	FLIP85- 95C
3	FLIP85- 79C	FLIP84- 8C	FLIP84-124C	FLIP85-102C	FLIP85- 88C	FLIP84- 8C	FLIP85- 95C	FLIP85-117C	FLIP85- 4C
4	FLIP84-137C	FLIP84-168C	FLIP85- 48C	FLIP85- 89C	FLIP85- 71C	FLIP85-116C	Local Check	Local Check	FLIP85- 87C
5	FLIP85-101C	FLIP85-128C	FLIP85- 4C	FLIP85- 93C	FLIP85- 93C	FLIP85- 48C	FLIP85- 81C	FLIP85- 44C	FLIP85- 90C

Cont'd 2/..

Rank	IRAN			ITALY	LEBANON	LIBYA	MEXICO	PAKISTAN	
	Karaj	Hamadan	Oroumieh	Tarquinia	Terbol	Tagura	Sonora	Bahawalpur	Peshawar
1	FLIP85-117C	FLIP85- 94C	FLIP85- 87C	FLIP84-124C	FLIP84-168C	FLIP85- 58C	FLIP85-117C	Local Check	FLIP85- 95C
2	FLIP85-101C	FLIP85- 89C	FLIP84- 86C	FLIP85- 72C	FLIP85- 81C	FLIP84- 73C	FLIP85- 95C	FLIP85- 69C	FLIP85- 4C
3	FLIP85- 95C	FLIP85- 79C	FLIP85-112C	FLIP85- 73C	FLIP85- 72C	FLIP85- 72C	FLIP85- 83C	FLIP85-133C	FLIP84- 8C
4	ILC 482	FLIP84- 8C	FLIP85- 73C	FLIP85- 4C	ILC 482	FLIP84-137C	FLIP85-101C	FLIP85-101C	FLIP84- 73C
5	FLIP85-112C	FLIP84- 73C	FLIP85- 72C	FLIP84-120C	FLIP85- 4C	FLIP85- 87C	FLIP85- 79C	FLIP85-124C	FLIP85-102C

Cont'd 2/..

Rank	PORTUGAL		SPAIN		SYRIA				
	Elvas	Oeiras	Cordoba	Madrid	Gelline	Heimo	Homs	Jindiress	Tel Hadya-1
1	FLIP85- 97C	FLIP85- 93C	FLIP85-112C	FLIP84- 6C	FLIP84-168C	FLIP85- 87C	FLIP85- 97C	Local Check	FLIP84-124C
2	FLIP84-104C	FLIP85- 97C	FLIP85- 86C	FLIP85- 83C	FLIP85-115C	Local Check	FLIP85-101C	FLIP85-105C	FLIP84-104C
3	FLIP84-168C	FLIP85- 48C	FLIP84-137C	FLIP85- 4C	FLIP85- 81C	ILC 482	FLIP85- 71C	FLIP85- 81C	FLIP85- 81C
4	FLIP85- 87C	FLIP85- 87C	FLIP85-114C	FLIP85- 72C	FLIP85- 94C	FLIP85- 95C	Local Check	FLIP85-116C	FLIP85- 90C
5	FLIP85- 69C	FLIP84- 7C	FLIP84- 86C	FLIP85- 71C	FLIP84- 71C	FLIP85-116C	FLIP85-117C	FLIP85-128C	ILC 482

Cont'd 2/..

Rank	SYRIA	TUNISIA						TURKEY	ZAMBIA
	Tel Hadya-2	Beja-1	Beja-2	EL Kef-1	EL Kef-2	Oued Meliz-1	Oued Meliz-2	Izmir	Chipata
1	FLIP85- 95C	FLIP85- 90C	FLIP85- 73C	FLIP84-168C	FLIP85- 94C	FLIP85-101C	FLIP84- 73C	FLIP85- 81C	FLIP85- 53C
2	FLIP85- 81C	FLIP85- 70C	FLIP85- 95C	FLIP84-104C	FLIP84-104C	FLIP84- 7C	FLIP85- 98C	FLIP85- 99C	FLIP85-128C
3	FLIP85- 90C	FLIP85- 87C	FLIP85- 70C	FLIP85- 95C	FLIP84-120C	FLIP85- 89C	FLIP85- 97C	FLIP84- 86C	FLIP84- 73C
4	FLIP85- 69C	FLIP85- 95C	FLIP81-293C	FLIP85- 4C	FLIP85- 88C	FLIP84-168C	FLIP85- 65C	FLIP85- 4C	FLIP85-117C
5	FLIP85-128C	FLIP85- 69C	FLIP84-104C	FLIP84-120C	FLIP84- 7C	FLIP85- 73C	FLIP85- 93C	FLIP84-120C	FLIP85- 89C

and 20 g at Xining in China to 42 g at Oeiras in Portugal. On the basis of average over all locations, ILC 482, FLIP 85-129C and FLIP 85-105C flowered and matured earliest, FLIP 84- 6C, FLIP 84-33C and FLIP 85-44C were the tallest, and FLIP 85- 4C, FLIP 85-133C, FLIP 85-93C, FLIP 85-90C and FLIP 85-44C had the largest seed size.

The adjusted seed yields of entries are presented in Table 3.6.6. Highest seed yield of 4903 kg/ha was recorded at Montboucher in France which was followed by Cordoba in Spain (3246 kg/ha), Montpellier in France (3087 kg/ha), Beja-1 (2961 kg/ha) and EL Kef-2 (2944 kg/ha) in Tunisia. CV was very high at Bahawalpur (147 %) and Peshawar (109 %) in Pakistan and Xining (121 %) in China. The ANOVA of the experimental design for seed yield revealed that at locations namely Darul Aman (Afghanistan), Sidi Bel Abbes (Algeria), Laxia (Cyprus), Hamadan (Iran), Terbol (Lebanon), Tagura (Libya), Sonora (Mexico), Peshawar (Pakistan), Elvas (Portugal), Cordoba (Spain), Tel Hadya (Syria), Beja-1, Beja-2, El Kef-2, Oued Meliz-1 and Oued Meliz-2 in Tunisia, and Menemen-Izmir in Turkey, 2, 6, 1, 1, 3, 2, 4, 2, 60, 2, 4, 2, 2, 2, 58, 4, and 12 entries, respectively, exceeded the local check in yield by a significant margin. The five heaviest seed yielding entries at different locations are given in Table 3.6.7. It was observed that FLIP 85-95C occured most frequently among the top five heaviest yielders and was closely followed by FLIP 85- 4C, FLIP 85-87C and FLIP 85-81C etc.

3.7. CHICKPEA INTERNATIONAL SCREENING NURSERY - SPRING (CISN-SP)

Material

The Chickpea International Screening Nursery Spring comprised of 48 test entries which originated from the materials developed through hybridization at ICARDA. The nursery also included three checks namely ILC 482, FLIP81-293C and one local check to be supplied by the cooperator. All these entries were almost homozygous and had shown superior performance in local or regional trials.

Methods and Management

The entries were planted in single row non-replicated plots of 4 m length. The three checks were repeatedly grown in a block of 12 test entries. The spacings between and within rows were 45- and 10 cm respectively.

Fifty four sets of nursery were distributed to cooperators in 24 countries and the results were received from 32 locations in 19 countries. However, only 29 sets were worth analysis and are presented. The agronomic detailes received from the cooperators are given in Table 3.7.1.

Result and Discussion

Mean time to flowering (Table 3.7.2), time to maturity (Table 3.7.3), and plant height (Table 3.7.4) for different locations varied from 45 to 104 days, 84 to 163 days, 23 to 63 cms, respectively. The entries ILC 482 and FLIP85-108C flowered earliest in 69 and 70 days and were also among the earliest to mature. The maximum plant height of 46 cm was obtained for FLIP

Table 3.7.1. Agronomic data for different locations in the CISN-SP during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Pungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman								
CHILE	Valdivia								
FRANCE	Montboucher	25.02.87	04.08.87		100		-	Nitrofen, Neburon	Cascari
FRANCE	Montpellier	02.03.87	16.07.87		100		-	-	INRA - 199
IRAN	Karaj-1	08.03.87	20.07.87	24	72		8	Treflan, Metasystox	Jam
IRAN	Karaj-2	10.03.87	23.07.87	-			10	Diazinon	Jam
IRAN	Oroumieh								
IRAN	Zarghan	15.03.87	11.08.87	27	69		11	-	Kouroosh
ITALY	Tarquinia	29.01.87	25.07.87	54	138		-	Nobutrin, Targa	Principe
LEBANON	Terbol	08.04.87	15.07.87		50		1	Kerb, Igran	Local
JORDAN	Marow								
JORDAN	Mushagar	24.03.87	24.08.87	20	60		-	-	Jazaeree
PAKISTAN	Chakwal	08.10.86	10.05.87	-			-	-	C 235
PAKISTAN	Islamabad								
PAKISTAN	Quetta (ARI)	05.02.87	10.06.87	20	60		-	Tecto, Actellic	CM 72
PORTUGAL	Oeiras	20.03.87	10.08.87	21	63	63	-	-	Odrinhas
SYRIA	Al Ghab	23.02.87	22.06.87	30	50		-	-	Local
SYRIA	Hama	18.02.87	15.06.87	25	80		-	-	Local
SYRIA	Idleb	31.03.87	25.06.87	-			-	-	Local.
SYRIA	Tel Hadya	23.02.87	25.06.87	-			-	-	ILC 1929
TUNISIA	Beja -1	NA					NA		NA
TUNISIA	Beja -2	NA					NA		NA
TUNISIA	El Kef -1	NA					NA		NA
TUNISIA	El Kef - 2	NA					NA		NA
TUNISIA	Oued Meliz -1	NA					NA		NA
TUNISIA	Oued Meliz -2	NA					NA		NA
TURKEY	Adana (Univ.)	NA	30.08.87	NA			NA	NA	NA
TURKEY	Ankara	06.04.87	17.07.87	22	60		-	Basudine	ESER - 87
TURKEY	Diyarbakir								
TURKEY	Erzurum	04.05.87	18.08.87	30	70		-	-	NA
TURKEY	Eskisehir	21.04.87	06.08.87	40	60		-	-	4F - 19/1-5
TURKEY	Menemen (Izmir)	09.04.87	30.07.87	30	60		-	Igran	Ispanyol
TURKEY	Urfa								

NA = Not available.

Table 3.7.2. Adjusted time to flowering (days) of entries at different locations in the CISN-SP during 1986/87.

Entry	Name	Pedigree	Origin	AFGHANISTAN	CHILE	FRANCE	IRAN		
				Darul Aman	Valdivia	Mont - boucher	Karaj- 1	Karaj- 2	Zarghan
FLIP 84-37C	X81 TH	49/ILC 1920XILC 202	ICARDA/ICRISAT	94	64	45	87	69	71
FLIP 84-66C	X79 TH	220/ILC 72XILC 480	ICARDA/ICRISAT	96	59	45	81	76	79
FLIP 84-72C	X79 TH	221/ILC 72XILC 1922	ICARDA/ICRISAT	92	61	44	82	62	60
FLIP 84-83C	X80 TH	176/ILC 72XILC 215	ICARDA/ICRISAT	96	62	45	82	72	65
FLIP 84-123C	X81 TH	21/ILC 610XILC 72	ICARDA/ICRISAT	92	59	45	82	69	72
FLIP 85-1C	X82 TH	60/ILC 95XILC 2956	ICARDA/ICRISAT	95	62	48	90	70	89
FLIP 85-10C	X83 TH	19/FLIP 82-65XFLIP 82-69	ICARDA/ICRISAT	93	62	45	86	71	77
FLIP 85-11C	X83 TH	19/FLIP 82-65XFLIP 82-69	ICARDA/ICRISAT	92	64	49	87	62	75
FLIP 85-42C	X82 TH	66/ILC 2593XILC 3279	ICARDA/ICRISAT	94	64	49	89	69	76
FLIP 85-43C	X82 TH	66/ILC 2593XILC 3279	ICARDA/ICRISAT	95	62	47	90	70	76
FLIP 85-45C	X82 TH	146/(ILC 445XILC 482)XILC 202	ICARDA/ICRISAT	94	59	45	90	70	74
FLIP 85-46C	X79 TH	221/ILC 72XILC 1922	ICARDA/ICRISAT	94	63	47	89	78	75
FLIP 85-49C	X83 TH	23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	94	64	49	79	76	78
FLIP 85-50C	X83 TH	23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	95	63	50	95	77	77
FLIP 85-52C	X81 TH	55/ILC 1920XILC 2956	ICARDA/ICRISAT	91	63	47	89	70	76
FLIP 85-63C	X83 TH	25/FLIP 81-69XFLIP 82-81	ICARDA/ICRISAT	94	64	49	87	68	62
FLIP 85-64C	X83 TH	25/FLIP 81-69XFLIP 82-81	ICARDA/ICRISAT	94	62	47	90	75	76
FLIP 85-67C	X82 TH	61/ILC 95XILC 191	ICARDA/ICRISAT	94	61	45	79	60	62
FLIP 85-68C	X82 TH	67/ILC 2593XILC 191	ICARDA/ICRISAT	96	63	45	89	77	80
FLIP 85-74C	X83 TH	19/FLIP 81-65XFLIP 82-69	ICARDA/ICRISAT	93	62	43	82	68	74
FLIP 85-75C	X83 TH	19/FLIP 81-65XFLIP 82-69	ICARDA/ICRISAT	94	61	45	79	76	66
FLIP 85-76C	X83 TH	23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	92	63	45	84	74	77
FLIP 85-77C	X83 TH	23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	96	61	48	79	69	77
FLIP 85-78C	X83 TH	23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	94	61	45	82	76	74
FLIP 85-80C	X83 TH	81/ILC 2593XFLIP 81-67	ICARDA/ICRISAT	91	59	45	78	69	82
FLIP 85-82C	X83 TH	114/FLIP 82-81XILC 451	ICARDA/ICRISAT	92	62	45	78	72	-
FLIP 85-91C	X83 TH	22/FLIP 82-65XFLIP 82-81	ICARDA/ICRISAT	94	62	45	81	70	79
FLIP 85-92C	X83 TH	23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	97	59	45	88	79	73
FLIP 85-96C	X81 TH	105/ILC 72XILC 484	ICARDA/ICRISAT	91	59	45	72	65	70
FLIP 85-103C	X81 TH	105/ILC 72XILC 484	ICARDA/ICRISAT	92	59	45	72	67	64
FLIP 85-104C	X81 TH	105/ILC 72XILC 484	ICARDA/ICRISAT	92	59	44	73	62	66
FLIP 85-106C	X81 TH	113/ILC 191XILC 484	ICARDA/ICRISAT	93	60	41	72	75	67
FLIP 85-107C	X82 TH	50/ILC 3346XILC 464	ICARDA/ICRISAT	93	60	45	88	71	66
FLIP 85-108C	X83 TH	116/FLIP 82-64XFLIP 82-87	ICARDA/ICRISAT	91	55	45	76	66	69

Cont'd. ...

Table 3.7.2. Cont'd. ...

Entry Name	Pedigree	Origin	AFGHANISTAN	CHILE	FRANCE	IRAN		
			Darul Aman	Valdivia	Mont - boucher	Karaj- 1	Karaj- 2	Zarghan
FLIP 85-109C	X80 TH 181/ILC 3279XILC 1108	ICARDA/ICRISAT	93	61	45	82	65	71
FLIP 85-110C	X83 TH 6/FLIP 81-41XFLIP 82-81	ICARDA/ICRISAT	94	62	45	86	73	74
FLIP 85-111C	X81 TH 55/ILC 1920XILC 2956	ICARDA/ICRISAT	96	59	45	85	70	69
FLIP 85-113C	X81 TH 53/ILC 1920XILC 2506	ICARDA/ICRISAT	92	59	45	81	73	79
FLIP 85-118C	X82 TH 146/ILC 72XILC 73	ICARDA/ICRISAT	96	63	45	89	75	76
FLIP 85-119C	X82 TH 137/(ILC 87XILC 194)XILC 2956	ICARDA/ICRISAT	93	60	45	84	78	79
FLIP 85-120C	X81 TH 109/ILC 72XILC 493	ICARDA/ICRISAT	92	60	41	75	66	85
FLIP 85-121C	X79 TH 264/(ILC 480XILC 72)ILC 263	ICARDA/ICRISAT	92	61	45	82	62	60
FLIP 85-125C	GL 609 X ILC 72	ICARDA/ICRISAT	94	62	45	82	75	75
FLIP 85-126C	GL 609 X ILC 72	ICARDA/ICRISAT	93	60	43	81	69	66
FLIP 85-127C	GL 609 X ILC 72	ICARDA/ICRISAT	95	59	44	85	64	82
FLIP 85-130C	ICCC 25 X ILC 202	ICARDA/ICRISAT	95	59	45	85	66	71
FLIP 85-131C	GL 629 X ILC 3279	ICARDA/ICRISAT	93	63	45	81	77	84
FLIP 85-134C	X83 TH 23/FLIP 82-69XFLIP 82-72	ICARDA/ICRISAT	92	62	47	90	66	84
FLIP 85-293C	-	ICARDA/ICRISAT	93	62	44	79	69	74
ILC 482	-	Turkey	91	56	43	69	61	66
Local Check	-	-	95	59	47	85	65	67
Location Mean			**93**	**61**	**45**	**82**	**69**	**73**
S.E. of Mean			0.75	0.78	0.76	1.06	2.17	2.25
L.S.D. at 5% for :								
Checks			2.58	2.69	2.64	3.66	7.51	7.79
Test entries in the same block			5.16	5.38	5.29	7.32	15.03	15.57
Test entries in the different block			5.96	6.21	6.10	8.45	17.35	18.00
Check Vs test entries			4.71	4.91	4.83	6.68	13.72	14.22
C.V. %			1.60	2.55	3.39	2.58	6.27	6.45
Test > L. Check			0	0	0	1	1	6

Cont'd. ...

Table 3.7.2. Cont'd. ...

Entry Name	ITALY	LEBANON	JORDAN	MEXICO	PAKISTAN	PORTUGAL	SYRIA			TURKEY				(1)
	Tarquinia	Terbol	Mushagar	Padilla	Quetta (ARI)	Oeiras	Al Ghab	Hama	Idleb	Tel Hadya	Ankara (Univ.)	Haymana	Erzurum	Eskisehir	Overall Mean
FLIP 84-37C	109	59	56	93	91	65	81	81	63	83	65	83	74	68	76
FLIP 84-66C	105	53	55	87	88	60	79	81	65	75	66	77	78	62	74
FLIP 84-72C	109	47	50	89	91	65	78	78	63	75	65	78	75	67	73
FLIP 84-83C	101	55	55	87	88	62	79	79	68	75	66	80	79	64	74
FLIP 84-123C	104	48	56	85	89	59	79	80	76	76	63	80	77	64	74
FLIP 85-1C	108	60	56	86	89	61	81	80	71	77	63	83	79	70	76
FLIP 85-10C	103	55	55	87	88	60	80	82	67	81	66	81	76	67	75
FLIP 85-11C	105	49	56	92	91	62	76	80	66	78	64	82	75	67	75
FLIP 85-42C	109	61	56	93	91	62	77	82	66	80	66	81	77	67	77
FLIP 85-43C	108	50	56	83	89	59	79	81	72	77	64	83	76	68	75
FLIP 85-45C	108	52	56	86	89	64	80	79	74	74	64	83	75	68	75
FLIP 85-46C	107	55	56	93	92	62	81	81	69	78	65	80	74	67	76
FLIP 85-49C	109	59	56	88	91	62	82	84	62	80	66	83	74	67	76
FLIP 85-50C	107	61	56	94	92	62	81	72	69	79	67	81	75	67	77
FLIP 85-52C	110	61	61	84	92	65	79	72	67	79	66	82	76	67	76
FLIP 85-63C	107	55	56	93	91	60	74	83	66	80	65	82	76	67	76
FLIP 85-64C	106	54	56	86	89	59	80	82	74	82	63	84	72	68	76
FLIP 85-67C	105	53	56	93	86	60	80	79	62	76	64	82	78	67	74
FLIP 85-68C	107	61	61	86	92	65	81	81	67	82	67	82	75	67	77
FLIP 85-74C	104	50	56	84	89	64	80	80	68	76	64	83	76	65	74
FLIP 85-75C	105	51	56	93	86	60	80	80	63	76	66	80	73	67	74
FLIP 85-76C	107	59	56	91	92	60	82	84	60	77	65	81	78	64	75
FLIP 85-77C	105	51	56	93	91	62	81	80	66	76	65	82	75	64	75
FLIP 85-78C	109	49	56	93	91	65	79	79	63	75	64	79	74	63	75
FLIP 85-80C	101	53	55	87	88	62	80	78	72	75	65	76	77	58	73
FLIP 85-82C	101	55	55	85	86	62	79	79	66	76	64	80	79	66	74
FLIP 85-91C	101	55	55	86	88	62	73	80	67	77	65	80	79	66	74
FLIP 85-92C	101	55	55	88	88	60	80	81	69	79	65	81	75	65	75
FLIP 85-96C	97	47	49	78	86	65	74	77	67	73	66	79	79	58	71
FLIP 85-103C	97	47	49	76	85	62	79	78	72	72	66	86	80	58	72
FLIP 85-104C	100	46	56	78	86	59	74	76	69	73	64	83	75	60	71
FLIP 85-106C	99	47	50	79	85	65	73	78	64	72	66	78	75	59	71
FLIP 85-107C	103	59	–	91	92	60	79	77	64	76	65	79	78	67	75
FLIP 85-108C	97	44	50	70	84	59	73	75	71	73	64	79	75	60	70

Cont'd. ...

Table 3.7.2. Cont'd. ...

Entry Name	ITALY	LEBANON	JORDAN	MEXICO	PAKISTAN	PORTUGAL	SYRIA			TURKEY				(1)
	Tarqu-inia	Terbol	Mush-agar	Padilla	Quetta	Oei-ras	Al Ghab	Hama	Idleb	Tel Hadya	Ankara (Univ.)	Haym-ana	Erzu-rum	Eski-sehir	Overall Mean
FLIP 85-109C	108	51	56	93	89	65	80	78	66	76	64	82	77	68	75
FLIP 85-110C	101	55	55	87	88	62	80	80	67	75	65	80	75	66	75
FLIP 85-111C	108	48	56	86	89	59	79	78	74	73	65	83	76	69	75
FLIP 85-113C	101	47	55	87	88	62	78	80	72	78	65	79	77	62	74
FLIP 85-118C	107	51	61	91	92	60	80	79	67	74	67	82	77	67	76
FLIP 85-119C	107	51	56	91	92	62	80	79	68	76	66	82	76	67	75
FLIP 85-120C	103	47	-	84	92	65	78	80	67	74	66	79	74	67	73
FLIP 85-121C	110	49	50	91	91	65	74	79	62	72	65	78	77	65	73
FLIP 85-125C	104	52	56	71	89	59	81	80	76	76	65	80	73	68	74
FLIP 85-126C	103	51	-	77	92	65	80	80	67	76	65	79	76	67	74
FLIP 85-127C	104	48	56	86	87	64	79	80	69	71	65	82	76	65	73
FLIP 85-130C	101	51	55	73	88	60	81	80	60	78	65	80	78	64	73
FLIP 85-131C	107	59	61	77	92	60	82	72	64	79	66	81	75	67	74
FLIP 85-134C	108	52	56	86	89	64	79	81	73	77	64	84	77	68	75
FLIP 85-293C	107	52	56	81	87	65	80	80	65	76	64	81	76	66	74
ILC 482	97	46	50	73	85	61	73	74	63	71	65	80	76	65	69
Local Check	101	45	46	80	86	63	75	75	64	71	66	79	75	61	72
Location Mean	**104**	**52**	**56**	**85**	**89**	**62**	**78**	**79**	**67**	**76**	**65**	**80**	**76**	**65**	
S.E. of Mean	0.70	0.29	0.72	1.58	1.89	0.38	0.34	0.56	1.45	0.69	0.24	0.52	0.98	0.12	
L.S.D. at 5% for :															
Checks	2.43	1.00	2.50	5.49	3.07	1.32	1.19	1.93	5.03	2.40	0.82	1.80	3.38	3.87	
T.E. in S.B.	4.86	2.00	4.99	10.99	6.13	2.64	2.38	3.87	10.06	4.79	1.63	3.60	6.75	7.74	
T.E. in D.B.	5.61	2.31	5,77	12.69	7.08	3.05	2.75	4.47	11.61	5.53	1.88	4.16	7.79	8.93	
Check Vs T.E.	4.44	1.82	4.56	10.03	6.00	2.41	2.17	3.53	9.18	4.37	1.49	3.29	6.16	7.06	
C.V. %	1.35	1.12	3.08	3.75	2.00	1.23	0.88	1.42	4.34	1.83	0.73	1.29	2.57	3.44	
Test > L. Check	22	46	39	16	11	11	40	40	6	37	0	11	0	4	

(1) Zarghan and Mushagar were excluded from the overall mean.
S.B. = same block , D.B. = different blocks, T.E. = test entries.

Table 3.7.3. Adjusted time to maturity (days) of entries at different locations in the CISN-SP during 1986/87.

	AFGHANISTAN	FRANCE		IRAN			ITALY	JORDAN	LEBANON
Entry Name	Darul Aman	Montboucher	Montpellier	Karaj-1	Karaj-2	Zarghan	Tarquinia	Mushagar	Terbol
FLIP 84-37C	146	131	-	128	115	123	170	91	102
FLIP 84-66C	142	163	-	127	114	122	162	91	90
FLIP 84-72C	137	121	127	124	113	121	161	80	88
FLIP 84-83C	144	158	132	127	121	121	162	91	98
FLIP 84-123C	144	126	129	130	110	122	155	87	87
FLIP 85-1C	147	131	134	130	120	123	167	87	70
FLIP 85-10C	142	163	132	127	114	121	162	85	96
FLIP 85-11C	143	131	132	132	108	124	170	91	90
FLIP 85-42C	146	136	130	132	118	126	174	85	106
FLIP 85-43C	147	126	132	130	118	122	167	87	97
FLIP 85-45C	146	126	-	130	120	122	167	93	97
FLIP 85-46C	145	136	133	126	113	125	171	87	92
FLIP 85-49C	147	136	132	124	121	125	174	85	96
FLIP 85-50C	143	136	133	126	120	126	171	93	96
FLIP 85-52C	143	131	133	126	113	121	169	87	96
FLIP 85-63C	143	131	130	132	107	126	170	85	94
FLIP 85-64C	139	126	132	130	108	122	160	87	91
FLIP 85-67C	142	121	-	128	111	125	161	91	96
FLIP 85-68C	143	126	133	126	120	122	169	93	104
FLIP 85-74C	142	121	132	123	109	125	167	93	91
FLIP 85-75C	146	121	-	124	119	124	161	85	90
FLIP 85-76C	143	126	-	126	123	124	169	93	100
FLIP 85-77C	146	121	130	124	109	127	161	91	90
FLIP 85-78C	146	126	130	124	119	123	161	91	96
FLIP 85-80C	143	168	132	125	113	121	166	91	88
FLIP 85-82C	144	158	-	127	114	-	153	85	90
FLIP 85-91C	141	168	129	127	115	119	168	85	96
FLIP 85-92C	146	163	-	134	124	122	166	85	90
FLIP 85-96C	141	158	127	127	120	119	153	91	88
FLIP 85-103C	139	158	127	125	122	120	153	91	84
FLIP 85-104C	145	121	127	121	108	122	155	87	83
FLIP 85-106C	141	121	131	124	121	123	149	82	86
FLIP 85-107C	144	131	133	134	121	124	156	-	106
FLIP 85-108C	142	121	127	130	115	122	158	82	83

Cont'd. ...

Table 3.7.3. Cont'd. ...

	AFGHANISTAN	FRANCE		IRAN			ITALY	JORDAN	LEBANON
Entry Name	Darul Aman	Montboucher	Montpellier	Karaj-1	Karaj-2	Zarghan	Tarquinia	Mushagar	Terbol
FLIP 85-109C	143	121	-	124	107	182	170	91	90
FLIP 85-110C	142	163	132	127	119	120	162	85	90
FLIP 85-111C	147	121	-	127	109	122	167	87	93
FLIP 85-113C	141	158	129	127	112	119	153	85	88
FLIP 85-118C	143	131	131	126	121	123	169	93	106
FLIP 85-119C	145	131	-	130	120	124	165	93	96
FLIP 85-120C	145	121	131	123	114	122	156	-	86
FLIP 85-121C	141	121	-	128	108	121	170	80	88
FLIP 85-125C	142	126	129	130	117	125	155	93	89
FLIP 85-126C	144	121	131	124	120	124	156	-	92
FLIP 85-127C	147	121	129	124	109	122	158	87	87
FLIP 85-130C	144	158	129	125	114	121	162	85	88
FLIP 85-131C	143	126	131	126	122	124	156	87	90
FLIP 85-134C	145	126	132	123	117	124	173	93	93
FLIP 85-293C	143	121	129	126	111	122	162	88	89
ILC 482	142	120	127	123	110	124	158	86	86
Local Check	143	122	131	124	118	123	170	77	87
Location Mean	**143**	**132**	**130**	**126**	**115**	**124**	**163**	**89**	**91**
S.E. of Mean	1.04	0.76	0.46	1.21	1.75	0.76	1.86	2.46	0.75
L.S.D. at 5% for :									
Checks	3.61	2.64	1.61	4.17	6.06	2.64	6.42	8.50	3.00
T.E. in S.B.	7.23	5.29	3.21	8.34	12.11	5.29	12.84	17.00	5.16
T.E. in D.B.	8.34	6.10	3.71	9.63	13.98	6.10	14.83	19.63	6.00
Check Vs T.E.	6.60	4.83	2.93	7.61	11.06	4.83	11.73	15.52	4.71
C.V. %	1.46	1.16	1.10	1.91	3.04	1.27	2.28	6.30	1.64
Test > L. Check	0	24	0	5	0	1	0	4	22

Cont'd. ...

Table 3.7.3. Cont'd. ...

Entry Name	MEXICO	PORTUGAL	SYRIA			TURKEY			(1) Overall Mean
	Padilla	Oeiras	Al Ghab	Hama	Tel Hadya	Ankara (Unv.)	Haymana	Erzurum	
FLIP 84-37C	151	88	116	119	121	102	115	118	123
FLIP 84-66C	143	80	114	118	114	102	112	119	121
FLIP 84-72C	145	88	113	113	117	100	112	118	118
FLIP 84-83C	149	84	114	119	116	102	110	119	123
FLIP 84-123C	147	79	112	115	115	99	111	118	118
FLIP 85-1C	147	83	116	121	120	102	116	120	121
FLIP 85-10C	143	80	115	119	118	102	115	118	122
FLIP 85-11C	147	84	116	121	117	102	111	118	121
FLIP 85-42C	151	84	118	122	122	100	118	120	125
FLIP 85-43C	147	79	114	121	121	102	118	120	122
FLIP 85-45C	142	84	115	121	118	99	114	117	121
FLIP 85-46C	153	84	116	118	120	99	110	119	121
FLIP 85-49C	151	84	118	119	122	99	115	117	123
FLIP 85-50C	153	84	118	118	120	100	114	120	123
FLIP 85-52C	153	88	117	118	120	100	115	120	122
FLIP 85-63C	145	80	117	120	119	102	115	120	121
FLIP 85-64C	147	79	115	118	118	102	113	117	119
FLIP 85-67C	147	80	111	117	116	100	113	118	119
FLIP 85-68C	153	85	117	118	120	102	115	120	123
FLIP 85-74C	143	84	115	118	118	102	117	117	119
FLIP 85-75C	145	80	116	118	121	99	111	117	119
FLIP 85-76C	149	80	118	120	121	99	115	120	122
FLIP 85-77C	145	84	113	115	116	99	112	118	118
FLIP 85-78C	151	85	114	118	119	102	115	118	121
FLIP 85-80C	143	84	113	117	116	102	113	118	122
FLIP 85-82C	145	84	113	118	114	99	110	120	121
FLIP 85-91C	143	84	116	119	120	101	112	119	124
FLIP 85-92C	143	80	117	119	116	102	115	117	124
FLIP 85-96C	143	88	113	116	114	100	113	119	121
FLIP 85-103C	143	84	110	115	114	102	113	119	120
FLIP 85-104C	147	79	112	113	115	100	117	119	117
FLIP 85-106C	143	88	112	113	115	99	114	117	117
FLIP 85-107C	143	80	116	118	118	99	115	121	121
FLIP 85-108C	147	79	110	112	117	102	112	117	118

Cont'd. ...

Table 3.7.3. Cont'd. ...

Entry Name	MEXICO	PORTUGAL	SYRIA			TURKEY			(1) Overall Mean
	Padilla	Oeiras	Al Ghab	Hama	Tel Hadya	Ankara (Unv.)	Haymana	Erzurum	
FLIP 85-109C	145	88	114	117	116	101	115	119	119
FLIP 85-110C	143	84	115	119	116	101	113	119	122
FLIP 85-111C	141	79	112	115	116	102	114	117	119
FLIP 85-113C	143	84	113	115	114	102	113	117	120
FLIP 85-118C	147	80	118	121	121	102	114	121	123
FLIP 85-119C	147	84	117	121	122	102	115	120	122
FLIP 85-120C	143	88	113	113	115	102	109	120	118
FLIP 85-121C	145	88	114	115	116	102	112	118	119
FLIP 85-125C	147	79	113	116	120	100	116	117	119
FLIP 85-126C	143	85	116	118	118	99	114	119	119
FLIP 85-127C	147	84	113	116	115	99	116	120	118
FLIP 85-130C	141	80	113	114	114	100	114	118	120
FLIP 85-131C	147	80	115	117	115	100	110	119	119
FLIP 85-134C	147	84	117	121	121	99	116	120	122
FLIP 85-293C	145	87	115	115	117	100	112	118	119
ILC 482	145	81	111	112	116	101	117	119	117
Local Check	145	85	112	114	116	102	115	119	119
Location Mean	**146**	**84**	**114**	**116**	**117**	**101**	**114**	**119**	
S.E. of Mean	1.36	1.01	0.51	0.22	0.46	0.55	0.77	0.74	
L.S.D. at 5% for :									
Checks	4.72	3.50	1.75	0.76	1.61	1.91	2.50	2.56	
T.E. in S.B.	9.44	6.99	3.51	1.53	3.21	3.83	4.99	5.13	
T.E. in D.B.	10.90	8.07	4.05	1.76	3.71	4.42	5.77	5.92	
Check Vs T.E.	8.62	6.38	3.20	1.39	2.93	3.49	5.56	4.68	
C.V. %	1.87	2.42	0.89	0.38	0.79	1.10	1.27	1.25	
Test > L. Check	4	0	24	40	16	0	0	0	

Montpellier, Zarghan and Mushaagar were excluded from the overall mean.
S.B. = same block, D.B. = different blocks, T.E. = test entries.

Table 3.7.4. Adjusted plant height (cm) of entries at different locations in the CISN-SP during 1986/87.

Entry Name	AFGHANISTAN	CHILE	FRANCE		IRAN			ITALY	JORDAN	LEBANON	MEXICO
	Darul Aman	Valdivia	Mont - boucher	Montp- ellier	Karaj-1	Karaj-2	Zarghan	Tarqu- inia	Mushagar	Terbol	Padilla
FLIP 84-37C	41	24	55	-	55	42	43	56	26	31	53
FLIP 84-66C	46	38	53	-	60	47	24	59	33	36	74
FLIP 84-72C	36	27	46	44	53	46	21	49	22	37	56
FLIP 84-83C	46	31	53	59	47	44	17	57	32	40	62
FLIP 84-123C	36	31	51	48	43	27	46	52	37	36	62
FLIP 85-1C	36	32	61	48	59	49	31	48	35	36	57
FLIP 85-10C	46	30	54	59	49	50	30	62	50	43	63
FLIP 85-11C	51	28	50	54	75	52	48	57	26	39	68
FLIP 85-42C	61	27	59	54	58	66	52	63	24	40	74
FLIP 85-43C	36	29	63	48	69	29	38	50	41	39	60
FLIP 85-45C	51	43	63	-	68	56	55	47	42	51	58
FLIP 85-46C	46	27	61	64	48	44	41	58	32	35	70
FLIP 85-49C	51	36	63	54	60	28	44	62	24	29	65
FLIP 85-50C	46	30	66	69	53	45	50	58	32	43	76
FLIP 85-52C	51	24	62	54	68	34	50	60	33	44	73
FLIP 85-63C	51	26	63	54	57	48	51	59	34	49	77
FLIP 85-64C	51	33	57	58	75	40	57	60	43	45	68
FLIP 85-67C	36	26	57	-	43	31	25	39	22	29	55
FLIP 85-68C	41	21	55	59	49	41	41	50	34	32	62
FLIP 85-74C	36	35	66	48	56	41	47	63	41	41	61
FLIP 85-75C	46	33	55	-	58	22	34	57	26	32	63
FLIP 85-76C	51	36	67	-	63	55	50	56	28	47	73
FLIP 85-77C	36	24	44	44	46	26	37	52	30	30	50
FLIP 85-78C	46	33	49	49	54	31	24	51	26	39	54
FLIP 85-80C	41	36	54	59	59	37	16	57	29	40	65
FLIP 85-82C	36	32	53	-	47	46	-	55	25	40	57
FLIP 85-91C	46	40	53	64	56	42	23	64	45	42	70
FLIP 85-92C	46	39	58	-	67	39	46	67	30	41	64
FLIP 85-96C	36	28	49	49	38	30	36	54	39	38	56
FLIP 85-103C	36	32	44	54	37	28	33	47	29	37	53
FLIP 85-104C	46	29	53	53	56	37	38	57	41	40	70
FLIP 85-106C	31	35	52	44	45	41	29	50	28	29	56
FLIP 85-107C	36	31	49	49	48	29	39	53	-	30	70
FLIP 85-108C	41	31	49	48	60	21	31	47	37	33	61

Cont'd. ...

Table 3.7.4. Cont'd. ...

Entry Name	AFGHANISTAN	CHILE	FRANCE		IRAN			ITALY	JORDAN	LEBANON	MEXICO
	Darul Aman	Valdivia	Mont - boucher	Montp- ellier	Karaj-1	Karaj-2	Zarghan	Tarqu- inia	Mushagar	Terbol	Padilla
FLIP 85-109C	36	23	54	-	55	40	31	51	22	39	57
FLIP 85-110	41	31	57	59	49	38	33	62	28	37	55
FLIP 85-111	51	39	64	-	63	47	48	52	37	37	61
FLIP 85-113	41	30	57	54	48	32	23	52	39	38	63
FLIP 85-118	41	32	57	49	47	45	32	53	33	37	63
FLIP 85-119	46	39	60	-	37	48	39	48	28	41	61
FLIP 85-120	36	26	56	54	48	37	50	48	-	39	67
FLIP 85-121	51	27	53	-	66	49	48	44	30	34	68
FLIP 85-125	46	30	60	48	56	29	42	55	43	34	67
FLIP 85-126	41	34	64	59	62	35	50	58	-	44	75
FLIP 85-127	46	29	61	48	50	44	47	58	37	38	71
FLIP 85-130	36	28	47	44	43	35	39	57	30	42	56
FLIP 85-131	36	28	51	59	50	43	48	56	32	38	71
FLIP 85-134	36	28	66	53	71	55	49	52	41	41	72
FLIP 85-293	38	25	51	50	51	39	33	49	35	34	56
ILC 482	30	25	42	46	49	31	28	45	32	33	51
Local Check	31	28	56	46	48	41	30	44	33	32	64
Location Mean	**41**	**30**	**55**	**59**	**54**	**39**	**38**	**53**	**34**	**37**	**63**
S.E. of Mean	1.25	1.62	1.00	2.60	2.70	2.82	6.10	1.61	3.05	0.84	2.00
L.S.D. at 5% for :											
Checks	4.33	5.60	3.47	9.00	9.36	9.76	21.12	5.58	10.54	3.00	6.50
T.E. in S.B.	8.65	11.20	6.95	18.01	18.71	19.51	42.24	11.17	21.08	6.00	13.00
T.E. in D.B.	10.00	12.93	8.02	20.79	21.61	22.53	48.77	13.00	24.34	6.69	15.01
Check Vs T.E.	8.00	10.22	6.34	16.44	17.09	17.82	38.56	10.20	19.25	5.29	12.00
C.V. %	6.10	10.84	3.68	24.08	10.05	14.31	34.88	6.09	23.11	4.51	5.99
Test > L. Check	31	6	10	3	8	1	0	27	0	28	2

Cont'd. ...

Table 3.7.4. Cont'd. ...

Entry Name	PAKISTAN	PORTUGAL	SYRIA				TURKEY			(1) Overall Mean
	Quetta (ARI)	Oeiras	Al Ghab	Hama	Idleb	Tel Hadya	Ankara (Unv.)	Haymana	Erzurum	
FLIP 84-37C	30	35	44	45	30	32	34	41	22	40
FLIP 84-66C	33	29	51	47	34	37	42	36	24	44
FLIP 84-72C	30	30	39	40	25	35	39	38	21	38
FLIP 84-83C	26	40	41	37	26	31	38	30	22	39
FLIP 84-123C	31	20	39	39	30	31	34	30	24	36
FLIP 85-1C	33	35	44	39	30	29	37	27	20	40
FLIP 85-10C	31	25	51	42	37	38	40	25	27	42
FLIP 85-11C	33	33	44	45	33	38	44	40	24	44
FLIP 85-42C	29	34	49	40	35	40	47	37	29	46
FLIP 85-43C	33	28	44	39	28	32	40	31	23	40
FLIP 85-45C	31	31	44	44	35	39	42	33	27	45
FLIP 85-46C	31	31	41	34	28	33	33	24	23	39
FLIP 85-49C	36	28	49	50	33	40	43	43	26	44
FLIP 85-50C	38	23	51	49	38	40	39	34	29	45
FLIP 85-52C	34	27	51	44	34	36	41	40	26	44
FLIP 85-63C	33	26	49	50	27	45	49	39	24	46
FLIP 85-64C	30	26	49	49	33	39	45	34	29	45
FLIP 85-67C	30	26	34	40	27	31	39	28	21	35
FLIP 85-68C	31	29	41	44	36	36	33	32	23	39
FLIP 85-74C	37	26	49	44	37	37	38	32	24	43
FLIP 85-75C	35	26	49	45	28	37	39	41	25	41
FLIP 85-76C	33	27	51	39	33	36	43	32	24	45
FLIP 85-77C	27	29	34	35	25	35	33	37	20	34
FLIP 85-78C	35	34	39	40	28	34	42	35	22	39
FLIP 85-80C	31	29	41	42	29	36	38	27	19	40
FLIP 85-82C	26	39	41	37	29	31	35	43	23	39
FLIP 85-91C	35	30	51	47	27	38	42	48	26	45
FLIP 85-92C	24	34	46	42	36	36	40	31	24	43
FLIP 85-96C	25	27	41	37	27	29	24	29	23	35
FLIP 85-103C	27	23	36	37	23	29	35	28	24	34
FLIP 85-104C	34	38	39	39	29	29	38	22	22	40
FLIP 85-106C	28	39	36	34	26	31	36	26	23	36
FLIP 85-107C	26	28	36	39	28	30	34	23	22	36
FLIP 85-108C	29	26	34	34	25	24	33	24	21	35

Cont'd. ...

Table 3.7.4. Cont'd. ...

Entry Name	PAKISTAN	PORTUGAL	SYRIA			TURKEY				(1) Overall Mean
	Quetta (ARI)	Oeiras	Al Ghab	Hama	Idleb	Tel Hadya	Ankara (Unv.)	Haymana	Erzurum	
FLIP 85-109C	28	32	39	40	25	34	37	32	19	38
FLIP 85-110C	28	27	46	42	36	38	38	40	26	41
FLIP 85-111C	32	28	44	44	37	34	35	35	25	43
FLIP 85-113C	27	26	46	37	21	31	38	22	23	37
FLIP 85-118C	29	25	41	44	31	32	36	27	25	39
FLIP 85-119C	27	31	46	44	33	37	37	30	24	41
FLIP 85-120C	23	33	41	39	30	36	24	29	22	37
FLIP 85-121C	35	27	44	45	27	35	41	43	22	42
FLIP 85-125C	33	28	44	44	25	34	37	31	25	40
FLIP 85-126C	31	32	51	44	26	41	41	31	24	43
FLIP 85-127C	33	31	44	39	30	24	35	25	21	40
FLIP 85-130C	31	29	41	37	34	27	35	33	23	37
FLIP 85-131C	31	29	41	39	31	34	34	28	26	39
FLIP 85-134C	35	35	49	44	28	39	36	29	24	43
FLIP 85-293C	28	31	40	38	27	33	35	34	24	37
ILC 482	27	33	35	34	30	25	33	26	18	33
Local Check	28	35	33	30	24	26	34	26	21	35
Location Mean	**30**	**30**	**42**	**40**	**29**	**33**	**37**	**32**	**23**	
S.E. of Mean	0.91	1.93	0.83	0.93	2.44	1.17	0.65	1.66	1.04	
L.S.D. at 5% for :										
Checks	3.16	6.68	2.88	3.22	8.43	4.04	2.25	5.73	3.59	
T.E. in S.B.	6.32	13.35	5.77	6.45	16.86	8.07	4.50	11.46	7.18	
T.E. in D.B.	7.29	15.42	6.66	7.45	19.47	9.32	5.19	13.23	8.29	
Check Vs T.E.	5.77	12.19	5.27	5.89	15.40	7.37	4.11	10.46	6.56	
C.V. %	6.06	12.74	3.96	4.67	16.60	7.06	3.50	10.49	8.97	
Test > L. Check	9	0	42	44	0	30	22	13	3	

(1) Montpellier, Zarghan and Mushagar were excluded from the overall mean.
S.B. = same block, D.B. = different blocks, T.E. = test entries.

Table 3.7.5. Adjusted 100-seed weight (g) of entries at different locations in the CISN-SP during 1986/87.

	AFGHANISTAN	FRANCE	IRAN			ITALY	LEBANON	MEXICO
Entry Name	Darul Aman	Montboucher	Karaj-1	Karaj-2	Zarghan	Tarquinia	Terbol	Padilla
FLIP 84-37C	28	29	28	25	30	37	32	25
FLIP 84-66C	24	29	29	26	31	35	29	26
FLIP 84-72C	29	27	28	28	24	36	33	27
FLIP 84-83C	31	33	32	29	34	39	32	27
FLIP 84-123C	27	28	30	29	22	48	27	27
FLIP 85-1C	51	49	51	45	32	44	-	42
FLIP 85-10C	32	34	31	30	30	44	40	29
FLIP 85-11C	35	37	35	28	28	49	35	31
FLIP 85-42C	48	44	40	37	34	54	49	34
FLIP 85-43C	39	39	41	36	38	46	38	34
FLIP 85-45C	43	39	39	41	36	43	39	39
FLIP 85-46C	44	51	37	35	44	60	43	44
FLIP 85-49C	34	40	35	28	33	46	38	37
FLIP 85-50C	35	36	33	33	40	49	29	32
FLIP 85-52C	30	36	28	27	31	41	31	29
FLIP 85-63C	31	41	36	30	32	48	39	36
FLIP 85-64C	30	39	34	30	25	56	38	31
FLIP 85-67C	26	26	28	27	28	35	33	26
FLIP 85-68C	37	35	35	36	39	48	43	32
FLIP 85-74C	43	38	42	34	31	59	39	37
FLIP 85-75C	41	38	42	34	37	50	41	40
FLIP 85-76C	35	38	35	31	34	45	39	32
FLIP 85-77C	34	31	35	32	33	42	32	32
FLIP 85-78C	33	35	38	35	37	43	35	35
FLIP 85-80C	30	34	34	31	28	42	34	28
FLIP 85-82C	34	34	31	31	-	43	37	31
FLIP 85-91C	37	42	40	35	42	50	41	34
FLIP 85-92C	36	42	38	29	41	53	44	28
FLIP 85-96C	32	31	34	30	39	38	37	30
FLIP 85-103C	-	31	38	32	42	39	38	33
FLIP 85-104C	33	29	35	31	25	53	28	29
FLIP 85-106C	33	29	31	32	32	37	29	25
FLIP 85-107C	29	33	29	28	32	40	36	29
FLIP 85-108C	30	33	30	28	24	43	28	31

Cont'd. ...

Table 3.7.5. Cont'd. ...

Entry Name	AFGHANISTAN	FRANCE	IRAN			ITALY	LEBANON	MEXICO
	Darul Aman	Montboucher	Karaj-1	Karaj-2	Zarghan	Tarquinia	Terbol	Padilla
FLIP 85-109C	28	28	29	27	24	33	27	24
FLIP 85-110C	36	38	36	33	41	46	34	37
FLIP 85-111C	34	30	32	30	24	48	33	32
FLIP 85-113C	29	29	31	26	28	49	32	25
FLIP 85-118C	36	39	35	34	41	46	36	32
FLIP 85-119C	37	40	39	35	35	37	38	33
FLIP 85-120C	30	30	30	31	32	38	32	29
FLIP 85-121C	31	31	28	28	24	39	30	27
FLIP 85-125C	27	27	31	29	27	51	39	28
FLIP 85-126C	28	30	28	27	33	37	33	30
FLIP 85-127C	32	30	31	26	24	54	26	29
FLIP 85-130C	24	24	25	25	31	34	28	19
FLIP 85-131C	30	28	28	28	32	33	26	25
FLIP 85-134C	41	42	33	34	35	48	41	40
FLIP 85-293C	28	29	28	26	29	41	31	30
ILC 482	31	27	28	27	29	38	29	30
Local Check	30	26	29	25	26	48	37	31
Location Mean	**33**	**33**	**33**	**30**	**32**	**44**	**35**	**31**
S.E. of Mean	1.61	0.30	1.14	0.42	1.81	2.11	1.01	0.42
L.S.D. at 5% for :								
Checks	5.56	1.03	3.94	1.45	6.26	7.29	3.50	1.45
T.E. in S.B.	11.13	2.06	7.89	2.89	12.52	14.59	6.99	2.91
T.E. in D.B.	12.85	2.37	9.11	3.34	14.45	16.85	8.08	3.36
Check Vs T.E.	10.16	1.88	7.20	2.64	11.43	13.32	6.39	2.65
C.V. %	10.53	1.80	6.99	2.78	12.42	9.57	6.28	2.72
Test > L. Check	7	43	12	36	10	0	2	13

Cont'd. ...

Table 3.7.5. Cont'd. ...

Entry Name	PORTUGAL	SYRIA	TURKEY				(1) Overall Mean
	Oeiras	Idleb	Ankara (Univ.)	Haymana	Erzurum	Menemen	
FLIP 84-37C	34	35	26	24	22	24	30
FLIP 84-66C	38	24	25	27	19	29	29
FLIP 84-72C	39	26	26	26	22	25	30
FLIP 84-83C	38	25	29	27	24	31	32
FLIP 84-123C	39	23	27	26	16	24	32
FLIP 85-1C	49	37	42	46	8	44	45
FLIP 85-10C	23	31	29	32	25	33	32
FLIP 85-11C	44	30	32	32	35	28	36
FLIP 85-42C	44	43	39	40	27	-	42
FLIP 85-43C	49	31	37	38	19	34	39
FLIP 85-45C	39	39	38	36	28	30	39
FLIP 85-46C	54	39	33	47	31	32	45
FLIP 85-49C	39	31	34	30	29	29	36
FLIP 85-50C	49	33	29	41	27	31	37
FLIP 85-52C	39	26	28	35	19	25	31
FLIP 85-63C	44	31	34	34	26	27	37
FLIP 85-64C	44	31	35	34	29	30	38
FLIP 85-67C	34	29	26	-	22	24	29
FLIP 85-68C	49	44	36	42	29	30	39
FLIP 85-74C	49	32	36	36	17	36	41
FLIP 85-75C	29	34	37	36	35	30	38
FLIP 85-76C	44	35	36	41	21	25	37
FLIP 85-77C	34	28	26	30	28	26	33
FLIP 85-78C	39	33	34	34	29	32	37
FLIP 85-80C	38	31	31	27	17	34	34
FLIP 85-82C	38	30	32	31	31	33	34
FLIP 85-91C	48	38	32	25	26	-	40
FLIP 85-92C	43	32	35	36	25	33	37
FLIP 85-96C	28	29	29	29	20	34	31
FLIP 85-103C	38	28	29	27	18	35	34
FLIP 85-104C	39	24	27	30	19	27	34
FLIP 85-106C	44	27	27	37	21	27	31
FLIP 85-107C	44	35	29	39	24	27	33
FLIP 85-108C	39	25	27	27	24	27	32

Cont'd. ...

Table 3.7.5. Cont'd. ...

Entry Name	PORTUGAL	SYRIA	TURKEY				(1) Overall Mean
	Oeiras	Idleb	Ankara (Univ.)	Haymana	Erzurum	Menemen	
FLIP 85-109C	39	25	26	28	25	22	28
FLIP 85-110C	43	24	32	38	15	37	36
FLIP 85-111C	34	36	29	28	29	28	35
FLIP 85-113C	33	25	28	25	22	30	31
FLIP 85-118C	44	25	35	-	27	31	36
FLIP 85-119C	39	35	34	43	28	33	37
FLIP 85-120C	39	58	28	39	21	29	39
FLIP 85-121C	39	25	28	26	27	24	30
FLIP 85-125C	34	27	28	28	24	25	32
FLIP 85-126C	34	29	28	33	18	28	30
FLIP 85-127C	39	24	25	27	21	26	32
FLIP 85-130C	33	23	23	23	24	26	25
FLIP 85-131C	39	31	34	33	19	24	31
FLIP 85-134C	44	31	38	38	14	42	39
FLIP 85-293C	38	25	26	22	23	24	30
ILC 482	35	24	26	31	22	26	30
Local Check	45	34	28	28	34	32	33
Location Mean	**40**	**30**	**30**	**32**	**24**	**30**	
S.E. of Mean	3.54	0.84	0.33	4.10	1.35	1.62	
L.S.D. at 5% for :							
Checks	12.23	2.89	1.15	14.18	4.67	5.60	
T.E. in S.B.	24.47	5.79	2.29	28.37	9.35	11.20	
T.E. in D.B.	28.25	6.68	2.65	32.76	10.79	12.93	
Check Vs T.E.	22.34	5.28	2.10	25.91	8.53	10.22	
C.V. %	17.79	5.53	2.20	26.79	11.21	13.12	
Test > L. Check	0	3	23	0	0	1	

(1) Darul Aman, Zarghan, Terbol, Erzurum, Haymana and Menemen were excluded from the overall mean.
S.B. = same block, D.B. = different blocks, T.E. = test entries.

Table 3.7.6. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CISN-SP during 1986/87.

Entry Name	AFGHANISTAN		CHILE		FRANCE				IRAN			
	Darul Aman		Valdivia		Montboucher		Montpellier		Karaj-1		Karaj-2	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-37C	1480	17	377	42	4183	22	–	–	1303	18	983	27
FLIP 84-66C	1152	34	375	43	2776	50	–	–	950	36	1448	10
FLIP 84-72C	1946	6	701	10	4076	25	1632	19	1423	11	1693	5
FLIP 84-83C	1025	37	425	37	4654	9	2407	5	1339	14	2213	3
FLIP 84-123C	2159	4	440	35	3828	33	1451	25	1568	6	768	34
FLIP 85-1C	743	41	402	39	4785	7	983	34	430	50	1088	22
FLIP 85-10C	1507	16	654	18	4076	26	2583	4	996	33	898	30
FLIP 85-11C	1245	29	701	11	2176	51	1210	29	1257	23	1688	6
FLIP 85-42C	1419	23	580	25	4347	19	1853	13	1057	29	1398	12
FLIP 85-43C	1448	20	307	45	4992	5	1858	12	1413	12	1278	15
FLIP 85-45C	1727	12	675	15	3949	29	–	–	785	46	1018	24
FLIP 85-46C	1200	31	–	–	5235	2	777	36	870	40	738	35
FLIP 85-49C	1673	13	935	1	3776	35	1601	21	886	38	393	47
FLIP 85-50C	63	47	85	49	3199	47	1085	32	762	47	718	37
FLIP 85-52C	2793	1	313	44	4457	16	1533	22	1219	26	733	36
FLIP 85-63C	1000	38	421	38	3768	36	891	35	1097	28	1113	19
FLIP 85-64C	1410	25	739	7	3849	31	1017	33	1053	30	203	50
FLIP 85-67C	1467	19	764	6	4540	12	–	–	1051	31	2313	1
FLIP 85-68C	1444	21	561	26	4514	13	1848	14	1539	7	1108	20
FLIP 85-74C	1254	28	624	21	3157	48	395	39	819	44	1048	23
FLIP 85-75C	1058	36	910	2	2890	49	–	–	1309	16	418	46
FLIP 85-76C	1431	22	396	40	5107	3	–	–	1293	19	1093	21
FLIP 85-77C	1156	33	777	5	3433	43	1747	16	1486	9	938	28
FLIP 85-78C	1819	9	866	3	5047	4	1612	20	1806	3	528	42
FLIP 85-80C	533	44	667	16	4747	8	2055	8	796	45	1548	9
FLIP 85-82C	1644	14	590	24	3990	28	–	–	996	32	2238	2
FLIP 85-91C	584	43	298	46	3633	37	1660	18	876	39	458	45
FLIP 85-92C	326	46	679	14	3590	40	–	–	505	49	163	51
FLIP 85-96C	1276	27	641	19	3261	45	2211	6	1230	24	803	32
FLIP 85-103C	–	–	438	36	4176	23	2610	2	1173	27	348	48
FLIP 85-104C	2273	3	694	13	3599	39	1237	28	1305	17	1398	13
FLIP 85-106C	1546	15	694	12	5264	1	1666	17	1893	2	1153	17

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	AFGHANISTAN		CHILE		FRANCE				IRAN			
	Darul Aman		Valdivia		Montboucher		Montpellier		Karaj-1		Karaj-2	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-107C	38	48	707	8	3392	44	2072	7	1905	1	638	40
FLIP 85-108C	1883	7	491	30	3607	38	1460	24	910	37	493	44
FLIP 85-109C	1127	35	485	31	3226	46	-	-	1771	4	1143	18
FLIP 85-110C	920	40	381	41	4290	20	1799	15	710	48	608	41
FLIP 85-111C	1810	10	662	17	3949	30	-	51	990	34	1158	16
FLIP 85-113C	1476	18	590	23	4918	6	2586	3	1276	22	798	33
FLIP 85-118C	1743	11	231	47	4049	27	1258	27	1310	15	1353	14
FLIP 85-119C	955	39	510	29	4485	14	-	48	979	35	828	31
FLIP 85-120C	-	49	554	27	4471	15	2032	9	1288	20	638	39
FLIP 85-121C	2677	2	599	22	4604	10	-	47	1440	10	1813	4
FLIP 85-125C	1870	8	199	48	4392	18	653	38	853	42	268	49
FLIP 85-126C	-	50	548	28	4428	17	1129	31	1219	25	928	29
FLIP 85-127C	2093	5	472	33	3799	34	1346	26	870	41	993	26
FLIP 85-130C	584	42	629	20	4147	24	1936	11	825	43	643	38
FLIP 85-131C	327	45	-	50	3585	41	1150	30	1282	21	498	43
FLIP 85-134C	1169	32	447	34	4585	11	741	37	345	51	1448	11
FLIP 85-293C	1412	24	481	32	3830	32	1499	23	1350	13	1015	25
ILC 482	1221	30	706	9	3470	42	1956	10	1736	5	1613	8
Local Check	1350	26	851	4	4213	21	2679	1	1486	8	1635	7
Location Mean	**1356**		**579**		**4018**		**1595**		**1212**		**1087**	
S.E. of Mean	355.94		88.60		206.09		273.79		83.16		315.16	
L.S.D. at 5% for :												
Checks	1231.57		306.56		713.07		947.34		287.75		1090.46	
T.E. in S.B.	2463.14		613.12		1426.14		1894.68		575.51		2180.91	
T.E. in D.B.	2844.18		707.98		1646.77		2187.79		664.54		2518.30	
Check Vs T.E.	2248.87		559.79		1302.08		1729.86		525.44		1991.19	
C.V. %	56.66		31.94		10.26		45.93		13.72		58.00	
Test > L. Check	0		0		0		0		0		0	

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	IRAN Zarghan Y	IRAN Zarghan R	ITALY Tarquinia Y	ITALY Tarquinia R	JORDAN Mushagar Y	JORDAN Mushagar R	LEBANON Terbol Y	LEBANON Terbol R	MEXICO Padilla Y	MEXICO Padilla R	PAKISTAN Quetts (ARI) Y	PAKISTAN Quetts (ARI) R
FLIP 84-37C	312	47	3675	31	51	39	481	47	1463	48	161	24
FLIP 84-66C	382	43	3071	41	143	11	851	35	2604	28	59	45
FLIP 84-72C	1479	7	3325	35	50	40	1001	22	2765	23	322	2
FLIP 84-83C	490	35	4627	18	44	43	999	23	3645	2	95	35
FLIP 84-123C	1910	4	3262	37	103	23	973	26	2464	33	176	19
FLIP 85-1C	493	34	4817	14	123	17	867	34	1404	50	111	31
FLIP 85-10C	1299	13	6976	1	327	1	1168	14	3556	4	72	42
FLIP 85-11C	1187	18	3548	32	117	19	925	31	2180	38	101	33
FLIP 85-42C	1229	16	3738	30	49	41	364	49	1450	49	100	34
FLIP 85-43C	993	24	4214	24	86	27	986	25	1937	41	87	37
FLIP 85-45C	1326	12	4944	12	260	2	808	39	1797	45	164	22
FLIP 85-46C	1562	6	4246	23	83	29	955	29	2403	34	65	44
FLIP 85-49C	521	33	4341	21	134	15	290	51	1253	51	157	25
FLIP 85-50C	604	32	3135	40	54	38	616	45	2663	27	–	–
FLIP 85-52C	1021	23	5579	5	66	34	658	44	2898	20	81	39
FLIP 85-63C	1062	22	2786	48	175	8	883	32	1920	42	114	30
FLIP 85-64C	993	26	4500	19	255	3	1534	4	2134	39	71	43
FLIP 85-67C	1187	17	3008	44	62	36	824	37	2485	32	174	20
FLIP 85-68C	1354	11	2849	47	44	42	1029	20	2523	31	168	21
FLIP 85-74C	660	31	5167	10	175	9	1312	9	2534	29	108	32
FLIP 85-75C	312	48	2659	50	55	37	883	33	1653	46	186	16
FLIP 85-76C	479	36	5960	4	143	12	940	30	2879	21	83	38
FLIP 85-77C	437	39	4119	26	76	32	1268	11	3031	16	220	14
FLIP 85-78C	437	38	3452	33	69	33	735	42	1901	43	155	26
FLIP 85-80C	257	50	6405	3	–	–	1029	19	3359	5	220	13
FLIP 85-82C	–	–	4913	13	85	28	787	41	2908	18	268	8
FLIP 85-91C	340	44	4754	15	197	6	555	46	3162	12	41	47
FLIP 85-92C	424	40	6563	2	32	44	814	38	1899	44	15	49
FLIP 85-96C	1424	9	5421	7	82	30	1369	6	3607	3	179	18
FLIP 85-103C	1382	10	5294	9	–	–	406	48	2902	19	272	6
FLIP 85-104C	1285	14	3325	34	152	10	1163	15	2718	24	187	15
FLIP 85-106C	979	27	3865	27	86	26	1251	12	3215	10	238	11

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	IRAN Zarghan Y	IRAN Zarghan R	ITALY Tarquinia Y	ITALY Tarquinia R	JORDAN Mushagar Y	JORDAN Mushagar R	LEBANON Terbol Y	LEBANON Terbol R	MEXICO Padilla Y	MEXICO Padilla R	PAKISTAN Quetta (ARI) Y	PAKISTAN Quetta (ARI) R
FLIP 85-107C	2521	1	5357	8	-	-	362	50	3914	1	55	46
FLIP 85-108C	993	25	4119	25	77	31	1015	21	2934	17	244	10
FLIP 85-109C	396	41	2881	46	124	16	1624	1	1558	47	184	17
FLIP 85-110C	340	46	5452	6	115	20	1562	2	2401	35	77	41
FLIP 85-111C	868	29	3833	28	138	14	1200	13	2280	36	118	29
FLIP 85-113C	382	42	3802	29	234	4	1295	10	2534	30	271	7
FLIP 85-118C	271	49	4246	22	22	46	992	24	3304	6	-	-
FLIP 85-119C	437	37	2976	45	63	35	806	40	2669	26	32	48
FLIP 85-120C	854	30	2754	49	-	-	1378	5	3152	13	163	23
FLIP 85-121C	1229	15	1770	51	206	5	957	28	3247	7	226	12
FLIP 85-125C	1451	8	4690	17	90	24	1534	3	3194	11	136	28
FLIP 85-126C	2021	3	4722	16	-	-	838	36	3063	14	302	3
FLIP 85-127C	1076	20	4373	20	189	7	1036	18	2274	37	278	5
FLIP 85-130C	340	45	5071	11	140	13	962	27	3232	9	280	4
FLIP 85-131C	937	28	3325	36	22	45	718	43	2860	22	94	36
FLIP 85-134C	1076	19	3262	38	117	18	1163	16	2064	40	78	40
FLIP 85-293C	1615	5	3135	39	112	21	1326	8	3244	8	257	9
ILC 482	1063	21	3032	42	87	25	1154	17	3049	15	149	27
Local Check	2135	2	3016	43	104	22	1333	7	2686	25	336	1
Location Mean	**1060**		**3965**		**111**		**1024**		**2665**		**173**	
S.E. of Mean	240.69		467.81		22.73		109.96		264.53		43.70	
L.S.D. at 5% for :												
Checks	832.79		1618.63		78.64		380.45		915.30		151.21	
T.E. in S.B.	1665.59		3237.27		157.28		760.90		1830.60		302.42	
T.E. in D.B.	1923.26		3738.07		181.61		878.61		2113.79		349.20	
Check Vs T.E.	1520.70		2955.65		143.60		694.71		1671.35		276.11	
C.V. %	46.72		23.60		69.75		21.48		19.85		52.92	
Test > L. Check	0		3		3		0		0		0	

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	PORTUGAL		SUDAN		SYRIA							
	Oeiras		Shambat		Al Ghab		Hama		Idleb		Tel Hadya	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-37C	379	46	–	–	1331	38	751	48	815	32	730	33
FLIP 84-66C	607	23	–	–	516	50	1122	26	1346	16	487	50
FLIP 84-72C	864	7	–	–	2410	1	1259	15	1381	14	825	26
FLIP 84-83C	521	37	146	21	2167	4	1185	21	1593	9	836	25
FLIP 84-123C	426	42	–	–	1479	31	1376	7	662	36	1228	5
FLIP 85-1C	712	12	–	–	1447	35	995	37	502	45	593	45
FLIP 85-10C	864	8	958	4	1183	44	772	46	1651	5	868	21
FLIP 85-11C	607	21	625	10	1299	40	1291	11	1361	15	1048	8
FLIP 85-42C	464	40	–	–	1267	42	1005	36	948	29	1270	2
FLIP 85-43C	940	6	–	–	1638	21	1153	23	957	28	1037	9
FLIP 85-45C	312	50	–	–	399	51	582	50	592	41	1354	1
FLIP 85-46C	588	25	–	–	1563	24	1259	14	930	30	984	13
FLIP 85-49C	550	28	488	14	1997	7	1069	33	1601	8	921	17
FLIP 85-50C	502	38	–	–	1786	14	1101	28	612	40	603	43
FLIP 85-52C	731	10	–	–	1817	12	1069	32	585	42	667	37
FLIP 85-63C	550	29	854	6	1426	36	942	38	1018	24	1143	6
FLIP 85-64C	169	51	771	7	1161	45	1026	35	232	49	815	29
FLIP 85-67C	550	30	–	–	1331	39	1228	18	1113	21	857	24
FLIP 85-68C	617	20	79	24	1278	41	1037	34	658	37	540	47
FLIP 85-74C	998	4	967	3	2146	5	772	47	452	46	878	20
FLIP 85-75C	664	15	–	–	1839	10	1132	25	1388	13	825	27
FLIP 85-76C	674	14	–	–	1563	25	847	42	847	31	857	23
FLIP 85-77C	693	13	96	23	1743	16	1640	2	1621	6	1016	11
FLIP 85-78C	607	22	–	–	1521	28	1228	17	1286	18	952	14
FLIP 85-80C	321	49	104	22	1151	46	1439	5	986	27	709	34
FLIP 85-82C	579	27	750	8	2071	6	804	43	1898	1	772	31
FLIP 85-91C	1121	2	883	5	675	49	487	51	1763	4	709	35
FLIP 85-92C	464	41	–	–	1468	33	677	49	1433	11	804	30
FLIP 85-96C	321	48	708	9	1341	37	1598	3	1621	7	868	22
FLIP 85-103C	521	35	217	19	1722	17	1280	13	986	26	646	39
FLIP 85-104C	1226	1	229	18	1225	43	1344	8	707	34	815	28
FLIP 85-106C	617	19	417	16	1690	19	1228	16	578	43	190	51

Cont'd. ...

Table 3.7.6. Cont'd. ...

	PORTUGAL		SUDAN		SYRIA							
	Oeiras		Shambat		Al Ghab		Hama		Idleb		Tel Hadya	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-107C	588	26	-	-	2357	2	1132	24	1066	22	635	41
FLIP 85-108C	712	11	1208	2	1542	26	1185	22	637	38	593	44
FLIP 85-109C	521	33	-	-	1489	29	1386	6	1333	17	1270	3
FLIP 85-110C	493	39	321	17	865	47	804	44	1873	2	995	12
FLIP 85-111C	369	47	-	-	780	48	931	40	367	47	656	38
FLIP 85-113C	1121	3	208	20	1690	20	1312	9	1001	25	677	36
FLIP 85-118C	617	17	-	-	1881	9	1291	10	689	35	635	42
FLIP 85-119C	731	9	-	-	1627	22	1101	29	557	44	889	19
FLIP 85-120C	531	32	-	-	1468	32	1101	30	1137	19	540	46
FLIP 85-121C	521	34	542	12	1807	13	1291	12	1056	23	1016	10
FLIP 85-125C	426	43	446	15	1479	30	868	41	-	-	1228	4
FLIP 85-126C	617	18	1854	1	1913	8	1101	27	1134	20	1048	7
FLIP 85-127C	426	44	-	-	1828	11	931	39	359	48	910	18
FLIP 85-130C	521	36	563	11	1468	34	1185	20	1843	3	519	48
FLIP 85-131C	388	45	521	13	1754	15	1069	31	622	39	635	40
FLIP 85-134C	998	5	-	-	1701	18	804	45	32	50	942	16
FLIP 85-293C	621	16	708	9	1540	27	1214	19	799	33	770	32
ILC 482	600	24	-	-	1619	23	1698	1	1404	12	508	49
Local Check	543	31	-	-	2294	3	1532	4	1499	10	944	15
Location Mean	607		587		1585		1166		1065		815	
S.E. of Mean	93.28				94.98		116.49		182.42		121.03	
L.S.D. at 5% for :												
Checks	322.77				328.64		403.07		631.17		418.77	
T.E. in S.B.	645.53				657.28		806.14		1262.34		837.54	
T.E. in D.B.	745.40				758.96		930.85		1457.63		967.11	
Check Vs T.E.	589.38				600.10		736.01		1152.53		764.68	
C.V. %	30.75				11.98		19.98		35.06		29.69	
Test > L. Check	1				0		0		0		0	

Cont'd. ...

Table 3.7.6. Cont'd. ...

	TUNISIA											
	Beja-1		Beja-2		El Kef-1		El Kef-2		Oued Meliz-1		Oued Meliz-2	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-37C	2113	43	2174	36	2596	40	2954	34	2157	18	1294	39
FLIP 84-66C	2046	46	1924	41	2954	32	2321	44	1574	31	1601	27
FLIP 84-72C	3013	14	2324	27	3196	26	4554	3	3357	3	1694	24
FLIP 84-83C	3846	3	2324	28	3254	22	3321	26	2974	5	1926	18
FLIP 84-123C	2796	19	1944	40	3488	15	4629	2	1364	36	2094	13
FLIP 85-1C	2246	37	2294	29	2188	48	4279	6	1939	24	2119	10
FLIP 85-10C	3146	10	3174	10	3404	17	6471	1	1524	33	2376	2
FLIP 85-11C	3563	5	2724	18	3146	28	3354	24	2407	9	1569	30
FLIP 85-42C	2363	33	2224	32	3446	16	3354	25	1407	34	1144	45
FLIP 85-43C	2546	29	2844	14	3238	24	4079	9	439	50	2019	14
FLIP 85-45C	2696	21	3294	5	3638	13	3579	18	1589	30	1919	19
FLIP 85-46C	1546	51	1058	50	2538	41	2171	46	1031	42	761	49
FLIP 85-49C	2663	23	1874	42	2946	33	3104	31	1907	25	1494	35
FLIP 85-50C	1796	48	1158	48	1863	50	2196	45	831	46	561	50
FLIP 85-52C	1746	49	1208	47	1813	51	1796	48	881	44	961	48
FLIP 85-63C	2113	44	2424	24	3146	29	3379	22	2332	12	1394	36
FLIP 85-64C	2196	39	1144	49	3388	19	3179	29	1214	38	1919	20
FLIP 85-67C	2863	18	2324	26	3396	18	4504	4	2407	10	1244	42
FLIP 85-68C	1796	47	2208	33	2463	44	2871	37	1156	39	1136	46
FLIP 85-74C	3046	13	3194	8	3638	12	3929	11	2039	21	2269	5
FLIP 85-75C	2763	20	1574	45	3196	25	405	49	2807	6	1294	38
FLIP 85-76C	2396	31	2208	34	2313	47	1796	47	2331	13	2011	15
FLIP 85-77C	4363	1	2724	16	2996	31	4154	7	2282	15	1494	34
FLIP 85-78C	2863	17	3574	2	3546	14	3804	12	2107	19	1644	25
FLIP 85-80C	3096	11	3224	6	3754	9	2771	39	324	51	1576	29
FLIP 85-82C	2646	24	3074	11	4254	3	3521	20	1699	28	2126	8
FLIP 85-91C	2596	27	2124	38	2854	36	2321	43	1074	41	1276	40
FLIP 85-92C	2946	15	2424	25	2404	46	2771	40	1524	32	2476	1
FLIP 85-96C	3896	2	3374	4	4004	5	3771	14	1999	22	2301	4
FLIP 85-103C	3396	7	3174	9	4154	4	4071	10	774	48	2126	9
FLIP 85-104C	2346	35	1594	44	3263	20	4429	5	864	45	2319	3
FLIP 85-106C	3096	12	3508	3	3838	6	2846	38	2581	7	1536	31

Cont'd. ...

Table 3.7.6. Cont'd. ...

	TUNISIA											
	Beja-1		Beja-2		El Kef-1		El Kef-2		Oued Meliz-1		Oued Meliz-2	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-107C	3546	6	3908	1	3238	23	3171	30	2356	11	1611	26
FLIP 85-108C	2146	42	2144	37	3788	7	3779	13	1389	35	2094	12
FLIP 85-109C	2613	26	2074	39	3196	27	405	50	3532	2	1269	41
FLIP 85-110C	3646	4	2624	21	3754	8	2971	33	1724	27	2226	7
FLIP 85-111C	2096	45	2244	30	2938	35	3479	21	1664	29	2244	6
FLIP 85-113C	2346	34	2774	15	4254	2	3371	23	2324	14	1576	28
FLIP 85-118C	2396	32	2608	22	2513	42	2896	36	3081	4	1511	32
FLIP 85-119C	2396	30	3008	12	2463	43	2446	42	1081	40	1511	33
FLIP 85-120C	2946	16	1008	51	2813	37	-	51	1956	23	1011	47
FLIP 85-121C	2613	25	2174	35	2696	38	3679	16	3557	1	1144	44
FLIP 85-125C	2146	40	1794	43	3138	30	3679	17	989	43	1944	17
FLIP 85-126C	2196	38	1508	46	2663	39	2996	32	1831	26	1861	21
FLIP 85-127C	1596	50	2594	23	4288	1	3579	19	2164	17	1844	22
FLIP 85-130C	2546	28	2724	17	3654	11	3221	28	1324	37	-	51
FLIP 85-131C	2146	41	3208	7	1863	49	2596	41	2181	16	1161	43
FLIP 85-134C	2296	36	2644	20	2938	34	3229	27	789	47	1969	16
FLIP 85-293C	3163	8	2960	13	3256	21	3700	15	2094	20	1781	23
ILC 482	3163	9	2688	19	3675	10	4088	8	2575	8	2100	11
Local Check	2663	22	2225	31	2406	45	2900	35	502	49	1351	37
Location Mean	2703		2449		3131		3316		1792		1693	
S.E. of Mean	238.91		391.77		353.25		308.42		193.13		150.06	
L.S.D. at 5% for :												
Checks	826.68		1355.54		1222.27		1067.14		668.25		519.22	
T.E. in S.B.	1653.36		2711.07		2444.55		2134.29		1336.49		1038.43	
T.E. in D.B.	1909.14		3130.48		2822.72		2464.46		1543.25		1199.08	
Check Vs T.E.	1509.53		2475.23		2231.89		1948.62		1220.23		948.10	
C.V. %	17.68		31.99		22.57		19.06		22.56		18.07	
Test > L. Check	1		0		0		1		25		4	

Cont'd. ...

Table 3.7.6. Cont'd. ...

	TURKEY											
	Ankara (Univ.)		Haymana		Erzurum		Menemen		Urfa		Overall Mean (1)	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84-37C	809	9	1357	19	463	8	754	14	656	34	1379	47
FLIP 84-66C	487	41	917	37	187	41	569	29	788	19	1290	50
FLIP 84-72C	991	2	2036	5	179	42	1198	1	513	45	1793	7
FLIP 84-83C	441	44	1917	7	200	37	702	19	1052	2	1919	1
FLIP 84-123C	700	25	1012	33	220	33	709	18	887	11	1479	30
FLIP 85-1C	518	39	1119	30	160	48	465	37	766	22	1399	43
FLIP 85-10C	667	28	738	43	333	18	724	17	796	18	1786	8
FLIP 85-11C	673	27	1357	20	160	47	176	48	897	9	1577	24
FLIP 85-42C	764	13	1000	34	110	51	-	51	542	44	1421	40
FLIP 85-43C	881	6	619	46	241	29	798	12	1179	1	1568	25
FLIP 85-45C	700	26	1262	24	367	14	376	41	890	10	1515	28
FLIP 85-46C	633	30	1821	8	395	12	524	32	425	49	1394	44
FLIP 85-49C	900	4	2143	4	638	2	798	11	694	30	1521	27
FLIP 85-50C	226	51	1179	29	359	15	235	46	562	41	1131	51
FLIP 85-52C	725	18	1393	17	552	4	991	5	552	43	1413	42
FLIP 85-63C	719	22	1214	26	146	49	620	25	472	47	1416	41
FLIP 85-64C	745	17	762	42	550	5	531	31	744	24	1344	49
FLIP 85-67C	719	21	71	51	163	45	843	9	81	51	1536	26
FLIP 85-68C	861	8	1107	31	312	21	480	36	717	27	1383	45
FLIP 85-74C	700	24	1405	15	167	44	820	10	721	26	1663	14
FLIP 85-75C	719	19	1714	10	454	9	620	26	161	50	1435	33
FLIP 85-76C	633	29	2250	3	322	19	146	50	670	32	1698	12
FLIP 85-77C	719	20	2000	6	368	13	354	42	649	35	1814	5
FLIP 85-78C	764	14	1786	9	345	16	220	47	707	29	1704	10
FLIP 85-80C	532	37	381	50	230	31	746	15	804	17	1701	11
FLIP 85-82C	759	15	2417	1	480	6	769	13	855	12	1857	3
FLIP 85-91C	396	46	1202	27	208	35	169	49	1034	3	1430	36
FLIP 85-92C	306	50	845	38	302	25	524	33	829	14	1460	31
FLIP 85-96C	759	16	1274	22	237	30	635	24	823	16	1839	4
FLIP 85-103C	531	38	702	44	207	36	724	16	785	21	1614	18
FLIP 85-104C	609	33	405	49	222	32	420	40	841	13	1421	38
FLIP 85-106C	997	1	1036	32	272	27	1080	3	644	36	1802	6

Cont'd. ...

Table 3.7.6. Cont'd. ...

	TURKEY											
	Ankara (Univ.)		Haymana		Erzurum		Menemen		Urfa		Overall Mean (1)	
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85-107C	453	43	2250	2	1662	1	902	6	752	23	1918	2
FLIP 85-108C	564	35	833	39	192	38	465	38	556	42	1433	35
FLIP 85-109C	719	23	1321	21	163	46	665	22	713	28	1581	23
FLIP 85-110C	487	42	1274	23	242	28	457	39	906	7	1675	13
FLIP 85-111C	609	32	1619	14	416	10	331	44	966	5	1421	39
FLIP 85-113C	804	10	988	35	276	26	880	7	733	25	1704	9
FLIP 85-118C	770	11	1714	11	317	20	857	8	489	46	1642	17
FLIP 85-119C	543	36	1393	18	336	17	546	30	603	39	1429	37
FLIP 85-120C	316	49	1179	28	190	40	346	43	682	31	1441	32
FLIP 85-121C	991	3	1643	13	218	34	287	45	669	33	1662	15
FLIP 85-125C	882	5	690	45	308	23	998	4	906	8	1434	34
FLIP 85-126C	770	12	1679	12	475	7	569	28	612	37	1600	20
FLIP 85-127C	518	40	833	40	191	39	1198	2	610	38	1493	29
FLIP 85-130C	350	47	488	48	303	24	657	23	1019	4	1606	19
FLIP 85-131C	316	48	1393	16	574	3	480	35	454	48	1379	46
FLIP 85-134C	428	45	976	36	169	43	620	27	826	15	1378	48
FLIP 85-293C	589	34	777	41	413	11	700	20	590	40	1592	22
ILC 482	612	31	509	47	126	50	689	21	787	20	1661	16
Local Check	866	7	1250	25	312	22	494	34	940	6	1597	21
Location Mean	**656**		**1181**		**316**		**622**		**725**			
S.E. of Mean	14.64		244.94		68.59		143.89		65.41			
L.S.D. at 5% for :												
Checks	50.65		847.49		237.33		497.85		226.31			
T.E. in S.B.	101.30		1694.98		474.66		995.70		452.63			
T.E. in D.B.	116.97		1957.20		548.09		1149.74		522.65			
Check Vs T.E.	92.49		1547.53		433.37		909.09		413.25			
C.V. %	4.46		41.48		43.35		47.87		18.05			
Test > L. Check	3		0		1		0		0			

(1) Darul Aman, Montpellier, Zarghan, Mushager, Shambat, El Kef-2, O. Meliz and Menemen were excluded from the overall mean.
S.B. = same block, D.B. = different block, T.E. = test entries.

Table 3.7.7. The five heaviest seed yielding entries at the individual locations in the CISN-SP during 1986/87.

Rank	AFGHANISTAN	CHILE	FRANCE		IRAN			ITALY
	Darul Aman	Valdivia	Montboucher	Montpellier	Karaj-1	Karaj-2	Zerghan	Tarquinia
1	FLIP85- 52C	FLIP85- 49C	FLIP85-106C	Local Check	FLIP85-107C	FLIP85- 67C	FLIP85-107C	FLIP85- 10C
2	FLIP85-121C	FLIP85- 75C	FLIP85- 46C	FLIP85-103C	FLIP85-106C	FLIP85- 82C	Local Check	FLIP85- 92C
3	FLIP85-104C	FLIP85- 78C	FLIP85- 76C	FLIP85-113C	FLIP85- 78C	FLIP84- 83C	FLIP85-126C	FLIP85- 80C
4	FLIP84-123C	Local Check	FLIP85- 78C	FLIP85- 10C	FLIP85-109C	FLIP85-121C	FLIP84-123C	FLIP85- 76C
5	FLIP85-127C	FLIP85- 77C	FLIP85- 43C	FLIP84- 83C	ILC 482	FIIP84- 72C	FLIP85-293C	FLIP85- 52C

Cont'd 2/..

Rank	JORDAN	LEBANON	MEXICO	PAKISTAN	PORTUGAL	SUDAN	SYRIA
	Mushagar	Terbol	Padilla	Quetta	Oeiras	Shambat	Al Ghab
1	FLIP85- 10C	FLIP85-109C	FLIP85-107C	Local Check	FLIP85-104C	FLIP85-126C	FLIP84- 72C
2	FLIP85- 45C	FLIP85-110C	FLIP84- 83C	FLIP84- 72C	FLIP85- 91C	FLIP85-108C	FLIP85-107C
3	FLIP85- 64C	FLIP85-125C	FLIP85- 96C	FLIP85-126C	FLIP85-113C	FLIP85- 74C	Local Check
4	FLIP85-113C	FLIP85- 64C	FLIP85- 10C	FLIP85-130C	FLIP85- 74C	FLIP85- 10C	FLIP84- 83C
5	FLIP85-121C	FLIP85-120C	FLIP85- 80C	FLIP85-127C	FLIP85-134C	FLIP85- 91C	FLIP85- 74C

Cont'd 2/..

Rank	SYRIA			TUNISIA			
	Hama	Idleb	Tel Hadya	Beja-1	Beja-2	El Kef-1	El Kek-2
1	ILC 482	FLIP85- 82C	FLIP85- 45C	FLIP85- 77C	FLIP85-107C	FLIP85-127C	FLIP85- 10C
2	FLIP85- 77C	FLIP85-110C	FLIP85- 42C	FLIP85- 96C	FLIP85- 78C	FLIP85-113C	FLIP84-123C
3	FLIP85- 96C	FLIP85-130C	FLIP85-109C	FLIP84- 83C	FLIP85-106C	FLIP85- 82C	FLIP84- 72C
4	Local Check	FLIP85- 91C	FLIP85-125C	FLIP85-110C	FLIP85- 96C	FLIP85-103C	FLIP85- 67C
5	FLIP85- 80C	FLIP85- 10C	FLIP84-123C	FLIP85- 11C	FLIP85- 45C	FLIP85- 96C	FLIP85-104C

Cont'd 2/..

Rank	TUNISIA		TURKEY				
	Oued Meliz-1	Oued Meliz-2	Ankara (Univ.)	Haymana	Erzurum	Menemen	Urfa
1	FLIP85-121C	FLIP85- 92C	FLIP85-106C	FLIP85- 82C	FLIP85-107C	FLIP84- 72C	FLIP85- 43C
2	FLIP85-109C	FLIP85- 10C	FLIP84- 72C	FLIP85-107C	FLIP85- 49C	FLIP85-127C	FLIP84- 83C
3	FLIP84- 72C	FLIP85-104C	FLIP85-121C	FLIP85- 76C	FLIP85-131C	FLIP85-106C	FLIP85- 91C
4	FLIP85-118C	FLIP85- 96C	FLIP85- 49C	FLIP85- 49C	FLIP85- 52C	FLIP85-125C	FLIP85-130C
5	FLIP84- 83C	FLIP85- 74C	FLIP85-125C	FLIP84- 72C	FLIP85- 64C	FLIP85- 52C	FLIP85-111C

85- 42C, and FLIP85- 63C and largest seed size of 43 g for FLIP 85- 46C. The location mean for 100-seed weight ranged from 24 g (for Erzurum in Turkey) to 44 g (for Tarquinia in Italy). Some of the values for 100-seed weight in Erzurum in Turkey were exceptionally low and thus didn't seem to be representative.

The adjusted seed yields of entries are given in Table 3.7.6. On the basis of overall mean, FLIP 84- 83C gave the highest seed yield of 1919 kg/ha and was closely followed by FLIP 85-107C (1918 kg/ha), FLIP 85- 82C (1857 kg/ha), FLIP 85- 96C (1839 kg/ha) and FLIP85- 77C (1814 kg/ha) etc. The location mean was highest for Montboucher (4018 kg/ha) in France, and was followed by Tarquinia (3965 kg/ha) in Italy, El Kef-2 (3316 kg/ha) and El Kef-1 (3131 kg/ha) in Tunisia etc. The ANOVA of the experimental design revealed that at locations namely, Tarquinia in Italy, Mushagar in Jordan, Oeiras in Portugal, Beja-1, El Kef-2, Oued Meliz-1 and Oued Meliz-2 in Tunisia, Ankara and Erzurum in Turkey 3, 3, 1, 1, 1, 25, 4, 3 and 1 entries exceeded the respective local check by a significant margin.

The five heaviest seed yielding entries at different locations are given in Table 3.7.7. The entries FLIP 84- 72C and FLIP85- 10C occurred most frequently (8 times) among the top five heaviest yielders and were more adaptable.

3.8. CHICKPEA INTERNATIONAL F_4 TRIAL (CIF_4T)

Material

The material for the Chickpea International F_4 Trial comprised 21 F_4 populations which were derived from different crosses, and three checks. Two of the checks, namely ILC 482 and ILC 3279 were supplied by ICARDA and the third was to be added by the cooperator. The materail was assumed to provide a wide range of variation within which the cooperators were free to practice their own selection.

Methods and Management

The trial design was a randomized complete block with three replications. The suggested plot size was 4 rows, 4 meter long with an inter- and intra row spacings of 30 - and 10 cm, respectively. Fifty four sets of trials were distributed to cooperators in 19 countries. The results were, however, received back for 39 trials and 34 were worth analysis. The agronomic details supplied by the cooperators are given in Table 3.8.1.

Results and Discussion

The data on time to flowering, time to maturity, plant height and 100-seed weight are given in Tables 3.8.2, 3.8.3, 3.8.4, and 3.8.5, respectively. The entry means averaged over locations for F_4 populations ranged from 107 to 115 days for time to flowering, 163 to 168 days for time to maturity, 44 to 58 cm for plant height, and 23 to 38 g for 100-seed weight.

The mean seed yield of the F_4 populations and checks at each location are given in Table 3.8.6. Tarquinia (Italy) was the highest yielding

Table 3.8.1. Agronomic data for different locations in the CIP4T during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman	18.06.87	08.11.87	30	60		7	-	Lebanon Local
ALGERIA	Khroub	14.12.86	14.07.87	17	45		-	Treflan	Rabat 9
ALGERIA	Setif	NA	NA		100		-	Treflan	Rabat 9
ALGERIA	Sidi Bel Abbes	16.02.87	05.06.87	15	90		-	Maloran, Kerb	A.T. 161/14
BRAZIL	Brasilia	06.03.87	02.10.87	56	120		20	Thiram, Iprodine	NA
BULGARIA	Toshevo	13.11.86	14.08.87	40	80		-	Aphalon, Gesagard	Stepway - 1
COLOMBIA	Surbata								
EGYPT	Giza	28.11.86	05.05.87	38	75		-	-	G -1
FRANCE	Montboucher-1 (W)	02.12.86	18.07.87		100		-	Nitrofene, Neburon	Cascari
FRANCE	Montboucher-2 (S)	02.03.87	04.08.87		100		-	Nitrofene, Neburon	Cascari
IRAN	Karaj	10.03.87	23.08.87				10	Diazinon	Jam
ITALY	Tarquinia	26.12.86	20.07.87	54	138		-	Nebutrin, Targa	La Holara
JORDAN	Marow	NA	NA	20	40		-	-	NA
LEBANON	Terbol	26.11.86	15.07.87		50		-	Bladex, Kerb	Lebanese Local
MOROCCO	Douyet	06.12.86	03.06.87	30	60		-	-	Pocschicha 46
MOROCCO	Marchouch	29.11.86	09.06.87	14	28	14	-	-	PCH - 46
MOROCCO	Zememra	08.12.86	17.06.87	30	60		1	Systox, Dacanil	Local
PAKISTAN	Bahawalpur	23.11.86	10.04.87	25	62		-	-	C 235
PAKISTAN	Faisalabad (UAF)	03.11.86	22.04.87	40	16		-	-	NA
PAKISTAN	Karak	13.10.86	24.04.87		50		-	-	CM 72
PORTUGAL	Elvas	05.11.86	01.07.87		72		-	-	CHK 256
SPAIN	Madrid	14.04.87	27.07.87	60	60		-	Terbutryne	1472
SPAIN	Sevilla	04.11.86	25.06.87	28	128		1	Durban, Alachlor, Limson	Blanca Villarrasa
SYRIA	Gelline	13.11.86	17.06.87	-			-	-	-
SYRIA	Hama	21.12.86	03.06.87	25	80		-	-	Local
SYRIA	Homs	20.12.86	NA		50		-	-	-
SYRIA	Tel Hadya	27.11.86	04.06.87	30	50		-	Igran, Malathion	FLIP82-150C
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA
TUNISIA	Ras Rajel	NA	NA	NA			NA	NA	NA
TURKEY	Adana-1 (Univ.)	13.11.86	14.06.87	30	50		-	-	-
TURKEY	Adana-2 (Univ.)	14.11.86	13.06.87	30	50		-	-	-
TURKEY	Ankara (Univ.)	07.04.87	19.07.87	22	60		-	Basudine	Eser - 87
TURKEY	Diyarbakir	20.11.86	23.06.87	40	60		-	-	-
TURKEY	Erzurum	05.05.87	19.08.87	30	70		-	-	NA
TURKEY	Eskisehir	21.04.87	06.08.87	40	60		-	-	Ispanyol
TURKEY	Menemen (Izmir)	16.01.87	13.07.87	30	60		-	Igran	

NA = not available.

Table 3.8.2. Time to flowering (days) of entries at different locations in the CIF4T during 1985/86.

Entry Name/ Cross No.	Pedigree	Origin	AFGHANISTAN	ALGERIA			BRAZIL	BULGARIA
			Darul Aman	Khroub	Setif	Sidi - Bel Abbas	Brasilia	Toshevo
X 84 TH 1	FLIP 81-3XILC 2399	ICARDA/ICRISAT	77	146	128	47	65	206
X 84 TH 2	FLIP 81-3XILC 3682	ICARDA/ICRISAT	77	136	128	54	70	206
X 84 TH 4	FLIP 81-293XILC 2399	ICARDA/ICRISAT	77	137	130	54	67	207
X 84 TH 5	FLIP 81-293XILC 3841	ICARDA/ICRISAT	81	147	130	54	70	207
X 84 TH 6	FLIP 81-293XILC 165	ICARDA/ICRISAT	77	132	126	54	67	207
X 84 TH 7	FLIP 81-41XILC 2399	ICARDA/ICRISAT	81	149	128	47	67	206
X 84 TH 8	FLIP 81-41XILC 3841	ICARDA/ICRISAT	82	148	131	54	70	206
X 84 TH 17	FLIP 82-195XILC 3847	ICARDA/ICRISAT	83	149	136	54	71	207
X 84 TH 18	FLIP 82-195XILC 200	ICARDA/ICRISAT	85	150	131	54	69	206
X 84 TH 19	FLIP 82-219XILC 3622	ICARDA/ICRISAT	69	146	131	54	71	207
X 84 TH 23	FLIP 82-232XILC 116	ICARDA/ICRISAT	78	152	130	54	68	207
X 84 TH 24	FLIP 82-232XILC 202	ICARDA/ICRISAT	81	151	138	57	68	207
X 84 TH 25	FLIP 82-225XILC 3622	ICARDA/ICRISAT	82	154	140	54	71	207
X 84 TH 26	FLIP 82-225XILC 3651	ICARDA/ICRISAT	79	152	131	54	73	207
X 84 TH 27	FLIP 82-225XILC 116	ICARDA/ICRISAT	77	149	129	50	66	207
X 84 TH 37	ILC 463XFLIP 82-43	ICARDA/ICRISAT	70	137	131	54	63	206
X 84 TH 44	FLIP 80-2XFLIP 82-61	ICARDA/ICRISAT	81	136	128	50	65	205
X 84 TH 58	ILC 200XILC 3682	ICARDA/ICRISAT	81	136	132	54	67	206
X 84 TH 168	ILC 1931XFLIP 82-64	ICARDA/ICRISAT	80	137	130	54	63	206
X 84 TH 181	ILC 1919XILC 3279	ICARDA/ICRISAT	80	137	132	54	65	206
X 84 TH 332	(FLIP 82-69XFLIP 82-81)XILC 3847	ICARDA/ICRISAT	74	146	132	54	66	207
ILC 482		TURKEY	79	125	130	47	65	205
ILC 3279		USSR	81	154	139	57	70	208
Local check		-	80	148	139	54	68	207
Location Mean			**79**	**144**	**132**	**53**	**68**	**206**
S.E. of Mean			3.90		0.00	0.68	1.92	0.47
LSD at 5%			-		0.00	1.94	5.45	1.34
C.V. %			8.57		0.00	2.22	4.90	0.39
Error d.f.			46		46	46	46	46
Significance			NS		*	*	*	*

Cont'd. ...

Table 3.8.2. Cont'd. ...

Entry Name	COLUMBIA	FRANCE		IRAN	ITALY	JORDAN	LEBANON	MOROCCO			PAKISTAN	PORTUGAL	SPAIN
	Surbata	Montbo-ucher-1	Montbo-ucher-2	Karaj	Tarqu-inia	Marow	Terbol	Douyet	March-ouch	Zem-emra	Karak	Elvas	El Encin
X 84 TH 1	85	158	84	61	125	93	137	122	111	101	108	145	56
X 84 TH 2	85	158	84	63	125	93	141	122	112	106	118	146	56
X 84 TH 4	85	166	86	63	129	97	142	122	111	106	113	148	57
X 84 TH 5	90	168	85	65	129	93	143	122	118	106	116	154	56
X 84 TH 6	85	163	86	64	129	97	142	122	107	106	118	150	63
X 84 TH 7	90	161	85	63	128	94	141	122	114	106	113	147	63
X 84 TH 8	90	159	86	66	125	96	144	123	113	106	118	148	58
X 84 TH 17	90	165	88	64	130	96	147	122	107	106	116	151	59
X 84 TH 18	95	164	89	65	130	92	147	123	118	106	119	154	58
X 84 TH 19	80	166	87	63	129	92	143	122	116	106	115	150	55
X 84 TH 23	85	166	86	66	130	95	146	123	107	106	115	154	55
X 84 TH 24	85	168	88	66	132	91	148	123	118	106	112	152	56
X 84 TH 25	90	164	87	64	130	90	147	123	118	101	118	154	54
X 84 TH 26	95	166	87	65	133	96	147	122	125	115	119	150	61
X 84 TH 27	85	164	85	65	130	96	145	123	118	106	119	142	63
X 84 TH 37	85	161	83	64	128	94	141	122	112	104	111	148	53
X 84 TH 44	85	162	85	62	126	93	141	122	107	101	111	146	53
X 84 TH 58	90	159	85	63	128	95	141	123	113	101	117	147	53
X 84 TH 168	80	160	86	63	123	96	142	122	107	106	112	149	55
X 84 TH 181	90	161	88	64	122	96	141	123	113	101	115	147	53
X 84 TH 332	85	161	86	64	129	95	145	123	113	106	118	151	51
ILC 482	85	156	84	61	126	88	137	122	107	104	108	142	52
ILC 3279	95	169	89	69	135	96	153	123	125	115	121	149	62
Local check	80	165	90	62	130	96	142	123	116	101	94	149	56
Location Mean	**87**	**163**	**86**	**64**	**128**	**94**	**144**	**122**	**114**	**105**	**114**	**149**	**57**
S.E. of Mean		0.64	0.55	0.83	0.97	3.13	0.61	0.00	0.00	0.07	1.75	2.72	0.65
LSD at 5%		1.82	1.56	2.36	2.77	-	1.74	0.00	0.00	0.19	4.97	-	1.84
C.V. %		0.68	1.10	2.24	1.31	5.76	0.74	0.00	0.00	0.11	2.65	3.16	1.97
Error d.f.		46	46	46	46	46	46	46	46	46	46	46	46
Significance		*	*	*	*	NS	*	*	*	*	*	NS	*

Cont'd. ...

Table 3.8.2. Cont'd. ...

Entry Name	SPAIN	SYRIA				TUNISIA	TURKEY							Overall Mean
	Sevilla	Gelline	Hama	Homs	Tel Hadya	Beja	Adana 1	Adana 2	Ankara (Univ.)	Diyarbakir	Erzurum	Eskiseher	Menemen	
X 84 TH 1	127	102	113	119	114	113	113	113	63	169	76	65	106	108
X 84 TH 2	131	102	115	120	116	112	112	112	64	169	77	66	106	109
X 84 TH 4	136	104	118	124	115	113	113	112	64	169	75	66	108	110
X 84 TH 5	136	105	121	122	118	112	112	111	64	169	76	66	111	111
X 84 TH 6	135	103	114	120	116	111	111	113	64	169	76	66	111	109
X 84 TH 7	132	104	115	119	117	112	112	112	64	169	78	65	109	110
X 84 TH 8	136	103	117	121	119	113	113	111	64	169	77	67	111	111
X 84 TH 17	137	105	118	125	120	111	111	113	64	170	76	67	111	112
X 84 TH 18	138	105	120	123	122	110	110	112	64	169	76	66	111	112
X 84 TH 19	134	104	117	124	118	112	112	113	64	169	76	66	109	110
X 84 TH 23	136	105	119	125	119	111	111	110	64	169	74	66	111	111
X 84 TH 24	135	106	121	127	125	113	113	112	64	170	78	66	111	112
X 84 TH 25	135	104	122	126	122	113	113	112	64	170	76	66	111	112
X 84 TH 26	137	105	121	127	120	112	112	113	63	169	76	66	111	113
X 84 TH 27	133	103	118	122	118	112	112	110	64	169	74	66	111	110
X 84 TH 37	132	103	113	118	115	111	111	111	64	169	77	65	106	108
X 84 TH 44	131	104	114	124	116	113	113	112	64	169	78	65	109	108
X 84 TH 58	132	102	113	121	115	112	112	112	64	169	77	67	108	109
X 84 TH 168	133	103	114	124	115	111	111	112	63	169	76	66	108	109
X 84 TH 181	134	104	114	119	116	111	111	113	63	169	76	66	106	109
X 84 TH 332	137	104	117	126	118	113	113	112	63	169	78	66	111	110
ILC 482	126	101	113	116	114	113	113	112	64	168	79	68	106	107
ILC 3279	141	108	126	126	128	112	112	112	64	170	77	67	111	115
Local check	133	-	117	118	122	113	113	113	64	167	74	65	108	
Location Mean	134	104	117	122	118	112	112	112	64	169	76	66	109	
S.E. of Mean	1.33	0.76	0.89	1.74	1.09	0.74	0.74	0.61	0.48	0.28	1.13	0.73	0.92	
LSD at 5%	3.79	2.15	2.53	4.96	3.09	-	-	1.74	-	0.79	-	-	2.61	
C.V. %	1.72	1.26	1.31	2.47	1.59	1.14	1.14	0.95	1.30	0.29	2.55	1.92	1.45	
Error d.f.	46	44	46	46	46	46	46	46	46	46	46	46	46	
Significance	*	*	*	*	*	NS	NS	*	NS	*	NS	NS	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.8.3. Time to maturity (days) of entries at different locations in the CIF4T during 1986/87.

	AFGHANISTAN	ALGERIA			BULGARIA	COLOMBIA	FRANCE		IRAN
Entry Name	Darul Aman	Khroub	Setif	Sidi Bel Abbas	Toshevo	Surbata	Mont - boucher-1	Mont - boucher-2	Karaj
X 84 TH 1	118	199	193	160	267	165	217	132	106
X 84 TH 2	109	193	189	165	265	165	215	129	112
X 84 TH 4	109	197	191	162	268	165	223	132	109
X 84 TH 5	112	199	191	162	268	165	222	133	110
X 84 TH 6	111	195	187	162	266	165	215	130	114
X 84 TH 7	113	200	189	159	267	165	222	132	123
X 84 TH 8	117	197	192	163	266	165	223	137	120
X 84 TH 17	110	198	197	161	267	165	223	139	121
X 84 TH 18	111	194	194	159	265	190	215	133	122
X 84 TH 19	112	198	192	160	268	165	222	137	112
X 84 TH 23	109	194	191	164	268	165	225	138	111
X 84 TH 24	117	197	200	165	268	165	222	137	119
X 84 TH 25	109	198	191	166	268	165	222	133	117
X 84 TH 26	122	200	192	165	269	190	223	139	119
X 84 TH 27	110	196	190	166	268	165	220	138	111
X 84 TH 37	121	199	192	162	264	165	218	132	113
X 84 TH 44	121	195	189	159	268	165	217	132	111
X 84 TH 58	116	194	193	161	266	165	218	133	109
X 84 TH 168	115	198	190	161	267	165	225	135	108
X 84 TH 181	109	197	201	160	267	165	218	130	108
X 84 TH 332	110	199	193	164	268	165	223	138	109
ILC 482	112	196	192	161	265	165	217	129	109
ILC 3279	112	199	201	164	269	190	215	132	116
Local check	115	199	203	163	267	165	215	130	107
Location Mean	113	197	193	162	267	168	220	134	113
S.E. of Mean	1.16		0.00	1.16	0.88		1.54	1.54	1.61
LSD at 5%	3.29		0.00	3.31	2.51		4.38	4.37	4.57
C.V. %	1.77		0.00	1.24	0.57		1.21	1.99	2.46
Error d.f.	46		46	46	46		46	46	46
Significance	*		*	*	*		*	*	*

Cont'd. ...

Table 3.8.3. Cont'd. ...

	ITALY	JORDAN	LEBANON	MOROCCO			PAKISTAN	PORTUGAL	SPAIN	
Entry Name	Tarquinia	Marow	Terbol	Douyet	Marchouch	Zememra	Karak	Elvas	El Encin	Sevilla
X 84 TH 1	192	129	197	159	182	154	186	206	88	190
X 84 TH 2	191	134	197	160	178	152	188	206	89	189
X 84 TH 4	195	132	197	159	182	151	188	211	87	195
X 84 TH 5	194	128	200	159	184	154	188	213	93	193
X 84 TH 6	194	132	198	159	180	154	188	213	94	192
X 84 TH 7	198	128	197	159	180	154	186	206	93	193
X 84 TH 8	195	132	200	163	179	155	187	213	91	195
X 84 TH 17	194	132	201	159	180	156	187	213	95	195
X 84 TH 18	194	133	197	163	184	156	189	208	91	192
X 84 TH 19	194	134	197	159	182	154	188	213	88	192
X 84 TH 23	201	133	198	163	180	156	187	211	90	194
X 84 TH 24	199	135	197	163	184	156	187	213	93	192
X 84 TH 25	195	133	199	163	184	156	189	211	87	195
X 84 TH 26	199	133	201	156	188	161	190	213	93	196
X 84 TH 27	194	133	198	163	184	156	188	211	93	192
X 84 TH 37	197	130	197	159	178	154	186	206	88	191
X 84 TH 44	194	132	199	159	180	152	189	208	87	190
X 84 TH 58	194	130	197	163	179	156	188	211	85	191
X 84 TH 168	199	132	200	159	180	154	186	213	90	194
X 84 TH 181	195	133	198	163	179	154	189	211	87	192
X 84 TH 332	195	130	203	163	179	156	187	213	83	194
ILC 482	195	135	195	159	180	152	186	206	85	189
ILC 3279	195	129	199	163	188	161	189	213	96	193
Local check	195	135	200	163	182	149	179	213	93	202
Location Mean	195	132	198	161	182	155	187	211	90	193
S.E. of Mean	1.80	2.06	0.78	0.73	0.00	0.17	0.97	1.35	0.97	1.24
LSD at 5%	-	-	2.22	2.07	0.00	0.47	2.76	3.85	2.75	3.54
C.V. %	1.59	2.71	0.68	0.78	0.00	0.19	0.90	1.11	1.86	1.12
Error d.f.	46	46	46	46	46	46	46	46	46	46
Significance	NS	NS	*	*	*	*	*	*	*	*

Cont'd. ...

Table 3.8.3. Cont'd. ...

Entry Name	SYRIA				TURKEY				Overall Mean
	Gelline	Hama	Homs	Tel Hadya	Adana-1	Adana-2	Ankara (Univ.)	Erzurum	
X 84 TH 1	128	163	164	163	167	170	98	117	163
X 84 TH 2	129	162	164	163	169	167	98	117	163
X 84 TH 4	129	164	165	164	167	169	99	117	164
X 84 TH 5	130	165	166	165	167	170	98	120	165
X 84 TH 6	130	164	166	165	169	167	99	117	164
X 84 TH 7	131	163	165	165	166	169	100	118	164
X 84 TH 8	131	164	165	167	170	169	101	118	166
X 84 TH 17	133	165	167	167	167	166	99	118	166
X 84 TH 18	133	165	166	167	169	170	99	118	166
X 84 TH 19	131	165	166	165	169	170	100	119	165
X 84 TH 23	130	165	166	166	169	169	100	117	165
X 84 TH 24	132	165	166	166	169	170	99	120	166
X 84 TH 25	131	165	166	166	170	170	100	118	165
X 84 TH 26	132	165	167	166	169	169	100	119	168
X 84 TH 27	130	165	167	166	169	167	99	117	165
X 84 TH 37	129	163	165	164	170	166	98	118	164
X 84 TH 44	131	162	164	165	170	169	100	121	164
X 84 TH 58	130	162	165	164	167	169	100	118	164
X 84 TH 168	130	164	165	167	170	170	100	118	165
X 84 TH 181	130	163	164	165	169	170	100	119	164
X 84 TH 332	132	165	167	166	167	170	100	119	165
ILC 482	128	162	164	164	169	170	99	118	163
ILC 3279	134	165	167	168	167	167	99	118	167
Local check	-	165	164	166	170	170	99	119	
Location Mean	**131**	**164**	**165**	**165**	**169**	**169**	**99**	**118**	
S.E. of Mean	0.64	0.40	0.52	0.56	1.14	0.91	0.68	0.57	
LSD at 5%	1.82	1.13	1.47	1.59	-	2.58	-	1.61	
C.V. %	0.85	0.42	0.54	0.59	1.17	0.93	1.18	0.83	
Error d.f.	44	46	46	46	46	46	46	46	
Significance	*	*	*	*	NS	*	NS	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.8.4. Plant height (cm) of entries at different locations in the CIF4T during 1986/87.

Entry Name	AFGHANISTAN	ALGERIA			BULGARIA	COLOMBIA	EGYPT	FRANCE		IRAN	ITALY
	Darul Aman	Khroub	Setif	Sidi Bel Abbes	Toshevo	Surbata	Giza	Mont-boucher-1	Mont-boucher-2	Karaj	Tarquinia
X 84 TH 1	36	45	52	32	44	50	84	48	47	29	42
X 84 TH 2	32	50	32	30	44	55	90	49	43	32	45
X 84 TH 4	31	45	38	32	58	49	84	45	50	36	48
X 84 TH 5	32	55	27	35	57	48	78	45	55	39	49
X 84 TH 6	40	53	37	35	38	43	78	50	55	44	48
X 84 TH 7	27	45	36	33	52	44	65	43	47	36	45
X 84 TH 8	36	45	35	31	52	49	70	43	53	36	50
X 84 TH 17	37	50	41	33	50	51	70	45	55	40	47
X 84 TH 18	45	60	46	35	52	53	84	48	51	49	50
X 84 TH 19	33	55	38	31	52	50	79	49	58	33	46
X 84 TH 23	33	60	41	32	57	56	78	44	52	36	48
X 84 TH 24	40	40	47	33	58	49	73	50	52	35	49
X 84 TH 25	32	50	35	33	48	57	75	44	55	35	43
X 84 TH 26	33	48	38	33	50	46	81	47	54	31	47
X 84 TH 27	28	50	40	32	50	53	68	49	50	36	48
X 84 TH 37	41	48	33	33	41	43	74	45	50	32	43
X 84 TH 44	31	45	33	29	47	44	81	43	47	30	47
X 84 TH 58	38	55	34	32	45	49	71	46	50	37	44
X 84 TH 168	40	55	35	30	53	58	72	48	59	43	48
X 84 TH 181	36	50	42	33	57	44	81	45	54	42	48
X 84 TH 332	38	60	49	37	66	54	85	57	55	40	49
ILC 482	27	40	50	32	45	46	75	41	53	28	41
ILC 3279	47	58	54	42	70	56	91	55	68	50	56
Local check	33	50	42	33	60	46	72	49	59	39	47
Location Mean	**35**	**50**	**40**	**33**	**52**	**50**	**77**	**47**	**53**	**37**	**47**
S.E. of Mean	2.25		0.00	1.34	3.69		6.98			1.95	1.73
LSD at 5%	6.41		0.00	3.82	10.51		-			5.55	4.91
C.V. %	11.09		0.00	7.04	12.32		15.61			9.12	6.36
Error d.f.	46		46	46	46		46			46	46
Significance	*		*	*	*		NS			*	*

Cnot'd. ...

Table 3.8.4. Cont'd. ...

	JORDAN	LEBANON	MOROCCO			PAKISTAN	PORTUGAL	SPAIN		SYRIA	
Entry Name	Marow	Terbol	Douyet	Marchouch	Zememra	Karak	Elvas	El Encin	Sevilla	Gelline	Hama
X 84 TH 1	31	48	43	47	44	74	63	35	70	38	48
X 84 TH 2	32	52	45	42	46	65	69	41	72	36	42
X 84 TH 4	35	52	47	47	45	71	74	40	75	41	50
X 84 TH 5	34	49	41	48	49	60	68	41	65	41	50
X 84 TH 6	33	56	45	48	43	59	69	35	62	42	52
X 84 TH 7	31	46	41	45	43	74	64	42	70	36	47
X 84 TH 8	39	51	46	44	46	81	67	38	67	35	47
X 84 TH 17	34	55	45	45	45	82	70	41	65	41	55
X 84 TH 18	40	52	50	54	52	66	73	39	72	46	57
X 84 TH 19	36	55	41	42	47	71	69	45	70	38	52
X 84 TH 23	35	51	48	40	43	70	67	39	70	34	52
X 84 TH 24	28	53	43	47	43	61	72	46	72	36	52
X 84 TH 25	37	55	44	45	48	62	67	42	70	36	48
X 84 TH 26	34	49	45	46	43	70	65	37	70	40	45
X 84 TH 27	37	55	48	50	43	75	72	38	72	39	53
X 84 TH 37	32	51	43	41	42	58	63	48	68	37	48
X 84 TH 44	31	48	40	37	41	66	67	37	68	35	48
X 84 TH 58	31	52	45	43	47	72	65	45	63	38	50
X 84 TH 168	30	56	50	46	53	80	70	44	73	42	50
X 84 TH 181	34	50	58	48	48	65	68	40	75	44	52
X 84 TH 332	40	56	47	51	47	64	75	44	73	41	52
ILC 482	17	51	43	40	47	57	63	38	73	34	45
ILC 3279	38	55	55	56	54	72	82	50	80	54	57
Local check	40	51	44	47	44	46	67	45	67	-	43
Location Mean	34	52	46	46	46	68	69	41	70	39	50
S.E. of Mean	3.68	2.58	0.48	3.07	2.67	0.81	2.56	0.93	2.85	2.21	2.13
LSD at 5%	10.47	-	1.38	8.75	-	2.31	7.27	2.64	8.13	6.29	6.08
C.V. %	18.87	8.56	1.84	11.64	10.04	2.09	6.43	3.91	7.06	9.74	7.43
Error d.f.	46	46	46	46	46	46	46	46	46	44	46
Significance	*	NS	*	*	NS	*	*	*	*	*	*

Cont'd. ...

Table 3.8.4. Cont'd. ...

Entry Name	SYRIA		TURKEY							Overall Mean
	Homs	Tel Hadya	Adana-1	Adana-2	Ankara (Univ.)	Diyarbakier	Erzurum	Eskisehir	Menemen	
X 84 TH 1	55	39	65	74	31	42	19	36	35	47
X 84 TH 2	58	40	65	74	35	40	21	40	35	47
X 84 TH 4	58	51	66	74	34	38	24	43	32	49
X 84 TH 5	60	49	65	72	35	40	23	43	36	48
X 84 TH 6	62	41	65	69	32	39	24	47	30	48
X 84 TH 7	57	38	69	70	33	40	21	41	31	46
X 84 TH 8	55	36	66	71	36	38	23	41	30	47
X 84 TH 17	60	38	66	72	40	39	23	41	32	49
X 84 TH 18	63	41	68	68	36	41	23	43	33	51
X 84 TH 19	58	41	65	69	35	40	24	38	34	48
X 84 TH 23	58	42	63	72	31	41	24	43	33	48
X 84 TH 24	63	39	66	72	34	35	23	43	30	48
X 84 TH 25	60	37	68	66	35	37	22	43	28	47
X 84 TH 26	57	39	64	67	35	37	23	42	32	47
X 84 TH 27	58	39	69	74	39	38	23	45	36	49
X 84 TH 37	60	36	65	67	35	38	20	43	39	46
X 84 TH 44	55	35	58	73	29	37	23	33	29	44
X 84 TH 58	55	35	65	68	34	40	19	45	34	47
X 84 TH 168	62	38	72	76	33	42	22	41	40	50
X 84 TH 181	63	40	67	67	33	42	24	40	34	49
X 84 TH 332	65	47	74	73	41	42	23	50	41	53
ILC 482	55	33	67	65	33	37	19	36	32	44
ILC 3279	72	53	82	74	42	50	31	52	41	58
Local check	55	36	69	77	50	38	20	45	34	
Location Mean	**59**	**40**	**67**	**71**	**35**	**40**	**23**	**42**	**34**	
S.E. of Mean	1.84	2.31	2.20	2.06	3.08	1.60	1.00	2.68	2.21	
LSD at 5%	5.22	6.58	6.27	5.87	8.76	4.56	2.84	7.63	6.30	
C.V. %	5.35	9.96	5.69	5.03	15.03	7.01	7.66	10.99	11.34	
Error d.f.	46	46	46	46	46	46	46	46	46	
Significance	*	*	*	*	*	*	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 3.8.5. 100-Seed weight (g) of entries at different locations in the CIF4T during 1986/87.

Entry Name	AFGHANISTAN	BULGARIA	COLOMBIA	EGYPT	FRANCE		IRAN	ITALY	LEBANON	PAKISTAN
	Darul Aman	Toshevo	Surbata	Giza	Mont - boucher-W	Mont - boucher-S	Karaj	Tarqu-inia	Terbol	Karak
X 84 TH 1	23	29	27	26	33	31	26	43	30	26
X 84 TH 2	25	32	26	26	32	30	28	42	32	25
X 84 TH 4	28	32	25	29	35	34	31	46	36	28
X 84 TH 5	27	34	28	31	36	35	30	47	40	27
X 84 TH 6	27	30	26	31	36	33	31	46	36	26
X 84 TH 7	19	29	24	26	31	28	27	41	31	29
X 84 TH 8	25	28	24	25	31	30	27	42	30	27
X 84 TH 17	25	31	22	30	34	34	32	46	38	32
X 84 TH 18	21	22	18	23	27	24	22	36	29	34
X 84 TH 19	27	34	27	30	36	35	32	47	35	31
X 84 TH 23	26	26	26	25	31	32	27	43	31	30
X 84 TH 24	23	25	21	20	26	26	24	34	27	31
X 84 TH 25	23	30	26	30	34	31	31	44	32	26
X 84 TH 26	31	30	27	30	33	32	31	48	35	24
X 84 TH 27	-	34	24	30	36	38	34	51	36	33
X 84 TH 37	27	30	27	29	35	30	28	44	34	30
X 84 TH 44	21	20	19	21	24	23	21	32	23	21
X 84 TH 58	23	28	23	22	27	27	23	37	29	32
X 84 TH 168	23	30	24	28	36	35	30	45	34	32
X 84 TH 181	21	25	24	26	27	30	22	37	25	35
X 84 TH 332	32	36	35	44	43	40	35	53	33	33
ILC 482	26	30	23	26	31	30	26	39	30	28
ILC 3279	26	27	28	26	29	30	26	36	35	31
Local check	25	25	28	27	27	30	28	50	37	19
Location Mean	**25**	**29**	**25**	**28**	**32**	**31**	**28**	**43**	**32**	**29**
S.E. of Mean	1.13	0.70		2.81	0.76	1.75	0.78	1.32	1.70	0.29
LSD at 5%	3.22	1.98		7.99	2.15	4.98	2.22	3.77	4.84	1.10
C.V. %	7.89	4.16		17.62	4.08	9.73	4.81	5.35	9.08	2.33
Error d.f.	44	46		46	46	46	46	46	46	46
Significance	*	*		*	*	*	*	*	*	*

Cont'd. ...

Table 3.8.5. Cont'd. ...

Entry Name	PORTUGAL	SPAIN		SYRIA	TURKEY					Overall Mean (1)
	Elvas	El Encin	Sevilla	Homs	Adana-1	Adana-2	Ankara (Univ.)	Erzurum	Menemen	
X 84 TH 1	30	26	33	28	29	34	29	27	25	29
X 84 TH 2	33	26	34	29	30	33	27	27	23	30
X 84 TH 4	36	32	41	35	36	33	30	30	29	33
X 84 TH 5	40	33	40	33	35	34	30	32	28	34
X 84 TH 6	38	30	38	34	33	32	29	31	25	32
X 84 TH 7	31	26	32	28	32	33	29	28	28	30
X 84 TH 8	31	29	33	30	30	30	25	27	25	29
X 84 TH 17	35	34	41	36	36	34	32	32	25	34
X 84 TH 18	26	22	30	24	24	28	21	21	16	25
X 84 TH 19	41	32	39	35	35	41	32	32	28	35
X 84 TH 23	34	28	34	30	28	33	27	29	22	30
X 84 TH 24	29	25	31	28	27	29	23	27	20	26
X 84 TH 25	33	31	36	33	33	34	29	27	24	31
X 84 TH 26	42	30	40	31	33	39	31	34	27	33
X 84 TH 27	35	31	42	37	36	32	31	35	23	34
X 84 TH 37	36	30	35	28	34	33	29	30	26	32
X 84 TH 44	24	19	25	21	25	36	20	21	17	23
X 84 TH 58	32	23	32	25	27	36	24	26	22	28
X 84 TH 168	35	30	34	32	36	38	28	33	29	33
X 84 TH 181	27	21	30	25	26	26	23	24	18	26
X 84 TH 332	45	35	45	40	40	33	36	34	30	38
ILC 482	31	30	32	27	31	32	26	25	25	29
ILC 3279	31	30	21	29	28	34	28	23	21	28
Local check	50	44	46	28	40	35	30	43	33	
Location Mean	34	29	36	30	32	34	28	29	25	
S.E. of Mean	1.74	0.87	1.49	1.31	1.40	1.81	0.53	1.35	1.35	
LSD at 5%	4.96	2.48	4.23	3.74	3.97	5.15	1.50	3.83	3.85	
C.V. %	8.82	5.19	7.21	7.50	7.59	9.35	3.28	8.02	9.50	
Error d.f.	46	46	46	46	46	46	46	46	46	
Significance	*	*	*	*	*	*	*	*	*	

(1) Darul Aman is excluded from the overall mean., * = Significant at $P \leq 0.05$, NS = not significant,

Table 3.8.6. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CIF4T during 1986/87.

Entry NAme	ALGERIA						BRAZIL		BULGARIA		COLOMBIA		EGYPT	
	Khroub		Setif		Sidi Bel Abbes		Brasilia		Toshevo		Surbata		Giza	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
X 84 TH 1	3368	15	727	24	396	18	2104	9	910	10	544	16	3528	3
X 84 TH 2	4175	3	977	10	618	3	2706	4	1111	5	719	4	2519	14
X 84 TH 4	3198	20	745	23	333	23	2728	3	677	16	685	7	2944	10
X 84 TH 5	3552	11	907	13	625	2	2299	7	624	18	681	8	3796	2
X 84 TH 6	3877	5	889	14	403	16	2493	6	646	17	613	14	3926	1
X 84 TH 7	3193	21	1088	6	500	11	1567	16	974	6	518	18	3315	6
X 84 TH 8	3865	6	1005	9	576	5	1330	23	836	12	300	24	2454	16
X 84 TH 17	3035	22	958	11	465	14	2067	10	942	7	535	17	1611	23
X 84 TH 18	3487	13	1227	1	389	19	1413	21	1132	4	450	19	3398	5
X 84 TH 19	3474	14	1088	7	500	12	1556	17	751	13	675	9	3231	7
X 84 TH 23	3275	17	796	20	347	21	2125	8	931	9	713	5	3009	9
X 84 TH 24	3763	8	1118	4	535	7	1976	12	730	14	431	20	2185	19
X 84 TH 25	4292	2	815	19	528	9	1747	15	540	21	894	1	3167	8
X 84 TH 26	3505	12	859	17	292	24	1800	13	317	24	388	22	1806	22
X 84 TH 27	3959	4	1051	8	375	20	2635	5	677	15	350	23	2093	20
X 84 TH 37	3608	10	1162	2	632	1	1749	14	571	20	584	15	2278	18
X 84 TH 44	4313	1	773	21	549	6	1411	22	508	22	775	3	2652	13
X 84 TH 58	3844	7	1144	3	507	10	1452	19	1185	3	665	10	2731	12
X 84 TH 168	3725	9	866	16	438	15	2754	2	878	11	634	12	2463	15
X 84 TH 181	2828	23	843	18	396	17	1989	11	1217	2	638	11	2806	11
X 84 TH 332	3335	16	951	12	583	4	1431	20	582	19	800	2	3444	4
ILC 482	3206	19	1104	5	535	8	2863	1	1302	1	704	6	2389	17
ILC 3279	3259	18	766	22	340	22	285	24	434	23	413	21	1528	24
Local check	984	24	870	15	472	13	1537	18	942	8	625	13	1991	21
Location Mean	**3463**		**947**		**472**		**1917**		**809**		**597**		**2719**	
S.E. of Mean	339.40		138.90		95.57		354.31		124.16				571.57	
LSD at 5%	966.10		–		–		1008.56		353.43				–	
C.V. %	16.97		25.40		35.05		32.01		26.58				36.41	
Error d.f.	46		46		46		46		46				46	
Significance	*		NS		NS		*		*				NS	
Ent. > L. Check	23		–		–		5		1				–	

Cont'd. ...

Table 3.8.6. Cont'd. ...

Entry Name	FRANCE				IRAN		ITALY		JORDAN		LEBANON		MOROCCO	
	Montboucher-W		Montboucher-S		Karaj		Tarquinia		Marow		Terbol		Douyet	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
X 84 TH 1	1010	6	1294	11	632	24	4561	7	376	5	1630	12	1222	12
X 84 TH 2	1097	1	1287	12	723	23	4053	22	218	17	1765	4	1444	1
X 84 TH 4	1002	8	1284	13	941	19	4534	8	202	18	1563	16	1133	18
X 84 TH 5	1002	7	1282	14	1080	14	4698	5	302	8	1690	7	1356	4
X 84 TH 6	910	18	1345	5	1750	4	4286	18	398	4	1635	11	1278	10
X 84 TH 7	980	13	1401	2	1479	8	4915	2	226	14	1664	9	1300	8
X 84 TH 8	1000	9	1263	17	1363	10	4905	3	171	20	1484	20	1311	7
X 84 TH 17	778	24	1190	19	1523	6	4624	6	414	3	1780	3	1178	17
X 84 TH 18	908	19	1354	4	1564	5	4730	4	309	7	1423	23	1278	9
X 84 TH 19	1000	10	1182	20	900	21	4407	13	219	16	1788	2	1100	20
X 84 TH 23	957	15	1327	8	1323	11	5217	1	250	13	1529	18	1367	3
X 84 TH 24	915	17	1268	16	1520	7	4222	21	224	15	1550	17	1022	24
X 84 TH 25	1022	5	1181	21	1904	2	3868	23	512	1	1693	6	1200	14
X 84 TH 26	1085	2	1172	23	952	18	4291	17	289	10	1458	22	1089	21
X 84 TH 27	1023	4	1334	6	1191	12	4280	19	264	12	1643	10	1444	2
X 84 TH 37	1042	3	1303	9	910	20	4429	11	151	21	1519	19	1133	19
X 84 TH 44	880	21	1106	24	984	17	4492	10	91	23	1569	15	1256	11
X 84 TH 58	985	12	1488	1	1006	15	4529	9	328	6	1730	5	1311	6
X 84 TH 168	967	14	1176	22	1393	9	4249	20	188	19	1603	13	1200	15
X 84 TH 181	877	22	1282	15	1818	3	4323	16	300	9	1481	21	1189	16
X 84 TH 332	995	11	1328	7	783	22	4397	14	476	2	1672	8	1022	23
ILC 482	898	20	1295	10	1099	13	4423	12	71	24	1820	1	1344	5
ILC 3279	853	23	1220	18	989	16	4354	15	124	22	1407	24	1078	22
Local check	948	16	1387	3	2903	1	3825	24	267	11	1585	14	1211	13
Location Mean	964		1281		1280		4442		265		1612		1228	
S.E. of Mean	47.82		72.61		150.33		443.26		122.63		72.35		137.99	
LSD at 5%	136.12		–		427.92		–		–		205.95		–	
C.V. %	8.59		9.82		20.34		17.28		80.00		7.78		19.47	
Error d.f.	46		46		46		46		46		46		46	
Significance	*		NS		*		NS		NS		*		NS	
Ent. > L. Check	2		–		0		–		–		1		–	

Cont'd. ...

Table 3.8.6. Cont'd. ...

Entry Name	MOROCCO				PAKISTAN						PORTUGAL		SPAIN	
	Marchouch		Zememra		Bahawalpur		Faisalabad		Karak		Elvas		El Encin	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
X 84 TH 1	1925	8	722	18	625	3	222	18	667	2	1891	5	1438	1
X 84 TH 2	2058	2	856	10	389	9	233	16	475	5	2223	2	1153	8
X 84 TH 4	2008	5	911	4	188	20	116	24	858	1	1541	18	1117	14
X 84 TH 5	1875	10	511	23	354	10	254	13	443	10	1507	19	1126	13
X 84 TH 6	2050	3	700	20	306	13	265	10	538	4	1670	15	1231	4
X 84 TH 7	2183	1	911	6	167	21	243	15	396	11	1767	10	1291	3
X 84 TH 8	1892	9	822	11	292	14	127	23	289	21	1663	16	1151	9
X 84 TH 17	1808	13	900	8	236	16	296	7	212	23	1402	23	929	22
X 84 TH 18	1817	12	456	24	208	17	328	5	290	20	1712	13	1049	17
X 84 TH 19	1654	18	733	17	417	8	148	22	361	15	1743	12	1087	15
X 84 TH 23	1796	15	911	7	194	19	328	6	363	14	1880	6	1145	10
X 84 TH 24	1567	23	978	3	625	4	275	8	642	3	1673	14	1135	12
X 84 TH 25	1633	19	756	15	208	18	254	12	448	8	1839	7	1166	7
X 84 TH 26	1608	21	744	16	278	15	201	20	339	17	1765	11	724	23
X 84 TH 27	1875	11	911	5	153	22	540	2	313	19	1651	17	1135	11
X 84 TH 37	1725	16	989	2	528	5	413	3	367	13	1982	3	1369	2
X 84 TH 44	1663	17	800	12	97	24	265	11	396	12	1775	8	1001	18
X 84 TH 58	1800	14	867	9	667	2	243	14	324	18	1893	4	1204	5
X 84 TH 168	1929	7	1078	1	347	11	180	21	444	9	1442	20	955	21
X 84 TH 181	1629	20	800	14	472	6	349	4	474	6	1774	9	1063	16
X 84 TH 332	2013	4	544	22	319	12	201	19	224	22	1428	22	976	19
ILC 482	1967	6	800	13	431	7	265	9	452	7	2259	1	1171	6
ILC 3279	1521	24	689	21	139	23	233	17	158	24	1438	21	634	24
Local check	1588	22	700	19	694	1	1259	1	347	16	727	24	962	20
Location Mean	1816		795		347		302		409		1693		1092	
S.E. of Mean	163.62		192.18		179.17		111.30		98.22		136.28		125.79	
LSD at 5%	–		–		–		316.82		279.59		387.94		358.05	
C.V. %	12.74		41.85		89.38		63.92		41.57		13.94		19.95	
Error d.f.	23		46		46		46		46		46		46	
Significance	NS		NS		NS		*		*		*		*	
Ent. > L. Check	–		–		–		0		3		23		2	

Cont'd. ...

Table 3.8.6. Cont'd. ...

Entry Name	SPAIN		SYRIA								TUNISIA			
	Sevilla		Gelline		Hama		Homs		Tel Hadya		Beja		El Kef	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
X 84 TH 1	3343	2	877	3	1942	5	1930	16	1751	2	3383	2	2476	7
X 84 TH 2	3169	5	852	6	2079	1	2127	8	1688	8	3092	12	2229	19
X 84 TH 4	2701	16	821	8	1566	21	2470	3	1968	1	3067	14	2313	15
X 84 TH 5	3254	4	883	2	1582	20	1640	22	1730	3	2733	22	2215	20
X 84 TH 6	2582	22	741	14	1815	9	2021	11	1667	9	3367	3	2625	3
X 84 TH 7	3143	6	607	21	1937	7	1867	17	1505	15	3250	6	2410	12
X 84 TH 8	2977	8	778	12	1656	16	1962	14	1450	18	2900	17	2431	10
X 84 TH 17	2555	23	901	1	1767	12	2284	6	1590	11	2883	18	2448	9
X 84 TH 18	2765	14	809	10	2005	2	1369	23	1262	24	3075	13	2274	16
X 84 TH 19	2785	13	823	7	1942	6	2144	7	1545	13	3192	8	2545	5
X 84 TH 23	2765	15	714	16	1693	15	1962	15	1706	6	3175	9	2792	1
X 84 TH 24	2682	17	574	23	1593	19	1735	20	1315	22	2783	21	2347	13
X 84 TH 25	2906	10	877	4	1624	18	2110	9	1413	19	3100	11	2656	2
X 84 TH 26	3312	3	679	19	1466	23	1856	18	1693	7	3267	5	2323	14
X 84 TH 27	2814	12	860	5	1534	22	2326	5	1513	14	3150	10	2243	18
X 84 TH 37	2633	18	735	15	1794	10	2402	4	1548	12	2975	15	2497	6
X 84 TH 44	2990	7	583	22	1995	3	1687	21	1362	21	2958	16	2462	8
X 84 TH 58	2879	11	663	20	1952	4	1972	13	1468	17	3325	4	2583	4
X 84 TH 168	2617	19	815	9	1656	17	2004	12	1712	5	2867	19	1948	22
X 84 TH 181	2954	9	710	17	1767	13	2032	10	1402	20	2833	20	2167	21
X 84 TH 332	2602	21	744	13	1698	14	2550	2	1722	4	3200	7	2253	17
ILC 482	3350	1	790	11	1767	11	2582	1	1601	10	3433	1	2427	11
ILC 3279	2604	20	707	18	1143	24	1295	24	1291	23	2442	24	1819	24
Local check	1119	24	-	-	1831	8	1803	19	1497	16	2458	23	1938	23
Location Mean	2813		763		1742		2005		1558		3038		2351	
S.E. of Mean	252.11		85.31		146.73		321.11		99.46		243.81		230.66	
LSD at 5%	717.63		243.14		417.68		-		283.12		-		-	
C.V. %	15.53		19.37		14.59		27.73		11.06		13.90		17.00	
Error d.f.	46		44		46		46		46		46		46	
Significance	*		NS		*		NS		*		NS		NS	
Ent. > L. Check	23		-		0		-		1		-		-	

Cont'd. ...

Table 3.8.6. Cont'd. ...

	TUNISIA		TURKEY												Overall Mean	
	Oued Meliz		Adana-1		Adana-2		Ankara (Univ.)		Erzurum		Eskisehir		Menemen			
Entry Name	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
X 84 TH 1	1611	15	2490	15	1991	17	512	6	309	24	2517	23	679	3	1589	7
X 84 TH 2	1326	22	2498	14	2122	12	605	2	1174	4	3313	5	764	1	1652	2
X 84 TH 4	1056	23	2670	7	2353	4	578	3	993	9	2753	16	644	6	1562	10
X 84 TH 5	1632	14	1700	22	2015	16	499	11	942	12	2792	15	720	2	1551	12
X 84 TH 6	1667	11	2516	13	1911	20	347	22	1186	3	3135	8	604	13	1640	4
X 84 TH 7	1750	10	2596	10	2121	13	449	14	851	16	2611	20	568	17	1593	6
X 84 TH 8	2021	6	2420	17	1977	19	510	7	1096	7	3278	6	635	7	1548	13
X 84 TH 17	1493	20	2988	3	2583	3	393	19	852	15	2813	14	387	24	1509	20
X 84 TH 18	2028	4	2789	4	2260	9	333	23	801	17	3517	4	530	19	1564	9
X 84 TH 19	1590	17	1565	23	2131	11	501	10	1189	2	3174	7	607	10	1536	15
X 84 TH 23	1854	9	3299	2	2330	6	449	15	1064	8	2740	18	646	5	1628	5
X 84 TH 24	2292	2	2427	16	2315	7	469	12	1253	1	2694	19	605	11	1527	16
X 84 TH 25	2069	3	2548	12	2120	14	510	9	588	23	2854	12	529	21	1588	8
X 84 TH 26	1653	12	2231	18	2062	15	422	18	855	14	2934	10	633	8	1438	22
X 84 TH 27	1632	13	2568	11	1881	21	510	8	1098	6	3031	9	575	16	1561	11
X 84 TH 37	1583	18	1740	20	2280	8	524	5	736	19	2892	11	539	18	1523	18
X 84 TH 44	1993	7	2673	6	1864	23	455	13	760	18	2819	13	593	15	1501	21
X 84 TH 58	2361	1	2762	5	1989	18	435	17	888	13	3719	2	604	12	1643	3
X 84 TH 168	1590	16	2013	19	2350	5	347	21	974	11	2743	17	396	23	1513	19
X 84 TH 181	2028	5	2658	8	1867	22	445	16	679	21	2611	21	648	4	1524	17
X 84 TH 332	1882	8	2637	9	2718	2	528	4	656	22	2552	22	601	14	1539	14
ILC 482	1528	19	3485	1	2749	1	323	24	992	10	3549	3	485	22	1699	1
ILC 3279	1340	21	1719	21	2193	10	350	20	717	20	2415	24	615	9	1215	23
Local check	653	24	847	24	660	24	776	1	1144	5	3726	1	530	20		
Location Mean	1693		2410		2118		470		908		2966		589			
S.E. of Mean	291.26		389.81		266.16		14.06		81.65		425.78		113.52			
LSD at 5%	-		1109.62		757.63		40.03		232.41		-		-			
C.V. %	30.00		28.02		21.76		5.19		15.57		24.86		33.38			
Error d.f.	46		46		46		46		46		46		46			
Significance	NS		*		*		*		*		NS		NS			
Ent. > L. Check	-		19		23		0		0		-		-			

* = Significant at $P \leq 0.05$, NS = not significant,

Table 3.8.7. The five heaviest seed yielding entries at the individual locations in the CIF4T during 1986/87.

Rank	ALGERIA			BRAZIL	BULGARIA	COLOMBIA	EGYPT	FRANCE	
	Khroub	Setif	Sidi Bel - Abbes	Brasilia	Toshevo	Surbata	Giza	Montboucher Winter	Montboucher Spring
1	X84 TH 44	X84 TH 18	X84 TH 37	ILC 482	ILC 482	X84 TH 25	X84 TH 6	X84 TH 2	X84 TH 58
2	X84 TH 25	X84 TH 37	X84 TH 5	X84 TH168	X84 TH181	X84 TH332	X84 TH 5	X84 TH 26	X84 TH 7
3	X84 TH 2	X84 TH 58	X84 TH 2	X84 TH 4	X84 TH 58	X84 TH 44	X84 TH 1	X84 TH 37	Local Check
4	X84 TH 27	X84 TH 24	X84 TH332	X84 TH 2	X84 TH 18	X84 TH 2	X84 TH332	X84 TH 27	X84 TH 18
5	X84 TH 6	ILC 482	X84 TH 8	X84 TH 27	X84 TH 2	X84 TH 23	X84 TH 18	X84 TH 25	X84 TH 6

Cont'd 2/..

Rank	IRAN	ITALY	JORDAN	LEBANON	MOROCCO			PAKISTAN	
	Karaj	Tarquinia	Marow	Terbol	Douyet	Marchouch	Zemomra	Bahawalpur	Faisalabad U.A.F.
1	Local Check	X84 TH 23	X84 TH 25	ILC 482	X84 TH 2	X84 TH 7	X84 TH168	Local Check	Local Check
2	X84 TH 25	X84 TH 7	X84 TH332	X84 TH 19	X84 TH 27	X84 TH 2	X84 TH 37	X84 TH 58	X84 TH 27
3	X84 TH181	X84 TH 8	X84 TH 17	X84 TH 17	X84 TH 23	X84 TH 6	X84 TH 24	X84 TH 1	X84 TH 37
4	X84 TH 6	X84 TH 18	X84 TH 6	X84 TH 2	X84 TH 5	X84 TH332	X84 TH 4	X84 TH 24	X84 TH181
5	X84 TH 18	X84 TH 5	X84 TH 1	X84 TH 58	ILC 482	X84 TH 4	X84 TH 27	X84 TH 37	X84 TH 18

Cont'd 2/..

Rank	PAKISTAN	PORTUGAL	SPAIN		SYRIA			TUNISIA	TUNISIA
	Karak	Elvas	Madrid	Sevilla	Gelline	Hama	Homs	Tel Hadya	Bojs
1	X84 TH 4	ILC 482	X84 TH 1	ILC 482	X84 TH 17	X84 TH 2	ILC 482	X84 TH 4	ILC 482
2	X84 TH 1	X84 TH 2	X84 TH 37	X84 TH 1	X84 TH 5	X84 TH 18	X84 TH332	X84 TH 1	X84 TH 1
3	X84 TH 24	X84 TH 37	X84 TH 7	X84 TH 26	X84 TH 1	X84 TH 44	X84 TH 4	X84 TH 5	X84 TH 6
4	X84 TH 6	X84 TH 58	X84 TH 6	X84 TH 5	X84 TH 25	X84 TH 58	X84 TH 37	X84 TH332	X84 TH 58
5	X84 TH 2	X84 TH 1	X84 TH 58	X84 TH 2	X84 TH 27	X84 TH 1	X84 TH 27	X84 TH168	X84 TH 26

Cont'd 2/..

Rank	TUNISIA		TURKEY					
	El Kef	Oued Holiz	Adana-1	Adana-2	Anakra (Univ.)	Erzurun	Eskisehir	Izmir
1	X84 TH 23	X84 TH 58	ILC 482	ILC 482	Local Check	X84 TH 24	Local Check	X84 TH 2
2	X84 TH 25	X84 TH 24	X84 TH 23	X84 TH332	X84 TH 2	X84 TH 19	X84 TH 58	X84 TH 5
3	X84 TH 6	X84 TH 25	X84 TH 17	X84 TH 17	X84 TH 4	X84 TH 6	ILC 482	X84 TH 1
4	X84 TH 58	X84 TH 18	X84 TH 18	X84 TH 4	X84 TH332	X84 TH 2	X84 TH 18	X84 TH181
5	X84 TH 19	X84 TH181	X84 TH 58	X84 TH168	X84 TH 37	Local Check	X84 TH 2	X84 TH 23

location and was closely followed by Khroub (Algeria), Beja (Tunisia), Eskisehir (Turkey), Giza (Egypt), Sevilla (Spain), Adana-1 (Turkey) with location means of 4442, 3463, 3038, 2966, 2813, 2719 and 2410 kg/ha, respectively. In general, a large number of F_4 populations exceeded the local check at different locations. On the basis of average over locations the cross, X84 TH2 gave the highest yield (1652 kg/ha), occurred most frequently among the top five heaviest yielders and was most adaptable than others. The top five heaviest yielders at various locations are given in Table 3.8.7.

3.9. CHICKPEA INTERNATIONAL ASCOCHYTA BLIGHT NURSERY (CIABN)

Material

Two Chickpea International Ascochyta Blight Nurseries CIABN-A (for kabuli types) and CIABN-B (for kabuli and desi types) were developed. CIABN-A included 40 test entries which were all kabuli types; and CIABN-B included 60 entries out of which 40 entries were same as that of CIABN-A and 20 entries were of desi types. In both these trials 30 common test entries were from the materials developed through hybridization at ICARDA. In addition, in CIABN-B eight desi entries were also from the materials developed through hybridization at ICARDA. The susceptible check was ILC 263.

Methods and Management

The suggested experimental design was randomized complete block with two replications. The suggested plot size was one row 4 m long accomodating 40 plants. The susceptible check was repeatedly sown after every two test entries/rows to serve as an indicator cum spreader row. The cooperators in the Mediterranean region were advised to sow the nursery in the winter season instead of the usual spring season to get high disease pressure. Otherwise the nurseries were managed as per the local agronomic practices. In the absence of natural infestation, the cooperators were advised to do the artificial inoculation of the nursery with the blight disease either by scattering the diseased debris collected from the previous season or by supplementing the natural infection by spraying the spore suspension prepared from the freshly infected plants in the fields. A 1-9 scale was racommended for scoring the disease severity at least at two times, first in the vegetative stage and the second at the podding stage. The scale recommended was 1 = highly resistant; 3 = resistant; 5 = tolerant; 7 = susceptible; and 9 = highly susceptible.

Thirty eight sets of CIABN-A and 25 sets of CIABN-B were distributed to cooperators in 18 and 12 countries, respectively. The results were, however, received for 25 sets for CIABN-A and 9 sets for CIABN-B.

Results and Discussion

The performance of the entries in each location is presented in Table 3.9.1 and discussed as under:

Algeria: The nursery was conducted at Khroub and Sidi Bel Abbes. At Khroub

all the test entries showed rating of 1 and the susceptible check was rated at 5.

At Sidi Bel Abbes, the lines were rated in two groups, tolerant (T) and susceptible (S). Twenty entries showed tolerant reaction and the remaining susceptible.

Argentina: The nursery was sown at Perico. There was no ascochyta blight development and all the entries including susceptible check took rating of 1.

Bulgaria: The nursery was sown at Toshevo. There was very little disease development. All entries in CIABN-A (except FLIP83- 50C, FLIP84- 78C, and Susceptible check which showed rating of 5) were rated at 3 and were resistant.

Colombia: The nursery was sown at Surbata. All entries except the susceptible check (which rated 5) were rated between 1 and 3.

France: The nursery was sown at Montboucher. All the test entries were rated either 1 or 2 and the suscceptible check was rated 9.

Iran: The nursery was sown at Karaj. The disease development was little and all the entries including the susceptible check were rated between 1 and 3.

Italy: The nursery was sown at Tarquinia. The test entries were rated between 1 and 3, and the susceptible check was rated 9.

Jordan: The nursery was sown at Marow. Eight entries namely ILC 3279, FLIP82-186C, FLIP83- 97C, FLIP84- 81C, FLIP84- 85C, FLIP84- 87C, FLIP84-91C, and FLIP84-182C were rated as resistant (with rating of 2 to 4); and three namely, ILC 72, FLIP82-169C and FLIP84- 92C were rated as tolerant.

Lebanon: The nursery was sown at Terbol. All the test entries were resistant (rating 1 to 4). The susceptible check was rated 9.

Morocco: The nursery was sown at Marchouch. Due to severe drought, there was no ascochyta blight development.

Pakistan: The nursery was sown at Chakwal, Faisalabad (ARRI and NIAB), Islamabad and Peshawar (Tarnab).

None of the entries at Chakwal was resistant, however, 30 test entries were tolerant.

At AARI in Faisalabad one entry namely FLIP85- 40C was resistant and one namely FLIP85- 32C tolerant.

At NIAB in Faisalabad, however, all entries were rated between 7 and 9 except ILC 72 which was rated as tolerant (with rating 5).

All the entries at Islamabad rated between 7 and 9.

At Tarnab, seven entries namely ILC 4421, FLIP83- 46C, FLIP83- 71C, FLIP84- 22C, FLIP84- 92C, FLIP85- 21C, and CAM 94 were resistant (with rating 4), 17 tolerant (with rating 5). All others were rated between 6 and 9.

Across locations in Pakistan, none of the entries was

Table 3.9.1. Reaction of entries to ascochyta blight in CIABN during 1986/87.

Entry Name	Pedigree	Origin	ALGERIA		ARGENTINA	BULGARIA
			Khroub Sidi Bel - Abbes		Perico	Toshevo
ILC 72	Lot No. 4	Spain	1	S	N	3
ILC 201	-	USSR	1	T	O	3
ILC 202	VYR 32	USSR	1	S		3
ILC 2506	-	USSR	1	T	A	3
ILC 2956	-	USSR	1	T	S	3
ILC 3279	-	USSR	1	S	C	3
ILC 3856	-	Morocco	1	T	O	3
ILC 3868	Plovdiv 8	Bulgaria	1	S	C	3
ILC 4421	-	USSR	1	T	H	3
ILC 5928	-	Morocco	1	S	Y	3
FLIP 82- 150C	X79 TH 101/ILC 523XILC 183	ICARDA/ICRISAT	1	S	T	3
FLIP 82- 169C	X79 TH 221/ILC 72XILC 1922	ICARDA/ICRISAT	1	S	A	3
FLIP 82- 172C	X79 TH 220/ILC 72XILC 480	ICARDA/ICRISAT	1	T		3
FLIP 82- 186C	X79 TH 215/ILC 39XILC 72	ICARDA/ICRISAT	1	S	B	3
FLIP 83- 7C	X80 TH 264/(ILC 480XILC 72)XILC 263	ICARDA/ICRISAT	1	S	L	3
FLIP 83- 22C	X80 TH 177/ILC 195XILC 482	ICARDA/ICRISAT	1	T	I	3
FLIP 83- 46C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	G	3
FLIP 83- 47C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	H	3
FLIP 83- 48C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	T	3
FLIP 83- 49C	X80 TH 181/ILC3279XILC1108	ICARDA/ICRISAT	1	T		3
FLIP 83- 50C	X80 TH 264/(ILC 480XILC 72)XILC 263	ICARDA/ICRISAT	1	T	D	5
FLIP 83- 71C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	E	3
FLIP 83- 72C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	V	3
FLIP 83- 73C	X80 TH 177/ILC 195XILC 482	ICARDA/ICRISAT	1	S	E	3
FLIP 83- 76C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	L	3
FLIP 83- 97C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	O	3
FLIP 84- 22C	X81 TH 55/ILC1920XILC2956	ICARDA/ICRISAT	1	T	P	3
FLIP 84- 48C	X81 TH 55/ILC1920XILC2956	ICARDA/ICRISAT	1	T	M	3
FLIP 84- 78C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	E	5
FLIP 84- 79C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	N	3
FLIP 84- 80C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	T	3

Table 3.9.1. Cont'd. ...

Entry Name	Pedigree	Origin	ALGERIA		ARGENTINA	BULGARIA
			Khroub	Sidi Bel - Abbes	Perico	Toshevo
FLIP 84- 81C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	N	3
FLIP 84- 83C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	O	3
FLIP 84- 85C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S		3
FLIP 84- 86C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	A	3
FLIP 84- 87C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	S	3
FLIP 84- 91C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	C	3
FLIP 84- 92C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	T	O	3
FLIP 84- 93C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	C	3
FLIP 84- 182C	X80 TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	S	H	3
FLIP 85- 21C	X82 TH 171/C 44XICC 1772	ICARDA/ICRISAT	NT	NT	Y	NT
FLIP 85- 24C	X82 TH 172/CM 68XICC 1772	ICARDA/ICRISAT	NT	NT	T	NT
FLIP 85- 26C	X82 TH 176/C 44XNEC 138-2	ICARDA/ICRISAT	NT	NT	A	NT
FLIP 85- 31C	X81 TH 106/ILC 72XICC 4935	ICARDA/ICRISAT	NT	NT		NT
FLIP 85- 32C	X81 TH 106/ILC 72XICC 4935	ICARDA/ICRISAT	NT	NT	B	NT
FLIP 85- 38C	X82 TH 171/C 44XICC 1772	ICARDA/ICRISAT	NT	NT	L	NT
FLIP 85- 39C	X82 TH 173/CM 72XICC 1772	ICARDA/ICRISAT	NT	NT	I	NT
FLIP 85- 40C	X82 TH 177/CM 68XNEC 138-2	ICARDA/ICRISAT	NT	NT	G	NT
ICC 3932	-	Iran	NT	NT	H	NT
ICC 4181	-		NT	NT	T	NT
ICC 4475	-		NT	NT		NT
ICC 6945	-	Iran	NT	NT	D	NT
ICC 8486	-		NT	NT	E	NT
ICC 9189	-		NT	NT	V	NT
ICC 9514	-		NT	NT	E	NT
ICC11871	-		NT	NT	L	NT
ICC12023	-		NT	NT	O	NT
CAM 66	-		NT	NT	P	NT
CAM 68	-		NT	NT	M	NT
CAM 94	-		NT	NT	E	NT
ILC 263 (Susceptible Repeated Check)			7	S	N T	5

Cont'd. ...

Table 3.9.1. Cont'd. ...

Entry Name	COLOMBIA	FRANCE	IRAN	ITALY	JORDAN	LEBANON	MOROCCO	PAKISTAN	
	Surbata	Mont - boucher	Karaj	Tarquinia	Marow	Terbol	Marchouch	Chakwal	Faisalabad (AARI)
ILC 72	1	1	1	1	5	1	N	5	7
ILC 201	1	1	1	3	8	1	O	5	9
ILC 202	1	1	1	2	9	1		7	7
ILC 2506	1	1	1	3	6	1	A	5	9
ILC 2956	1	1	1	1	7	1	S	5	7
ILC 3279	3	2	1	2	3	3	C	5	7
ILC 3856	1	1	1	2	9	1	O	5	9
ILC 3868	3	1	1	2	7	1	C	7	9
ILC 4421	1	1	1	1	7	1	H	5	9
ILC 5928	1	1	1	1	-	1	Y	5	9
FLIP 82- 150C	1	1	1	2	-	1	T	7	9
FLIP 82- 169C	3	1	1	2	5	1	A	7	9
FLIP 82- 172C	1	1	1	1	8	1		5	9
FLIP 82- 186C	1	1	1	2	4	1	B	7	9
FLIP 83- 7C	1	1	1	1	6	1	L	5	9
FLIP 83- 22C	1	1	1	1	6	1	I	5	9
FLIP 83- 46C	1	1	1	2	-	4	G	7	9
FLIP 83- 47C	1	1	1	1	8	1	H	5	9
FLIP 83- 48C	1	1	1	2	6	1	T	5	9
FLIP 83- 49C	1	1	1	1	6	1		5	9
FLIP 83- 50C	1	1	1	2	-	3	D	5	9
FLIP 83- 71C	1	1	1	1	-	1	E	5	9
FLIP 83- 72C	1	1	1	2	8	1	V	7	9
FLIP 83- 73C	1	1	1	3	9	1	E	5	9
FLIP 83- 76C	1	1	1	1	8	1	L	5	9
FLIP 83- 97C	1	1	1	2	4	1	O	9	9
FLIP 84- 22C	1	1	1	2	8	4	P	5	9
FLIP 84- 48C	1	1	1	2	6	1	M	5	9
FLIP 84- 78C	1	1	3	2	6	1	E	7	9
FLIP 84- 79C	1	1	1	1	-	3	N	5	9
FLIP 84- 80C	1	1	1	2	9	1	T	7	9

Table 3.9.1. Cont'd. ...

Entry Name	COLOMBIA	FRANCE	IRAN	ITALY	JORDAN	LEBANON	MOROCCO	PAKISTAN	
	Surbata	Mont - boucher	Karaj	Tarquinia	Marow	Terbol	Marchouch	Chakwal	Faisalabad (AARI)
FLIP 84- 81C	1	1	1	2	2	1	N	5	9
FLIP 84- 83C	1	1	1	1	9	1	O	7	9
FLIP 84- 85C	1	1	1	1	3	1		5	9
FLIP 84- 86C	1	1	1	1	7	3	A	5	9
FLIP 84- 87C	1	1	1	1	4	1	S	7	9
FLIP 84- 91C	1	1	1	3	4	1	C	7	9
FLIP 84- 92C	1	1	3	1	5	1	O	5	9
FLIP 84- 93C	1	1	1	1	6	1	C	5	9
FLIP 84- 182C	3	1	1	2	4	3	H	7	9
FLIP 85- 21C	1	NT	1	NT	NT	1	Y	9	9
FLIP 85- 24C	1	NT	1	NT	NT	1	T	9	9
FLIP 85- 26C	1	NT	1	NT	NT	1	A	9	9
FLIP 85- 31C	1	NT	1	NT	NT	1		5	7
FLIP 85- 32C	3	NT	1	NT	NT	4	B	7	5
FLIP 85- 38C	1	NT	1	NT	NT	1	L	5	9
FLIP 85- 39C	1	NT	1	NT	NT	1	I	9	9
FLIP 85- 40C	1	NT	1	NT	NT	1	G	7	3
ICC 3932	1	NT	1	NT	NT	1	H	7	9
ICC 4181	1	NT	1	NT	NT	1	T	7	9
ICC 4475	1	NT	1	NT	NT	1		5	9
ICC 6945	1	NT	1	NT	NT	1	D	7	9
ICC 8486	1	NT	1	NT	NT	1	E	7	9
ICC 9189	1	NT	1	NT	NT	1	V	9	9
ICC 9514	1	NT	1	NT	NT	1	E	5	9
ICC11871	1	NT	1	NT	NT	1	L	7	7
ICC12023	1	NT	1	NT	NT	1	O	7	9
CAM 66	1	NT	1	NT	NT	1	P	9	9
CAM 68	1	NT	1	NT	NT	1	M	9	9
CAM 94	1	NT	1	NT	NT	1	E	7	9
ILC 263	5	9	1	9	9	9	N T	9	9

Cont'd. ...

Table 3.9.1. Cont'd. ...

Entry Name	PAKISTAN			PORTUGAL	SYRIA	TUNISIA		TURKEY	
	Faisalabad (NIAB)	Islam-abad	Peshawar (Tarnab)	Elvas	Gelline	Oued-Meliz	Sejnane	Eskisehir	Izmir
ILC 72	5	9	5	2	-	3	3	5	2
ILC 201	7	8	9	5	3	4	9	3	2
ILC 202	9	8	9	3	-	3	4	3	3
ILC 2506	9	8	5	1	-	3	3	4	3
ILC 2956	9	8	5	2	-	5	9	5	2
ILC 3279	9	9	5	9	-	5	3	3	2
ILC 3856	9	8	6	2	3	3	5	4	2
ILC 3868	9	9	9	1	3	3	4	2	3
ILC 4421	9	8	4	2	-	3	4	4	3
ILC 5928	9	8	9	3	3	3	5	2	3
FLIP 82- 150C	7	7	6	3	-	3	5	2	3
FLIP 82- 169C	9	9	7	2	3	3	5	4	2
FLIP 82- 172C	9	9	5	2	-	3	6	3	2
FLIP 82- 186C	9	9	9	1	-	3	5	2	3
FLIP 83- 7C	9	9	5	2	-	4	9	2	2
FLIP 83- 22C	9	7	6	2	3	4	5	2	2
FLIP 83- 46C	7	8	4	3	3	3	4	2	2
FLIP 83- 47C	9	7	6	2	-	5	6	2	2
FLIP 83- 48C	9	8	6	3	-	3	4	4	3
FLIP 83- 49C	9	9	9	2	-	2	4	3	2
FLIP 83- 50C	7	9	9	2	-	2	5	2	3
FLIP 83- 71C	9	9	4	3	-	5	3	2	2
FLIP 83- 72C	9	8	5	3	-	3	4	2	3
FLIP 83- 73C	9	8	9	2	-	4	9	5	2
FLIP 83- 76C	9	8	5	2	3	5	4	3	2
FLIP 83- 97C	9	8	7	2	-	3	4	2	2
FLIP 84- 22C	7	9	4	1	-	4	5	2	3
FLIP 84- 48C	9	9	7	2	-	2	4	2	2
FLIP 84- 78C	9	9	5	2	-	4	4	4	3
FLIP 84- 79C	9	8	5	9	-	3	9	5	2
FLIP 84- 80C	9	8	5	1	-	4	5	3	2

Table 3.9.1. Cont'd. ...

Entry Name	PAKISTAN			PORTUGAL	SYRIA	TUNISIA		TURKEY	
	Faisalabad (NIAB)	Islam-abad	Peshawar (Tarnab)	Elvas	Gelline	Oued-Meliz	Sejnane	Eskisehir	Izmir
FLIP 84- 81C	9	9	6	2	-	3	4	2	2
FLIP 84- 83C	9	9	6	1	-	3	4	2	2
FLIP 84- 85C	9	9	5	1	-	3	3	2	3
FLIP 84- 86C	7	8	9	1	-	3	5	4	3
FLIP 84- 87C	9	9	9	1	-	3	4	2	2
FLIP 84- 91C	7	8	7	5	-	3	4	3	2
FLIP 84- 92C	9	7	4	1	-	3	4	2	2
FLIP 84- 93C	9	8	6	7	-	4	5	2	3
FLIP 84- 182C	9	7	6	2	-	3	3	3	3
FLIP 85- 21C	9	9	4	NT	NT	NT	NT	NT	NT
FLIP 85- 24C	9	9	5	NT	NT	NT	NT	NT	NT
FLIP 85- 26C	9	9	6	NT	NT	NT	NT	NT	NT
FLIP 85- 31C	9	9	5	NT	NT	NT	NT	NT	NT
FLIP 85- 32C	7	8	6	NT	NT	NT	NT	NT	NT
FLIP 85- 38C	7	9	5	NT	NT	NT	NT	NT	NT
FLIP 85- 39C	9	9	9	NT	NT	NT	NT	NT	NT
FLIP 85- 40C	7	9	5	NT	NT	NT	NT	NT	NT
ICC 3932	9	9	7	NT	NT	NT	NT	NT	NT
ICC 4181	9	8	7	NT	NT	NT	NT	NT	NT
ICC 4475	9	9	9	NT	NT	NT	NT	NT	NT
ICC 6945	9	9	6	NT	NT	NT	NT	NT	NT
ICC 8486	9	8	9	NT	NT	NT	NT	NT	NT
ICC 9189	9	7	7	NT	NT	NT	NT	NT	NT
ICC 9514	7	9	6	NT	NT	NT	NT	NT	NT
ICC11871	9	9	5	NT	NT	NT	NT	NT	NT
ICC12023	9	9	6	NT	NT	NT	NT	NT	NT
CAM 66	9	9	7	NT	NT	NT	NT	NT	NT
CAM 68	9	9	9	NT	NT	NT	NT	NT	NT
CAM 94	9	9	4	NT	NT	NT	NT	NT	NT
ILC 263	9	9	9	9	7	9	9	9	8

NT = Not tested, T = Tolerant, S = Susceptible.

resistant/tolerant.

Portugal: The nursery was sown at Elvas in Portugal. Two test entries namely ILC 3279 and FLIP84- 79C exhibited 9 rating and one entry FLIP84- 93C had 7 rating. Two entries namely, ILC 201 and FLIP84- 91C with 5 rating were tolerant and all others with ratings between 1 and 4 were resistant.

Syria: The nursery was sown at Gelline. Eight entries namely, ILC 201, ILC 3856, ILC 3868, ILC 5928, FLIP82-169C, FLIP83-22C, FLIP83-46C and FLIP83-76C, were rated as resistant (with 3 rating). The susceptible check took rating of 7.

Tunisia: The nursery was sown at Oued Meliz and Sejnane. At Oued Meliz thirty five entries were rated as resistant and five as tolerant and the susceptible check took rating of 9.

At Sejnane five test entries took rating of 9, 22 took rating upto 4, 11 took rating of 5 and the remaining as 6.

Across two locations 19 entries showed resistant reaction (rating between 2 and 4).

Turkey: The nursery was sown at Eskisehir and Izmir. At Eskisehir, thirty six entries were rated as resistant, and four as tolerant. The susceptible check took rating of 9. At Menemen in Izmir all the test entries were rated as resistant and the susceptible check took rating of 8.

At other locations namely, Kabul in Afghanistan; Zidane, Setif and Quadah in Algeria; Horsham in Australia; Laxia in Cyprus; Sonora in Mexico, Douyet and Zememra in Morocco; Karak, University of Faisalabad and Quetta in Pakistan; Beja and El Kef in Tunisia; and Diyarbakir and Urfa in Turkey, the data couldn't be recorded either due to poor stand, cold damage, no ascochyta blight development or some unknown reasons.

3.10. CHICKPEA INTERNATIONAL LEAMINER NURSERY (CILMN)

Material

The Chickpea International Leaf Miner Nursery comprised 25 test entries. The susceptible check was ILC 3397.

Methods and Management

The suggested experimental design was randomized complete block with two replications. The suggested plot size was one row 4 m long accomodating 40 plants. The susceptible check was repeatedly sown after every two test entries to serve as an indicator row. A 1-9 scale was recommended for scoring the severity at the vegetative, flowering and mid podding stage. The scale recommended was 1 = highly resistant; 3 = resistant; 5 = tolerant; 7 = susceptible; and 9 = highly susceptible.

Thirteen sets of leaf miner nursery were distributed to cooperators in 9 countries and the results were received for 9 sets from 6 countries.

Table 3.10. Reaction of entries to chickpea leaf miner in CILMN during 1986/87.

S.No.	Entry Name	Origin	FRANCE
			Montpellier
1	ILC 316	Iran	4
2	ILC 319	Iran	3
3	ILC 394	Iran	2
4	ILC 515	Turkey	3
5	ILC 662	Iran	4
6	ILC 663	Iran	2
7	ILC 666	Iran	3
8	ILC 668	Iran	4
9	ILC 822	Iran	2
10	ILC 826	Iran	3
11	ILC 831	Iran	3
12	ILC 834	Iran	3
13	ILC 930	Iran	5
14	ILC 967	Iran	5
15	ILC 992	Iran	3
16	ILC 1000	Iran	4
17	ILC 1003	Iran	3
18	ILC 1009	Iran	3
19	ILC 1040	Iran	3
20	ILC 1041	Iran	3
21	ILC 1048	Iran	3
22	ILC 1105	Iran	3
23	ILC 1216	Iran	4
24	ILC 1431	Afghanistan	4
25	ILC 2250	Iran	2
26	ILC 2334	India	-
27	ILC 2769	Afghanistan	4
28	ILC 3470	Spain	3
29	ILC 3800	Mexico	2
30	ILC 3828	Morocco	4
31-46	ILC 3397 (Susceptible repeated check)	Mexico	9

Results and Discussion

At Beja, El Kef, Mateur and Ras Rajel in Tunisia; Sids in Egypt; Zememra in Morocco; Diyarbakir in Turkey; and Terbol in Lebanon the leaf miner ratings were not reported. At Montpellier in France (Table 3.10.1) the susceptible check was rated as 9. Except ILC 930 and ILC 967 which showed tolerant reaction (rating 5) all other lines showed resistant reaction (rating 1 to 4).

3.11. CHICKPEA INTERNATIONAL COLD TOLERANCE NURSERY (CICTN)

Material

The chickpea International Cold Tolerance Nursery CICTN which were found tolerant to cold under Tel Hadya conditions. The susceptible check was FLIP81- 16C.

Methods and Management

The suggested experimental design randomized complete block design with two replications. The suggested plot size was one row 2 m long accomodating 20 plants. The susceptible check was repeatedly sown after every two test entries/rows to serve as an indicator row. The cooperators in the mediterranean region were advised to sow the nursery early in the winter or autumn insted of the usual spring season to get better expression of cold. Otherwise the nurseries were managed as per the local agronomic practices. It was suggested to record the number of plants germinated befor the onset of severe winter.

A 1-9 scale was recommended for scoring the cold severity at different stages of cold occurence. The scale recommended was 1 = highly resistant; 3 = resistant; 5 = tolerant; 7 = susceptible; and 9 = highly susceptible.

Eight sets of CICTN were distributed to cooperators in five countries, however, results were received for 5 sets.

Results and Discussion

Out of five locations returning the data books, the cold tolerance was recorded only at Quetta in Pakistan. All the entries were killed due to cold at Quetta. The list of entries tested in CICTN-87 are given in Table 3.11.1.

Tale 3.11.1. List of entries in CICTN-87.

S. No.	Entry Name	Origin
1	ILC 267	Iran
2	ILC 668	Iran
3	ILC 794	Iran
4	ILC 1247	Morocco
5	ILC 1759	Chile
6	ILC 1767	Chile
7	ILC 1775	Chile
8	ILC 1787	Chile
9	ILC 1874	India
10	ILC 1878	India
11	ILC 1920	India
12	ILC 2385	Morocco
13	ILC 2479	India
14	ILC 2487	India
15	ILC 2505	India
16	ILC 2548	USSR
17	ILC 2644	Pakistan
18	ILC 2645	Pakistan
19	ILC 3076	Pakistan
20	ILC 3080	Pakistan
21	ILC 3081	Pakistan
22	ILC 3083	India
23	ILC 3286	Pakistan
24	ILC 3287	Pakistan
25	ILC 3406	Italy
26	ILC 3426	Spain
27	ILC 3470	Spain
28	ILC 3587	Pakistan
29	ILC 3593	India
30	ILC 3596	India
31	ILC 3597	India
32	ILC 3598	India
33	ILC 3599	India
34	ILC 3789	India
35	ILC 3790	India
36	ILC 3794	India
37	FLIP82- 64C	ICARDA/ICRISAT
38	FLIP83- 99C	ICARDA/ICRISAT
39	FLIP84- 43C	ICARDA/ICRISAT
40	FLIP84-176C	ICARDA/ICRISAT
41-61	FLIP81- 16C (Susceptible check repeated after 2 test entries).	

4. FABA BEAN INTERNATIONAL TRIALS AND NURSERIES

Introduction

Twelve sets of trials and nurseries were available to cooperators. These included yield trials, screening nurseries, F_4 nurseries, disease and pest nurseries and agronomy trials. Except for agronomy trials all other nurseries and trials are discussed in this section. The cooperators were free to use these materials in their breeding programs or for release as cultivars. The results reported by the cooperators are presented in the following pages.

4.1. FABA BEAN INTERNATIONAL YIELD TRIAL - LARGE SEED (FBIYT-L)

Material

The Faba Bean International Yield Trial - Large Seed (FBIYT-L) comprised 23 test entries and one local check to be supplied by the cooperator. All these entries were tested for their superior performance at least once either in regional trials or in international screening nurseries.

Methods and Management

The trial design was a randomised complete block with 3 replications. The suggested plot size was 4 rows, each 4 m long, with inter row spacing of 0.50 m accomodating 100 seeds per plot. Fifty sets of the trial were distributed in 25 countries. The results were returned from 36 locations from 22 countries. The agronomic details received from the cooperators for different locations are given in Table 4.1.1.

Results and Discussion

The location means for time to flowering (Table 4.1.2.) ranged from 52 days (for Quebec in Canada) to 126 days for Catania in Italy, for time to maturity (Table 4.1.3) varied from 111 days for Debre Zeit in Ethiopia to 241 days for Santa Catalina in Ecuador. There was, however, very little variation among entries in time to flowering and time to maturity. The plant height (Table 4.1.4) was least at Setif in Algeria (17 cm) and maximum at Perico in Argentina (139 cm). Among the entry means over locations, however, ILB 1814 (79S4) had the least plant height (74 cm) and ILB 3187 had the maximum plant height (80 cm).

The seed yield and rank of different entries at different locations is given in Table 4.1.5. The location mean of entries varied from 177 kg/ha at Debre Zeit in Ethiopia to 6764 kg/ha at Antalya in Turkey. The overall entry means, however, varied from 1529 kg/ha to 3013 kg/ha. The five best entries over all locations included Reina Blanca (ILB 1270), FLIP82- 54FB, FLIP83- 5FB, FLIP82- 45FB and 76TA 56246 with respective seed yields of 3013, 2848, 2815, 2801 and 2778 kg/ha. The CV for the experiment varied from 5.59% (for Antalya in Turkey) to 66.49% (for Debre Zeit in Ethiopia). The ANOVA for seed yield revealed that out of 32 locations the mean squares due to entries were significant at 21 locations. The comparison of entry means with the respective local checks, however, revealed that at Perico in Argentina, Athalassa in Cyprus, Islamabad in Pakistan, Homs in Syria and Beja and El Kef in Tunisia, 2, 3, 10, 1, 1 and 19 entries, respectively, exceeded the local check by a significant margin. The yield data further

Table 4.1.1. Agronomic data for different locations in the FBIYT-L during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman	20.04.87	29.08.87	30	60		-	-	Maidan-1
ALGERIA	Guelma	12.12.86	26.06.87		70		-	Treflan	Seville
ALGERIA	Khroub	17.11.86	20.06.87	-			-	Treflan	Seville
ALGERIA	Setif	NA	NA		100		-	Treflan	Seville
ALGERIA	Sidi Bel Abbes	16.02.87	-	15	90		-	-	Sidi Moussa
ARGENTINA	Perico	18.03.87	28.10.87	-			4	Metribuzin, Decis	Tezieromz
CANADA	Quebec	20.05.87	25.09.87	23	90		-	Treflan, Sencor, Thiram	Arnaud
CHILE	Graneros	22.04.87	.01.88	-			3	-	Herzimeya SNA
CHILE	Hidango	25.06.87	11.12.87	-			-	Benlate	Haba Grande
CYPRUS	Athalassa	1.12.86	11.06.87	21	48		4	Pirimor	ARI 00139
ECUADOR	Santa Catalina	01.12.86	30.06.87	82	92		-	Afalon 50	E - 009
EGYPT	Sakha	02.12.86	NA	15	30		-	Igran	Giza 3
ETHIOPIA	Debre Zeit	30.06.87	NA	NA			NA	NA	NC58
IRAN	Hassan Abad	25.12.86	16.05.87		150		-	Ambush	Zohreh
ITALY	Catania	04.12.86	10.06.87	45	90		-	Propyzamide, Simazine	116 IS VT
LEBANON	Terbol	07.12.86	25.07.87		50		2	Kerb, Igran	Local
LIBYA	Banghazi	15.11.86	14.05.87	200	150		1	Malathion	-
LIBYA	El Safsaf	08.12.86	25.06.87	-			-	-	Reina Blanca
MOROCCO	Douyet	05.12.86	05.05.87	30	70		-	Glyphosate 36%	Aquadulce
PAKISTAN	Islamabad	10.11.86		-			-	-	F - 82 - 11EB
PERU	Cusco	11.12.86	13.05.87	57	130		-	-	Blanco Anta
PORTUGAL	Elvas	03.11.86	03.06.87		72		-	-	Lambock
SYRIA	Deir-ez-zor	25.11.86	08.06.87	10	38		7	Dursban	Local Long Pod
SYRIA	Gelline	08.12.86	24.05.87						Cyprus
SYRIA	Hama	29.11.86	02.06.87	25	80		3	-	Local
SYRIA	Homs	30.11.86		26	55				Local
SYRIA	Tel Hadya	10.11.86	20.06.87	30	50		4	Dithane, Bravo, Ronilon, Supracide Lancer	Syrian Local Large (ILB 1814)
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TURKEY	Antalya	18.12.86	10.06.87	25	60		-	Igran	Prench Faba Bean
TURKEY	Diyarbakir	21.11.86	10.06.87	40	60			-	-
TURKEY	Izmir (Menemen)	19.11.86	16.06.87	30	60		-	Trifluralin, Metasystox	Eresen - 87

NA = Not available.

Table 4.1.2. Time to flowering (days) of entries at different locations in the FBIYT-L during 1986/87.

Pedigree	ILB/ Cross No.	AFGHANISTAN	ALGERIA		ARGENTINA	CANADA	CHILE			CYPRUS	ECUADOR
		Darul Aman	Setif	Sidi Bel-Abbes	Perico	Quebec	Graneros	Hidango	Temuco	Athalassa	Santa-Catalina
FLIP 82-25 FB	X79S74	55	100	95	61	51	105	90	59	81	65
FLIP 82-27 FB	X79S131	55	95	97	61	54	107	93	57	80	65
FLIP 82-28 FB	X79S178	54	97	95	60	51	105	85	56	81	65
FLIP 82-29 FB	X79L25	55	102	96	61	51	103	90	56	81	68
FLIP 82-30 FB	X79L130	55	99	96	60	50	103	90	56	81	67
FLIP 82-45 FB	1817	54	100	97	60	50	103	90	55	80	65
FLIP 82-53 FB	23	56	98	94	58	50	103	89	55	80	62
FLIP 82-54 FB	41	55	99	97	62	52	105	91	56	81	67
FLIP 83- 5 FB	22	55	98	97	61	51	103	84	57	81	67
FLIP 83- 6 FB	29	53	99	95	60	52	103	88	55	81	65
FLIP 83-17 FB	S81066	57	104	96	69	53	103	95	59	80	68
FLIP 83-43 FB	80L90222	53	99	95	60	54	103	89	56	82	65
74TA 22	9	54	102	98	61	52	106	92	56	83	67
76TA 56246	398	55	100	99	67	52	108	91	58	81	69
79S 4	1814	56	96	96	66	50	103	91	58	81	70
79S 653	1814	56	104	96	62	55	106	91	58	80	67
80S 44027	X77TA64	54	95	96	61	51	108	93	57	81	66
80S 80135	X79S171	54	98	94	59	51	103	85	55	80	62
Lattakia Local	1815	56	102	97	66	54	103	93	58	83	67
Reina Blanca	1270	55	105	97	67	52	103	87	58	83	67
Turkish Local	1821	55	103	98	70	55	109	91	59	83	71
ILB 3187	3187	56	96	99	71	54	103	91	60	83	71
ILB 1814	-	56	104	97	62	51	105	93	57	82	67
Local Check		56	96	97	71	44	103	93	58	71	80
Location Mean		**55**	**100**	**96**	**63**	**52**	**104**	**90**	**57**	**81**	**67**
S.E. of Mean		1.05	0.78	0.59	0.93	1.33	1.77	1.36	0.78	0.42	1.45
L.S.D. at 5%		-	2.22	1.69	2.65	3.17	-	3.88	2.22	1.18	4.13
C.V. %		3.31	1.36	1.07	2.55	0.98	2.94	2.62	2.37	0.89	3.74
Error d.f.		46	46	46	46	23	46	46	46	46	46
Significance		NS	*	*	*	*	NS	*	*	*	*

Cont'd. ...

Table 4.1.2. Cont'd. ...

Pedigree	ILB/ Cross No.	EGYPT	ETHIOPIA	IRAN	ITALY	LEBANON	LIBYA	MOROCCO	PAKISTAN	PERU
		Sakha	Debre Zeit	Hassan-Abad	Catania	Terbol	Banghazi	Douyet	Islamabad	Cusco
FLIP 82-25 FB	X79S74	58	69	96	126	114	82	97	78	75
FLIP 82-27 FB	X79S131	58	71	95	126	113	81	99	79	75
FLIP 82-28 FB	X79S178	63	70	97	127	114	82	97	79	75
FLIP 82-29 FB	X79L25	55	71	96	126	113	82	99	83	75
FLIP 82-30 FB	X79L130	60	69	96	126	113	85	99	83	75
FLIP 82-45 FB	1817	57	69	95	126	113	81	97	81	75
FLIP 82-53 FB	23	55	67	94	126	113	81	97	81	75
FLIP 82-54 FB	41	62	71	95	126	113	82	97	81	74
FLIP 83- 5 FB	22	62	68	94	126	112	83	97	83	75
FLIP 83- 6 FB	29	53	66	96	127	113	81	97	78	75
FLIP 83-17 FB	S81066	60	76	97	127	114	86	99	84	74
FLIP 83-43 FB	80L90222	58	65	96	127	113	81	97	81	75
74TA 22	9	63	69	95	126	113	82	97	85	74
76TA 56246	398	62	74	95	126	114	84	97	85	74
79S 4	1814	62	71	95	127	115	83	97	84	74
79S 653	1814	62	74	94	127	113	82	99	86	75
80S 44027	X77TA64	53	69	96	126	114	81	97	80	75
80S 80135	X79S171	57	67	96	125	113	81	97	78	73
Lattakia Local	1815	60	76	97	126	114	84	99	84	75
Reina Blanca	1270	62	73	96	126	113	84	97	83	75
Turkish Local	1821	65	75	97	126	113	85	97	86	74
ILB 3187	3187	68	70	96	127	114	87	97	88	74
ILB 1814	-	63	74	94	127	113	82	99	90	73
Local Check		47	67	96	125	112	-	97	79	92
Location Mean		**59**	**70**	**96**	**126**	**113**	**83**	**98**	**82**	**75**
S.E. of Mean		2.81	1.67	0.95	0.43	0.65	0.60	0.07	1.24	0.50
L.S.D. at 5%		7.98	4.74	-	1.21	-	1.71	0.19	3.52	1.43
C.V. %		8.18	4.10	1.73	0.58	0.99	1.25	0.12	2.60	1.16
Error d.f.		46	46	46	46	46	44	46	46	46
Significance		*	*	NS	*	NS	*	*	*	*

Cont'd. ...

Table 4.1.2. Cont'd. ...

Pedigree	ILB/ Cross No.	PORTUGAL	SYRIA					TURKEY		Overall Mean
		Elvas	Gelline	Hama	Homs	Dier-ez-zor	Tel Hadya	Antalya	Izmir	
FLIP 82-25 FB	X79S74	114	79	99	82	90	100	83	103	85
FLIP 82-27 FB	X79S131	120	80	98	90	90	102	83	103	86
FLIP 82-28 FB	X79S178	115	79	99	83	88	100	83	103	85
FLIP 82-29 FB	X79L25	112	79	99	82	89	102	83	103	86
FLIP 82-30 FB	X79L130	116	81	100	87	89	103	83	103	86
FLIP 82-45 FB	1817	111	78	96	82	88	100	81	103	85
FLIP 82-53 FB	23	114	78	97	86	88	101	81	103	85
FLIP 82-54 FB	41	112	78	99	83	90	100	82	103	86
FLIP 83- 5 FB	22	114	79	99	84	89	101	83	103	85
FLIP 83- 6 FB	29	108	78	97	85	89	101	82	103	84
FLIP 83-17 FB	S81066	120	81	101	87	90	105	84	103	88
FLIP 83-43 FB	80L90222	109	78	99	85	89	100	83	103	85
74TA 22	9	117	79	99	85	90	101	84	103	86
76TA 56246	398	123	81	100	86	90	103	83	103	87
79S 4	1814	114	81	100	85	90	102	83	103	86
79S 653	1814	112	79	99	83	89	100	82	103	86
80S 44027	X77TA64	113	80	100	83	90	100	83	103	85
80S 80135	X79S171	108	78	96	85	89	101	82	103	84
Lattakia Local	1815	118	81	100	87	90	105	84	103	87
Reina Blanca	1270	114	81	99	84	90	101	83	103	87
Turkish Local	1821	119	85	101	88	90	103	84	103	88
ILB 3187	3187	116	85	100	85	92	105	84	103	88
ILB 1814	-	110	84	100	85	91	105	82	103	87
Local Check		112	76	96	73	91	100	84	103	
Location Mean		**114**	**80**	**99**	**84**	**90**	**102**	**83**	**103**	
S.E. of Mean		2.49	0.58	0.76	0.26	0.72	1.12	0.31		
L.S.D. at 5%		7.08	1.64	2.16	0.74	2.04	3.18	0.89		
C.V. %		3.77	1.25	1.33	0.53	1.38	1.90	0.66		
Error d.f.		46	46	46	46	46	46	46		
Significance		*	*	*	*	*	*	*		

* = Significant at P $\leq$ 0.05, NS = not significant.

Table 4.1.3. Time to maturity (days) of entries at different locations in the FBIYT-L during 1986/87.

Pedigree	ILB/ Cross No.	AFGHANISTAN	ARGENTINA	CANADA	CHILE		ECUADOR	ETHIOPIA	IRAN	ITALY	LEBANON
		Darul Aman	Perico	Quebec	Graneros	Temuco	Santa-Catalina	Debre-Zeit	Hassan-Abad	Catania	Terbol
FLIP 82-25 FB	X79S74	109	201	128	210	120	241	110	191	190	186
FLIP 82-27 FB	X79S131	113	199	128	210	120	241	113	191	191	186
FLIP 82-28 FB	X79S178	115	194	128	210	120	241	111	192	190	187
FLIP 82-29 FB	X79L25	117	198	128	210	120	241	117	191	189	186
FLIP 82-30 FB	X79L130	114	196	123	210	120	241	109	194	191	186
FLIP 82-45 FB	1817	-	194	128	210	120	241	110	192	189	186
FLIP 82-53 FB	23	116	188	128	210	120	241	111	190	190	186
FLIP 82-54 FB	41	115	197	128	210	120	241	111	191	189	186
FLIP 83- 5 FB	22	112	197	128	210	120	241	113	194	191	185
FLIP 83- 6 FB	29	112	194	128	210	120	241	108	192	190	186
FLIP 83-17 FB	S81066	114	204	128	210	120	241	107	193	190	189
FLIP 83-43 FB	80L90222	116	193	128	210	120	241	114	190	191	186
74TA 22	9	112	199	128	210	120	241	111	192	191	186
76TA 56246	398	121	207	128	210	125	241	113	190	190	186
79S 4	1814	110	206	128	210	124	241	110	193	190	187
79S 653	1814	115	200	128	210	123	241	111	193	191	187
80S 44027	X77TA64	109	197	128	210	120	241	116	192	190	186
80S 80135	X79S171	114	190	128	210	120	241	114	193	189	186
Lattakia Local	1815	117	205	128	210	120	241	110	193	190	187
Reina Blanca	1270	115	206	128	210	120	241	118	190	191	186
Turkish Local	1821	115	209	128	210	120	241	108	191	189	189
ILB 3187	3187	112	209	128	210	120	241	110	188	189	186
ILB 1814	-	109	204	128	210	122	241	108	191	191	186
Local Check		112	208	128	210	125	241	112	192	189	187
Location Mean		**113**	**200**	**128**	**210**	**121**	**241**	**111**	**192**	**190**	**186**
S.E. of Mean		1.27	1.57			0.24		2.79	1.01	0.74	0.55
L.S.D. at 5%		3.63	4.48			0.68		-	2.86	-	1.57
C.V. %		1.95	1.36			0.35		4.34	0.91	0.67	0.51
Error d.f.		44	46			46		46	46	46	46
Significance		*	*			*		NS	*	NS	*

Cont'd. ...

Table 4.1.3. Cont'd. ...

Pedigree	ILB/ Cross No.	MOROCCO	PAKISTAN	PERU	PORTUGAL	SYRIA					(1) Overall Mean
		Douyet	Islamabad	Cusco	Elvas	Deir-ez-zor	Gelline	Hama	Homs	Tel Hadya	
FLIP 82-25 FB	X79S74	160	170	150	196	173	162	177	160	188	173
FLIP 82-27 FB	X79S131	161	168	150	196	173	163	177	159	187	173
FLIP 82-28 FB	X79S178	160	167	150	196	173	161	176	160	189	173
FLIP 82-29 FB	X79L25	161	168	150	196	173	160	177	160	188	173
FLIP 82-30 FB	X79L130	161	167	150	196	173	162	176	160	188	172
FLIP 82-45 FB	1817	160	176	150	196	173	160	177	158	188	173
FLIP 82-53 FB	23	160	176	150	196	173	159	177	160	187	172
FLIP 82-54 FB	41	160	169	150	196	174	161	177	158	189	173
FLIP 83- 5 FB	22	160	166	150	196	173	163	177	160	188	173
FLIP 83- 6 FB	29	160	168	150	196	173	160	176	157	187	172
FLIP 83-17 FB	S81066	161	169	150	199	173	162	178	160	189	173
FLIP 83-43 FB	80L90222	160	169	150	196	174	160	177	157	188	172
74TA 22	9	160	167	150	196	173	161	178	159	188	173
76TA 56246	398	160	170	150	196	173	162	178	160	188	174
79S 4	1814	160	146	150	196	174	162	179	160	188	172
79S 653	1814	161	170	150	196	173	163	177	160	188	173
80S 44027	X77TA64	160	171	150	200	173	161	176	160	189	173
80S 80135	X79S171	160	168	150	196	173	159	177	159	189	172
Lattakia Local	1815	161	171	150	199	173	162	178	160	190	174
Reina Blanca	1270	160	168	150	196	173	161	176	157	187	173
Turkish Local	1821	160	170	150	196	173	162	177	158	190	173
ILB 3187	3187	160	165	150	196	174	162	179	159	183	173
ILB 1814	-	161	148	150	196	175	163	177	158	188	172
Local Check		160	172	180	196	173	156	176	160	189	
Location Mean		**160**	**167**	**151**	**196**	**173**	**161**	**177**	**159**	**188**	
S.E. of Mean		0.07	7.25	0.00	1.08	0.67	1.05	0.58	0.65	1.12	
L.S.D. at 5%		0.19	-	0.00	-	-	2.99	1.66	1.86	-	
C.V. %		0.07	7.50	0.00	0.95	0.67	1.13	0.57	0.71	1.03	
Error d.f.		46	46	46	46	46	46	46	46	46	
Significance		*	NS	*	NS	NS	*	*	*	NS	

(1) Darul Aman was excluded from the overall mean.
* = Significant at $P \leq 0.05$, NS = not significant.

Table 4.1.4. Plant height (cm) of entries at different locations in the FBIYT-L during 1986/87.

Pedigree	ILB/	AFGHANISTAN	ALGERIA			ARGENTINA	CANADA	CHILE	CYPRUS	ETHIOPIA	IRAN	ITALY
		Darul Aman	Guelma	Setif	Sidi Bel-Abbes	Perico	Quebec	Temuco	Athala-ssa	Debre-Zeit	Hassan Abad	Catania
FLIP 82-25 FB	X79S74	56	115	16	75	146	85	48	70	62	105	61
FLIP 82-27 FB	X79S131	48	107	16	70	137	84	48	69	64	92	67
FLIP 82-28 FB	X79S178	59	100	15	90	143	95	48	66	48	96	62
FLIP 82-29 FB	X79L25	53	96	16	75	152	88	50	74	52	97	62
FLIP 82-30 FB	X79L130	60	104	17	75	155	87	50	68	56	89	68
FLIP 82-45 FB	1817	73	100	15	80	131	98	49	70	54	100	61
FLIP 82-53 FB	23	46	114	14	80	140	92	52	73	69	93	66
FLIP 82-54 FB	41	53	94	17	80	139	91	50	71	61	101	61
FLIP 83- 5 FB	22	50	102	19	80	129	91	47	71	57	96	64
FLIP 83- 6 FB	29	69	98	17	85	137	82	53	68	44	99	60
FLIP 83-17 FB	S81066	58	112	15	60	131	103	50	72	56	96	71
FLIP 83-43 FB	80L90222	51	116	18	70	149	90	50	67	62	97	63
74TA 22	9	58	103	18	75	143	94	48	71	60	106	62
76TA 56246	398	66	90	16	70	129	83	47	68	49	103	62
79S 4	1814	58	113	19	60	125	86	45	67	52	98	61
79S 653	1814	57	109	15	70	127	91	49	71	53	101	60
80S 44027	X77TA64	66	112	16	70	152	78	49	68	70	101	65
80S 80135	X79S171	60	110	14	80	138	89	50	73	54	97	70
Lattakia Local	1815	65	110	17	80	147	110	47	73	56	99	62
Reina Blanca	1270	52	90	16	70	119	85	43	74	59	79	62
Turkish Local	1821	63	109	16	75	142	97	45	69	53	101	60
ILB 3187	3187	68	112	21	75	146	74	63	73	72	108	64
ILB 1814	-	61	100	18	65	127	98	50	73	59	92	57
Local Check		58	90	22	60	141	88	57	66	67	99	66
Location Mean		59	104	17	74	139	90	49	70	58	98	63
S.E. of Mean		2.84	0.88	1.45		5.84	8.26	1.65	2.46	6.89	3.06	2.66
L.S.D. at 5%		8.09	2.51	4.13		16.62	-	4.68	-	-	8.72	-
C.V. %		8.38	1.46	14.96		7.23	13.03	5.76	6.07	20.57	5.43	7.29
Error d.f.		46	46	46		46	23	46	46	46	46	46
Significance		*	*	*		*	NS	*	NS	NS	*	NS

Cont'd. ...

Table 4.1.4. Cont'd. ...

Pedigree	ILB/ Cross No.	LEBANON	MOROCCO	PERU	PORTUGAL	SYRIA				TURKEY		Overall Mean
		Terbol	Douyet	Cusco	Elvas	Deir-ez-zor	Gelline	Hama	Homs	Antalya	Izmir	
FLIP 82-25 FB	X79S74	63	55	111	97	57	69	38	78	132	60	76
FLIP 82-27 FB	X79S131	73	54	117	103	63	79	39	78	135	55	76
FLIP 82-28 FB	X79S178	70	59	106	108	72	83	38	78	148	58	78
FLIP 82-29 FB	X79L25	67	60	113	97	57	81	37	82	133	50	76
FLIP 82-30 FB	X79L130	63	51	132	102	60	89	36	80	123	55	77
FLIP 82-45 FB	1817	63	55	103	107	78	87	38	75	140	55	78
FLIP 82-53 FB	23	62	57	98	106	68	87	37	78	132	62	77
FLIP 82-54 FB	41	63	61	101	105	78	90	39	80	137	57	78
FLIP 83- 5 FB	22	67	55	108	104	59	86	36	73	132	53	75
FLIP 83- 6 FB	29	62	57	114	94	63	79	37	80	125	58	75
FLIP 83-17 FB	S81066	63	55	79	107	60	76	39	80	140	57	75
FLIP 83-43 FB	80L90222	70	56	102	100	75	70	36	77	130	58	77
74TA 22	9	67	60	112	104	60	82	36	77	138	57	78
76TA 56246	398	73	61	116	97	63	88	37	75	133	53	75
79S 4	1814	63	54	112	109	55	68	37	83	125	63	74
79S 653	1814	68	54	115	112	50	82	40	78	135	50	76
80S 44027	X77TA64	68	57	112	104	59	80	39	80	132	57	78
80S 80135	X79S171	70	60	121	111	67	89	35	78	133	57	79
Lattakia Local	1815	70	56	104	97	58	80	38	77	132	60	78
Reina Blanca	1270	62	50	114	92	58	80	39	68	117	47	70
Turkish Local	1821	70	62	104	105	57	64	38	75	137	60	76
ILB 3187	3187	68	57	109	99	62	87	39	77	138	62	80
ILB 1814	-	72	55	97	108	55	80	36	75	140	53	75
Local Check		72	54	130	106	47	81	39	77	127	63	
Location Mean		**67**	**56**	**110**	**103**	**62**	**80**	**38**	**78**	**133**	**57**	
S.E. of Mean		3.98	0.86	7.94	3.98	7.71	5.14	1.18	2.15	5.45	3.20	
L.S.D. at 5%		-	2.46	22.61	11.33	-	-	-	6.11	-	9.09	
C.V. %		10.29	2.66	12.55	6.69	21.96	9.04	5.44	4.80	7.09	9.76	
Error d.f.		46	46	46	46	46	23	46	46	46	46	
Significance		NS	*	*	*	NS	NS	NS	*	NS	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 4.1.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the FBIYT-L during 1986/87.

Pedigree	ILB/ Cross No.	ALGERIA						ARGENTINA		CANADA		CHILE			
		Guelma		Khroub		Setif		Perico		Quebec		Graneros		Hidango	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-25 FB	X79S74	5458	5	3143	16	177	15	1744	8	3043	23	2917	15	1440	20
FLIP 82-27 FB	X79S131	5240	7	3158	15	184	13	1711	10	4771	16	2583	17	1542	18
FLIP 82-28 FB	X79S178	4948	13	2744	22	314	2	2006	2	6207	2	4167	6	1604	15
FLIP 82-29 FB	X79L25	5010	11	3494	10	174	17	1078	23	3866	21	2125	23	1648	12
FLIP 82-30 FB	X79L130	4797	17	2536	23	181	14	1667	11	4950	12	3625	10	1796	7
FLIP 82-45 FB	1817	4344	22	3018	21	200	10	1733	9	4866	15	3333	12	1792	8
FLIP 82-53 FB	23	4818	14	3046	18	190	12	1811	5	4722	18	5208	3	1627	13
FLIP 82-54 FB	41	5682	2	3346	12	274	4	1589	12	5099	9	4792	5	2200	1
FLIP 83- 5 FB	22	5094	9	3510	9	236	7	2011	1	5852	5	5292	2	2058	2
FLIP 83- 6 FB	29	5292	6	3177	14	242	6	1556	13	5073	10	2750	16	1696	11
FLIP 83-17 FB	S81066	3380	24	3028	20	160	22	1106	22	5439	7	3542	11	1479	19
FLIP 83-43 FB	80L90222	5146	8	3039	19	262	5	1907	3	4569	19	2042	24	1738	10
74TA 22	9	4448	19	3796	5	165	20	1806	6	4948	13	2225	21	1996	3
76TA 56246	398	4411	20	3781	6	191	11	1439	16	5280	8	4917	4	1621	14
79S 4	1814	5563	3	4296	3	165	21	1356	18	4731	17	3292	13	1579	16
79S 653	1814	5531	4	3229	13	149	23	1428	17	3563	22	3875	8	1919	4
80S 44027	X77TA64	4813	15	3489	11	173	19	1767	7	4295	20	2542	18	1575	17
80S 80135	X79S171	4802	16	3601	8	176	16	1833	4	5502	6	2250	20	1404	21
Lattakia Local	1815	4448	18	3078	17	202	9	1256	21	5023	11	2358	19	1375	22
Reina Blanca	1270	5073	10	4773	1	279	3	1450	15	5986	4	5917	1	1846	5
Turkish Local	1821	4990	12	3714	7	233	8	1356	19	6002	3	2958	14	1279	23
ILB 3187	3187	4214	23	1622	24	174	18	222	24	2200	24	2208	22	1177	24
ILB 1814	-	5969	1	3911	4	107	24	1451	14	4891	14	4042	7	1746	9
Local Check		4354	21	4770	2	397	1	1267	20	6497	1	3625	9	1838	6
Location Mean		**4909**		**3387**		**209**		**1523**		**4891**		**3441**		**1666**	
S.E. of Mean		530.57		372.72		48.35		235.93		510.26		995.80		300.53	
L.S.D. at 5%		-		1060.94		-		668.73		1219.06		-		-	
C.V. %		18.72		19.06		40.15		26.72		14.76		50.12		31.25	
Error d.f.		46		46		46		46		23		46		46	
Significance		NS		*		NS		*		*		NS		NS	
Ent. > L. Check		-		0		-		2		0		-		-	

Cont'd. ...

Table 4.1.5. Cont'd. ...

Pedigree	ILB/ Cross No.	CHILE		CYPRUS		ECUADOR		EGYPT		ETHIOPIA		IRAN		ITALY	
		Temuco		Athalassa		Santa Catalina		Sakha		Debre Zeit		Hassan Abad		Catania	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-25 FB	X79S74	2510	7	2959	12	172	23	3833	8	93	15	3344	11	1889	16
FLIP 82-27 FB	X79S131	2135	23	2987	11	272	16	3991	3	79	18	3194	17	2111	11
FLIP 82-28 FB	X79S178	2551	4	2644	21	411	5	3852	7	168	8	2811	21	2167	9
FLIP 82-29 FB	X79L25	2318	17	3153	8	332	9	3963	5	90	16	3589	6	2111	13
FLIP 82-30 FB	X79L130	2486	9	2936	14	302	12	3472	15	103	14	3517	8	2611	3
FLIP 82-45 FB	1817	2249	18	3350	3	298	14	3769	10	148	9	3311	12	2000	15
FLIP 82-53 FB	23	2348	15	3022	10	323	10	4167	2	251	4	3056	19	2111	12
FLIP 82-54 FB	41	2545	5	3191	5	361	7	2917	22	143	10	4333	1	1500	23
FLIP 83- 5 FB	22	2167	22	2890	16	220	18	3370	19	131	11	3389	10	2389	4
FLIP 83- 6 FB	29	2560	2	3120	9	284	15	3324	20	182	7	3283	15	1556	22
FLIP 83-17 FB	S81066	2202	20	2700	20	638	2	3861	6	109	13	2944	20	2111	10
FLIP 83-43 FB	80L90222	2520	6	2828	18	338	8	3407	17	306	2	3272	16	1889	17
74TA 22	9	2218	19	2940	13	199	20	3676	11	120	12	3833	3	1844	18
76TA 56246	398	2198	21	3170	7	301	13	3648	12	69	19	3083	18	2189	7
79S 4	1814	2668	1	3434	2	177	22	3491	14	41	23	3294	14	2211	6
79S 653	1814	2386	13	2798	19	220	19	3370	18	41	22	3744	4	2022	14
80S 44027	X77TA64	2472	10	3262	4	230	17	4296	1	301	3	2294	23	1722	21
80S 80135	X79S171	2503	8	2212	23	431	4	3639	13	230	5	3556	7	2611	2
Lattakia Local	1815	2355	14	2853	17	364	6	3444	16	82	17	3961	2	1833	19
Reina Blanca	1270	2390	12	3837	1	434	3	3796	9	183	6	2778	22	2278	5
Turkish Local	1821	2401	11	3181	6	310	11	3111	21	69	20	3601	5	2178	8
ILB 3187	3187	1550	24	891	24	129	24	2685	24	68	21	2011	24	516	24
ILB 1814	-	2325	16	2928	15	193	21	2880	23	39	24	3311	13	1778	20
Local Check		2560	3	2632	22	2029	1	3981	4	1201	1	3400	9	3389	1
Location Mean		**2359**		**2913**		**374**		**3581**		**177**		**3288**		**2042**	
S.E. of Mean		198.13		250.00		120.53		433.87		67.94		373.67		332.62	
L.S.D. at 5%		-		711.63		343.09		-		193.40		1063.65		946.80	
C.V. %		14.55		14.86		55.87		20.99		66.49		19.68		28.21	
Error d.f.		46		46		46		46		46		46		46	
Significance		NS		*		*		NS		*		*		*	
Ent. > L. Check		-		3		0		-		0		0		0	

Cont'd. ...

Table 4.1.5. Cont'd. ...

Pedigree	ILB/ Cross No.	LEBANON		LIBYA				MOROCCO		PAKISTAN		PERU		PORTUGAL	
		Terbol		Banghazi		El Safsaf		Douyet		Islamabad		Cusco		Elvas	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-25 FB	X79S74	3044	14	2007	20	3404	14	675	23	2133	11	138	19	3025	5
FLIP 82-27 FB	X79S131	3388	4	2135	15	3017	21	1036	13	1667	13	278	7	3190	3
FLIP 82-28 FB	X79S178	2741	22	2648	3	3513	10	1274	5	1239	20	174	14	2580	17
FLIP 82-29 FB	X79L25	3594	1	2496	5	3004	22	1290	4	2550	5	91	24	2684	14
FLIP 82-30 FB	X79L130	3212	9	2390	7	2958	23	1369	1	2342	8	94	23	2310	19
FLIP 82-45 FB	1817	3044	15	2310	8	4025	5	1032	16	2816	3	286	5	2740	11
FLIP 82-53 FB	23	2825	19	2138	14	3058	20	833	21	2592	4	189	11	2214	20
FLIP 82-54 FB	41	2932	17	1430	23	4133	3	1012	17	1316	18	133	20	2418	18
FLIP 83- 5 FB	22	2961	16	2237	11	3692	7	1032	14	2267	9	99	22	2644	15
FLIP 83- 6 FB	29	2917	18	2133	16	4050	4	1270	6	3060	1	168	16	2122	22
FLIP 83-17 FB	S81066	2715	23	1933	21	3200	17	734	22	2920	2	279	6	2718	13
FLIP 83-43 FB	80L90222	3373	5	2730	2	3483	12	1206	8	1467	15	477	2	1984	24
74TA 22	9	3546	2	2209	12	3858	6	1310	3	568	24	173	15	2974	6
76TA 56246	398	3242	8	2302	9	3517	9	1032	15	2033	12	129	21	2865	8
79S 4	1814	3393	3	2263	10	3692	8	1111	12	1301	19	206	9	3213	2
79S 653	1814	3209	10	2033	19	3083	19	833	20	989	21	259	8	3238	1
80S 44027	X77TA64	3196	11	2097	17	3275	16	1325	2	2542	6	183	12	2973	7
80S 80135	X79S171	3052	13	2611	4	3404	13	1202	9	1501	14	155	17	2787	10
Lattakia Local	1815	3284	7	2053	18	3304	15	960	19	2167	10	353	4	2586	16
Reina Blanca	1270	2798	20	2403	6	4138	2	1179	10	2467	7	390	3	2853	9
Turkish Local	1821	2756	21	2730	1	3188	18	1226	7	1343	17	141	18	2733	12
ILB 3187	3187	1348	24	1638	22	1729	24	429	24	920	23	198	10	2070	23
ILB 1814	-	3120	12	2183	13	3508	11	1127	11	1417	16	179	13	3042	4
Local Check		3319	6	-	-	4233	1	992	18	921	22	2969	1	2178	21
Location Mean		**3042**		**2222**		**3436**		**1062**		**1856**		**322**		**2673**	
S.E. of Mean		305.07		287.66		187.38		138.23		426.69		63.87		316.26	
L.S.D. at 5%		868.25		-		533.39		393.46		1214.59		181.82		-	
C.V. %		17.37		22.42		9.45		22.54		39.83		34.31		20.50	
Error d.f.		46		44		46		46		46		46		46	
Significance		*		NS		*		*		*		*		NS	
Ent. > L. Check		0		-		0		0		10		0		-	

Cont'd. ...

Table 4.1.5. Cont'd. ...

Pedigree	ILB/ Cross No.	SYRIA										TUNISIA	
		Deir-ez-zor		Gelline		Hama		Homs		Tel Hadya		Beja	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-25 FB	X79S74	3044	13	950	19	5178	19	2827	9	3437	20	3500	21
FLIP 82-27 FB	X79S131	3044	12	1002	18	5806	2	3033	3	3566	14	3667	16
FLIP 82-28 FB	X79S178	3589	8	1067	17	5322	13	2732	14	3629	12	4075	7
FLIP 82-29 FB	X79L25	2689	19	1118	16	5328	12	3317	1	3541	16	3542	20
FLIP 82-30 FB	X79L130	2367	22	1244	13	5294	15	2870	7	3563	15	4108	6
FLIP 82-45 FB	1817	4178	2	1394	5	5511	6	2619	18	4165	3	3475	22
FLIP 82-53 FB	23	4078	4	1311	10	5344	11	2811	10	3865	9	3800	12
FLIP 82-54 FB	41	4967	1	1483	2	5433	8	2893	6	3436	21	3617	17
FLIP 83- 5 FB	22	3189	11	1472	3	5217	16	2328	21	3534	17	3875	10
FLIP 83- 6 FB	29	4011	5	1433	4	5433	9	3028	4	3625	13	3975	9
FLIP 83 7 FB	S81066	2978	16	883	21	5072	21	2572	20	3306	22	4392	3
FLIP 83-43 FB	80L90222	4011	6	1244	12	5311	14	2631	17	4209	2	3608	18
74TA 22	9	2956	17	1336	9	5467	7	2769	12	4004	5	4650	2
76TA 56246	398	3733	7	1500	1	4794	22	2306	22	3771	10	4258	4
79S 4	1814	2667	20	911	20	5167	20	2734	13	3891	8	3558	19
79S 653	1814	3278	10	1350	8	5761	3	2952	5	3518	18	3733	13
80S 44027	X77TA64	3033	14	1172	15	5217	17	2678	16	4024	4	3817	11
80S 80135	X79S171	3333	9	1297	11	5206	18	2842	8	3701	11	3975	8
Lattakia Local	1815	2633	21	867	23	5428	10	2791	11	3301	23	4242	5
Reina Blanca	1270	4089	3	876	22	5572	4	2713	15	4404	1	4850	1
Turkish Local	1821	3011	15	1390	6	5544	5	3058	2	3922	6	3700	14
ILB 3187	3187	1767	23	828	24	3550	24	1006	24	2320	24	1758	24
ILB 1814	-	1644	24	1211	14	4550	23	2137	23	3479	19	3142	23
Local Check		2889	18	1364	7	6494	1	2597	19	3897	7	3683	15
Location Mean		**3216**		**1196**		**5292**		**2677**		**3671**		**3792**	
S.E. of Mean		634.32		256.48		237.98		222.75		250.37		404.49	
L.S.D. at 5%		-		-		677.42		634.05		712.59		1151.38	
C.V. %		34.17		37.14		7.79		14.41		11.81		18.48	
Error d.f.		46		46		46		46		46		46	
Significance		NS		NS		*		*		*		*	
Ent. > L. Check		-		-		0		1		0		1	

Cont'd. ...

Table 4.1.5. Cont'd. ...

Pedigree	ILB Cross No.	TUNISIA				TURKEY						Overall Mean	
		El Kef		Oued Meliz		Antalya		Diyarbakir		Izmir			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82-25 FB	X79S74	4275	14	1720	20	6979	8	1285	1	3620	3	2624	19
FLIP 82-27 FB	X79S131	4808	1	1853	16	7063	4	910	15	3051	18	2702	15
FLIP 82-28 FB	X79S178	4700	7	1867	15	6833	16	986	10	3106	17	2771	7
FLIP 82-29 FB	X79L25	4708	5	1953	10	6688	18	701	22	3292	12	2673	16
FLIP 82-30 FB	X79L130	4517	9	1953	12	7313	1	813	19	3181	13	2714	12
FLIP 82-45 FB	1817	4200	17	1960	9	7042	5	993	9	3417	8	2801	4
FLIP 82-53 FB	23	3975	20	1913	13	6542	23	878	16	3000	19	2752	9
FLIP 82-54 FB	41	4300	13	1980	8	7042	6	965	11	3671	1	2848	2
FLIP 83- 5 FB	22	4250	16	1737	19	6625	21	917	14	3407	9	2815	3
FLIP 83- 6 FB	29	4375	11	1867	14	6604	22	1167	3	3440	6	2774	6
FLIP 83 7 FB	S81066	4750	3	1773	18	6938	11	854	18	3125	15	2620	20
FLIP 83-43 FB	80L90222	3967	21	2060	4	6958	10	1090	6	2185	22	2664	18
74TA 22	9	4708	6	1953	11	6938	12	854	17	3509	5	2750	10
76TA 56246	398	4367	12	1840	17	6792	17	764	21	3343	10	2778	5
79S 4	1814	4042	19	2040	6	6938	13	1146	4	3634	2	2757	8
79S 653	1814	4775	2	2040	5	7208	3	701	23	3588	4	2713	13
80S 44027	X77TA64	3867	22	1573	22	6958	9	1083	7	3162	14	2669	17
80S 80135	X79S171	4717	4	2147	2	6667	19	1167	2	3426	7	2748	11
Lattakia Local	1815	4483	10	1547	23	6896	14	806	20	3306	11	2614	21
Reina Blanca	1270	4142	18	2307	1	6667	20	1056	8	2519	21	3013	1
Turkish Local	1821	4675	8	2020	7	7021	7	1125	5	1602	24	2705	14
ILB 3187	3187	2467	24	1340	24	3479	24	278	24	2125	23	1529	23
ILB 1814	-	4267	15	1693	21	7292	2	951	12	3125	16	2613	22
Local Check		2850	23	2133	3	6854	15	931	13	2935	20		
Location Mean		4258		1886		6764		934		3115			
S.E. of Mean		405.50		140.38		218.24		140.89		445.54			
L.S.D. at 5%		1154.25		399.58		621.21		401.05		-			
C.V. %		16.50		12.89		5.59		26.12		24.77			
Error d.f.		46		46		46		46		46			
Significance		*		*		*		*		NS			
Ent. > L. Check		19		0		0		0		-			

* = Significant at $P \leq 0.05$, NS = not significant.

Table 4.1.6. The five heaviest seed yielding entries at the individual locations in the FBIYT-L during 1986/87.

	ALGERIA			ARGENTINA	CANADA	CHILE		
Rank	Guelma	Khroub	Setif	Perico	Quebec	Graneros	Hidango	Temuco
1	ILB 1814	ILB 1270	Local Check	FLIP83- 5FB	Local Check	ILB 1270	FLIP82- 54FB	79S 4
2	FLIP82- 54FB	Local Check	FLIP82- 28FB	FLIP82- 28FB	FLIP82- 28FB	FLIP83- 5FB	FLIP83- 5FB	FLIP83- 6FB
3	79S 4	79S 4	ILB 1270	FLIP83- 43FB	ILB 1821	FLIP82- 53FB	74TA 22	Local Check
4	79S 653	ILB 1814	FLIP82- 54FB	80S 80135	ILB 1270	76TA 56246	79S 653	FLIP82- 28FB
5	FLIP82- 25FB	74TA 22	FLIP83- 43FB	FLIP82- 53FB	FLIP83- 5FB	FLIP82- 54FB	ILB 1270	FLIP82- 54FB

Cont'd 2/..

	CYPRUS	ECUADOR	EGYPT	ETHIOPIA	IRAN	ITALY	LEBANON	LIBYA
Rank	Athalassa	Santa Catalina	Sakha	Debre Zeit	Hassan Abad	Catania	Terbol	Banghazi
1	ILB 1270	Local Check	80S 44027	Local Check	FLIP82- 54FB	Local Check	FLIP82- 29FB	ILB 1821
2	79S 4	FLIP83- 17FB	FLIP82- 53FB	FLIP83- 43FB	ILB 1815	80S 80135	74TA 22	FLIP83- 43FB
3	FLIP82- 45FB	ILB 1270	FLIP82- 27FB	80S 44027	74TA 22	FLIP82- 30FB	79S 4	FLIP82- 28FB
4	80S 44027	80S 80135	Local Check	FLIP82- 53FB	79S 653	FLIP83- 5FB	FLIP82- 27FB	80S 80135
5	FLIP82- 54FB	FLIP82- 28FB	FLIP82- 29FB	80S 80135	ILB 1821	ILB 1270	FLIP83- 43FB	FLIP82- 29FB

Cont'd 2/..

	LIBYA	MOROCCO	PAKISTAN	PERU	PORTUGAL	SYRIA		
Rank	El Safsaf	Douyet	Islamabad	Cusco	Elvas	Deir-oz-zor	Gelline	Hama
1	Local Check	FLIP82- 30FB	FLIP83- 6FB	Local Check	79S 653	FLIP82- 54FB	76TA 56246	Local Check
2	ILB 1270	80S 44027	FLIP83- 17FB	FLIP83- 43FB	79S 4	FLIP82- 45FB	FLIP82- 54FB	FLIP82- 27FB
3	FLIP82- 54FB	74TA 22	FLIP82- 45FB	ILB 1270	FLIP82- 27FB	ILB 1270	FLIP83- 5FB	79S 653
4	FLIP83- 6FB	FLIP82- 29FB	FLIP82- 53FB	ILB 1815	ILB 1814	FLIP82- 53FB	FLIP83- 6FB	ILB 1270
5	FLIP82- 45FB	FLIP82- 28FB	FLIP82- 29FB	FLIP82- 45FB	FLIP82- 25FB	FLIP83- 6FB FLIP83- 43FB	FLIP82- 45FB	ILB 1821

Cont'd 2/..

	SYRIA		TUNISIA			TURKEY		
Rank	Homs	Tel Hadya	Beja	El Kef	Oued Meliz	Antalya	Diyarbakir	Izmir
1	FLIP82- 29FB	ILB 1270	ILB 1270	FLIP82- 27FB	ILB 1270	FLIP82- 30FB	FLIP82- 25FB	FLIP82- 54FB
2	ILB 1821	FLIP83- 43FB	74TA 22	79S 653	80S 80135	ILB 1814	80S 80135	79S 4
3	FLIP82- 27FB	FLIP82- 45FB	FLIP83- 17FB	FLIP83- 17FB	Local Check	79S 653	FLIP83- 6FB	FLIP82- 25FB
4	FLIP83- 6FB	80S 44027	76TA 56246	80S 80135	FLIP83- 43FB	FLIP82- 27FB	79S 4	79S 653
5	79S 653	74TA 22	ILB 1815	FLIP82- 29FB 74TA 22	79S 653 79S 4	FLIP82- 45FB FLIP82- 54FB	ILB 1821	74TA 22

The brackets indicate entries having the same rank.

revealed that most of the materials were not adapted at Santa Catalina in Ecuador and Debre Zeit in Ethiopia.

The five heaviest seed yielding entries at individual locations are listed in Table 4.1.6. It was observed that among the entries, Reina Blanca (ILB 1270) occurred more frequently among the top five heaviest yielders at different locations and was followed by FLIP 82- 54FB and 79S653 these lines were comparatively more adaptable as compared to others.

The mean performance of common entries over 1985/86 and 1986/87 are given in Table 4.1.7. It was observed that Reina Blanca ranked number 1 with 3079 kg/ha and was closely followed by 74TA22, Lattakia Local, 79S4, and FLIP83- 5FB with seed yields of 2926, 2878, 2873 and 2866 respectively.

Table 4.1.7. The mean seed yield (Y=kg/ha) and rank (R) of the common entries in FBIYT-L during 1985/86 and 1986/87.

Entry Name	1985/86		1986/87		Mean	
	Y	R	Y	R	Y	R
FLIP82- 25FB	2947	5	2624	9	2786	7
FLIP82- 27FB	2726	9	2702	8	2714	9
FLIP83- 5FB	2916	6	2815	2	2866	5
74 TA 22	3102	3	2750	5	2926	2
76 TA 56246	2586	10	2778	3	2682	10
79 S4	2989	4	2757	4	2873	4
79 S653	2895	7	2713	6	2804	6
Lattakia Local (ILB 1815)	3142	2	2614	10	2878	3
Reina Blanca (ILB 1270)	3144	1	3013	1	3079	1
Turkish Local (ILB 1821)	2792	8	2705	7	2749	8
ILB 3187	2152	11	1529	11	1841	11

4.2. FABA BEAN INTERNATIONAL YIELD TRIAL-SMALL SEED (FBIYT-S)

Material

The Faba Bean International Yield Trial - Small Seed (FBIYT-S) comprised 23 test entries and one local check to be supplied by the cooperator. These entries were selected on the basis of their performance either in International Screening Nursery-Small Seed or FBIYT-S conducted during the previous season.

Methods and Management

The material was suggested to be sown in a randomized complete block design with 3 replications. The suggested plot size was 4 rows 4 m long with inter row spacings of 0.5 m accomodating 140 seeds per plot. Thirty four sets of trial were distributed to cooperators in 23 countries. Results were reported from 21 trials covering 18 countries. Agronomic data received from the cooperators are presented in Table 4.2.1.

Results and Discussion

The location mean for time to flowering (Table 4.2.2.) ranged from 49 days for Shambat (Sudan) to 138 days for Larissa (Greece). The overall mean for entries ranged from 88 days for FLIP83- 96FB to 93 days for 80S 45676 and 80S 43064. In general, early flowering locations were earlier in maturity (Table 4.2.3). The plant height (Table 4.2.4) at Mushagar in Jordan was minimum (52 cm) and was closely followed by Darul Aman in Afghanistan (55 cm). The mean plant height for entries over locations ranged from 73 cm for 76TA 56267 and ILB 3188 to 84 cm for FLIP83-127FB.

The mean seed yield and rank of entries at different locations are given in Table 4.2.5. The mean seed yield at Quebec in Canada was maximum (4852 kg/ha) and this was closely followed by El Kef in Tunisia (4829 kg/ha). At a few more locations namely, Tel Hadya in Syria, Hassan Abad in Iran, Beja in Tunisia and Terbol in Lebanon seed yields were high and ranged between 3017 to 3772 kg/ha. The ANOVA for the experimental design for seed yield revealed that the differences between entry means were significant at 15 out of 20 locations. Only at three locations namely, Catania in Italy, Terbol in Lebanon and Islamabad in Pakistan 1, 2 and 1 entries, respectively, exceeded the local check in seed yield by a significant margin. The overall mean of entries over locations indicated that FLIP83-95 FB was the top yielder (2323kg/ha) and was followed by FLIP83- 96FB, FLIP82- 35FB, FLIP82- 24FB and 74TA 95, with seed yields of 2304, 2269, 2233 and 2220 kg/ha, respectively. The top five heaviest yielders at each location are given in Table 4.2.6.

It was observed that the frequency of occurrence of the entries among the top five yielders was highest for FLIP83- 95FB and was closely followed by FLIP82- 35FB, FLIP83- 96FB, FLIP83-127FB and 78S49288, etc. The overall mean yield and rank of the common entries during 1985/86 and 1986/87 are given in Table 4.2.7. It was observed that the entries 80S 46121, 80S 43977 and 74TA 95 performed better than the others.

Table 4.2.7. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in FBIYT-S during 1985/86 and 1986/87.

Entry Name	1985/86		1986/87		Mean	
	Y	R	Y	R	Y	R
FLIP82- 24 FB	3057	7	2233	1	2645	6
74TA 91	3227	3	2131	7	2679	4
74TA 95	3154	5	2220	2	2687	3
78S 49288	2963	10	2189	4	2576	9
80S 43064	2924	11	1994	11	2459	11
80S 43977	3308	1	2131	7	2720	2
80S 45676	3051	8	2082	10	2567	10
80S 46121	3303	2	2189	4	2746	1
80S 50088	3159	4	2143	6	2651	5
ILB 3188	1529	12	1196	12	1363	12
Giza 3	3044	9	2204	3	2624	7
Syrian Local Short Pod	3073	6	2110	9	2592	8

Table 4.2.1. Agronomic data for different locations in the FBIYT-S during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman	18.06.87	06.09.87	30	60		7	-	Maidan - 1
ALGERIA	Sidi Bel Abbes	09.12.86	-	15	90		-	-	Quarantin
BULGARIA	Toshevo	14.11.86	-		80		-	-	
CANADA	Quebec	20.05.87	25.09.87	13	90		-	Treflan, Sencor, Thiram	Out Look
CYPRUS	Dromolaxia	09.12.86	21.05.87	21	48		-	Treflan, Pirimor	Local (ARI 00139)
ETHIOPIA	Debre Zeit	30.06.87	30.10.87	-			-	-	NC58
IRAN	Hassan Abad	25.12.86	15.05.87		120		9	Ambush	Zohreh
ITALY	Catania	03.12.86	11.06.87	45	90		-	Propyzamide, Simazine	Sikania
ITALY	Tarquinia	11.12.86	17.07.87	54	138		-	Nebutrin	Tarquinia
JORDAN	Mushagar	17.01.87	10.06.87	20	60		-	-	Local
LEBANON	Terbol	07.12.86	25.07.87		50		2	Kerb, Igran	
LIBYA	Banghazi	15.11.86	14.05.87	200	150		1	Malathion	-
PAKISTAN	Islamabad								
PORTUGAL	Elvas	03.11.86	09.06.87		72	60	-	-	Befa
SYRIA	Tel Hadya	10.11.86	20.06.87	30	50		4	Dithane, Bravo, Ronilon, Supracide Lancer	Syrian Local Large (ILB 1814)
SPAIN	Carmona (Sevilla)	20.11.86	25.06.87	-			-	Topogard, Rogor	Palacio
SUDAN	Shambat	30.10.86	02.03.87	-			9	Folimat	H , 72
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA

NA = Not available.

Table 4.2.2. Time to flowering (days) of entries at different locations in the FBIYT-S during 1986/87.

Pedigree	ILB Cross No.	AFGHANISTAN Darul Aman	ALGERIA Sidi Bel-Abbes	CANADA Quebec	CYPRUS Dromolaxia	EGYPT Sids	ETHIOPIA Debre Zeit	GREECE Larissa	IRAN Hassan-Abad	ITALY Catania
FLIP 82- 9 FB	X75TA43	57	89	48	71	64	60	135	91	125
FLIP 82- 12 FB	X75TA105	59	90	48	70	66	63	138	93	127
FLIP 82- 24 FB	X77Sd100	61	90	52	71	61	65	140	94	126
FLIP 82- 35 FB	X75TA14	60	89	51	70	66	64	140	102	127
FLIP 83- 1 FB	5	61	90	49	69	67	63	138	93	126
FLIP 83- 50 FB	S81047	58	90	49	72	65	69	140	94	127
FLIP 83- 95 FB	Sd77061	57	89	49	72	62	63	135	90	127
FLIP 83- 96 FB	Sd77061	57	89	49	70	61	60	135	89	127
FLIP 83-100 FB	80S 44358	58	93	48	71	67	61	138	92	126
FLIP 83-127 FB	1266	57	93	51	71	67	69	138	90	127
74TA 91	32	58	89	51	71	68	68	138	92	126
74TA 95	33	57	89	48	70	63	60	138	93	126
76TA 56267	1817	59	93	53	71	66	70	137	92	127
78S 49288	112	60	89	54	70	67	68	138	91	126
80S 43064	X75TA3	61	96	51	74	71	74	140	96	126
80S 43651	X75TA33	57	89	49	70	64	61	137	92	126
80S 43977	X77TA60	58	93	51	72	69	69	138	94	128
80S 45676	X77Sd11	62	93	54	74	71	74	140	96	128
80S 46121	X77Sd70	60	89	54	72	70	68	140	95	127
80S 50088	X75TA150	58	94	51	71	69	68	140	93	127
ILB 3188	3188	60	96	55	70	68	74	135	95	128
Giza 3	1819	58	89	48	69	62	61	138	92	126
Syrian Local Short Pod	1812	51	89	53	70	69	73	135	93	126
Local Check	-	62	89	52	62	54	59	144	92	126
Location Mean		**59**	**91**	**51**	**71**	**66**	**66**	**138**	**93**	**126**
S.E. of Mean		1.91	0.53	1.26	0.76	0.90	1.47	1.86	2.38	0.49
L.S.D. at 5%		-	1.51	3.02	2.16	2.56	4.20	-	-	1.40
C.V. %		5.66	1.01	0.94	1.86	2.37	3.87	2.34	4.44	0.67
Error d.f.		46	46	23	46	46	46	46	46	46
Significance		NS	*	*	*	*	*	NS	NS	*

Cont'd. ...

Table 4.2.2. Cont'd. ...

Pedigree	ILB/ Cross No.	ITALY Tarquinia	JORDAN Mushagar	LEBANON Terbol	LIBYA Banghazi	PORTUGAL Elvas	SPAIN Sevilla	SUDAN Shambat	SYRIA Tel Hadya	Overall Mean
FLIP 82- 9 FB	X75TA43	139	80	113	81	108	102	46	102	89
FLIP 82- 12 FB	X75TA105	137	80	115	81	110	96	50	102	90
FLIP 82- 24 FB	X77Sd100	137	80	113	81	112	102	49	102	90
FLIP 82- 35 FB	X75TA14	140	82	113	81	110	95	50	103	91
FLIP 83- 1 FB	5	131	80	114	81	113	97	48	103	90
FLIP 83- 50 FB	S81047	140	82	113	81	113	98	50	103	91
FLIP 83- 95 FB	Sd77061	131	82	113	81	114	100	49	102	89
FLIP 83- 96 FB	Sd77061	138	82	112	81	107	97	43	102	88
FLIP 83-100 FB	80S 44358	131	80	113	82	115	100	50	103	90
FLIP 83-127 FB	1266	138	82	115	83	113	98	48	105	91
74TA 91	32	140	82	113	83	113	95	50	103	91
74TA 95	33	131	82	113	81	116	100	44	103	89
76TA 56267	1817	137	82	113	84	115	95	50	104	91
78S 49288	112	137	80	113	81	112	96	51	101	90
80S 43064	X75TA3	139	80	115	87	119	97	55	107	93
80S 43651	X75TA33	138	82	114	81	116	95	49	102	90
80S 43977	X77TA60	131	82	114	86	117	97	49	105	91
80S 45676	X77Sd11	137	82	114	88	117	97	51	106	93
80S 46121	X77Sd70	140	82	113	82	115	97	49	106	92
80S 50088	X75TA150	140	82	114	85	116	95	49	103	91
ILB 3188	3188	126	82	112	88	117	100	58	105	92
Giza 3	1819	140	82	112	81	109	96	45	103	89
Syrian Local Short Pod	1812	133	80	115	82	115	97	49	102	90
Local Check	-	137	82	113	-	124	96	42	103	
Location Mean		**136**	**81**	**113**	**83**	**114**	**97**	**49**	**103**	
S.E. of Mean		0.48		0.81	0.56	2.20	2.32	0.84	1.13	
L.S.D. at 5%		1.37		-	1.59	6.27	-	2.38	3.23	
C.V. %		0.61		1.24	1.17	3.35	4.12	2.96	1.90	
Error d.f.		46		46	44	46	46	46	46	
Significance		*		NS	*	*	NS	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 4.2.3. Time to maturity (days) of entries at different locations in the FBIYT-S during 1986/87.

Pedigree	ILB/ Cross No.	AFGHANISTAN Darul Aman	CANADA Quebec	ETHIOPIA Debre-Zeit	GREECE Lari-ssa	IRAN Hassan Abad	ITALY Cata-nia	ITALY Tar-quinia	JORDAN Musha-gar	LEBANON Terbol	PORTUGAL Elvas	SUDAN Sham-bat	SYRIA Tel-Hadya	Overall Mean
FLIP 82- 9 FB	X75TA43	110	128	111	195	187	189	199	132	186	196	139	187	163
FLIP 82- 12 FB	X75TA105	110	128	108	197	190	190	196	132	186	199	139	188	164
FLIP 82- 24 FB	X77Sd100	108	123	113	195	192	189	202	132	186	196	139	187	163
FLIP 82- 35 FB	X75TA14	112	128	112	197	193	191	199	132	186	200	138	188	165
FLIP 83- 1 FB	5	111	128	108	195	189	190	199	132	185	196	137	189	163
FLIP 83- 50 FB	S81047	111	128	108	197	189	190	198	132	186	196	138	189	164
FLIP 83- 95 FB	Sd77061	107	128	112	195	194	189	186	132	185	196	140	188	163
FLIP 83- 96 FB	Sd77061	109	128	111	195	194	190	201	132	185	199	137	189	164
FLIP 83-100 FB	80S 44358	111	128	111	196	192	190	197	132	186	196	137	190	164
FLIP 83-127 FB	1266	110	128	116	197	191	190	200	132	186	196	137	188	164
74TA 91	32	112	128	112	197	191	190	201	132	186	196	138	187	164
74TA 95	33	109	128	110	195	191	189	197	132	186	201	138	189	164
76TA 56267	1817	113	128	119	195	188	190	195	132	186	196	139	188	164
78S 49288	112	110	128	111	197	192	189	199	132	186	200	137	190	164
80S 43064	X75TA3	110	128	117	197	193	191	199	132	186	199	138	190	165
80S 43651	X75TA33	110	132	113	195	188	189	198	132	186	199	141	189	164
80S 43977	X77TA60	109	128	114	196	189	190	195	132	185	196	136	189	163
80S 45676	X77Sd11	114	128	119	197	190	190	200	132	187	196	139	190	165
80S 46121	X77Sd70	111	128	118	197	194	190	200	132	186	196	137	189	165
80S 50088	X75TA150	110	128	111	196	193	190	200	132	187	196	137	189	164
ILB 3188	3188	108	118	112	194	184	188	189	132	185	196	139	182	161
Giza 3	1819	109	123	113	197	193	190	200	132	186	196	141	188	164
S. L. short pod	1812	110	128	112	197	193	189	199	132	187	201	137	189	165
Local Check	-	112	143	111	197	193	190	199	132	185	196	140	189	
Location Mean		**110**	**127**	**113**	**196**	**191**	**190**	**198**	**132**	**186**	**197**	**138**	**188**	
S.E. of Mean		1.09	1.77	2.06	0.70	0.81	0.57	1.74		0.52	1.71	0.53	0.70	
L.S.D. at 5%		3.10	4.22	5.86	2.00	2.32	-	4.95		-	-	1.52	2.00	
C.V. %		1.71	0.93	3.17	0.62	0.74	0.52	1.52		0.48	1.50	0.67	0.65	
Error d.f.		46	23	46	46	46	46	46		46	46	46	46	
Significance		*	*	*	*	*	NS	*		NS	NS	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 4.2.4. Plant height (cm) of entries at different locations in the FBIYT-S during 1986/87.

Pedigree	ILB/ Cross No.	AFGHANISTAN Darul Aman	CANADA Quebec	CYPRUS Dromo-laxia	ETHIOPIA Debre-Zeit	GREECE Larissa	IRAN Hassan-Abad	ITALY Catania	JORDAN Musha-gar	LEBANON Terbol	PORTUGAL Elvas	Overall Mean
FLIP 82- 9 FB	X75TA43	51	93	76	81	72	91	60	50	68	96	74
FLIP 82- 12 FB	X75TA105	51	90	65	79	70	105	59	48	68	105	74
FLIP 82- 24 FB	X77Sd100	46	85	73	76	68	107	64	60	72	94	75
FLIP 82- 35 FB	X75TA14	46	91	72	76	78	109	67	53	73	98	76
FLIP 83- 1 FB	5	56	85	65	60	67	138	60	49	77	97	75
FLIP 83- 50 FB	S81047	60	86	65	76	68	113	62	49	77	97	75
FLIP 83- 95 FB	Sd77061	57	92	66	70	77	116	59	50	72	94	75
FLIP 83- 96 FB	Sd77061	52	83	68	93	78	117	60	50	73	103	78
FLIP 83-100 FB	80S 44358	59	84	69	64	68	115	60	53	65	102	74
FLIP 83-127 FB	1266	62	110	67	86	83	121	67	57	75	109	84
74TA 91	32	61	93	66	66	75	108	62	48	70	97	75
74TA 95	33	55	108	65	70	80	116	65	52	73	105	79
76TA 56267	1817	49	86	66	57	72	113	64	49	67	108	73
78S 49288	112	51	103	63	81	77	118	60	44	78	113	79
80S 43064	X75TA3	59	92	71	80	75	129	66	56	82	106	81
80S 43651	X75TA33	54	105	72	87	82	102	59	56	83	99	80
80S 43977	X77TA60	60	83	61	70	73	111	67	52	72	106	75
80S 45676	X77Sd11	72	88	67	81	85	116	65	52	73	116	81
80S 46121	X77Sd70	57	88	71	82	82	119	64	57	75	109	80
80S 50088	X75TA150	57	91	67	79	77	122	69	56	72	114	80
ILB 3188	3188	54	81	65	61	82	109	62	63	67	89	73
Giza 3	1819	55	82	65	81	75	113	63	52	68	99	75
Syrian Local Short Pod	1812	63	103	62	69	77	114	63	48	67	101	77
Local Check	-	46	120	53	84	77	107	59	40	68	111	
Location Mean		**55**	**92**	**67**	**75**	**76**	**114**	**63**	**52**	**72**	**103**	
S.E. of Mean		2.63	7.25	4.35	5.28	3.24	2.40	2.36		3.14	5.66	
L.S.D. at 5%		7.47	17.33	-	15.02	9.23	6.82	-		8.93	-	
C.V. %		8.21	11.11	11.29	12.12	7.42	3.65	6.51		7.52	9.54	
Error d.f.		46	23	46	46	46	46	46		46	46	
Significance		*	*	NS	*	*	*	NS		*	NS	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 4.2.5. Seed yield(Y=kg/ha) and rank (R) of entries at different locations in the FBIYT-S during 1986/87.

Pedigree	ILB/ Cross No.	AFGHANISTAN Darul Aman		CANADA Quebec		CYPRUS Dromolaxia		EGYPT Sids		ETHIOPIA Debre Zeit		GREECE Larissa		IRAN Hassan Abad	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 9 FB	X75TA43	564	11	4747	14	1561	14	556	12	476	5	2044	22	2889	23
FLIP 82- 12 FB	X75TA105	663	3	5661	3	1414	22	296	18	263	10	2167	21	4194	1
FLIP 82- 24 FB	X77Sd100	343	21	4667	16	1634	10	1380	2	156	16	2689	10	3889	8
FLIP 82- 35 FB	X75TA14	585	10	5623	4	2141	1	324	17	176	14	2922	3	4006	4
FLIP 83- 1 FB	5	478	18	5286	8	1799	4	620	9	182	13	2522	14	3750	10
FLIP 83- 50 FB	S81047	744	1	3759	23	1756	6	1019	4	270	8	2256	20	3161	22
FLIP 83- 95 FB	Sd77061	491	15	4299	18	1573	13	1806	1	479	4	3211	1	3744	12
FLIP 83- 96 FB	Sd77061	614	7	5759	2	1688	8	1157	3	787	2	2844	6	4000	5
FLIP 83-100 FB	80S 44358	586	9	5076	11	1828	3	639	8	129	18	2522	15	4028	2
FLIP 83-127 FB	1266	515	12	4191	20	1798	5	602	10	288	6	2767	8	3672	15
74TA 91	32	637	5	4969	12	1442	20	435	15	119	20	2278	19	3211	21
74TA 95	33	666	2	5444	6	1502	17	213	20	103	21	2444	16	3217	20
76TA 56267	1817	479	17	4196	19	1680	9	574	11	157	15	2567	13	3750	9
78S 49288	112	335	22	4141	21	1494	19	130	22	123	19	2578	12	3750	11
80S 43064	X75TA3	367	20	5556	5	1420	21	93	24	82	22	2844	5	3272	19
80S 43651	X75TA33	494	14	4833	13	1591	12	352	16	257	12	2678	11	3728	13
80S 43977	X77TA60	609	8	4097	22	1500	18	111	23	257	11	2367	18	3278	18
80S 45676	X77Sd11	663	4	4686	15	1131	23	176	21	143	17	2789	7	3433	17
80S 46121	X77Sd70	481	16	5403	7	1962	2	750	7	264	9	2389	17	3967	6
80S 50088	X75TA150	466	19	5127	9	1524	16	556	13	272	7	2689	9	3450	16
ILB 3188	3188	71	24	2274	24	906	24	546	14	67	23	811	24	2139	24
Giza 3	1819	501	13	5087	10	1554	15	852	6	482	3	2978	2	3694	14
Syrian Local Short Pod	1812	142	23	4655	17	1626	11	231	19	23	24	1367	23	4017	3
Local Check	-	631	6	6918	1	1693	7	981	5	977	1	2878	4	3933	7
Location Mean		**505**		**4852**		**1592**		**600**		**272**		**2483**		**3591**	
S.E. of Mean		112.29		474.37		170.31		425.78		73.09		280.93		267.15	
L.S.D. at 5%		319.63		1133.31		485.78		-		208.05		799.69		760.46	
C.V. %		38.50		13.83		18.52		122.93		46.52		19.59		12.89	
Error d.f.		46		23		46		46		46		46		46	
Significance		*		*		*		NS		*		*		*	
Ent. > L. Check		0		0		0		-		0		0		0	

Cont'd. ...

Table 4.2.5. Cont'd. ...

Pedigree	ILB/ Cross No.	ITALY				JORDAN		LEBANON		LIBYA		PAKISTAN		PORTUGAL	
		Catania		Tarquinia		Mushagar		Terbol		Banghazi		Islamabad		Elvas	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 9 FB	X75TA43	1900	22	45	21	623	9	2825	19	1945	8	2500	5	1607	22
FLIP 82- 12 FB	X75TA105	2222	16	102	14	466	21	3011	14	2023	5	1334	19	2490	7
FLIP 82- 24 FB	X77Sd100	2544	7	120	12	674	5	2931	16	1657	22	2500	6	2300	11
FLIP 82- 35 FB	X75TA14	3389	1	134	10	520	18	2922	17	1698	19	1500	15	2519	6
FLIP 83- 1 FB	5	2233	14	151	7	637	7	3294	6	2276	1	2037	9	1831	21
FLIP 83- 50 FB	S81047	2000	18	178	5	559	13	3550	2	1740	18	69	24	2269	13
FLIP 83- 95 FB	Sd77061	1889	23	29	23	553	15	3126	12	2094	3	2567	4	2221	16
FLIP 83- 96 FB	Sd77061	2433	9	112	13	722	1	3233	9	1934	10	1203	20	2294	12
FLIP 83-100 FB	80S 44358	2611	6	153	6	714	2	2956	15	1936	9	1103	22	2318	10
FLIP 83-127 FB	1266	2744	4	427	3	676	4	3243	8	1916	12	2867	2	1417	24
74TA 91	32	2000	20	20	24	626	8	2747	22	2021	6	2000	11	1962	20
74TA 95	33	3167	2	129	11	531	17	3381	5	1893	13	2417	7	2803	2
76TA 56267	1817	2222	17	86	19	500	19	2770	21	1824	17	2167	8	2006	19
78S 49288	112	2433	10	147	8	572	12	3582	1	2077	4	1434	18	2755	4
80S 43064	X75TA3	2344	11	100	15	364	23	2913	18	1672	21	1202	21	2235	15
80S 43651	X75TA33	2000	19	44	22	428	22	3028	13	1878	14	3531	1	2140	17
80S 43977	X77TA60	3089	3	140	9	558	14	3454	4	1694	20	801	23	2794	3
80S 45676	X77Sd11	2222	15	93	18	500	20	3501	3	1929	11	1434	17	2382	9
80S 46121	X77Sd70	2633	5	98	16	587	11	3157	11	1875	15	1501	14	2437	8
80S 50088	X75TA150	2333	12	197	4	660	6	2795	20	2210	2	2633	3	2240	14
ILB 3188	3188	833	24	48	20	248	24	909	24	724	23	2000	10	1596	23
Giza 3	1819	1956	21	95	17	548	16	3260	7	1843	16	1468	16	2092	18
Syrian Local Short Pod	1812	2278	13	631	1	711	3	3231	10	1989	7	1800	12	2613	5
Local Check	-	2444	8	594	2	600	10	2583	23	-	-	1668	13	2849	1
Location Mean		2330		161		566		3017		1863		1822		2257	
S.E. of Mean		326.88		110.63		97.24		322.73		189.57		535.26		292.40	
L.S.D. at 5%		930.46		314.91		-		918.67		540.30		1524.65		832.34	
C.V. %		24.30		118.76		29.77		18.53		17.63		50.88		22.44	
Error d.f.		46		46		46		46		44		46		46	
Significance		*		*		NS		*		*		*		*	
Ent. > L. Check		1		0		-		2		-		1		0	

Cont'd. ...

Table 4.2.5. Cont'd. ...

Pedigree	ILB/ Cross No.	SPAIN		SUDAN		SYRIA		TUNISIA						Overall Mean	
		Sevilla		Shambat		Tel Hadya		Beja		El Kef		Oued Meliz			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 9 FB	X75TA43	2789	10	972	2	3577	20	2500	23	5833	1	1973	4	2096	19
FLIP 82- 12 FB	X75TA105	3110	4	799	8	3958	8	2700	20	4344	22	1853	8	2154	13
FLIP 82- 24 FB	X77Sd100	2442	18	671	12	4265	3	3125	15	4889	12	1793	12	2233	4
FLIP 82- 35 FB	X75TA14	3265	2	810	7	3468	22	3208	13	4522	20	1647	16	2269	3
FLIP 83- 1 FB	5	2198	21	603	14	4070	6	3399	11	4878	13	1640	17	2194	9
FLIP 83- 50 FB	S81047	2778	11	718	9	3674	17	2725	19	4833	15	1967	6	2001	21
FLIP 83- 95 FB	Sd77061	3007	6	845	6	4223	4	4000	2	4678	16	1633	18	2323	1
FLIP 83- 96 FB	Sd77061	2643	15	949	4	3844	12	3450	10	4978	8	1427	21	2304	2
FLIP 83-100 FB	80S 44358	2082	24	660	13	4358	1	3533	7	4944	10	1980	3	2208	6
FLIP 83-127 FB	1266	2952	8	394	21	4180	5	2592	22	4633	17	1833	9	2185	12
74TA 91	32	3052	5	440	19	3890	10	3175	14	5656	2	1947	7	2131	16
74TA 95	33	2667	14	509	17	3834	13	3500	8	4589	19	1387	22	2220	5
76TA 56267	1817	2351	20	521	16	3658	18	3483	9	5622	3	2127	1	2137	15
78S 49288	112	3134	3	697	10	3770	14	3617	5	4978	9	2027	2	2189	10
80S 43064	X75TA3	3436	1	289	23	2913	23	2758	18	4400	21	1627	19	1994	22
80S 43651	X75TA33	2173	22	868	5	3920	9	3592	6	5000	7	1603	20	2207	7
80S 43977	X77TA50	2862	9	521	15	3570	21	3933	3	5011	6	1967	5	2131	17
80S 45676	X77Sd11	2696	13	359	22	3718	15	3267	12	4833	14	1687	15	2082	20
80S 46121	X77Sd70	2629	16	451	18	3578	19	2892	17	4911	11	1807	11	2189	11
80S 50088	X75TA150	2365	19	671	11	4269	2	2645	21	4067	23	1693	14	2143	14
ILB 3188	3188	2500	17	428	20	2294	24	975	24	3300	24	1193	24	1196	23
Giza 3	1819	2996	7	972	3	3982	7	3000	16	5344	4	1373	23	2204	8
Syrian Local Short Pod	1812	2725	12	278	24	3848	11	3709	4	4600	18	1717	13	2110	18
Local Check	-	2125	23	1250	1	3675	16	4075	1	5056	5	1827	10		
Location Mean		2707		653		3772		3161		4829		1739			
S.E. of Mean		442.92		169.37		318.10		337.47		454.98		183.15			
L.S.D. at 5%		-		482.12		905.47		960.62		-		-			
C.V. %		28.34		44.92		14.61		18.49		16.32		18.25			
Error d.f.		46		46		46		46		46		46			
Significance		NS		*		*		*		NS		NS			
Ent. > L. Check		-		0		0		0		-		-			

* = Significant at $P \leq 0.05$, NS = not significant.

Table 4.2.6. The five heaviest seed yielding entries at the individual locations in the FBIYT-S during 1986/87.

	AFGHANISTAN	CANADA	CYPRUS	EGYPT	ETHIOPIA	GREECE	IRAN
Rank	Darul Aman	Quebec	Dromolaxia	Sids	Debre Zeit	Larissa	Hassan Abad
1	FLIP83- 50FB	Local Check	FLIP82- 35FB	FLIP83- 95FB	Local Check	FLIP83- 95FB	FLIP82- 12FB
2	74TA 95	FLIP83- 96FB	80S 46121	FLIP82- 24FB	FLIP83- 96FB	ILB 1819	FLIP83-100FB
3	FLIP82- 12FB	FLIP82- 12FB	FLIP83-100FB	FLIP83- 96FB	ILB 1819	FLIP82- 35FB	ILB 1812
4	80S 45676	FLIP82- 35FB	FLIP83- 1FB	FLIP83- 50FB	FLIP83- 95FB	Local Check	FLIP82- 35FB
5	74TA 91	80S 43064	FLIP83-127FB	Local Check	FLIP82- 9FB	80S 43064] FLIP83- 96FB]	FLIP83- 96FB

Cont'd 2/..

	ITALY		JORDAN	LEBANON	LIBYA	PAKISTAN	PORTUGAL
Rank	Catania	Tarquinia	Mushagar	Terbol	Banghazi	Islamabad	Elvas
1	FLIP82- 35FB	ILB 1812	FLIP83- 96FB	78S 49288	FLIP83- 1FB	80S 43651	Local Check
2	74TA 95	Local Check	FLIP83-100FB	FLIP83- 50FB	80S 50088	FLIP83-127FB	74TA 95
3	80S 43977	FLIP83-127FB	ILB 1812	80S 45676	FLIP83- 95FB	80S 50088	80S 43977
4	FLIP83-127FB	80S 50088	FLIP83-127FB	80S 43977	78S 49288	FLIP83- 95FB	78S 49288
5	80S 46121	FLIP83- 50FB	FLIP82- 24FB	74TA 95	FLIP82- 12FB	FLIP82- 9FB] FLIP82- 24FB]	ILB 1812

Cont'd 2/..

	SPAIN	SUDAN	SYRIA	TUNISIA		
Rank	Sevilla	Shambat	Tel Hadya	Beja	El Kef	Oued Meliz
1	80S 43064	Local Check	FLIP83-100FB	Local Check	FLIP82- 9FB	76TA 56267
2	FLIP82- 35FB	FLIP82- 9FB]	80S 50088	FLIP83- 95FB	74TA 91	78S 49288
3	78S 49288	ILB 1819]	FLIP82- 24FB	80S 43977	76TA 56267	FLIP83-100FB
4	FLIP82- 12FB	FLIP83- 96FB	FLIP83- 95FB	ILB 1812	ILB 1819	FLIP82- 9FB
5	74TA 91	80S 43651	FLIP83-127FB	78S 49288	Local Check	80S 43977] FLIP83- 50FB]

The brackets indicate entries having the same rank.

4.3. FABA BEAN INTERNATIONAL SCREENING NURSERY-LARGE SEED (FBISN-L)

Material

The Faba bean International Screening Nursery Large Seed comprised 36 test entries and three checks. Two of the checks namely ILB 1814 and Reina Blanca (ILB 1270) were provided and the third was to be added by the cooperator. The entries in this nursery were selected on the basis of their superior performance either in local trials or from the last year's international screening nursery.

Methods and Management

The test entries and three checks were suggested to be sown in single row plots of 4 m length with inter- and intra-row spacings of 50- and 10 cm, respectively, in an augmented block design. The whole experimental unit was divided into three blocks. Forty-six sets of the nursery were distributed to the cooperators in 24 countries. The results were, however, received for 33 sets from 18 countries. The agronomic data received from the cooperators are presented in Table 4.3.1.

Results and Discussion

The entry means over all locations revealed that FLIP84-105FB and FLIP84-128FB flowered earliest in 84 days (Table 4.3.2). The mean time to maturity and plant height for entries however, ranged from 159 to 161 days, and 57 to 71 cm, respectively (Table 4.3.3 and 4.3.4).

The adjusted seed yield for the entries based on augmented design is presented in Table 4.3.5. Seed yields were very high at Antalya in Turkey (7090 kg/ha), Sakha in Egypt (5869 kg/ha), Oued Meliz (5066 kg/ha) and Beja (4872 kg/ha) in Tunisia and Islamabad in Pakistan (4924 kg/ha). Among the entries, New Mammoth with seed yield of 3659 kg/ha ranked number one and was closely followed by FLIP84-138FB (3656 kg/ha), FLIP84-114FB (3482 kg/ha), FLIP84-151FB (3462 kg/ha), FLIP84-109FB (3457 kg/ha) etc. The LSD estimates at different locations revealed that only 6 locations, namely Hidango and Temuco (Chile), Sakha (Egypt), Islamabad (Pakistan), El Kef (Tunisia), and Ankara (Turkey), 17, 4, 2, 3, 1 and 32 test entries exceeded the respective local check by a significant margin. The entry FLIP84-118FB occured most frequently among the top five heaviest yielders at various locations and was thus more adaptable. The five heaviest yielders at each location are presented in Table 4.3.6.

4.4. FABA BEAN INTERNATIONAL SCREENING NURSERY-SMALL SEED (FBISN-S)

Material

The Faba bean International Screening Nursery - Small Seed comprised 48 test entries and three checks. Two of the checks namely ILB 1814 and Reina Blanca (ILB 1270) were supplied and the third was to be added by the cooperator. The entries in this nursery were chosen from the local trials, regional trials and international screening nurseries on the basis of their superior performance.

Table 4.3.1. Agronomic data for different locations in the FBISN-L during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
ALGERIA	Guelma	12.12.86	26.06.87		70		-	Trifluralin (Treflan)	Seville
ALGERIA	Khroub	01.01.87	21.06.87	17	45		-	Treflan	Seville
ALGERIA	Setif	NA			100		-	Treflan	Seville
BANGLADESH	Mymensingh	25.11.86	03.87	-			1	-	Pb.1 (Manikganj Local)
BULGARIA	Toshevo	14.11.86	-	-			-	-	-
CANADA	Quebec	13.05.87	17.09.87	23	90		-	Treflan, Sencor, Thiram	Arnaud
CHILE	Chillan	16.06.87			90		-	-	Local
CHILE	Hidango	25.06.87	11.12.87	20	35		-	Benlate	Haba Grande
CHILE	Temuco	23.09.87	25.01.88		60	75	-	Trifluralin, Benomyl, Phoxim	"ASIA"
ECUADOR	Santa Catalina	01.12.86	29.07.87	82	92		-	Afalon	E - 032 - 303
EGYPT	Sakha	02.12.87	NA	15	30		-	Igran	Giza 3
ETHIOPIA	Debre Zeit	30.06.87	30.10.87						NC58
IRAQ	Baghdad	15.10.86	09.05.87	40	50		11	Pirimor, Decis	Local Check
IRAQ	Kurkok	30.11.86	20.05.87	40	40		8	-	
IRAQ	Meosan	27.11.86	09.05.87	46	89		8	Actellic	Cyprian
LEBANON	Terbol	07.12.86	25.07.87		50		2	Kerb, Igran	
MOROCCO	Douyet	05.12.86	21.05.87	30	70		-	Glyphosate	Aquadulce
PAKISTAN	Islamabad	10.11.86	27.04.87						
PORTUGAL	Elvas	06.11.86	26.05.87		72		-	-	Lambock
SPAIN	Cordoba	05.12.86	02.07.87	84	42		-	NA	Alameda
SYRIA	Al Ghab	27.11.86	06.06.87	30	50		-	-	Balladi Local
SYRIA	Deir-ez-zor	02.12.86	11.06.87	10	38		7	Dursban	Local Long Pod
SYRIA	Hama	29.11.86	02.06.87	25	80		3	NA	Local Check from Market
SYRIA	Idleb	03.12.86	29.04.87		60		-	-	local
SYRIA	Tel Hadya	10.11.86	20.06.87	30	50		4	Dithane, Bravo, Ronilon, Lancer Supracide	Syrian Local Large (ILB 1814)
TUNISIA	Beja	NA							
TUNISIA	El Kef	NA							
TUNISIA	Krib	NA							
TUNISIA	Oued Meliz	NA							
TURKEY	Ankara	01.04.87	13.07.87	22	60		-	Basudine	69 V1
TURKEY	Antalya	18.12.86	10.06.87	25	60		-	Igran	French Faba Bean
TURKEY	Diyarbakir	21.11.86	10.06.87	40	60		-		
TURKEY	Izmir (Menemen)	19.11.86	16.06.87	30	60		-	Trifluralin, Metasystox	Eresen - 87

NA = Not available.

Table 4.3.2. Adjusted time to flowering (days) of entries at different locations in the FBISN-L during 1986/87.

Pedigree	ILB/ Cross No.	ALGERIA			BANGLADESH	CANADA	CHILE			ECUADOR
		Guelma	Khroub	Setif	Mymensingh	Quebec	Chillan	Hidango	Temuco	Santa-Catalina
FLIP 82- 26 FB	X79S101B	89	79	95	NF	51	99	93	55	65
FLIP 82- 39 FB	X75TA209	87	76	92	NF	52	93	93	56	65
FLIP 82- 46 FB	1817	94	78	101	NF	52	100	94	58	65
FLIP 82- 48 FB	1817	90	79	101	NF	54	101	90	59	70
FLIP 83- 4 FB	12	94	77	93	NF	53	99	94	55	60
FLIP 83- 18 FB	S81055	91	79	99	NF	46	91	92	55	65
FLIP 83- 19 FB	S81056	94	79	103	NF	53	99	90	57	65
FLIP 83- 24 FB	81S 36522	94	78	99	NF	51	90	92	57	65
FLIP 83- 37 FB	S81062	89	81	98	NF	52	91	92	55	65
FLIP 83- 44 FB	78S 33201	89	79	95	NF	47	98	92	54	70
FLIP 83- 45 FB	78S 33202	87	77	92	NF	50	93	93	59	65
FLIP 84- 69 FB	S82003	87	78	95	NF	52	93	90	57	65
FLIP 84- 70 FB	S82007	89	79	100	NF	48	100	93	55	65
FLIP 84- 76 FB	S82013	88	80	103	NF	50	104	92	57	70
FLIP 84- 77 FB	S82014	91	79	99	NF	52	93	92	60	65
FLIP 84- 91 FB	S82024	91	80	95	NF	52	93	93	58	65
FLIP 84- 94 FB	S82026	89	79	98	NF	49	99	95	55	65
FLIP 84-101 FB	S82057	90	80	98	NF	53	90	95	57	65
FLIP 84-104 FB	S82061	94	76	102	NF	51	90	93	57	70
FLIP 84-105 FB	S82064	89	80	96	NF	46	91	87	54	60
FLIP 84-107 FB	S81064	88	80	101	NF	54	93	90	57	70
FLIP 84-109 FB	S81077	91	78	97	NF	46	99	92	60	65
FLIP 84-114 FB	S82092	90	76	98	NF	47	90	94	54	65
FLIP 84-118 FB	S82103	85	79	100	NF	48	104	87	55	65
FLIP 84-119 FB	S82103	91	78	99	NF	50	102	94	59	70
FLIP 84-127 FB	S82116	87	78	100	NF	50	93	92	59	70
FLIP 84-128 FB	S82118	87	78	94	NF	50	93	92	56	65
FLIP 84-138 FB	S82415	91	78	105	NF	52	91	95	58	70
FLIP 84-141 FB	S82428	90	79	101	NF	48	100	87	58	65
FLIP 84-147 FB	S82442	89	78	97	NF	46	100	87	58	65
FLIP 84-151 FB	S82471	89	77	100	NF	53	90	92	55	65
FLIP 84-153 FB	S82486	90	78	98	NF	48	101	94	57	65
74TA 63	24	87	77	95	NF	54	101	94	57	65
80S 43587	X77TA31	87	78	104	NF	47	99	94	54	60
80S 44178	X77TA72	86	78	98	NF	46	104	90	55	65
New Mammoth	1269	91	77	101	NF	49	90	90	57	70
ILB 1814	1814	90	78	98	NF	50	97	91	57	70
Reina Blanca	1270	91	78	100	NF	50	91	91	59	70
Local Check	-	89	78	103	54	50	99	90	58	101
Location Mean		**90**	**78**	**99**		**50**	**96**	**92**	**57**	**69**
S.E. of Mean		1.29	0.33	2.00		1.05	1.81	0.33	0.77	0.39
L.S.D. at 5% for:										
Checks		5.07	1.31	7.83		4.14	7.09	1.31	3.02	1.51
Test entries in the same block		8.78	2.27	13.57		7.17	12.27	2.27	5.23	2.62
Test entries in different blocks		10.14	2.62	15.67		8.28	14.17	2.62	6.04	3.02
Checks Vs test entries		8.28	2.14	12.79		6.76	11.57	2.14	4.94	2.47
C.V. %		2.49	0.74	3.50		1.00	3.27	0.63	2.34	0.97

Cont'd. ...

Table 4.3.2. Cont'd. ...

Pedigree	ILB/ Cross No.	EGYPT	ETHIOPIA	IRAQ			LEBANON	MOROCCO	PAKISTAN	PORTUGAL
		Sakha	Debre Zeit	Baghdad	Kurkok	Meesan	Terbol	Douyet *	Islamabad	Elvas
FLIP 82- 26 FB	X79S101B	53	68	79	88	65	114	97	80	109
FLIP 82- 39 FB	X75TA209	47	67	92	84	76	114	97	77	104
FLIP 82- 46 FB	1817	55	75	90	90	71	116	99	81	107
FLIP 82- 48 FB	1817	62	76	102	84	71	114	97	79	111
FLIP 83- 4 FB	12	58	61	88	91	75	116	97	79	108
FLIP 83- 18 FB	S81055	60	69	90	87	71	118	97	87	107
FLIP 83- 19 FB	S81056	68	75	79	88	72	118	99	78	109
FLIP 83- 24 FB	81S 36522	63	74	83	91	72	114	97	78	109
FLIP 83- 37 FB	S81062	55	61	90	86	71	116	97	79	106
FLIP 83- 44 FB	78S 33201	58	69	96	88	74	116	97	78	109
FLIP 83- 45 FB	78S 33202	57	74	100	85	73	116	99	79	105
FLIP 84- 69 FB	S82003	67	72	80	86	66	114	99	76	105
FLIP 84- 70 FB	S82007	55	61	97	88	69	114	97	75	106
FLIP 84- 76 FB	S82013	55	73	100	88	71	116	99	77	107
FLIP 84- 77 FB	S82014	57	74	95	87	69	116	99	78	105
FLIP 84- 91 FB	S82024	62	69	90	83	76	114	99	81	105
FLIP 84- 94 FB	S82026	58	74	76	91	70	116	97	79	109
FLIP 84-101 FB	S82057	58	73	81	89	70	114	97	80	108
FLIP 84-104 FB	S82061	53	70	82	91	72	116	97	76	115
FLIP 84-105 FB	S82064	55	60	90	86	71	114	97	75	106
FLIP 84-107 FB	S81064	67	71	97	84	69	116	99	79	105
FLIP 84-109 FB	S81077	55	67	86	85	69	116	97	79	113
FLIP 84-114 FB	S82092	53	69	88	88	68	114	97	76	108
FLIP 84-118 FB	S82103	55	67	93	90	69	116	97	79	107
FLIP 84-119 FB	S82103	67	76	98	85	71	114	97	79	111
FLIP 84-127 FB	S82116	52	-	87	87	69	116	97	77	105
FLIP 84-128 FB	S82118	47	68	88	87	73	116	97	77	104
FLIP 84-138 FB	S82415	60	73	92	85	71	116	97	80	107
FLIP 84-141 FB	S82428	55	61	96	86	71	118	97	77	106
FLIP 84-147 FB	S82442	55	66	88	85	71	116	97	78	107
FLIP 84-151 FB	S82471	58	72	97	89	72	116	97	79	109
FLIP 84-153 FB	S82486	52	67	90	84	69	114	97	77	104
74TA 63	24	62	67	92	89	71	114	97	77	105
80S 43587	X77TA31	53	60	71	89	72	116	97	76	108
80S 44178	X77TA72	55	61	96	86	71	116	97	79	106
New Mammoth	1269	58	69	91	91	72	116	97	79	109
ILB 1814	1814	60	70	94	90	69	116	97	81	111
Reina Blanca	1270	60	72	95	87	72	116	97	79	106
Local Check	-	45	59	95	86	71	115	97	78	109
Location Mean		**57**	**69**	**91**	**87**	**71**	**115**	**97**	**79**	**108**
S.E. of Mean		1.67	2.04	6.42	0.84	1.31	0.39		0.65	1.31
L.S.D. at 5% for:										
Checks		6.54	8.00	25.20	3.29	5.12	1.51		2.56	5.15
Test entries in the same block		11.33	13.85	43.64	5.70	8.87	2.62		4.44	8.92
Test entries in different blocks		13.08	15.99	50.39	6.59	10.25	3.02		5.12	10.30
Checks Vs test entries		10.69	13.06	41.15	5.38	8.37	2.47		4.18	8.41
C.V. %		5.08	5.45	12.26	1.66	3.19	0.58		1.44	2.11

Cont'd. ...

Table 4.3.2. Cont'd. ...

Pedigree	ILB/ Cross No.	SYRIA					TURKEY			(1) Overall Mean
		Deir-ez-zor	Ghab	Hama	Idleb	Tel Hadya	Ankara	Antalya	Izmir *	
FLIP 82- 26 FB	X79S101B	85	93	100	122	100	67	82	103	85
FLIP 82- 39 FB	X75TA209	85	91	96	119	100	68	82	103	85
FLIP 82- 46 FB	1817	88	92	102	119	101	67	84	103	87
FLIP 82- 48 FB	1817	86	95	100	117	106	68	83	103	88
FLIP 83- 4 FB	12	85	88	97	122	102	68	84	103	86
FLIP 83- 18 FB	S81055	88	95	102	119	99	68	84	103	87
FLIP 83- 19 FB	S81056	87	94	103	113	104	68	86	103	87
FLIP 83- 24 FB	81S 36522	86	94	101	122	102	68	85	103	87
FLIP 83- 37 FB	S81062	88	80	96	119	99	67	84	103	85
FLIP 83- 44 FB	78S 33201	87	88	102	118	100	66	83	103	86
FLIP 83- 45 FB	78S 33202	86	95	100	118	102	67	84	103	86
FLIP 84- 69 FB	S82003	86	97	96	116	101	65	82	103	85
FLIP 84- 70 FB	S82007	86	88	101	115	97	68	82	103	86
FLIP 84- 76 FB	S82013	85	94	104	119	99	67	84	103	87
FLIP 84- 77 FB	S82014	85	96	96	118	99	68	81	103	86
FLIP 84- 91 FB	S82024	88	94	99	115	106	66	83	103	87
FLIP 84- 94 FB	S82026	85	88	-	118	100	66	84	103	86
FLIP 84-101 FB	S82057	86	88	102	122	100	68	83	103	86
FLIP 84-104 FB	S82061	89	95	98	122	105	67	83	103	87
FLIP 84-105 FB	S82064	84	88	96	119	99	66	81	103	84
FLIP 84-107 FB	S81064	88	96	101	114	104	67	84	103	87
FLIP 84-109 FB	S81077	89	95	103	119	101	68	85	103	86
FLIP 84-114 FB	S82092	86	87	102	118	100	69	83	103	85
FLIP 84-118 FB	S82103	88	95	101	119	99	68	82	103	86
FLIP 84-119 FB	S82103	87	96	100	115	100	68	83	103	88
FLIP 84-127 FB	S82116	87	96	101	115	101	68	81	103	86
FLIP 84-128 FB	S82118	85	89	95	115	100	66	80	103	84
FLIP 84-138 FB	S82415	88	89	103	119	103	66	85	103	87
FLIP 84-141 FB	S82428	86	89	101	119	97	67	82	103	86
FLIP 84-147 FB	S82442	88	89	101	119	97	66	82	103	85
FLIP 84-151 FB	S82471	86	93	-	119	98	69	85	103	87
FLIP 84-153 FB	S82486	88	96	100	116	99	68	81	103	86
74TA 63	24	88	91	96	120	103	68	83	103	87
80S 43587	X77TA31	85	88	101	119	100	68	82	103	85
80S 44178	X77TA72	85	89	100	119	99	68	82	103	86
New Mammoth	1269	89	94	102	118	102	67	83	103	87
ILB 1814	1814	87	92	102	119	103	67	84	103	87
Reina Blanca	1270	87	92	101	118	102	68	83	103	87
Local Check	-	88	95	98	117	100	67	84	103	
Location Mean		**87**	**92**	**100**	**118**	**101**	**67**	**83**	**103**	
S.E. of Mean		0.88	0.84	0.56	1.05	1.35	0.47	0.73		
L.S.D. at 5% for:										
Checks		3.46	3.29	2.20	4.10	5.29	1.85	2.88		
Test entries in the same block		6.00	5.70	3.82	7.11	9.16	3.21	4.98		
Test entries in different blocks		6.92	6.59	4.41	8.21	10.58	3.70	5.75		
Checks Vs test entries		5.65	5.38	3.60	6.70	8.64	3.02	4.70		
C.V. %		1.76	1.58	1.07	1.53	2.31	1.21	1.53		

(1) Debre Zeit and Hama were excluded from the overall mean.
NF = Not flowered, * = Locations not analysed and thus mean values are unadjusted.

Table 4.3.3. Adjusted time to maturity (days) of entries at diferent locations in the FBISN-L during 1986/87.

Pedigree	ILB/ Cross No.	ALGERIA	BANGLADESH	CANADA	CHILE		ECUADOR	ETHIOPIA	IRAQ		LEBANON
		Guelma	Mymensingh	Quebec	Chillan	Temuco *	Santa-Catalina *	Debre-Zeit	Kurkok	Meesan	Terbol
FLIP 82- 26 FB	X79S101B	180	NM	126	172	120	-	115	163	150	187
FLIP 82- 39 FB	X75TA209	179	NM	124	168	120	240	111	161	153	187
FLIP 82- 46 FB	1817	181	NM	124	172	120	240	111	161	157	185
FLIP 82- 48 FB	1817	179	NM	124	174	120	-	112	163	154	187
FLIP 83- 4 FB	12	180	NM	123	172	120	240	116	164	154	187
FLIP 83- 18 FB	S81055	181	NM	124	166	120	-	113	162	153	187
FLIP 83- 19 FB	S81056	180	NM	123	172	120	240	111	163	150	187
FLIP 83- 24 FB	81S 36522	180	NM	126	166	120	240	112	161	151	187
FLIP 83- 37 FB	S81062	181	NM	126	166	120	240	113	157	153	187
FLIP 83- 44 FB	78S 33201	180	NM	123	172	120	240	106	162	152	187
FLIP 83- 45 FB	78S 33202	179	NM	124	168	120	240	108	163	156	187
FLIP 84- 69 FB	S82003	179	NM	124	168	120	-	107	158	160	187
FLIP 84- 70 FB	S82007	181	NM	124	172	120	240	112	162	155	185
FLIP 84- 76 FB	S82013	179	NM	124	178	120	240	110	159	155	187
FLIP 84- 77 FB	S82014	181	NM	124	168	120	-	106	164	152	187
FLIP 84- 91 FB	S82024	181	NM	124	168	120	240	118	160	157	185
FLIP 84- 94 FB	S82026	180	NM	125	172	120	240	118	163	150	187
FLIP 84-101 FB	S82057	180	NM	123	166	120	240	116	164	152	187
FLIP 84-104 FB	S82061	180	NM	123	166	120	-	113	165	155	187
FLIP 84-105 FB	S82064	181	NM	124	166	120	-	115	161	151	187
FLIP 84-107 FB	S81064	181	NM	124	168	120	-	116	160	154	187
FLIP 84-109 FB	S81077	181	NM	124	172	120	240	114	159	154	187
FLIP 84-114 FB	S82092	180	NM	123	166	120	240	108	161	151	187
FLIP 84-118 FB	S82103	179	NM	124	178	120	-	110	157	155	187
FLIP 84-119 FB	S82103	181	NM	124	174	120	240	115	164	153	185
FLIP 84-127 FB	S82116	179	NM	124	168	120	-	-	161	159	187
FLIP 84-128 FB	S82118	179	NM	124	168	120	-	112	161	156	185
FLIP 84-138 FB	S82415	181	NM	124	172	120	240	121	159	150	187
FLIP 84-141 FB	S82428	181	NM	124	172	120	240	118	157	154	187
FLIP 84-147 FB	S82442	179	NM	124	172	120	-	117	161	155	187
FLIP 84-151 FB	S82471	180	NM	123	166	120	-	110	165	150	185
FLIP 84-153 FB	S82486	181	NM	124	174	120	-	113	161	153	187
74TA 63	24	179	NM	124	174	120	-	105	164	159	187
80S 43587	X77TA31	180	NM	123	172	120	-	113	164	153	187
80S 44178	X77TA72	179	NM	124	178	120	240	114	160	157	187
New Mammoth	1269	180	NM	123	166	120	240	120	165	151	187
ILB 1814	1814	180	NM	125	171	120	240	108	162	156	187
Reina Blanca	1270	181	NM	124	167	120	240	119	162	153	185
Local Check	-	180	116	124	173	122	240	110	160	155	187
Location Mean		**180**	**116**	**124**	**171**	**120**	**240**	**112**	**161**	**154**	**187**
S.E. of Mean		0.61		0.58	1.16			1.35	1.03	0.61	0.10
L.S.D. at 5% for:											
Checks		2.39		2.27	4.53			5.32	4.03	2.39	0.38
T.E. in the same block		4.14		3.93	7.85			9.21	6.99	4.14	0.65
T.E. in different blocks		4.78		4.53	9.07			10.63	8.07	4.78	0.76
Checks Vs test entries		3.90		3.70	7.40			8.68	6.59	3.90	0.62
C.V. %		0.59		0.39	1.17			2.18	1.10	0.69	0.09

Cont'd. ...

Table 4.3.3. Cont'd. ...

Pedigree	ILB/ Cross No.	MOROCCO	PAKISTAN	PORTUGAL	SYRIA					TURKEY	(1) Overall Mean
		Douyet *	Islamabad	Elvas *	Deir-ez-zor	Al Ghab	Hama	Idleb Tel Hadya		Ankara	
FLIP 82- 26 FB	X79S101B	159	160	194	164	164	173	150	188	99	159
FLIP 82- 39 FB	X75TA209	159	167	194	169	165	176	146	190	101	160
FLIP 82- 46 FB	1817	160	168	194	172	164	177	147	189	102	161
FLIP 82- 48 FB	1817	159	167	194	171	163	176	146	189	101	160
FLIP 83- 4 FB	12	159	168	194	163	164	173	150	188	99	160
FLIP 83- 18 FB	S81055	159	169	194	173	165	176	146	189	102	160
FLIP 83- 19 FB	S81056	160	167	194	163	162	173	148	187	100	159
FLIP 83- 24 FB	81S 36522	159	168	194	164	162	174	150	188	100	159
FLIP 83- 37 FB	S81062	159	166	194	171	162	177	147	189	102	160
FLIP 83- 44 FB	78S 33201	159	168	194	170	164	174	145	188	98	160
FLIP 83- 45 FB	78S 33202	160	168	194	168	165	177	146	191	100	160
FLIP 84- 69 FB	S82003	160	167	194	168	164	176	146	190	96	160
FLIP 84- 70 FB	S82007	159	168	194	168	163	176	146	187	102	160
FLIP 84- 76 FB	S82013	160	167	194	167	162	175	146	187	101	160
FLIP 84- 77 FB	S82014	160	167	194	169	166	176	148	189	102	160
FLIP 84- 91 FB	S82024	160	169	194	169	166	176	148	189	97	160
FLIP 84- 94 FB	S82026	159	169	194	172	164	174	146	190	98	160
FLIP 84-101 FB	S82057	159	170	194	166	163	175	150	189	101	160
FLIP 84-104 FB	S82061	160	170	194	172	164	175	145	188	100	160
FLIP 84-105 FB	S82064	159	171	194	164	163	176	145	189	99	159
FLIP 84-107 FB	S81064	160	170	194	169	165	175	148	189	98	160
FLIP 84-109 FB	S81077	159	166	194	172	164	177	146	187	103	160
FLIP 84-114 FB	S82092	159	168	194	169	162	175	147	190	103	160
FLIP 84-118 FB	S82103	159	170	194	160	164	176	146	189	101	160
FLIP 84-119 FB	S82103	159	167	194	171	165	176	148	188	100	160
FLIP 84-127 FB	S82116	159	169	194	168	164	176	146	190	100	160
FLIP 84-128 FB	S82118	159	167	194	168	165	176	146	189	98	160
FLIP 84-138 FB	S82415	159	170	194	167	164	177	147	190	100	160
FLIP 84-141 FB	S82428	159	170	194	169	162	177	148	189	100	160
FLIP 84-147 FB	S82442	159	169	194	164	163	176	146	187	98	160
FLIP 84-151 FB	S82471	159	168	194	172	162	176	147	190	103	160
FLIP 84-153 FB	S82486	159	169	194	168	162	176	148	188	101	160
74TA 63	24	159	167	194	168	165	176	147	189	100	161
80S 43587	X77TA31	159	170	194	173	163	175	145	188	101	160
80S 44178	X77TA72	159	166	194	165	162	175	148	189	102	160
New Mammoth	1269	159	170	194	173	162	174	144	188	100	160
ILB 1814	1814	159	169	194	170	164	177	149	190	100	161
Reina Blanca	1270	159	168	194	168	163	176	146	189	101	160
Local Check	-	159	167	194	171	165	174	144	186	101	
Location Mean		**159**	**168**	**194**	**169**	**164**	**175**	**146**	**188**	**100**	
S.E. of Mean			0.58		1.56	0.69	0.19	1.10	0.73	0.51	
L.S.D. at 5% for:											
Checks			2.27		6.14	2.72	0.76	4.31	2.88	2.00	
T.E. in the same block			3.93		10.63	4.72	1.31	7.46	4.98	3.46	
T.E. in the different blocks			4.53		12.27	5.45	1.51	8.61	5.75	4.00	
Checks Vs test entries			3.70		10.02	4.45	1.23	7.03	4.70	3.26	
C.V. %			0.60		1.61	0.73	0.19	1.30	0.67	0.88	

(1) Debre Zeit and Santa Catalina were excluded from the overall mean.
NM = No maturity, T.E. = Test entries, * = Locations not analysed and thus mean values are unadjusted.

Table 4.3.4. Adjusted plant height (cm) of entries at different locations in the FBISN-L during 1986/87.

Pedigree	ILB/ Cross No.	ALGERIA			BANGLADESH	CANADA	CHILE		
		Guelma	Khroub	Setif	Mymensingh	Quebec	Chillan	Hidango	Temuco
FLIP 82- 26 FB	X79S101B	109	62	12	44	72	43	80	57
FLIP 82- 39 FB	X75TA209	84	54	18	41	72	50	75	52
FLIP 82- 46 FB	1817	110	69	21	33	82	57	67	52
FLIP 82- 48 FB	1817	93	56	14	49	71	60	73	52
FLIP 83- 4 FB	12	103	62	19	42	65	38	81	57
FLIP 83- 18 FB	S81055	102	56	18	41	69	42	76	52
FLIP 83- 19 FB	S81056	98	60	10	28	68	53	81	52
FLIP 83- 24 FB	81S 36522	93	60	11	38	65	38	82	52
FLIP 83- 37 FB	S81062	115	71	20	31	70	42	69	52
FLIP 83- 44 FB	78S 33201	96	57	11	45	89	48	75	57
FLIP 83- 45 FB	78S 33202	97	64	24	42	78	45	66	52
FLIP 84- 69 FB	S82003	76	61	12	42	69	50	70	42
FLIP 84- 70 FB	S82007	112	71	14	51	68	57	79	42
FLIP 84- 76 FB	S82013	106	66	15	43	76	67	73	52
FLIP 84- 77 FB	S82014	77	49	14	38	64	50	67	47
FLIP 84- 91 FB	S82024	105	66	10	43	74	45	90	47
FLIP 84- 94 FB	S82026	100	57	13	45	81	58	90	47
FLIP 84-101 FB	S82057	88	57	12	33	67	38	80	52
FLIP 84-104 FB	S82061	91	60	18	58	90	43	82	57
FLIP 84-105 FB	S82064	99	61	15	54	57	52	84	42
FLIP 84-107 FB	S81064	94	64	19	43	72	40	93	52
FLIP 84-109 FB	S81077	110	64	16	56	67	52	79	62
FLIP 84-114 FB	S82092	117	70	12	51	73	48	89	52
FLIP 84-118 FB	S82103	106	61	19	63	57	62	76	52
FLIP 84-119 FB	S82103	93	61	20	43	92	45	94	52
FLIP 84-127 FB	S82116	101	64	12	61	70	50	79	47
FLIP 84-128 FB	S82118	87	66	20	65	67	50	78	52
FLIP 84-138 FB	S82415	116	69	22	83	54	52	75	52
FLIP 84-141 FB	S82428	104	71	20	54	66	57	79	47
FLIP 84-147 FB	S82442	110	61	14	60	68	57	69	47
FLIP 84-151 FB	S82471	101	67	17	48	75	53	78	52
FLIP 84-153 FB	S82486	91	59	14	57	68	60	79	47
74TA 63	24	96	61	23	38	60	55	88	52
80S 43587	X77TA31	103	62	13	57	91	53	89	52
80S 44178	X77TA72	111	64	19	50	56	67	93	62
New Mammoth	1269	102	55	10	60	76	53	76	57
ILB 1814	1814	112	64	18	46	73	52	64	50
Reina Blanca	1270	98	59	15	57	74	47	87	42
Local Check	-	90	63	20	43	74	57	52	58
Location Mean		**100**	**62**	**16**	**48**	**72**	**51**	**77**	**51**
S.E. of Mean		3.84	1.52	2.00	4.86	8.05	6.97	1.31	1.67
L.S.D. at 5% for:									
Checks		15.09	5.97	7.83	19.09	31.60	27.37	5.12	6.54
Test entries in the same block		26.14	10.34	13.57	33.06	54.74	47.40	8.87	11.33
Test entries in different blocks		30.18	11.94	15.67	38.17	63.20	54.74	10.25	13.08
Checks Vs test entries		24.65	9.75	12.79	31.17	51.61	44.70	8.37	10.69
C.V. %		6.66	4.23	21.28	17.50	19.48	23.68	2.94	5.67

Cont'd. ...

Table 4.3.4. Cont'd. ...

Pedigree	ILB/ Cross No.	ECUADOR	ETHIOPIA	IRAQ			LEBANON	MOROCCO	PORTUGAL
		Santa-Catalina	Debre Zeit	Baghdad	Kurkok	Meesan	Terbol	Douyet	Elvas
FLIP 82- 26 FB	X79S101B	-	78	78	41	83	64	59	60
FLIP 82- 39 FB	X75TA209	88	49	70	31	56	56	61	60
FLIP 82- 46 FB	1817	81	78	77	35	92	76	63	75
FLIP 82- 48 FB	1817	-	56	80	37	66	51	73	65
FLIP 83- 4 FB	12	101	83	76	26	103	59	61	67
FLIP 83- 18 FB	S81055	-	86	108	33	98	66	58	73
FLIP 83- 19 FB	S81056	101	77	73	26	98	54	50	62
FLIP 83- 24 FB	81S 36522	81	74	62	46	81	59	55	58
FLIP 83- 37 FB	S81062	81	75	66	43	73	71	63	83
FLIP 83- 44 FB	78S 33201	111	70	73	31	96	64	61	65
FLIP 83- 45 FB	78S 33202	98	58	78	35	73	66	63	64
FLIP 84- 69 FB	S82003	-	62	58	41	54	46	53	53
FLIP 84- 70 FB	S82007	91	83	-	41	61	61	55	68
FLIP 84- 76 FB	S82013	101	72	69	31	88	71	54	71
FLIP 84- 77 FB	S82014	-	42	73	36	56	56	60	73
FLIP 84- 91 FB	S82024	98	65	68	46	85	66	65	80
FLIP 84- 94 FB	S82026	101	76	74	36	102	54	56	65
FLIP 84-101 FB	S82057	81	61	56	36	88	49	61	60
FLIP 84-104 FB	S82061	-	75	64	21	99	69	60	72
FLIP 84-105 FB	S82064	-	62	55	49	81	66	50	79
FLIP 84-107 FB	S81064	-	62	75	41	74	51	58	79
FLIP 84-109 FB	S81077	101	96	106	48	86	66	61	87
FLIP 84-114 FB	S82092	81	74	62	36	90	54	60	67
FLIP 84-118 FB	S82103	-	69	66	43	82	66	47	73
FLIP 84-119 FB	S82103	108	65	76	35	96	51	59	78
FLIP 84-127 FB	S82116	-	-	65	41	68	56	61	48
FLIP 84-128 FB	S82118	-	68	66	51	75	51	63	69
FLIP 84-138 FB	S82415	101	79	-	39	93	71	62	78
FLIP 84-141 FB	S82428	-	75	-	40	82	66	50	81
FLIP 84-147 FB	S82442	-	64	71	39	88	71	55	73
FLIP 84-151 FB	S82471	-	68	72	36	107	64	64	55
FLIP 84-153 FB	S82486	-	74	68	43	70	56	61	60
74TA 63	24	-	42	70	31	86	41	63	68
80S 43587	X77TA31	-	86	61	31	107	59	60	58
80S 44178	X77TA72	101	79	68	53	91	61	57	70
New Mammoth	1269	91	75	66	36	95	49	59	65
ILB 1814	1814	100	65	82	33	83	63	60	71
Reina Blanca	1270	80	74	64	39	79	60	54	67
Local Check	-	143	78	72	31	80	68	52	69
Location Mean		**96**	**71**	**72**	**37**	**83**	**60**	**58**	**68**
S.E. of Mean		1.93	4.94	11.14	3.59	5.39	2.55	0.23	3.03
L.S.D. at 5% for:									
Checks		7.55	19.40	43.73	14.08	21.15	9.99	0.89	11.91
Test entries in the same block		13.08	33.60	75.74	24.39	36.64	17.31	1.53	20.63
Test entries in different blocks		15.11	38.80	87.46	28.16	42.30	19.99	1.77	23.82
Checks Vs test entries		12.34	31.68	71.42	23.00	34.55	16.32	1.45	19.45
C.V. %		13.93	12.79	28.82	16.73	11.24	7.30	0.67	7.70

Cont'd. ...

Table 4.3.4. Cont'd. ...

Pedigree	ILB/ Cross No.	SYRIA				TURKEY			(1) Overall Mean
		Deir-ez-zor	Ghab	Hama	Idleb	Ankara	Antalya	Izmir	
FLIP 82- 26 FB	X79S101B	59	104	106	67	47	143	52	66
FLIP 82- 39 FB	X75TA209	62	102	109	60	49	129	58	62
FLIP 82- 46 FB	1817	68	99	111	68	56	143	55	69
FLIP 82- 48 FB	1817	52	97	94	57	49	124	46	62
FLIP 83- 4 FB	12	59	104	111	64	44	143	47	65
FLIP 83- 18 FB	S81055	63	109	106	49	49	148	43	65
FLIP 83- 19 FB	S81056	54	104	106	64	47	148	44	63
FLIP 83- 24 FB	81S 36522	59	99	101	58	47	133	59	63
FLIP 83- 37 FB	S81062	58	114	106	69	55	148	58	69
FLIP 83- 44 FB	78S 33201	59	104	111	55	52	128	49	65
FLIP 83- 45 FB	78S 33202	67	102	104	56	46	129	48	64
FLIP 84- 69 FB	S82003	57	82	104	56	41	134	43	57
FLIP 84- 70 FB	S82007	56	104	111	65	47	148	55	66
FLIP 84- 76 FB	S82013	68	99	101	58	54	123	55	67
FLIP 84- 77 FB	S82014	50	92	94	58	52	114	51	58
FLIP 84- 91 FB	S82024	67	102	104	68	43	129	48	67
FLIP 84- 94 FB	S82026	59	89	116	53	51	138	52	66
FLIP 84-101 FB	S82057	54	99	106	61	49	158	44	62
FLIP 84-104 FB	S82061	59	94	111	58	47	133	47	66
FLIP 84-105 FB	S82064	68	109	101	59	49	138	52	66
FLIP 84-107 FB	S81064	67	107	99	63	46	144	51	66
FLIP 84-109 FB	S81077	68	104	96	64	52	143	58	70
FLIP 84-114 FB	S82092	64	104	96	67	55	153	49	69
FLIP 84-118 FB	S82103	58	99	91	64	44	153	53	67
FLIP 84-119 FB	S82103	62	107	104	56	50	134	58	68
FLIP 84-127 FB	S82116	47	92	94	59	46	124	51	62
FLIP 84-128 FB	S82118	52	92	94	50	45	114	56	63
FLIP 84-138 FB	S82415	63	114	121	63	50	143	60	71
FLIP 84-141 FB	S82428	58	109	106	74	43	141	53	68
FLIP 84-147 FB	S82442	63	109	96	60	45	143	53	67
FLIP 84-151 FB	S82471	64	94	-	59	54	148	57	68
FLIP 84-153 FB	S82486	57	92	89	61	54	129	51	64
74TA 63	24	67	97	104	61	45	139	48	64
80S 43587	X77TA31	69	99	101	66	45	133	44	68
80S 44178	X77TA72	70	109	106	77	54	138	53	71
New Mammoth	1269	69	94	101	62	45	138	44	66
ILB 1814	1814	63	98	107	61	50	147	51	66
Reina Blanca	1270	52	93	98	50	45	128	52	63
Local Check	-	62	105	97	56	54	128	53	
Location Mean		**61**	**100**	**103**	**60**	**49**	**137**	**51**	
S.E. of Mean		4.73	4.19	2.81	3.95	0.87	5.85	3.12	
L.S.D. at 5% for:									
Checks		18.57	16.46	11.01	15.51	3.42	22.98	12.24	
Test entries in the same block		32.16	28.52	19.07	26.86	5.92	39.79	21.20	
Test entries in different blocks		37.13	32.93	22.02	31.02	6.84	45.95	24.48	
Checks Vs test entries		30.32	26.89	17.99	25.33	5.59	37.52	19.99	
C.V. %		13.45	7.23	4.96	11.36	3.09	7.41	10.53	

(1) Santa Catalina, Dobro Zeit, Baghdad and Hama were excluded from the overall mean.
T.E. = Test entries.

Table 4.3.5. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the FBISN-L during 1986/87.

Pedigree	ILB/ CROSS NO.	ALGERIA				CANADA		CHILE						ECUADOR	
		Khroub		Setif		Quebec		Chillan		Hidango		Temuco		Santa Catalina	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 26 FB	X79S101B	1517	32	234	29	3212	26	965	35	3817	4	3848	2	132	24
FLIP 82- 39 FB	X75TA209	1287	36	397	9	4462	8	1069	32	3383	5	2989	18	456	18
FLIP 82- 46 FB	1817	2569	12	302	18	1124	39	1184	28	3350	6	2731	25	348	21
FLIP 82- 48 FB	1817	1444	33	297	19	3476	21	1101	31	2983	17	4100	1	-	-
FLIP 83- 4 FB	12	1798	29	284	21	4587	7	1559	20	4467	1	3331	7	705	11
FLIP 83- 18 FB	S81055	1757	30	204	32	2430	35	1309	23	3050	16	2880	20	-	-
FLIP 83- 19 FB	S81056	2517	15	239	26	5004	3	1215	26	4167	2	3140	15	1214	2
FLIP 83- 24 FB	81S 36522	2267	21	314	16	4275	11	840	38	3267	10	2691	26	773	9
FLIP 83- 37 FB	S81062	2007	25	275	23	2569	33	872	37	3350	8	2630	29	207	22
FLIP 83- 44 FB	78S 33201	1861	27	234	27	4455	9	1965	14	2767	25	2533	31	810	7
FLIP 83- 45 FB	78S 33202	444	38	340	13	4712	6	1069	33	2583	29	2982	19	713	10
FLIP 84- 69 FB	S82003	1819	28	262	24	3059	29	1913	15	2333	34	1860	38	-	-
FLIP 84- 70 FB	S82007	2632	11	594	3	2666	31	2653	1	1900	38	2242	36	378	19
FLIP 84- 76 FB	S82013	2413	17	214	31	1451	38	2528	3	2100	37	2551	30	376	20
FLIP 84- 77 FB	S82014	912	37	162	35	5365	1	882	36	3883	3	1650	39	-	-
FLIP 84- 91 FB	S82024	2256	22	142	37	3761	16	1132	30	2883	23	2233	37	594	13
FLIP 84- 94 FB	S82026	2236	23	284	20	2726	30	1497	21	2967	18	3273	10	806	8
FLIP 84-101 FB	S82057	2361	18	309	17	4087	14	778	39	3067	14	2387	33	969	4
FLIP 84-104 FB	S82061	1580	31	279	22	4789	5	1184	27	2567	31	2501	32	132	25
FLIP 84-105 FB	S82064	2663	10	639	1	3083	28	2278	8	2600	27	2803	22	-	-
FLIP 84-107 FB	S81064	2350	19	97	38	4407	10	1882	16	2283	36	3006	17	-	-
FLIP 84-109 FB	S81077	2569	13	-	-	2138	37	2122	11	3350	9	3687	3	638	12
FLIP 84-114 FB	S82092	2423	16	219	30	5219	2	1028	34	3067	15	3169	13	959	5
FLIP 84-118 FB	S82103	2819	8	549	4	2652	32	2497	4	2300	35	3430	6	-	-
FLIP 84-119 FB	S82103	2287	20	167	34	4254	12	1601	19	2883	20	3662	4	584	14
FLIP 84-127 FB	S82116	3287	3	162	36	4143	13	1976	13	2583	30	2324	35	-	-
FLIP 84-128 FB	S82118	2975	5	172	33	4962	4	1819	17	2583	28	3292	8	-	-
FLIP 84-138 FB	S82415	2819	7	449	6	2346	36	1247	25	3350	7	3283	9	527	15
FLIP 84-141 FB	S82428	319	39	624	2	2534	34	2403	5	3100	13	2744	24	-	-
FLIP 84-147 FB	S82442	3069	4	444	7	3263	25	2184	10	2525	33	2380	34	-	-
FLIP 84-151 FB	S82471	2705	9	344	12	3643	18	1278	24	2867	24	2752	23	132	26
FLIP 84-153 FB	S82486	1975	26	252	25	3789	15	2351	6	2883	21	3046	16	-	-
74TA 63	24	1412	34	332	14	3615	19	1382	22	2883	22	3504	5	-	-
80S 43587	X77TA31	2517	14	234	28	3650	17	1747	18	2917	19	3155	14	132	23
80S 44178	X77TA72	2007	24	409	8	3194	27	2184	9	2550	32	3230	11	510	17
New Mammoth	1269	3705	1	389	10	3469	22	2028	12	3167	12	3206	12	1086	3
ILB 1814	1814	1375	35	377	11	3303	24	1167	29	3167	11	2855	21	523	16
Reina Blanca	1270	2927	6	322	15	3419	23	2313	7	2700	26	2657	27	872	6
Local Check	-	3625	2	488	5	3581	20	2635	2	1833	39	2639	28	3615	1
Location Mean		**2252**		**317**		**3544**		**1690**		**2886**		**2882**		**570**	
S.E. of Mean		492.51		48.97		601.66		372.73		174.80		145.67		318.51	
L.S.D. at 5% for:															
Checks		1933.23		192.22		2361.68		1463.05		686.14		571.79		1250.23	
T.E. in the same block		3348.46		332.94		4090.55		2534.08		1188.43		990.37		2165.46	
T.E. in different blocks		3866.47		384.45		4723.36		2926.10		1372.28		1144.58		2500.46	
Checks Vs test entries		3157.43		313.95		3857.19		2390.51		1120.63		933.87		2041.92	
C.V. %		37.87		26.52		29.41		38.19		10.49		8.76		96.82	
Test > L. Check		0		0		0		0		17		4		0	

Cont'd. ...

Table 4.3.5. Cont'd. ...

Pedigree	ILB/ Cross No.	EGYPT		ETHIOPIA		IRAQ						LEBANON		MOROCCO	
		Sakha		Debre Zeit		Baghdad		Kurkok		Meesan		Terbol		Douyet	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 26 FB	X79S101B	4358	31	-	-	2573	12	610	25	4765	20	3399	17	1429	27
FLIP 82- 39 FB	X75TA209	6025	20	15	23	1628	30	916	18	4461	23	3214	19	1587	18
FLIP 82- 46 FB	1817	8562	4	368	16	3966	3	427	34	4321	25	2942	25	1508	22
FLIP 82- 48 FB	1817	6358	18	-	-	1961	22	870	20	1567	36	3733	9	1825	9
FLIP 83- 4 FB	12	4969	27	417	10	3073	8	730	23	7452	1	2436	35	1905	8
FLIP 83- 18 FB	S81055	7451	9	508	7	5299	1	347	36	3947	30	2053	37	1317	31
FLIP 83- 19 FB	S81056	2969	35	-	-	2406	15	556	29	6425	5	2051	39	1667	15
FLIP 83- 24 FB	81S 36522	2302	38	-	-	2073	20	1316	5	5279	13	2918	26	1429	26
FLIP 83- 37 FB	S81062	7006	15	448	9	1713	29	874	19	4794	19	2053	38	1508	21
FLIP 83- 44 FB	78S 33201	6636	16	-	-	3406	5	743	22	6672	3	2718	32	1905	6
FLIP 83- 45 FB	78S 33202	7080	13	-	-	2295	17	1336	1	4021	29	2881	27	1111	36
FLIP 84- 69 FB	S82003	1358	39	-	-	1461	31	1336	3	814	38	2547	34	1159	34
FLIP 84- 70 FB	S82007	6562	17	461	8	-	-	607	26	3141	34	4291	3	1984	4
FLIP 84- 76 FB	S82013	5173	25	388	11	1186	32	167	39	4161	27	2720	31	1317	32
FLIP 84- 77 FB	S82014	3469	32	-	-	3961	4	963	14	1154	37	3399	16	1159	35
FLIP 84- 91 FB	S82024	7358	10	-	-	2628	11	1276	7	4647	22	2695	33	1587	19
FLIP 84- 94 FB	S82026	2969	34	-	-	3073	7	1110	10	5972	9	3029	23	1667	14
FLIP 84-101 FB	S82057	2858	36	124	21	2073	18	916	17	5225	15	2807	30	1810	12
FLIP 84-104 FB	S82061	3358	33	170	20	1739	28	916	16	6519	4	4529	2	1429	25
FLIP 84-105 FB	S82064	5673	22	521	6	133	35	461	33	2921	35	4053	6	1317	30
FLIP 84-107 FB	S81064	4969	28	-	-	1795	24	1203	9	4127	28	3066	21	1349	29
FLIP 84-109 FB	S81077	9451	1	621	4	4966	2	541	30	4907	17	2868	28	1413	28
FLIP 84-114 FB	S82092	5636	23	-	-	2739	10	336	37	5825	11	3918	7	1905	5
FLIP 84-118 FB	S82103	7895	5	535	5	433	34	414	35	5267	14	4053	5	1508	24
FLIP 84-119 FB	S82103	4914	29	-	-	2461	13	1010	13	5374	12	3399	15	1825	10
FLIP 84-127 FB	S82116	2802	37	-	-	1795	23	1243	8	3194	33	2399	36	2063	2
FLIP 84-128 FB	S82118	7636	6	195	19	2295	16	1030	12	4447	24	3510	13	2063	3
FLIP 84-138 FB	S82415	8617	3	788	2	-	-	534	31	4661	21	2942	24	1746	13
FLIP 84-141 FB	S82428	7562	7	381	13	-	-	307	38	4907	18	4202	4	1317	33
FLIP 84-147 FB	S82442	7506	8	375	14	846	33	587	28	5907	10	3646	12	1508	23
FLIP 84-151 FB	S82471	5525	24	-	-	2073	19	1076	11	6059	8	3695	11	1810	11
FLIP 84-153 FB	S82486	4414	30	381	12	1795	26	1323	4	-	-	3695	10	1111	38
74TA 63	24	5969	21	-	-	1795	25	1336	2	7227	2	3473	14	1111	37
80S 43587	X77TA31	7136	12	370	15	1739	27	1303	6	6072	6	3029	22	1905	7
80S 44178	X77TA72	9340	2	748	3	19	36	507	32	4294	26	3165	20	1032	39
New Mammoth	1269	7191	11	197	18	3073	9	616	24	6059	7	3770	8	2381	1
ILB 1814	1814	5111	26	111	22	3111	6	598	27	3391	31	3383	18	1635	17
Reina Blanca	1270	7074	14	351	17	2444	14	809	21	5127	16	2852	29	1540	20
Local Check	-	6167	19	1309	1	1996	21	922	15	3344	32	4593	1	1635	16
Location Mean		**5869**		**425**		**2278**		**819**		**4470**		**3284**		**1580**	
S.E. of Mean		457.31		258.25		1275.12		124.49		837.06		321.78		178.88	
L.S.D. at 5% for:															
Checks		1795.07		1013.70		5005.19		488.66		3285.69		1263.06		702.15	
T.E. in the same block		3109.15		1755.78		8669.24		846.38		5690.97		2187.69		1216.16	
T.E. in different blocks		3590.13		2027.40		10010.37		977.32		6571.37		2526.13		1404.30	
Checks Vs test entries		2932.78		1656.61		8174.67		798.10		5366.31		2062.89		1146.78	
C.V. %		13.50		200.09		104.60		26.34		32.44		16.97		19.61	
Test > L. Check		2		0		0		0		0		0		0	

Cont'd. ...

Table 4.3.5. Cont'd. ...

Pedigree	ILB/ Cross No.	PAKISTAN		PORTUGAL		SPAIN		SYRIA							
		Islamabad		Elvas		Cordoba		Deir-ez-zor		Ghab		Hama		Tel Hadya	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 26 FB	X79S101B	396	38	256	38	4163	13	4733	7	4948	5	5104	11	2335	28
FLIP 82- 39 FB	X75TA209	4285	21	913	18	4317	8	4333	11	4437	10	4470	23	3401	10
FLIP 82- 46 FB	1817	7985	5	1041	12	3984	18	3600	21	3315	26	5593	3	2649	20
FLIP 82- 48 FB	1817	12228	2	859	21	4532	5	4000	13	2537	36	3837	33	2529	23
FLIP 83- 4 FB	12	3730	26	798	25	4948	4	3267	24	4581	8	4770	17	2664	19
FLIP 83- 18 FB	S81055	4652	16	782	26	3984	19	3067	27	3481	24	4126	29	1633	35
FLIP 83- 19 FB	S81056	1604	39	612	32	3306	34	3600	20	5081	2	3870	32	2481	25
FLIP 83- 24 FB	81S 36522	1063	36	304	37	3270	35	3533	22	4281	14	4637	21	3085	13
FLIP 83- 37 FB	S81062	7985	6	487	34	4198	10	2733	34	3281	27	5526	5	2519	24
FLIP 83- 44 FB	78S 33201	3730	25	1009	15	3663	28	3733	14	5015	4	3737	34	2353	26
FLIP 83- 45 FB	78S 33202	3619	29	781	27	3710	26	4067	12	2404	37	4604	22	3013	14
FLIP 84- 69 FB	S82003	3619	30	612	31	3425	32	1667	39	1604	39	2804	37	2338	27
FLIP 84- 70 FB	S82007	4652	17	861	20	4198	11	3067	26	3915	18	5426	7	4909	3
FLIP 84- 76 FB	S82013	7985	8	1288	4	3663	27	2933	31	2815	33	4293	27	1836	31
FLIP 84- 77 FB	S82014	4285	23	1564	1	3996	17	3667	18	3270	30	3637	35	1639	34
FLIP 84- 91 FB	S82024	10952	3	709	29	3889	20	2800	33	4204	15	3537	36	1587	36
FLIP 84- 94 FB	S82026	2396	33	804	24	4020	16	4400	9	4715	6	-	39	2678	18
FLIP 84-101 FB	S82057	1063	37	1057	10	3163	38	3467	23	4048	16	4837	15	2761	17
FLIP 84-104 FB	S82061	4396	19	840	22	3448	31	5333	2	4715	7	4804	16	2648	21
FLIP 84-105 FB	S82064	5985	15	1047	11	2948	39	2400	37	3315	25	4659	20	5108	1
FLIP 84-107 FB	S81064	4285	22	697	30	3746	25	3000	28	3104	31	4737	18	1143	38
FLIP 84-109 FB	S81077	9318	4	1120	7	5341	1	4467	8	4281	13	5359	9	265	39
FLIP 84-114 FB	S82092	1730	35	1340	3	3341	33	5067	5	4348	11	4870	14	2210	30
FLIP 84-118 FB	S82103	5985	12	1445	2	4163	12	2667	35	2548	35	5726	2	4531	4
FLIP 84-119 FB	S82103	4285	20	823	23	4996	3	3733	16	3104	32	4370	26	1515	37
FLIP 84-127 FB	S82116	7619	11	877	19	4389	7	3667	19	3870	19	4004	30	1713	33
FLIP 84-128 FB	S82118	7619	10	980	16	3246	36	2933	30	3837	20	4904	13	1773	32
FLIP 84-138 FB	S82415	5985	13	1023	13	4484	6	3733	17	3481	23	6959	1	3883	6
FLIP 84-141 FB	S82428	7985	7	1114	9	3556	30	2400	38	2148	38	5526	4	5032	2
FLIP 84-147 FB	S82442	13985	1	1011	14	4056	15	2400	36	3781	21	4459	24	3707	7
FLIP 84-151 FB	S82471	4396	18	391	35	3806	24	5133	4	5048	3	-	38	3143	12
FLIP 84-153 FB	S82486	4285	24	528	33	3853	22	3000	29	3270	28	3937	31	2264	29
74TA 63	24	7619	9	713	28	4139	14	4333	10	3270	29	5404	8	2963	15
80S 43587	X77TA31	3730	27	346	36	3877	21	5133	3	4581	9	5304	10	2550	22
80S 44178	X77TA72	5985	14	252	39	4270	9	2933	32	2681	34	5026	12	3423	8
New Mammoth	1269	1730	34	1148	6	3234	37	7133	1	5115	1	4704	19	3408	9
ILB 1814	1814	3300	32	922	17	3607	29	3733	15	4044	17	4400	25	3324	11
Reina Blanca	1270	3556	31	1169	5	3821	23	3178	25	4344	12	4267	28	2840	16
Local Check	-	3667	28	1118	8	5095	2	4956	6	3589	22	5478	6	4108	5
Location Mean		**4924**		**890**		**3975**		**3727**		**3786**		**4695**		**2856**	
S.E. of Mean		962.80		174.56		113.46		511.11		489.56		474.97		361.28	
L.S.D. at 5% for:															
Checks		3779.23		685.20		445.36		2006.25		1921.66		1864.38		1418.13	
T.E. in the same block		6545.82		1186.81		771.39		3474.92		3328.41		3229.21		2456.28	
T.E. in different blocks		7558.47		1370.41		890.72		4012.49		3843.32		3728.77		2836.26	
Checks Vs test entries		6172.39		1119.10		727.38		3276.68		3138.53		3044.99		2316.15	
C.V. %		33.87		33.97		4.94		23.75		22.40		18.34		21.91	
Test > L. Check		3		0		0		0		0		0		0	

pedigree	ILB/ Cross No.	TUNISIA								TURKEY						Overall Mean (1)	
		Beja		El Kef		Krib		Oued Meliz		Ankara		Antalya		Izmir			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 26 FB	X79S101B	4839	22	5678	2	1556	5	5878	8	1858	5	6950	21	3470	10	3325	11
FLIP 82- 39 FB	X75TA209	5572	9	4761	14	1056	24	6611	3	997	34	6117	26	2537	30	3333	9
FLIP 82- 46 FB	1817	4339	31	6611	1	1139	17	2311	38	1545	14	9933	3	3259	12	3244	15
FLIP 82- 48 FB	1817	4622	24	3861	28	606	37	4611	29	1302	25	5617	31	2065	34	3001	28
FLIP 83- 4 FB	12	4989	21	4678	15	806	31	6578	4	1715	8	4200	38	2943	20	3236	17
FLIP 83- 18 FB	S81055	4489	27	3311	34	1089	21	5111	18	1392	22	7433	18	2620	27	2904	33
FLIP 83- 19 FB	S81056	5389	14	3628	33	1056	25	6678	2	1191	30	6950	22	2676	25	3140	19
FLIP 83- 24 FB	81S 36522	5039	20	5228	5	1106	18	4878	23	1229	26	5200	33	3054	15	2929	32
FLIP 83- 37 FB	S81062	3939	34	3661	32	989	27	4511	32	1469	19	7433	16	2620	28	2891	34
FLIP 83- 44 FB	78S 33201	3789	36	3828	30	1156	15	4878	24	1829	7	8450	7	2759	22	3240	16
FLIP 83- 45 FB	78S 33202	5422	12	3661	31	1106	20	5911	7	1016	33	5117	34	2037	36	2974	29
FLIP 84- 69 FB	S82003	2572	38	3211	36	706	36	3511	36	749	39	4117	39	2343	32	2107	38
FLIP 84- 70 FB	S82007	4489	26	4961	8	1789	1	4011	35	2249	2	8433	9	3037	16	3403	8
FLIP 84- 76 FB	S82013	5189	17	4761	13	589	38	4711	28	840	36	7933	12	3204	13	2866	36
FLIP 84- 77 FB	S82014	5822	8	2711	39	806	30	5311	16	1054	32	6117	27	1870	37	2834	37
FLIP 84- 91 FB	S82024	3972	33	3961	27	1556	6	5211	17	978	35	5617	32	2509	31	2961	31
FLIP 84- 94 FB	S82026	5489	10	4228	23	1656	2	5478	13	1477	18	4450	37	3509	9	3066	23
FLIP 84-101 FB	S82057	4239	32	4578	16	1106	19	4378	33	1629	12	5950	28	3259	11	2891	35
FLIP 84-104 FB	S82061	4439	28	4778	12	856	29	4578	31	1191	29	5700	29	2720	23	3052	25
FLIP 84-105 FB	S82064	4689	23	3261	35	939	28	5011	20	1211	27	7433	17	2648	26	3092	22
FLIP 84-107 FB	S81064	6372	2	4911	9	1306	12	5511	11	1150	31	4617	36	3065	14	3007	27
FLIP 84-109 FB	S81077	5439	11	4461	18	1639	4	3011	37	2164	3	9683	5	2593	29	3457	5
FLIP 84-114 FB	S82092	5389	13	4978	7	1056	26	4978	21	1343	23	7950	11	4415	2	3482	3
FLIP 84-118 FB	S82103	5989	4	4261	21	1389	9	4611	30	1525	15	8433	8	2981	19	3434	6
FLIP 84-119 FB	S82103	3522	37	4011	26	1456	8	5511	12	2312	1	6617	23	3759	5	3200	18
FLIP 84-127 FB	S82116	5922	6	5361	3	1056	22	4811	25	826	37	7617	13	2065	35	3095	21
FLIP 84-128 FB	S82118	5072	19	5261	4	1156	16	4211	34	1645	10	5617	30	2870	21	3261	14
FLIP 84-138 FB	S82415	6389	1	4461	19	1339	11	6311	6	1678	9	9433	6	3676	7	3656	2
FLIP 84-141 FB	S82428	4389	30	5161	6	789	33	4811	26	1592	13	10433	2	3009	17	3282	13
FLIP 84-147 FB	S82442	6139	3	3861	29	739	35	5011	19	1202	28	9933	4	3515	8	3430	7
FLIP 84-151 FB	S82471	5089	18	4878	11	806	32	5878	9	1858	6	7450	15	3865	4	3462	4
FLIP 84-153 FB	S82486	5972	5	4261	20	556	39	5411	14	1892	4	5117	35	2981	18	3033	26
74TA 63	24	5872	7	4561	17	1056	23	601	39	1340	24	6617	24	2259	33	2972	30
80S 43587	X77TA31	3839	35	4078	25	1306	13	6478	5	1629	11	6950	20	1704	39	3325	10
80S 44178	X77TA72	290	39	4261	22	789	34	5411	15	1449	20	10433	1	1787	38	3104	20
New Mammoth	1269	4439	29	3128	37	1356	10	5678	10	1477	17	7450	14	3731	6	3659	1
ILB 1814	1814	4533	25	2900	38	1483	7	4800	27	1403	21	8083	10	2713	24	3054	24
Reina Blanca	1270	5383	15	4200	24	1233	14	4900	22	1524	16	6417	25	3870	3	3294	12
Local Check	-	5350	16	4883	10	1650	3	6833	1	775	38	7350	19	4833	1		
Location Mean		**4872**		**4293**		**1168**		**5066**		**1402**		**7090**		**3059**			
S.E. of Mean		592.39		151.23		272.00		455.01		33.09		585.00		634.92			
L.S.D. at 5% for:																	
Checks		2325.29		593.62		1067.65		1786.05		129.90		2296.27		2492.22			
T.E. in the same block		4027.52		1028.17		1849.23		3093.52		225.00		3977.26		4316.65			
T.E. in different blocks		4650.57		1187.23		2135.31		3572.09		259.81		4592.54		4984.44			
Checks Vs test entries		3797.75		969.52		1743.73		2917.04		212.16		3750.36		4070.39			
C.V. %		21.06		6.10		40.34		15.56		4.09		14.29		35.95			
Test > L. Check		0		1		0		0		32		0		0			

(1) Santa Catalina, Debre Zeit, Baghdad, Meesasn, Islamabad, Hama and Setif were excluded from the overall mean.
T.E. = Test entries.

Table 4.3.6. The five heaviest seed yielding entries at the individual locations in the FBISN-L during 1986/87.

Rank	ALGERIA		CANADA	CHILE			ECUADOR
	Khroub	Setif	Quebec	Chillan	Hidango	Temuco	Santa Catalina
1	ILB 1269	FLIP84-105FB	FLIP84- 77FB	FLIP84- 70FB	FLIP83- 4FB	FLIP82- 48FB	Local Check
2	Local Check	FLIP84-141FB	FLIP84-114FB	Local Check	FLIP83- 19FB	FLIP82- 26FB	FLIP83- 19FB
3	FLIP84-127FB	FLIP84- 70FB	FLIP83- 19FB	FLIP84- 76FB	FLIP84- 77FB	FLIP84-109FB	ILB 1269
4	FLIP84-147FB	FLIP84-118FB	FLIP84-128FB	FLIP84-118FB	FLIP82- 26FB	FLIP84-119FB	FLIP84-101FB
5	FLIP84-128FB	Local Check	FLIP84-104FB	FLIP84-141FB	FLIP82- 39FB	74TA 63	FLIP84-114FB

Cont'd 2/..

Rank	EGYPT	ETHIOPIA	IRAQ			LEBANON	MOROCCO
	Sakha	Debre Zeit	Baghdad	Kurkok	Meesan	Terbol	Douyet
1	FLIP84-109FB	Local Check	FLIP83- 18FB	FLIP83- 45FB	FLIP83- 4FB	Local Check	ILB 1269
2	80S 44178	FLIP84-138FB	FLIP84-109FB	74TA 63	74TA 63	FLIP84-104FB	FLIP84-127FB
3	FLIP84-138FB	80S 44178	FLIP82- 46FB	FLIP84- 69FB	FLIP83- 44FB	FLIP84- 70FB	FLIP84-128FB
4	FLIP82- 46FB	FLIP84-109FB	FLIP84- 77FB	FLIP84-153FB	FLIP84-104FB	FLIP84-141FB	FLIP84- 70FB
5	FLIP84-118FB	FLIP84-118FB	FLIP83- 44FB	FLIP83- 24FB	FLIP83- 19FB	FLIP84-118FB	FLIP84-114FB
						FLIP84-105FB	FLIP83- 44FB
							80S 43587
							FLIP83- 4FB

Cont'd 2/..

Rank	PAKISTAN	PORTUGAL	SPAIN	SYRIA			
	Islamabad	Elvas	Cordoba	Deir-ez-zor	Ghab	Hama	Tel Hadya
1	FLIP84-147FB	FLIP84- 77FB	FLIP84-109FB	ILB 1269	ILB 1269	FLIP84-138FB	FLIP84-105FB
2	FLIP82- 48FB	FLIP84-118FB	Local Check	FLIP84-104FB	FLIP83- 19FB	FLIP84-118FB	FLIP84-141FB
3	FLIP84- 91FB	FLIP84-114FB	FLIP84-119FB	80S 43587	FLIP84-151FB	FLIP82- 46FB	FLIP84- 70FB
4	FLIP84-109FB	FLIP84- 76FB	FLIP83- 4FB	FLIP84-151FB	FLIP83- 44FB	FLIP84-141FB	FLIP84-118FB
5	FLIP82- 46FB	ILB 1270	FLIP82- 48FB	FLIP84-114FB	FLIP82- 26FB	FLIP83- 37FB	Local Check
	FLIP83- 37FB						
	FLIP84-141FB						
	FLIP84- 76FB						

Cont'd 2/..

Rank	TUNISIA				TURKEY		
	Beja	El Kef	Krib	Oued Meliz	Ankara	Antalya	Izmir
1	FLIP84-138FB	FLIP82- 46FB	FLIP84- 70FB	Local Check	FLIP84-119FB	80S 44178	Local Check
2	FLIP84-107FB	FLIP82- 26FB	FLIP84- 94FB	FLIP83- 19FB	FLIP84- 70FB	FLIP84-141FB	FLIP84-114FB
3	FLIP84-147FB	FLIP84-127FB	Local Check	FLIP82- 39FB	FLIP84-109FB	FLIP82- 46FB	ILB 1270
4	FLIP84-118FB	FLIP84-128FB	FLIP84-109FB	FLIP83- 4FB	FLIP84-153FB	FLIP84-147FB	FLIP84-151FB
5	FLIP84-153FB	FLIP83- 24FB	FLIP82- 26FB	80S 43587	FLIP82- 26FB	FLIP84-109FB	FLIP84-119FB
					FLIP84-151FB		

The brackets indicate entries having the same rank.

Methods and Management

The test entries and three checks were suggested to be sown in single row plots of 4 m length with inter- and intra row spacings of 50 - and 10 cm, respectively, in an augmented block design. The whole experimental unit was divided into four blocks. Thirty five sets of the nursery were distributed to the cooperators in 21 countries and the results were received from 19 locations representing 14 countries. The agronomic data received from the cooperators are presented in Table 4.4.1.

Results and Discussion

The entry means over all locations revealed that FLIP82- 1FB, FLIP83- 3FB, FLIP84- 38FB, FLIP84- 65FB, FLIP84-154FB and FLIP84-192FB flowered earliest in 82 days (Table 4.4.2). Among the locations, the flowering was earliest at Quebec in Canada (51 days), and latest at Tarquinia in Italy (116 days). The entry means for time to maturity ranged from 153 to 156 days (Table 4.4.3) and for the plant height (Table 4.4.4) ranged from 55 to 79 cm, and Oeiras in Portugal was the location where the expression of plant height was maximum.

The adjusted seed yield for the entries based on augmented design is presented in Table 4.4.5. Seed yields were quite high at Oued Meliz (4953 kg/ha), El Kef (4459 kg/ha) and Beja (4335 kg/ha) in Tunisia, Gemmeza (4556 kg/ha) in Egypt, and Quebec in Canada (4362 kg/ha). Among the entries FLIP84-168FB ranked number one and was followed by FLIP84-165FB, FLIP84-216FB, FLIP83- 3FB and FLIP84- 57FB, with seed yields of 4277, 4019, 3967, 3886 and 3623 kg/ha, respectively. The LSD estimates revealed that only at Tarquinia in Italy, Marow in Jordan, Terbol in Lebanon, Cordoba in Spain, and Ankara in Turkey, 1, 1, 5, 1, and 36 entries exceeded the respective local check by a significant margin. The five heaviest yielders at each location are presented in Table 4.4.6. The frequency of occurance of entries among the top five across locations was highest for FLIP84-216FB and thus this line was comparatively more adaptable than others.

4.5. FABA BEAN INTERNATIONAL F_4 NURSERY (FBIF$_4$N)

Material

The Faba bean International F_4 Nursery comprised 60 F_4 test populations and three checks, two of the checks, namely Syrian Local^4 Large (ILB 1814) and Reina Blanca (ILB 1270) were supplied and the third to be added by the cooperator. The material should have provided a wide range of intra- and inter population variation. The cooperators were suggested to make single plant selections from the border rows for their use in breeding program.

Methods and Management

The test entries and three checks were suggsested to be sown in four row plots of 4 m length with inter-row spacings of 50 cm accomodating 100 plants. The whole experimental unit was divided into five blocks and material was planted using augmented block design layout plan. Ninteen sets of nursery were supplied to cooperators in 15 countries and the results were

Table 4.4.1. Agronomic data for different locations in the FBISN-S during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
BANGLADESH	Mymensingh	25.11.86	03.87	-			1	-	Fb 1 (Manikganj Local)
BULGARIA	Toshevo	14.11.86	-		80		-	-	-
CANADA	Quebec	13.05.87	02.10.87	23	90		-	Treflan, Sencor, Thiram	Out Look
CHILE	Valdivia	03.09.87	11.01.88	32	100	50	-	Linuron, Ambush	Local Pool
EGYPT	Gemmeza	NA							Giza 2
ETHIOPIA	Debre Zeit	30.06.87	29.10.87						NC58
ITALY	Tarquinia	11.12.86	18.07.87	54	138			Nebutrin	Tarquinia
JORDAN	Marow	13.01.87	01.06.87	20	60		-	-	Local
LEBANON	Terbol	07.12.86	25.07.87		50		2	Kerb, Igran	
PORTUGAL	Elvas	06.11.86	26.05.87		72	60	-	-	Beja
PORTUGAL	Oeiras	28.11.86	22.06.87	21	63	63	-	Pirimicarb	156556
SPAIN	Cordoba	05.12.86	03.07.87	84	42		-	Dafene	Palacio
SUDAN	Shambat	19.10.86	13.03.87	-			8	Polimat	H, 72
SYRIA	Tel Hadya	10.11.86	20.06.87	30	50		4	Dithane, Bravo, Ronilon, Lancer Supracide	Syrian Local Large (ILB 1814)
TUNISIA	Beja	NA							
TUNISIA	El Kef	NA							
TUNISIA	Oued Meliz	NA							
TURKEY	Ankara	01.04.87		22	60		-	Basudine	69 V1
TURKEY	Diyarbakir	21.11.86	10.06.87	-			-	-	-

NA = Not available.

Table 4.4.2. Adjusted time to flowering (days) of entries at different locations in the FBISN-S during 1986/87.

Pedigree	ILB/ Cross No.	CANADA	CHILE	EGYPT	ETHIOPIA	ITALY	JORDAN	LEBANON	PORTUGAL		SPAIN	SUDAN	SYRIA	TURKEY	(1) Overall Mean
		Quebec	Val-divia	Gemmeza	Debre-Zeit	Tarqui-nia	Marow	Terbol	El-vas	Oieras	Cordoba *	Sham-bat	Tel-Hadya	Ankara	
FLIP 82- 1 FB	X75TA14	51	66	67	59	128	81	115	108	81	95	52	97	66	82
FLIP 83- 3 FB	X79S12	52	68	67	59	128	80	115	107	86	95	47	100	67	82
FLIP 83- 16 FB	S81056	53	70	67	65	133	80	117	108	84	95	48	102	66	84
FLIP 83- 30 FB	S81062	53	71	73	79	134	80	117	116	83	95	83	110	68	88
FLIP 83- 42 FB	78S 48395	51	69	67	63	123	80	115	106	81	95	64	100	67	83
FLIP 83- 48 FB	S81054	52	68	74	72	137	82	115	114	84	95	62	107	-	86
FLIP 83- 60 FB	S81012	51	66	66	66	-	81	117	114	84	95	53	101	66	84
FLIP 83- 68 FB	S81065	53	69	71	79	137	80	117	106	83	95	65	106	66	86
FLIP 83- 75 FB	S81072	53	68	73	66	139	83	115	108	86	95	53	104	66	85
FLIP 83- 78 FB	S81036	51	70	70	70	132	80	114	114	86	95	82	102	68	85
FLIP 83- 84 FB	S81211	51	67	65	70	134	80	115	106	83	95	66	105	68	84
FLIP 83- 85 FB	S81217	52	70	70	60	126	81	113	114	86	95	51	99	-	84
FLIP 83- 88 FB	S81232	56	70	70	67	131	84	115	108	84	95	55	101	-	85
FLIP 83- 89 FB	S81056	51	69	65	68	128	80	115	112	78	95	60	104	68	84
FLIP 83- 97 FB	Sd77061	54	72	71	74	-	82	115	107	83	95	55	101	-	85
FLIP 83-101 FB	79S 30424	49	67	67	69	128	80	115	106	81	95	56	102	67	83
FLIP 83-102 FB	79S 30403	53	68	68	59	-	80	115	107	86	95	53	99	67	83
FLIP 83-105 FB	79S 33024	51	68	68	58	127	83	116	108	86	95	54	104	68	83
FLIP 83-106 FB	1814	51	70	69	68	141	83	114	107	84	95	64	101	68	84
FLIP 83-107 FB	10	53	71	67	63	134	80	115	106	83	95	64	102	68	83
FLIP 83-114 FB	S81059	52	68	70	66	126	81	115	108	84	95	52	102	-	84
FLIP 83-126 FB	1812	54	72	70	66	137	81	115	114	86	95	60	101	-	85
FLIP 83-128 FB	1055	51	70	69	66	128	80	117	107	81	95	61	100	65	83
FLIP 84- 38 FB	S82002	48	68	68	58	126	82	113	108	81	95	47	103	-	82
FLIP 84- 41 FB	S82018	53	68	71	67	128	80	117	107	81	95	57	103	68	84
FLIP 84- 43 FB	S82061	53	71	71	71	123	80	117	112	83	95	65	106	68	86
FLIP 84- 45 FB	S82083	48	70	70	68	137	82	117	107	86	95	51	98	-	84
FLIP 84- 46 FB	S82097	51	68	72	73	132	83	116	108	81	95	85	104	67	85
FLIP 84- 48 FB	S82099	49	70	70	69	127	80	114	107	81	95	65	102	67	83
FLIP 84- 57 FB	S82150	52	70	69	66	139	81	115	114	84	95	61	101	67	84

Table 4.4.2. Cont'd. ...

Pedigree	ILB/ Cross No.	CANADA	CHILE	EGYPT	ETHIOPIA	ITALY	JORDAN	LEBANON	PORTUGAL		SPAIN	SUDAN	SYRIA	TURKEY	(1) Overall Mean
		Quebec	Val-divia	Gemmeza	Debre-Zeit	Tarqui-nia	Marow	Terbol	El-vas	Oieras	Cordoba *	Sham-bat	Tel-Hadya	Ankara	
FLIP 84- 58 FB	S82154	52	70	70	70	126	82	115	107	84	95	56	101	-	84
FLIP 84- 59 FB	S82166	54	72	70	66	126	81	113	108	84	95	56	103	-	84
FLIP 84- 65 FB	S82448	51	69	65	62	134	80	115	105	78	95	61	99	68	82
FLIP 84-154 FB	S82002	47	67	65	61	123	80	117	106	78	95	52	105	68	82
FLIP 84-162 FB	S82018	51	70	72	69	127	83	116	108	81	95	59	105	68	85
FLIP 84-165 FB	S82028	55	68	67	59	-	81	115	107	84	95	-	99	67	83
FLIP 84-168 FB	S81054	51	72	75	78	132	80	116	114	84	95	69	106	68	87
FLIP 84-179 FB	S82088	52	68	68	60	140	81	115	108	84	95	52	97	-	83
FLIP 84-180 FB	S82095	53	68	65	65	128	80	115	108	84	95	48	101	68	83
FLIP 84-186 FB	S82149	51	68	75	71	132	80	116	114	84	95	69	108	66	86
FLIP 84-192 FB	S82170	47	68	68	58	127	80	114	107	84	95	53	98	66	82
FLIP 84-196 FB	S82243	53	67	67	69	123	81	115	106	81	95	63	102	66	83
FLIP 84-211 FB	S82010	53	67	67	71	134	81	115	106	81	95	55	101	66	84
FLIP 84-213 FB	S82084	51	68	70	63	132	80	114	108	84	95	69	99	66	83
FLIP 84-216 FB	S82106	51	68	68	67	128	80	117	107	86	95	52	99	68	84
FLIP 84-221 FB	S82130	51	68	66	63	127	81	114	108	81	95	56	101	69	83
FLIP 84-224 FB	S82149	51	68	72	73	127	80	116	108	86	95	69	107	66	85
FLIP 84-226 FB	S82154	54	72	70	67	138	82	113	108	84	95	61	98	-	84
ILB 1814	1814	52	69	70	68	129	82	115	109	83	95	59	101	68	84
Reina Blanca	1270	52	70	71	72	129	80	115	107	82	95	69	101	67	84
Local Check	-	51	68	63	61	137	82	115	119	80	95	50	100	67	
Location Mean		**51**	**69**	**69**	**67**	**116**	**81**	**115**	**109**	**83**	**95**	**59**	**102**	**67**	
S.E. of Mean		1.07	0.80	0.76	0.81	2.32	0.87	0.03	0.87	0.85		6.23	0.85	0.45	
L.S.D. at 5% for:															
Checks		3.69	2.77	2.63	2.81	8.04	3.01	0.10	3.00	2.94		21.56	2.93	1.55	
T.E. in the same block		7.39	5.53	5.25	5.62	16.08	6.02	0.20	5.99	5.88		43.12	5.85	3.11	
T.E. in different blocks		8.53	6.39	6.07	6.49	18.56	6.95	0.23	6.92	6.79		49.79	6.76	3.59	
Checks Vs test entries		6.74	5.05	4.80	5.13	14.68	5.50	0.18	5.47	5.37		39.37	5.34	2.84	
C.V. %		1.16	2.33	2.21	2.44	4.02	2.15	0.05	1.59	2.06		21.99	1.66	1.67	

(1) Shambat, Ankara and Tarquinia were excluded from the overall mean.
T.E. = Test entries, * = Locations not analysed and thus mean values are unadjusted.

Table 4.4.3. Adjusted time to maturity (days) of entries at different locations in the FBISN-S during 1986/87.

Pedigree	ILB/ Cross No.	CANADA	CHILE	ETHIOPIA	ITALY	JORDAN	LEBANON	PORTUGAL		SUDAN	SYRIA	TURKEY	(1) Overall Mean
		Quebec *	Valdi-via	Debre-Zeit	Tarqui-nia	Marow	Terbol	Elvas *	Oeiras	Shamabat	Tel-Hadya	Ankara	
FLIP 82- 1 FB	X75TA14	124	135	111	185	137	187	194	160	150	187	98	154
FLIP 83- 3 FB	X79S12	124	131	118	185	135	185	194	164	148	187	100	155
FLIP 83- 16 FB	S81056	124	135	118	189	135	185	194	160	145	189	97	155
FLIP 83- 30 FB	S81062	124	138	116	194	135	185	194	164	148	188	100	156
FLIP 83- 42 FB	78S 48395	124	138	114	186	135	187	194	160	153	188	99	155
FLIP 83- 48 FB	S81054	124	129	118	188	136	185	194	160	148	190	-	155
FLIP 83- 60 FB	S81012	124	131	109	-	137	185	194	160	149	189	99	154
FLIP 83- 68 FB	S81065	124	133	116	190	135	185	194	164	152	189	95	155
FLIP 83- 75 FB	S81072	124	140	114	191	139	187	194	164	149	190	100	156
FLIP 83- 78 FB	S81036	124	135	111	189	134	185	194	158	146	186	103	153
FLIP 83- 84 FB	S81211	124	133	110	192	135	185	194	160	149	187	100	154
FLIP 83- 85 FB	S81217	124	133	115	188	136	185	194	160	151	189	-	155
FLIP 83- 88 FB	S81232	124	133	110	188	139	185	194	164	148	189	-	155
FLIP 83- 89 FB	S81056	124	133	112	186	135	185	194	160	153	187	99	154
FLIP 83- 97 FB	Sd77061	124	133	112	-	136	185	194	164	148	187	-	154
FLIP 83-101 FB	79S 30424	124	129	111	190	135	185	194	160	152	188	99	153
FLIP 83-102 FB	79S 30403	124	131	116	-	135	185	194	162	147	189	99	154
FLIP 83-105 FB	79S 33024	124	135	108	189	137	185	194	158	152	187	102	154
FLIP 83-106 FB	1814	124	131	117	193	137	185	194	158	150	188	102	154
FLIP 83-107 FB	10	124	129	115	192	135	185	194	160	147	185	101	153
FLIP 83-114 FB	S81059	124	133	117	192	136	185	194	164	149	187	-	155
FLIP 83-126 FB	1812	124	133	112	196	136	185	194	160	148	186	-	154
FLIP 83-128 FB	1055	124	131	112	185	137	187	194	160	145	189	96	154
FLIP 84- 38 FB	S82002	124	133	117	194	138	185	194	160	151	189	-	155
FLIP 84- 41 FB	S82018	124	131	116	182	135	185	194	164	145	187	101	154
FLIP 84- 43 FB	S82061	124	138	110	186	135	187	194	164	152	187	100	155
FLIP 84- 45 FB	S82083	124	133	112	188	138	187	194	160	150	187	-	154
FLIP 84- 46 FB	S82097	124	137	110	189	137	187	194	158	147	186	101	154
FLIP 84- 48 FB	S82099	124	140	108	185	134	185	194	158	151	186	101	154
FLIP 84- 57 FB	S82150	124	135	117	193	135	185	194	164	146	189	100	155

Table 4.4.3. Cont'd. ...

Pedigree	ILB/ Cross No.	CANADA	CHILE	ETHIOPIA	ITALY	JORDAN	LEBANON	PORTUGAL		SUDAN	SYRIA	TURKEY	(1) Overall Mean
		Quebec *	Valdi-via	Debre-Zeit	Tarqui-nia	Marow	Terbol	Elvas *	Oeiras	Shamabat	Tel-Hadya	Ankara	
FLIP 84- 58 FB	S82154	124	133	118	194	138	185	194	160	150	189	-	155
FLIP 84- 59 FB	S82166	124	129	114	197	136	185	194	160	149	190	-	154
FLIP 84- 65 FB	S82448	124	133	113	183	135	185	194	160	148	185	99	154
FLIP 84-154 FB	S82002	124	133	111	186	135	185	194	160	153	186	100	154
FLIP 84-162 FB	S82018	124	131	113	182	137	185	194	162	151	187	103	154
FLIP 84-165 FB	S82028	124	135	115	-	137	187	194	164	-	190	101	156
FLIP 84-168 FB	S81054	124	135	118	193	134	185	194	170	150	188	103	156
FLIP 84-179 FB	S82088	124	129	114	188	136	187	194	164	148	187	-	154
FLIP 84-180 FB	S82095	124	131	117	191	135	185	194	160	147	190	103	154
FLIP 84-186 FB	S82149	124	140	113	191	134	187	194	162	151	189	99	155
FLIP 84-192 FB	S82170	124	131	114	189	134	187	194	162	151	187	100	154
FLIP 84-196 FB	S82243	124	133	111	190	137	187	194	164	149	185	97	154
FLIP 84-211 FB	S82010	124	138	114	192	137	185	194	162	150	187	96	155
FLIP 84-213 FB	S82084	124	140	114	189	134	185	194	165	147	188	100	156
FLIP 84-216 FB	S82106	124	140	115	191	135	187	194	160	150	187	102	155
FLIP 84-221 FB	S82130	124	131	118	189	136	185	194	158	147	189	104	154
FLIP 84-224 FB	S82149	124	131	108	189	134	187	194	158	152	189	99	153
FLIP 84-226 FB	S82154	124	129	117	196	138	185	194	164	152	186	-	155
ILB 1814	1814	124	133	114	191	136	187	194	164	148	188	100	155
Reina Blanca	1270	124	133	117	190	136	185	194	162	148	188	99	155
Local Check	-	124	148	112	193	138	185	194	161	148	189	102	
Location Mean		**124**	**134**	**114**	**190**	**136**	**186**	**194**	**161**	**149**	**188**	**100**	
S.E. of Mean			1.58	1.29	1.02	0.64	0.00		1.89	0.67	0.71	0.28	
L.S.D. at 5% for:													
Checks			5.46	4.48	3.52	2.22	0.00		6.55	2.33	2.45	0.96	
T.E. in the same block			10.93	8.95	7.04	4.43	0.00		13.10	4.65	4.89	1.91	
T.E. in different blocks			12.62	10.34	8.13	5.12	0.00		15.13	5.37	5.65	2.21	
Checks Vs test entries			9.98	8.17	6.43	4.04	0.00		11.96	4.25	4.47	1.75	
C.V. %			2.35	2.27	1.19	0.94	0.00		2.35	0.93	0.75	0.69	

(1) Tarquinia, Shambat and Ankara were excluded from the overall mean.
T.E. = Test entries, * = Locations not analysed and thus mean values are unadjusted.

Table 4.4.4. Adjusted plant height (cm) of entries at different locations in the FBISN-S during 1986/87.

Pedigree	ILB/ Cross No.	BANGLADESH	CANADA	CHILE	ETHIOPIA	ITALY	JORDAN	LEBANON	PORTUGAL		TURKEY	(1) Overall Mean
		Mymensingh	Quebec	Valdivia	Debre-Zeit	Tarquinia	Marow	Terbol	Elvas	Oeiras	Ankara	
FLIP 82- 1 FB	X75TA14	71	83	46	59	39	44	68	68	100	46	67
FLIP 83- 3 FB	X79S12	69	92	39	79	44	51	73	62	100	52	70
FLIP 83- 16 FB	S81056	70	84	36	77	37	54	73	61	100	47	69
FLIP 83- 30 FB	S81062	75	88	46	67	38	46	65	69	112	47	71
FLIP 83- 42 FB	78S 48395	64	96	36	73	43	45	65	62	112	46	69
FLIP 83- 48 FB	S81054	60	81	46	91	38	52	63	79	100	-	71
FLIP 83- 60 FB	S81012	72	66	26	57	-	49	78	61	110	50	65
FLIP 83- 68 FB	S81065	49	77	41	61	39	49	65	63	122	48	66
FLIP 83- 75 FB	S81072	72	71	46	73	34	39	63	63	115	49	68
FLIP 83- 78 FB	S81036	67	70	44	74	32	54	65	66	88	60	66
FLIP 83- 84 FB	S81211	75	98	50	66	31	46	80	64	112	46	74
FLIP 83- 85 FB	S81217	69	91	37	98	45	46	63	62	100	-	71
FLIP 83- 88 FB	S81232	56	93	41	69	36	50	63	63	130	-	71
FLIP 83- 89 FB	S81056	82	86	48	61	47	51	65	70	132	39	74
FLIP 83- 97 FB	Sd77061	63	96	52	70	-	58	83	62	120	-	75
FLIP 83-101 FB	79S 30424	55	84	44	77	50	52	70	64	132	47	72
FLIP 83-102 FB	79S 30403	63	96	44	88	-	64	68	57	115	49	74
FLIP 83-105 FB	79S 33024	62	113	39	77	34	53	65	65	108	52	73
FLIP 83-106 FB	1814	71	75	48	86	41	59	60	64	108	46	71
FLIP 83-107 FB	10	72	87	47	85	32	46	85	65	122	51	76
FLIP 83-114 FB	S81059	81	68	37	91	40	50	78	62	130	-	75
FLIP 83-126 FB	1812	59	93	42	83	30	50	68	62	125	-	73
FLIP 83-128 FB	1055	54	84	38	72	44	49	68	64	110	43	67
FLIP 84- 38 FB	S82002	67	72	32	98	42	47	68	62	100	-	68
FLIP 84- 41 FB	S82018	51	72	23	78	26	42	48	46	100	54	57
FLIP 84- 43 FB	S82061	58	94	48	76	32	54	60	61	102	43	69
FLIP 84- 45 FB	S82083	54	88	47	80	29	45	78	61	100	-	69
FLIP 84- 46 FB	S82097	67	101	54	79	36	56	60	53	108	56	72
FLIP 84- 48 FB	S82099	64	64	59	74	41	48	65	54	103	51	66
FLIP 84- 57 FB	S82150	41	79	33	69	29	49	68	61	110	46	64

Table 4.4.4. Cont'd. ...

Pedigree	ILB/ Cross No.	BANGLADESH	CANADA	CHILE	ETHIOPIA	ITALY	JORDAN	LEBANON	PORTUGAL		TURKEY	(1) Overall Mean
		Mymensingh	Quebec	Valdivia	Debre-Zeit	Tarquinia	Marow	Terbol	Elvas	Oeiras	Ankara	
FLIP 84- 58 FB	S82154	67	78	49	95	48	44	58	77	110	-	72
FLIP 84- 59 FB	S82166	71	70	33	64	27	58	58	57	100	-	64
FLIP 84- 65 FB	S82448	70	94	50	68	25	55	60	67	102	43	71
FLIP 84-154 FB	S82002	71	74	42	74	41	49	65	66	122	47	70
FLIP 84-162 FB	S82018	43	78	50	75	37	58	70	58	118	44	69
FLIP 84-165 FB	S82028	43	65	24	64	-	39	48	58	100	52	55
FLIP 84-168 FB	S81054	82	82	72	91	29	51	70	64	118	51	79
FLIP 84-179 FB	S82088	59	75	34	93	32	52	68	77	110	-	71
FLIP 84-180 FB	S82095	51	66	30	69	37	49	68	64	110	53	63
FLIP 84-186 FB	S82149	48	110	51	77	34	51	65	66	120	46	74
FLIP 84-192 FB	S82170	63	74	50	70	32	55	65	66	118	45	70
FLIP 84-196 FB	S82243	74	83	48	78	50	47	65	68	112	52	72
FLIP 84-211 FB	S82010	70	77	52	77	31	54	70	73	102	47	72
FLIP 84-213 FB	S82084	61	86	52	85	43	58	80	67	118	50	76
FLIP 84-216 FB	S82106	74	74	44	73	34	56	58	71	120	48	71
FLIP 84-221 FB	S82130	60	76	48	92	47	63	65	67	118	51	74
FLIP 84-224 FB	S82149	67	78	55	72	36	60	70	54	108	45	71
FLIP 84-226 FB	S82154	64	105	39	79	40	50	73	65	100	-	72
ILB 1814	1814	67	99	43	78	44	53	71	66	120	49	75
Reina Blanca	1270	60	78	41	76	34	55	63	58	111	45	68
Local Check	-	43	112	61	83	37	38	65	74	109	51	
Location Mean		63	86	44	77	37	50	67	64	112	48	
S.E. of Mean		5.35	6.85	6.70	2.87	2.48	2.09	4.58	3.02	4.43	1.48	
L.S.D. at 5% for:												
Checks		18.50	23.68	23.18	9.94	8.57	7.22	15.86	10.45	15.33	5.10	
T.E. in the same block		36.99	47.37	46.35	19.89	17.15	14.44	31.72	20.90	30.65	10.20	
T.E. in different blocks		42.72	54.70	53.52	22.96	19.80	16.67	36.62	24.13	35.39	11.78	
Checks Vs test entries		33.78	43.25	42.32	18.16	15.65	13.18	28.96	19.08	27.98	9.32	
C.V. %		17.09	15.93	30.24	7	17.58	8.3	13.75	9	7.94	7.64	
Test > L. Check		3	0	0	0	0	20	0	0	0	0	

(1) Tarquinia and Ankara were excluded from the overall mean.
T.E. = test entries.

Table 4.4.5. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the FBISN-S during 1986/87.

Pedigree	ILB/ Cross No.	CANADA		CHILE		EGYPT		ETHIOPIA		ITALY		JORDAN	
		Quebec		Valdivia		Gemmeza		Debre Zeit		Tarquinia		Marow	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 1 FB	X75TA14	4292	21	796	24	6752	7	626	5	1279	7	44	50
FLIP 83- 3 FB	X79S12	4862	15	1091	7	4308	28	626	6	1426	4	992	3
FLIP 83- 16 FB	S81056	4112	27	941	11	1713	47	986	3	1526	3	389	40
FLIP 83- 30 FB	S81062	2595	48	853	19	4206	31	97	39	874	17	102	48
FLIP 83- 42 FB	78S 48395	4436	19	698	31	4984	19	491	12	748	21	454	33
FLIP 83- 48 FB	S81054	5329	8	791	26	5262	15	-	-	1246	8	548	24
FLIP 83- 60 FB	S81012	3931	31	396	48	6030	10	366	23	-	-	-	-
FLIP 83- 68 FB	S81065	3589	39	1313	2	5206	17	31	44	801	19	570	22
FLIP 83- 75 FB	S81072	5598	5	851	20	4419	24	579	8	226	39	216	47
FLIP 83- 78 FB	S81036	3686	38	1096	6	4502	23	408	18	234	38	875	7
FLIP 83- 84 FB	S81211	3408	40	823	23	5262	16	264	32	281	36	444	35
FLIP 83- 85 FB	S81217	4288	22	846	21	2206	45	35	43	646	26	877	6
FLIP 83- 88 FB	S81232	2802	45	866	18	1095	51	-	-	46	47	363	42
FLIP 83- 89 FB	S81056	3283	43	518	41	5595	13	371	22	1421	5	527	28
FLIP 83- 97 FB	Sd77061	3947	30	826	22	1206	50	-	-	-	-	903	4
FLIP 83-101 FB	79S 30424	2630	47	678	33	3984	34	277	31	748	20	583	18
FLIP 83-102 FB	79S 30403	4139	26	1231	4	4197	32	739	4	-	-	597	16
FLIP 83-105 FB	79S 33024	3297	42	1011	8	3725	38	595	7	608	28	687	10
FLIP 83-106 FB	1814	4234	23	601	35	5002	18	422	17	1834	1	506	30
FLIP 83-107 FB	10	1679	51	778	27	4262	30	404	19	281	35	409	39
FLIP 83-114 FB	S81059	5003	11	446	46	1428	49	-	-	246	37	587	17
FLIP 83-126 FB	1812	4149	25	776	28	4373	26	-	-	119	45	534	26
FLIP 83-128 FB	1055	4070	28	701	30	4530	22	513	11	679	25	625	14
FLIP 84- 38 FB	S82002	3392	41	566	38	2650	43	315	26	892	16	494	31
FLIP 84- 41 FB	S82018	3883	32	131	50	5808	11	286	30	479	32	320	44
FLIP 84- 43 FB	S82061	4929	13	668	34	9262	2	304	27	701	23	545	25
FLIP 84- 45 FB	S82083	5072	9	866	17	1428	48	-	-	1319	6	315	45
FLIP 84- 46 FB	S82097	2373	49	731	29	3002	42	488	13	1108	11	582	19
FLIP 84- 48 FB	S82099	3859	33	1006	9	3725	37	188	35	1588	2	529	27
FLIP 84- 57 FB	S82150	6077	3	126	51	7975	4	373	20	159	44	475	32

Table 4.4.5. Cont'd. ...

Pedigree	ILB/ Cross No.	CANADA		CHILE		EGYPT		ETHIOPIA		ITALY		JORDAN	
		Quebec		Valdivia		Gemmeza		Debre Zeit		Tarquinia		Marow	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 58 FB	S82154	7246	1	991	10	3873	36	142	36	1019	13	444	34
FLIP 84- 59 FB	S82166	3767	36	496	43	2150	46	82	41	66	46	236	46
FLIP 84- 65 FB	S82448	3686	37	573	37	4762	20	124	37	181	41	624	15
FLIP 84-154 FB	S82002	2040	50	518	42	5650	12	371	21	1021	12	673	11
FLIP 84-162 FB	S82018	3832	34	451	45	4336	27	215	34	1234	9	691	9
FLIP 84-165 FB	S82028	5744	4	191	49	9308	1	1006	2	-	-	85	49
FLIP 84-168 FB	S81054	5422	7	896	14	6836	6	348	25	161	43	576	21
FLIP 84-179 FB	S82088	3156	44	426	47	2317	44	302	28	192	40	577	20
FLIP 84-180 FB	S82095	4792	16	476	44	6697	8	466	14	379	34	427	37
FLIP 84-186 FB	S82149	3804	35	531	40	4280	29	108	38	508	31	434	36
FLIP 84-192 FB	S82170	4519	17	901	13	3891	35	542	10	934	15	997	2
FLIP 84-196 FB	S82243	4061	29	883	16	5595	14	437	15	1201	10	376	41
FLIP 84-211 FB	S82010	4304	20	1233	3	6206	9	37	42	381	33	564	23
FLIP 84-213 FB	S82084	5464	6	1196	5	4113	33	255	33	688	24	897	5
FLIP 84-216 FB	S82106	4945	12	891	15	8030	3	366	24	626	27	657	12
FLIP 84-221 FB	S82130	2762	46	691	32	4391	25	575	9	608	29	1063	1
FLIP 84-224 FB	S82149	5054	10	791	25	4613	21	295	29	988	14	739	8
FLIP 84-226 FB	S82154	4489	18	566	39	3317	39	-	-	166	42	419	38
ILB 1814	1814	4227	24	575	36	3139	40	92	40	820	18	635	13
Reina Blanca	1270	4911	14	931	12	3090	41	437	16	745	22	518	29
Local Check	-	6786	2	1551	1	7500	5	1377	1	565	30	348	43
Location Mean		**4362**		**799**		**4556**		**386**		**723**		**541**	
S.E. of Mean		381.76		208.00		894.18		97.68		179.99		108.72	
L.S.D. at 5% for:													
Checks		1320.93		719.68		3093.90		337.96		622.76		376.16	
T.E. in the same block		2641.85		1439.67		6187.79		675.92		1245.52		752.32	
T.E. in different blocks		3050.55		1662.04		7145.05		780.49		1438.20		868.71	
Checks Vs test entries		2412.03		1314.16		5650.51		617.12		1137.17		686.88	
C.V. %		17.50		52.06		39.25		52.12		57.27		41.34	
Test > L. Check		0		0		0		0		1		1	

Cont'd. ...

Table 4.4.5. Cont'd. ...

Pedigree	ILB/ Cross No.	LEBANON		PORTUGAL				SPAIN		SUDAN		SYRIA	
		Terbol		Elvas		Oeiras		Cordoba		Shambat		Tel Hadya	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 1 FB	X75TA14	3219	28	1877	11	2217	26	3289	34	742	4	2489	48
FLIP 83- 3 FB	X79S12	4034	7	1864	12	3350	11	4467	5	631	5	3815	20
FLIP 83- 16 FB	S81056	2923	37	1690	15	2850	16	3289	33	256	29	3538	26
FLIP 83- 30 FB	S81062	3429	19	2646	1	1694	38	2908	47	-	-	2663	46
FLIP 83- 42 FB	78S 48395	3281	25	989	43	3428	10	3122	36	187	40	3403	32
FLIP 83- 48 FB	S81054	3392	20	1011	40	2461	19	3098	38	-	-	2835	43
FLIP 83- 60 FB	S81012	2627	45	2045	5	1683	39	2789	50	311	24	3718	22
FLIP 83- 68 FB	S81065	2836	41	971	44	4694	3	3051	39	-	-	3023	39
FLIP 83- 75 FB	S81072	3071	33	1623	21	2417	20	2967	44	825	2	1760	51
FLIP 83- 78 FB	S81036	3552	15	1069	39	2261	25	3562	26	242	31	3905	18
FLIP 83- 84 FB	S81211	3059	35	1134	37	1461	42	3443	31	215	36	2137	49
FLIP 83- 85 FB	S81217	3318	24	613	49	2861	15	3705	16	24	46	4269	11
FLIP 83- 88 FB	S81232	2873	40	1005	41	1394	44	4063	9	413	17	2920	40
FLIP 83- 89 FB	S81056	2614	47	1664	17	2294	23	2979	43	270	27	3522	28
FLIP 83- 97 FB	Sd77061	3910	11	1252	33	3761	6	3955	10	469	13	4016	16
FLIP 83 01 FB	79S 30424	3355	23	911	47	3561	8	3515	29	354	20	3440	30
FLIP 83 02 FB	79S 30403	2886	39	1557	23	2383	21	3646	19	561	7	3535	27
FLIP 83 05 FB	79S 33024	3960	9	1358	31	1894	35	3562	25	381	18	4424	6
FLIP 83 06 FB	1814	3219	27	1160	36	2061	29	3777	15	575	6	4141	13
FLIP 83 07 FB	10	3096	32	1543	25	328	51	3015	41	284	26	2837	42
FLIP 83-114 FB	S81059	3096	31	1626	20	1228	47	3598	21	205	39	3252	35
FLIP 83-126 FB	1812	2429	49	999	42	1961	33	3813	13	316	23	2757	45
FLIP 83-128 FB	1055	3441	17	1798	14	1817	37	3110	37	497	11	4098	15
FLIP 84- 38 FB	S82002	2725	43	1686	16	1294	46	2991	42	538	9	3425	31
FLIP 84- 41 FB	S82018	2627	46	1431	28	2083	27	3396	32	436	16	3115	37
FLIP 84- 43 FB	S82061	4244	3	917	46	961	50	2943	45	-	-	3173	36
FLIP 84- 45 FB	S82083	2799	42	1451	27	3094	13	3634	20	469	12	4435	5
FLIP 84- 46 FB	S82097	3367	21	1636	19	2328	22	2920	46	47	45	4154	12
FLIP 84- 48 FB	S82099	3990	8	708	48	2261	24	4277	7	131	41	4381	8
FLIP 84- 57 FB	S82150	3960	10	1316	32	2917	14	2824	49	353	21	3038	38

Table 4.4.5. Cont'd. ...

Pedigree	ILB/ Cross No.	LEBANON		PORTUGAL				SPAIN		SUDAN		SYRIA	
		Terbol		Elvas		Oeiras		Cordoba		Shambat		Tel Hadya	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 58 FB	S82154	3170	29	1415	29	1561	41	3598	23	107	42	4701	3
FLIP 84- 59 FB	S82166	2133	51	1601	22	1628	40	3563	24	232	32	2807	44
FLIP 84- 65 FB	S82448	2244	50	2013	7	1994	31	2301	51	506	10	2894	41
FLIP 84-154 FB	S82002	2910	38	1248	34	1194	48	3051	40	298	25	1848	50
FLIP 84-162 FB	S82018	3849	12	340	50	3461	9	3670	18	242	30	4407	7
FLIP 84-165 FB	S82028	3441	18	1810	13	4683	4	4110	8	-	-	3700	23
FLIP 84-168 FB	S81054	5278	1	1907	10	5061	1	6098	2	219	35	5218	1
FLIP 84-179 FB	S82088	2577	48	1397	30	1428	43	3598	22	357	19	3778	21
FLIP 84-180 FB	S82095	4071	6	1654	18	3683	7	2896	48	561	8	3341	34
FLIP 84-186 FB	S82149	3367	22	937	45	2728	18	3812	14	61	44	4106	14
FLIP 84-192 FB	S82170	3478	16	1075	38	1861	36	3920	12	269	28	4361	10
FLIP 84-196 FB	S82243	3133	30	1983	8	2061	28	3479	30	340	22	2557	47
FLIP 84-211 FB	S82010	3244	26	2615	2	1294	45	3265	35	437	15	3341	33
FLIP 84-213 FB	S82084	4219	5	1515	26	2061	30	3670	17	228	34	4378	9
FLIP 84-216 FB	S82106	4478	2	2093	4	2750	17	4574	4	797	3	5095	2
FLIP 84-221 FB	S82130	3849	13	1226	35	1128	49	3955	11	228	33	3906	17
FLIP 84-224 FB	S82149	4219	4	166	51	1994	32	4312	6	464	14	4523	4
FLIP 84-226 FB	S82154	3059	34	1547	24	4828	2	6170	1	205	38	3643	25
ILB 1814	1814	3639	14	2242	3	1933	34	3554	28	81	43	3698	24
Reina Blanca	1270	2926	36	2020	6	3250	12	3554	27	213	37	3441	29
Local Check	-	2648	44	1916	9	4300	5	4830	3	1611	1	3881	19
Location Mean		**3282**		**1547**		**2539**		**3658**		**374**		**3582**	
S.E. of Mean		228.83		168.54		325.75		201.48		74.50		479.30	
L.S.D. at 5% for:													
Checks		791.77		583.16		1127.10		697.14		257.77		1658.39	
T.E. in the same block		1583.55		1166.31		2254.21		1394.28		515.54		3316.79	
T.E. in different blocks		1828.52		1346.74		2602.93		1609.97		595.29		3829.90	
Checks Vs test entries		1445.79		1064.85		2058.11		1272.99		470.69		3028.26	
C.V. %		13.95		21.79		25.66		11.02		39.53		26.76	
Test > L. Check		5		0		0		1		0		0	

Cont'd. ...

Table 4.4.5. Cont'd. ...

Pedigree	ILB/ Cross No.	TUNISIA								TURKEY		Overall Mean (1)	
		Beja		El Kef		Krib		Oued Meliz		Ankara			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 82- 1 FB	X75TA14	3279	43	4588	22	825	17	2800	51	1104	27	3035	31
FLIP 83- 3 FB	X79S12	6779	2	4988	16	1175	4	5900	8	1467	6	3886	4
FLIP 83- 16 FB	S81056	5379	8	5038	14	925	12	5000	21	1431	8	3117	27
FLIP 83- 30 FB	S81062	3029	49	4135	33	192	48	4367	35	982	33	2726	43
FLIP 83- 42 FB	78S 48395	3529	37	4385	27	592	32	7067	1	1110	26	3326	16
FLIP 83- 48 FB	S81054	5746	6	3922	37	725	23	4133	38	3	40	3225	20
FLIP 83- 60 FB	S81012	2829	50	4338	29	825	16	4100	40	1104	28	2943	36
FLIP 83- 68 FB	S81065	3879	33	2835	50	242	47	5767	9	1038	31	3117	26
FLIP 83- 75 FB	S81072	3429	39	5138	10	1275	3	4000	41	940	35	3046	30
FLIP 83- 78 FB	S81036	6246	3	4055	34	1158	5	6800	2	1175	21	3491	10
FLIP 83- 84 FB	S81211	3079	47	4185	32	492	38	4367	36	1128	25	2737	42
FLIP 83- 85 FB	S81217	5096	10	5122	12	525	36	3133	49	3	50	2999	34
FLIP 83- 88 FB	S81232	4046	30	4472	24	575	34	3233	48	3	44	2445	50
FLIP 83- 89 FB	S81056	5029	11	3385	44	342	43	6167	7	1255	16	3116	28
FLIP 83- 97 FB	Sd77061	6046	4	6122	2	575	33	4433	32	3	46	3338	14
FLIP 83-101 FB	79S 30424	4829	15	3185	47	842	15	5067	20	1001	32	3000	33
FLIP 83-102 FB	79S 30403	4629	17	5188	9	1325	2	5700	11	1149	23	3368	12
FLIP 83-105 FB	79S 33024	4496	22	3255	46	1108	7	5000	23	1248	17	3091	29
FLIP 83-106 FB	1814	3146	46	2905	49	908	13	4900	25	1466	7	3005	32
FLIP 83-107 FB	10	4129	28	4335	30	342	44	4967	24	938	36	2609	49
FLIP 83-114 FB	S81059	5746	5	3972	36	775	20	4433	33	3	51	2883	39
FLIP 83-126 FB	1812	4896	14	3872	39	1075	8	3833	43	3	43	2911	38
FLIP 83-128 FB	1055	3329	42	4888	17	475	40	5700	12	1267	15	3163	23
FLIP 84- 38 FB	S82002	5246	9	3922	38	275	46	3733	44	3	42	2659	47
FLIP 84- 41 FB	S82018	3079	48	2588	51	475	41	4100	39	976	34	2726	44
FLIP 84- 43 FB	S82061	3279	44	5035	15	0	51	5567	14	1419	9	3415	11
FLIP 84- 45 FB	S82083	4996	12	5472	7	625	30	3633	45	3	49	3126	25
FLIP 84- 46 FB	S82097	3396	41	3605	43	958	11	3900	42	1412	10	2697	45
FLIP 84- 48 FB	S82099	4546	20	4455	25	708	26	6300	6	1847	1	3351	13
FLIP 84- 57 FB	S32150	4379	24	5988	3	675	27	4200	37	1086	29	3623	5

Table 4.4.5. Cont'd. ...

Pedigree	ILB/ Cross No.	TUNISIA								TURKEY		Overall Mean (1)	
		Beja		El Kef		Krib		Oued Meliz		Ankara			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 58 FB	S82154	4246	26	5522	6	475	42	3133	50	3	41	3328	15
FLIP 84- 59 FB	S82166	7996	1	4722	20	825	18	3333	47	3	47	2918	37
FLIP 84- 65 FB	S82448	3429	40	3685	41	142	50	5767	10	701	38	2791	41
FLIP 84-154 FB	S82002	3929	32	4835	18	142	49	4867	27	864	37	2686	46
FLIP 84-162 FB	S82018	4546	19	3155	48	1358	1	4600	30	1374	12	3167	21
FLIP 84-165 FB	S82028	4129	27	5538	5	575	35	5000	22	1194	19	4019	2
FLIP 84-168 FB	S81054	4596	18	4455	26	658	28	4900	26	1511	4	4277	1
FLIP 84-179 FB	S82088	4696	16	3672	42	1075	9	3533	46	3	45	2638	48
FLIP 84-180 FB	S82095	4529	21	6238	1	325	45	4400	34	1375	11	3592	6
FLIP 84-186 FB	S82149	3796	34	3305	45	708	25	4600	31	1230	18	2998	35
FLIP 84-192 FB	S82170	3646	36	4755	19	758	21	5600	13	1737	2	3230	19
FLIP 84-196 FB	S82243	3779	35	5335	8	592	31	5467	15	1182	20	3244	18
FLIP 84-211 FB	S82010	4979	13	5135	11	492	39	6567	4	1137	24	3556	8
FLIP 84-213 FB	S82084	4296	25	4355	28	908	14	6600	3	1611	3	3565	7
FLIP 84-216 FB	S82106	3929	31	5588	4	525	37	4700	29	1485	5	3967	3
FLIP 84-221 FB	S82130	2346	51	3805	40	808	19	5100	19	1166	22	2831	40
FLIP 84-224 FB	S82149	3496	38	4605	21	658	29	5100	18	1348	13	3294	17
FLIP 84-226 FB	S82154	4446	23	4022	35	1125	6	5233	17	3	48	3537	9
ILB 1814	1814	4125	29	5113	13	750	22	4725	28	1298	14	3143	24
Reina Blanca	1270	3225	45	4275	31	1013	10	5350	16	1040	30	3166	22
Local Check	-	5588	7	4478	23	713	24	6525	5	499	39		
Location Mean		**4335**		**4459**		**718**		**4953**		**931**			
S.E. of Mean		474.03		538.71		149.94		199.83		19.32			
L.S.D. at 5% for:													
Checks		1640.17		1863.95		518.81		691.41		66.86			
T.E. in the same block		3280.35		3727.90		1037.62		1382.82		133.72			
T.E. in different blocks		3787.82		4304.61		1198.14		1596.74		154.41			
Checks Vs test entries		2994.98		3403.61		947.35		1262.53		122.09			
C.V. %		21.87		24.16		41.80		8.07		4.15			
Test > L. Check		0		0		0		0		36			

(1) Debre Zeit, Tarquinia, Marow, Shambat and Ankara were excluded from the overall mean.
T.E. = Test entries.

Table 4.4.6. The five heaviest seed yielding entries at the individual locations in the FBISN-S during 1986/87.

Rank	CANADA	CHILE	EGYPT	ETHIOPIA	ITALY	JORDAN
	Quebec	Valdivia	Gemmeza	Debre Zeit	Tarquinia	Marow
1	FLIP84- 58FB	Local Check	FLIP84-165FB	Local Check	FLIP83-106FB	FLIP84-221FB
2	Local Check	FLIP83- 68FB	FLIP84- 43FB	FLIP84-165FB	FLIP84- 48FB	FLIP84-192FB
3	FLIP84- 57FB	FLIP84-211FB	FLIP84-216FB	FLIP83- 16FB	FLIP83- 16FB	FLIP83- 3FB
4	FLIP84-165FB	FLIP83-102FB	FLIP84- 57FB	FLIP83-102FB	FLIP83- 3FB	FLIP83- 97FB
5	FLIP83- 75FB	FLIP84-213FB	Local Check	FLIP82- 1FB FLIP83- 3FB	FLIP83- 89FB	FLIP84-213FB

Cont'd 2/..

Rank	LEBANON	PORTUGAL		SPAIN	SUDAN	SYRIA
	Terbol	Elvas	Oeiras	Cordoba	Shambat	Tel Hadya
1	FLIP84-168FB	FLIP83- 30FB	FLIP84-168FB	FLIP84-226FB	LocallCheck	FLIP84-168FB
2	FLIP84-216FB	FLIP84-211FB	FLIP84-226FB	FLIP84-168FB	FLIP83- 75FB	FLIP84-216FB
3	FLIP84- 43FB	ILB 1814	FLIP83- 68FB	Local Check	FLIP84-216FB	FLIP84- 58FB
4	FLIP84-224FB	FLIP84-216FB	FLIP84-165FB	FLIP84-216FB	FLIP82- 1FB	FLIP84-224FB
5	FLIP84-213FB	FLIP83- 60FB	Local Check	FLIP83- 3FB	FLIP83- 3FB	FLIP84- 45FB

Cont'd 2/..

Rank	TUNISIA				TURKEY
	Beja	El Kef	Krib	Oued Meliz	Ankara
1	FLIP84- 59FB	FLIP84-180FB	FLIP84-162FB	FLIP83- 42FB	FLIP84- 48FB
2	FLIP83- 3FB	FLIP83- 97FB	FLIP83-102FB	FLIP83- 78FB	FLIP84-192FB
3	FLIP83- 78FB	FLIP84- 57FB	FLIP83- 75FB	FLIP84-213FB	FLIP84-213FB
4	FLIP83- 97FB	FLIP84-216FB	FLIP83- 3FB	FLIP84-211FB	FLIP84-168FB
5	FLIP83-114FB FLIP83- 48FB	FLIP84-165FB	FLIP83- 78FB	Local Check	FLIP84-216FB

The brackets indicate entries having the same rank.

received from 12 locations from 10 countries. The data on agronomic practices supplied by the cooperators are presented in Table 4.5.1.

Results and Discussion

The population means over all the locations revealed that S84068, and S84146 were earliest to flower in 76 days (Table 4.5.2). The range in entry means for time to maturity and plant height for different entries was 137 to 141 days (Table 4.5.3), and 55 to 70 cm (Table 4.5.4), respectively.

The adjusted seed yield of populations (Table 4.5.5) exhibited that Quebec in Canada was the highest yielding location (5133 kg/ha) and was followed by Beja in Tunisia (4228 kg/ha) and Sakha in Egypt (4175 kg/ha). The LSD estimates revealed that 6, 42, and 55 test entries at Tarquinia in Italy, Beja in Tunisia, and Ankara in Turkey, respectively, outyielded the respective local checks by significant margins. The top five heaviest yielders at each location are given in Table 4.5.6.

4.6. FABA BEAN SOUTHERN LATITUDE TRIAL (FBSLT)

Materials

The Faba Bean Southern Latitiude Trial comprising 17 test entries and one local check to be supplied by the cooperator was initiated for the first time for the countries in southern latitudes. The entries in this trial were selected on the basis of their earliness and superior performance in local trials conducted in the previous seasons.

Methods and Management

The material was suggested to be sown in a randomised block design with two replications. The suggested plot size was 4 rows 4 m long with inter row spacings of 50 cm. Ten sets of trials were distributed to cooperators in six countries but results were received for only three . The agronomic data received from the cooperators indicated that the sowing was done on 19 Nov., 10 Nov., and 26 Oct., respectively, for sids (Egypt), Islamabad (Pakistan) and Shambat (Sudan); and Giza 402, F83-48FB and BF2/2 were used as checks.

Results and Discusion

The entry means across locations for time to flowering (Table 4.6.1.), time to maturity (Table 4.6.2.), plant height (Table 4.6.3.) and seed yield (Table 4.6.4.) varied from 57-60 days, 137 to 146 days, 76 to 111 cm, and 1374 to 2674 kg/ha, respectively. The co-efficient of variation of the experimental design was 21, 32 and 76 percent for Shambat (Sudan), Sids (Egypt), and Islamabad (Pakistan). The entry 314/1188/81B gave the highest yield (2674 kg/ha) across the locations and was followed by NEB 2727/75, 187/1104/80, BF2/2 and Reina Blanca with respective seed yields of 2520, 2419, 2387 and 2311 kg/ha.

Table 4.5.1. Agronomic data for different locations in the FBIF4N during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/ Herbicide	Local Check
BANGLADESH	Mymensingh	25.11.86	04.87	-			1	-	Fb 1 (Manikganj Local)
CANADA	Quebec	21.05.87	13.10.87	23	90		-	Treflan, Sencor, Thiram	Out Look
EGYPT	Sakha	NA	NA	NA			NA	NA	Giza 3
ETHIOPIA	Debre Zeit	30.06.87	30.10.87	-			-	-	NC58
ITALY	Tarquinia	11.12.86	16.07.87	54	138		-	Nebutrin	Tarquinia
MOROCCO	Douyet	05.12.86	03.06.87	30	70		-	Glyphosate	Aquadulce
NEPAL	Khumaltar	06.11.86	06.87	-			-	-	Kathmandu Local
SUDAN	Shambat	23.10.86	13.03.87	-			9	Folimat	H, 72
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TURKEY	Ankara	31.03.87	NA	22	60		-	Basudine	69 V1
TURKEY	Diyarbakir	21.11.86	-	40	60		-	-	
TURKEY	Izmir (Menemen)	19.11.86	17.06.87	30	60		-	Trifluralin, Metasystox	Eresen - 87

NA = Not available.

Table 4.5.2. Adjusted time to flowering (days) of entries at different locations in the FBIP4-N during 1986/87.

Entry Name/ Cross No.	Parents	CANADA	EGYPT	ETHIOPIA
		Quebec	Sakha	Debre Zeit
S84051	ILB 1014, Syr.L.L.; FLIP 83-31FB, S81064-15	49	64	77
S84052	New Mammoth, ILB 1269;FLIP 83-31 FB, S81064-15	50	59	70
S84054	Sevilla Giant, ILB 1933; FLIP 83-112FB, S81064-8	51	55	70
S84057	78S49841, ILB 34; FLIP 83-30 FB, S81062-8	54	60	76
S84058	79S4, ILB 1814; FLIP 83-30FB, S81062-8	53	60	78
S84060	Leb.L.L., ILB 1817; BPL 1278, 81 Lat. 24957	53	59	68
s84061	Elegant 5MCI, ILB 1805; S81070-3	53	59	67
S84067	79SL 48590, ILB 282; BPL 1278, 81 Lat. 24957	53	55	74
S84068	71TA 516, ILB 371; BPL 1278, 81 Lat. 24957	47	50	63
S84071	ILB 4; S81077-1	53	50	72
S84072	Giza 3; S81077-1	50	59	68
S84074	FLIP 83-1FB, ILB 5; BPL 274, 81 Lat. 24701-2	50	59	68
S84079	77Ms 88323, ILB 287; BPL 710, 81 Lat. 24857-1	49	64	71
S84080	80S 45579, X77TA 148; BPL 710, 81 Lat. 24857-1	51	60	73
S84084	77TA 80023, ILB 18; FLIP 83-71FB, S81071-8	55	57	73
S84085	78S 49171, ILB 1266; BPL 1179, 81 Lat. 24948-1	51	49	67
S84087	80S 46341, X77Sd 70; FLIP 83-117FB, S81071-11	53	59	68
S84091	80S 80026, X79S 70; BPL 1278, 81 Lat. 24957	49	54	67
S84092	FLIP 83- 4FB, ILB 12; BPL 1278, 81 Lat. 24957	51	50	73
S84093	77TA 88311, ILB 263; FLIP 83-31FB, S81064-15	50	55	67
S84094	FLIP 82-26FB, X79S 101B; FLIP 83-31FB, S81064-15	50	50	61
S84097	FLIP 82-29 FB, X79L 25; FLIP 83-112FB, S81064-8	54	57	72
S84098	FLIP 82-25FB, X79S 74; FLIP 83-112FB, S81064-8	55	62	67
S84099	80S 80028, X79S 72; BPL 1278, 81 Lat. 24957	55	57	66
S84103	FLIP 82-28FB, X79S 178; S81073-3	54	59	68
S84105	78S 33200, X75TA 115; S81079-5	47	59	69
S84106	FLIP 82-45FB, ILB 1817; S81079-5	53	50	63
S84109	FLIP 82-46FB, ILB 1817; S81080-7	55	62	66
S84111	FLIP 82-54FB, ILB 41; FLIP 83-37FB, S81062-2	46	54	66
S84112	80S 80123, X79S 155; FLIP 83-37FB, S81062-2	51	59	61
S84116	FLIP 82-30FB, X79L 130; FLP 83-37FB, S81062-2	51	54	67
S84121	80S 80128, 79S 160; S81063-4	46	60	67
S84123	78S 49907, ILB 10; BPL 1278, 81 Lat. 24957	54	54	68
S84124	80S 44027, X77TA 64; BPL 1278, 81 Lat. 24957	51	54	70
S84131	80S 50106, X75TA 193; S81078-1	53	55	70
S84132	80S 43977, X77TA 60; S81078-1	55	60	73

Table 4.5.2. Cont'd. ...

Entry Name/ Cross No.	Parents	CANADA	EGYPT	ETHIOPIA
		Quebec	Sakha	Debre Zeit
S84135	FLIP 82-21FB, X77TA 85; S81077-1	50	55	65
S84136	FLIP 82-13FB, X77Sd 48; S81077-1	54	57	68
S84137	FLIP 82-15FB, X75TA 16; S81071-17	50	54	66
S84138	FLIP 82-35FB, X75TA 14; S81071-17	52	57	64
S84141	76TA 56809, ILB 1817; BPL 74, 79Lat. 70015-1	50	57	66
S84144	79S 4, ILB 1814; BPL 435, 80 Lat. 14398	53	55	78
S84145	76TA 56246, ILB 398; S81077-1	53	59	67
S84146	78S 49694, ILB 605; S81077-1	46	55	61
S84147	FLIP 83-8FB, X75TA 43; BPL 74, 79 Lat. 70015-4	50	62	71
S84148	79SL 48590, ILB 282; BPL 74, 79 Lat. 70015-4	55	62	68
S84151	74TA 22, ILB 9; S81077-1	55	62	71
S84152	ILB 4; S81077-1	53	60	67
S84154	39MB, ILB 1799; BPL 365, 80 Lat. 14336	53	55	68
S84155	Lob.L.L., ILB 1817; BPL 365, 80 Lat. 14336	54	60	71
S84156	80S 80026, X79S 70; BPL 365, 80 Lat. 14336	48	59	67
S84161	FLIP 82-29 FB, 79L 25; FLIP 83-56FB, S81012-33	51	59	68
S84163	80S 80028, X79S 72; BPL 74, 79 Lat. 70015-1	52	57	64
S84165	79S 546, ILB 1814; FLIP 83-56 FB, S81012-33	50	59	70
S84166	FLIP 82-53FB, ILB 23;FLIP 83-56FB, S81012-33	49	49	69
S84167	FLIP 82-54FB, ILB 41; BPL 74, 79 Lat. 70015-1	48	55	68
S84175	80S 46341, X77Sd 70; BPL 472, 80 Lat. 14435-2	51	60	62
S84186	BPL 2270, ILB 1513; FLIP 83-31FB, S81064-15	51	60	69
S84200	FLIP 83-71FB, S81071-8; 80S 43856, X77TA 48	48	50	69
S84201	FLIP 83-66FB, S81063-17; 80S 44358, X77TA 81	50	59	69
ILB 1814	-	52	59	72
ILB 1270	(Reina Blanca)	51	62	70
Local Check	-	51	45	60
Location Mean		52	57	68
S.E. of Mean		0.52	0.82	1.51
L.S.D. at 5% for Checks		1.71	2.66	4.93
L.S.D. at 5% for Test entries in the same block		3.81	5.95	11.03
L.S.D. at 5% for Test entries in different blocks		4.40	6.87	12.74
L.S.D. at 5% for Checks Vs test entries		3.41	5.33	9.87
C.V. %		0.61	3.22	4.97

Cont'd. ...

Table 4.5.2. Cont'd. ...

Entry Name/ Cross No.	ITALY	MOROCCO	NEPAL	SUDAN	TURKEY		Overall Mean
	Tarquinia	Douyet	Khumaltar	Shambat	Ankara	Izmir	
S84051	131	99	93	55	67	104	82
S84052	131	96	91	51	65	104	80
S84054	132	96	87	44	67	102	78
S84057	127	96	83	43	68	109	80
S84058	132	96	93	48	68	102	81
S84060	131	96	83	47	65	104	78
s84061	131	99	87	44	66	104	79
S84067	132	99	84	46	66	102	79
S84068	135	96	83	43	68	102	76
S84071	132	99	91	46	69	102	79
S84072	131	99	96	47	65	104	80
S84074	131	99	87	46	65	104	79
S84079	134	99	93	46	70	111	82
S84080	132	96	87	41	66	102	79
S84084	125	96	87	52	68	102	79
S84085	134	96	84	49	68	104	78
S84087	131	99	96	47	66	104	80
S84091	131	99	84	44	68	104	78
S84092	135	96	87	43	68	102	78
S84093	132	99	84	44	67	102	78
S84094	135	96	84	47	67	102	77
S84097	130	96	96	46	68	102	80
S84098	125	96	96	46	68	102	80
S84099	130	96	83	47	68	102	78
S84103	131	98	93	61	67	104	82
S84105	131	96	93	47	67	111	80
S84106	132	99	83	43	68	102	77
S84109	130	99	91	45	67	109	80
S84111	131	99	91	47	66	104	78
S84112	131	99	84	47	67	104	78
S84116	134	96	93	50	68	104	80
S84121	127	96	84	52	66	102	78
S84123	131	99	84	45	67	104	78
S84124	134	99	93	46	68	104	80
S84131	127	96	91	46	67	102	79
S84132	132	96	91	46	66	109	81

Table 4.5.2. Cont'd. ...

Entry Name/ Cross No.	ITALY	MOROCCO	NEPAL	SUDAN	TURKEY		Overall Mean
	Tarquinia	Douyet	Khumaltar	Shambat	Ankara	Izmir	
S84135	132	99	88	41	65	102	78
S84136	130	96	87	50	67	102	79
S84137	131	96	86	50	66	104	78
S84138	133	96	83	43	67	102	77
S84141	130	96	96	43	68	102	79
S84144	132	99	93	50	69	102	81
S84145	131	99	96	48	66	104	80
S84146	132	96	80	43	67	102	76
S84147	130	96	87	46	66	102	79
S84148	130	96	96	50	68	102	81
S84151	125	96	91	51	68	102	80
S84152	132	96	93	44	66	102	79
S84154	132	96	83	47	67	102	78
S84155	135	96	87	46	66	109	81
S84156	131	96	83	53	67	104	79
S84161	137	99	84	54	67	104	80
S84163	130	96	94	53	68	102	80
S84165	131	96	91	45	66	104	79
S84166	134	96	84	47	68	104	78
S84167	132	96	80	45	67	102	77
S84175	138	96	87	45	67	102	79
S84186	135	96	96	49	66	109	81
S84200	132	96	83	44	68	102	77
S84201	131	99	91	47	65	111	80
ILB 1814	130	96	91	52	67	103	80
ILB 1270	132	99	93	51	67	106	81
Local Check	133	99	82	42	67	104	
Location Mean	**131**	**97**	**89**	**47**	**67**	**104**	
S.E. of Mean	0.85	0.00	1.86	0.71	0.40	1.40	
L.S.D. at 5% for:							
Checks	2.77	0.00	6.07	2.30	1.32	4.57	
T.E. in S.B.	6.20	0.00	13.57	5.14	2.95	10.21	
T.E. in D.B.	7.16	0.00	15.67	5.93	3.40	11.79	
Checks Vs T.E.	5.55	0.00	12.14	4.60	2.64	9.13	
C.V. %	1.45	0.00	4.69	3.32	1.35	3.01	

T.E. = Test entries, S.B. = Same block, D.B. = Different blocks.

Table 4.5.3. Adjusted time to maturity (days) of entries at different locations in the FBIF4-N during 1986/87.

Entry Name/ Cross No.	CANADA	ETHIOPIA	ITALY	MOROCCO	SUDAN	TURKEY	Overall Mean
	Quebec	Debre Zeit	Tarquinia	Douyet	Shambat	Ankara	
S84051	125	119	190	161	147	100	140
S84052	125	121	187	159	147	97	139
S84054	119	111	190	159	145	100	137
S84057	128	111	190	159	142	102	139
S84058	125	110	191	159	145	101	139
S84060	125	112	189	159	145	96	138
s84061	125	113	189	161	142	98	138
S84067	125	110	191	161	144	99	138
S84068	128	116	190	159	144	102	140
S84071	125	118	191	161	142	102	140
S84072	125	122	193	161	143	97	140
S84074	125	112	189	161	143	96	138
S84079	125	113	193	161	144	105	140
S84080	128	119	190	159	146	99	140
S84084	127	119	189	159	143	103	140
S84085	125	121	194	159	145	100	141
S84087	125	116	189	161	142	99	139
S84091	125	115	190	161	143	101	139
S84092	128	115	195	159	144	101	140
S84093	125	111	191	161	142	100	138
S84094	125	118	196	159	147	101	141
S84097	118	119	185	159	141	102	137
S84098	127	109	185	159	145	100	138
S84099	127	114	189	159	144	100	139
S84103	125	120	194	160	144	101	141
S84105	125	118	192	159	144	99	140
S84106	128	112	192	159	145	102	140
S84109	127	111	189	161	146	100	139
S84111	125	119	189	161	144	100	140
S84112	125	113	190	161	145	99	139
S84116	125	111	190	159	144	101	138
S84121	125	115	191	159	146	98	139
S84123	125	117	188	161	146	98	139
S84124	125	120	190	161	145	100	140
S84131	128	118	195	159	143	100	141
S84132	128	119	190	159	144	99	140

Table 4.5.3. Cont'd. ...

Entry Name/ Cross No.	CANADA Quebec	ETHIOPIA Debre Zeit	ITALY Tarquinia	MOROCCO Douyet	SUDAN Shambat	TURKEY Ankara	Overall Mean
S84135	125	119	191	161	146	97	140
S84136	118	116	193	159	142	100	138
S84137	125	114	189	159	141	97	138
S84138	127	109	189	159	142	100	138
S84141	127	107	189	159	143	102	138
S84144	125	118	187	161	145	102	140
S84145	125	113	193	161	144	99	139
S84146	125	116	196	159	144	100	140
S84147	127	110	191	159	146	99	139
S84148	127	111	189	159	142	101	138
S84151	140	109	189	159	144	101	140
S84152	125	116	191	159	144	98	139
S84154	125	112	191	159	143	99	138
S84155	128	119	190	159	144	97	140
S84156	125	116	189	159	145	101	139
S84161	125	111	193	161	145	99	139
S84163	127	112	191	159	140	103	139
S84165	125	114	193	159	143	100	139
S84166	125	111	190	159	147	102	139
S84167	125	114	191	159	143	100	139
S84175	128	119	194	159	146	101	141
S84186	119	121	192	159	144	97	139
S84200	128	120	190	159	144	102	141
S84201	125	113	189	161	143	96	138
ILB 1814	126	116	190	159	144	100	139
ILB 1270	124	120	190	161	144	99	140
Local Check	144	109	192	161	138	100	
Location Mean	**127**	**115**	**191**	**160**	**144**	**100**	
S.E. of Mean	1.32	0.89	0.57	0.06	0.65	0.55	
L.S.D. at 5% for:							
Checks	4.30	2.90	1.85	0.19	2.12	1.80	
T.E. in S.B.	9.62	6.49	4.12	0.42	4.74	4.02	
T.E. in D.B.	11.11	7.50	4.76	0.49	5.48	4.64	
Checks Vs T.E.	8.60	5.81	3.69	0.38	4.24	3.59	
C.V. %	1.10	1.73	0.66	0.08	1.01	1.23	

T.E. = Test entries, S.B. = Same block, D.B. = different blocks.

Table 4.5.4. Adjusted plant height (cm) of entries at different locations in the FBIF4-N during 1986/87.

Entry Name/ Cross No.	BANGLADESH	CANADA	ETHIOPIA	ITALY	MOROCCO	NEPAL	TURKEY		Overall Mean
	Mymensingh	Quebec	Debre Zeit	Tarquinia	Douyet	Khumaltar	Ankara	Izmir	
S84051	58	98	82	44	64	69	51	62	66
S84052	58	77	84	50	46	78	44	52	61
S84054	68	62	80	34	49	68	48	67	59
S84057	71	84	55	39	59	78	47	64	62
S84058	63	99	76	47	50	58	43	68	63
S84060	72	87	69	40	51	74	47	47	61
s84061	53	102	63	65	42	89	48	62	66
S84067	51	115	48	42	45	75	51	56	61
S84068	64	105	69	44	49	71	41	47	61
S84071	51	94	75	35	52	89	48	66	64
S84072	67	87	87	55	54	84	48	62	68
S84074	49	83	70	35	59	77	42	37	57
S84079	52	94	64	41	55	61	47	69	60
S84080	59	96	72	42	49	69	47	62	62
S84084	74	78	79	53	60	73	50	56	66
S84085	37	94	81	45	60	82	47	62	63
S84087	66	99	75	50	50	79	45	47	64
S84091	50	82	82	33	58	69	47	62	60
S84092	64	59	63	27	47	77	43	57	55
S84093	49	106	62	45	49	77	46	49	60
S84094	67	86	84	45	54	57	53	64	64
S84097	48	86	62	39	45	63	40	69	56
S84098	50	76	71	42	50	75	43	56	58
S84099	73	95	71	40	47	58	40	64	61
S84103	53	100	83	44	60	90	52	72	69
S84105	48	89	94	37	55	82	41	59	63
S84106	66	82	74	39	51	84	45	59	62
S84109	73	97	66	41	53	64	50	61	63
S84111	55	69	81	35	54	57	46	57	57
S84112	39	86	85	41	56	73	46	54	60
S84116	47	95	71	37	66	73	50	57	62
S84121	63	99	84	39	52	70	43	68	65
S84123	62	81	95	36	54	80	42	59	64
S84124	42	83	96	41	55	81	42	59	62
S84131	72	90	78	49	54	94	46	57	67
S84132	62	89	61	54	51	68	48	67	63

Table 4.5.4. Cont'd. ...

Entry Name/ Cross No.	BANGLADESH	CANADA	ETHIOPIA	ITALY	MOROCCO	NEPAL	TURKEY		Overall Mean
	Mymensingh	Quebec	Debre Zeit	Tarquinia	Douyet	Khumaltar	Ankara	Izmir	
S84135	67	98	96	47	58	69	46	64	68
S84136	70	108	62	52	50	61	43	54	63
S84137	61	85	69	43	41	72	39	72	60
S84138	57	90	75	32	59	57	49	56	60
S84141	73	82	45	60	51	74	49	66	63
S84144	66	87	87	51	55	69	46	76	67
S84145	51	84	64	55	55	71	41	47	59
S84146	65	91	92	37	51	56	49	58	62
S84147	68	90	66	52	58	78	49	69	66
S84148	49	83	68	40	54	60	51	61	58
S84151	72	114	44	45	50	70	43	61	62
S84152	49	95	78	42	44	67	49	65	61
S84154	72	119	62	48	56	62	46	61	66
S84155	75	88	70	47	59	85	43	54	65
S84156	55	83	75	48	51	52	51	42	57
S84161	35	102	88	31	66	87	47	79	67
S84163	51	90	80	44	59	82	56	66	66
S84165	53	93	73	35	57	56	54	59	60
S84166	40	76	75	41	62	68	53	57	59
S84167	58	106	87	39	51	65	48	64	65
S84175	61	97	72	41	54	74	39	54	62
S84186	79	65	79	29	51	72	38	57	59
S84200	67	101	92	53	54	86	50	62	70
S84201	56	84	76	47	49	54	46	49	58
ILB 1814	64	95	70	48	55	69	50	61	64
ILB 1270	53	79	75	35	46	61	41	49	55
Local Check	45	119	78	51	52	70	50	61	
Location Mean	**58**	**92**	**75**	**44**	**53**	**71**	**47**	**59**	
S.E. of Mean	4.43	5.62	3.75	1.77	1.66	3.79	1.34	3.44	
L.S.D. at 5% for:									
Checks	14.43	18.31	12.24	5.76	5.40	12.36	4.38	11.21	
T.E. in S.B.	32.27	40.94	27.37	12.88	12.08	27.63	9.80	25.06	
T.E. in D.B.	37.26	47.27	31.60	14.87	13.95	31.91	11.32	28.94	
Checks Vs T.E.	28.87	36.62	24.48	11.52	10.81	24.72	8.77	22.42	
C.V. %	17.03	13.69	11.25	9.07	6.99	11.96	6.46	12.99	

T.E. = Test entries, S.B. = Sama block, D.B. = Different blocks.

Table 4.5.5. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the FBIF4-N during 1986/87.

Entry Name/ Cross No.	CANADA		EGYPT		ETHIOPIA		ITALY		MOROCCO	
	Quebec		Sakha		Debre Zeit		Tarquinia		Douyet	
	Y	R	Y	R	Y	R	Y	R	Y	R
S84051	5878	13	3665	50	370	17	1357	11	1420	58
S84052	5705	17	4822	12	63	41	982	21	1523	55
S84054	6793	3	3081	55	476	13	543	49	2511	17
S84057	6432	9	3665	51	-	-	1443	9	2963	4
S84058	5256	27	4183	38	28	46	842	28	2190	28
S84060	4969	37	4433	27	50	44	2245	2	2833	8
s84061	3886	54	5711	3	16	50	1672	7	2309	23
S84067	5954	12	4517	24	95	37	578	47	1666	52
S84068	5505	20	5081	10	540	11	333	55	2963	5
S84071	5572	18	5572	4	112	34	828	30	1785	49
S84072	3365	61	5489	5	63	40	972	24	2237	26
S84074	4601	44	4267	32	26	48	682	39	2713	12
S84079	3714	57	2859	58	386	16	470	53	2039	38
S84080	4578	47	3248	54	140	30	756	34	2368	19
S84084	5410	23	4748	15	293	21	1124	17	1952	44
S84085	6829	2	3915	43	680	3	644	41	944	63
S84087	3889	53	4378	29	230	24	622	43	1999	41
S84091	5416	22	3859	44	753	2	494	51	2729	10
S84092	6710	6	1859	62	56	42	69	61	3202	1
S84093	6739	5	4322	31	115	33	992	20	2261	24
S84094	6784	4	4267	33	645	5	165	58	1666	54
S84097	5441	21	4748	17	-	-	1310	12	2094	34
S84098	6674	7	4748	16	53	43	1247	13	2666	13
S84099	5222	31	5443	6	63	39	1060	18	2309	21
S84103	4541	48	4720	19	626	6	620	44	2325	20
S84105	4756	40	4248	34	430	15	594	45	1896	46
S84106	5380	24	2331	60	270	23	583	46	2963	6
S84109	4212	51	3998	42	156	28	1187	14	1952	43
S84111	5111	32	4544	23	-	-	888	26	2713	11
S84112	5367	25	4665	20	576	8	807	32	2610	15
S84116	7065	1	3026	57	346	18	520	50	2063	36
S84121	6013	11	3072	56	202	26	1128	15	1690	51
S84123	4600	45	3831	46	546	10	707	37	2039	39
S84124	3381	60	4248	35	646	4	420	54	1777	50
S84131	5237	29	4748	18	116	32	869	27	3083	2
S84132	3463	59	4193	37	103	35	1869	5	2130	33

Table 4.5.5. Cont'd. ...

Entry Name/ Cross No.	CANADA		EGYPT		ETHIOPIA		ITALY		MOROCCO	
	Quebec		Sakha		Debre Zeit		Tarquinia		Douyet	
	Y	R	Y	R	Y	R	Y	R	Y	R
S84135	4867	39	3267	53	335	19	1128	16	2166	29
S84136	3924	52	4804	13	6	52	974	23	2249	25
S84137	3261	62	4544	22	16	51	732	35	1094	62
S84138	4691	43	5054	11	216	25	74	60	2309	22
S84141	4705	42	4193	36	-	-	2674	1	1833	48
S84144	5246	28	5767	2	25	49	1752	6	1666	53
S84145	3695	58	4406	28	-	-	808	31	2618	14
S84146	3749	55	3850	45	172	27	-	-	1499	56
S84147	5365	26	4498	25	-	-	2010	3	1928	45
S84148	4584	46	5081	9	123	31	1437	10	1880	47
S84151	5018	34	4359	30	-	-	1974	4	1380	60
S84152	5228	30	4017	41	75	38	978	22	2142	31
S84154	5707	16	4794	14	145	29	778	33	2023	40
S84155	4963	38	6359	1	-	-	833	29	2559	16
S84156	4386	49	5378	7	-	-	732	36	2833	9
S84161	3718	56	859	63	600	7	307	56	2158	30
S84163	6511	8	3804	47	-	-	637	42	1475	57
S84165	2181	63	3517	52	50	45	645	40	1404	59
S84166	5016	35	2776	59	576	9	684	38	1182	61
S84167	6093	10	4072	40	102	36	302	57	2142	32
S84175	4224	50	5276	8	453	14	143	59	2963	7
S84186	5043	33	3748	48	516	12	-	-	2987	3
S84200	5765	15	1887	61	276	22	556	48	2368	18
S84201	4716	41	4656	21	-	-	932	25	2047	37
ILB 1814	4997	36	4444	26	27	47	1515	8	2195	27
ILB 1270	5556	19	3739	49	312	20	481	52	2064	35
Local Check	5819	14	4144	39	1173	1	1049	19	1952	42
Location Mean	5133		4175		264		904		2141	
S.E. of Mean	194.46		383.10		113.48		102.92		213.84	
L.S.D. at 5% for:										
Checks	634.09		1249.17		370.01		335.58		697.26	
T.E. in S.B.	1417.86		2793.24		827.38		750.37		1559.13	
T.E. in D.B.	1637.21		3225.35		955.37		866.45		1800.33	
Checks Vs T.E	1268.37		2498.73		740.14		671.25		1394.74	
C.V. %	8.47		20.52		95.94		25.46		22.34	
Test > L. Check	0		0		0		6		0	

Cont'd. ...

Table 4.5.5. Cont'd. ...

Entry Name/ Cross No.	SUDAN		TUNISIA		TURKEY				Overall Mean (1)	
	Shambat		Boja		Ankara		Izmir (Monomon)			
	Y	R	Y	R	Y	R	Y	R	Y	R
S84051	638	5	4295	38	33	63	3506	27	2351	30
S84052	337	28	4653	28	489	7	3809	15	2487	16
S84054	-	-	4187	39	372	26	2814	56	2308	38
S84057	-	-	4737	23	326	41	4119	2	2627	7
S84058	-	-	5662	6	357	28	3707	18	2447	20
S84060	476	11	5128	15	626	1	2962	52	2636	6
S84061	893	3	3778	46	286	52	3615	23	2463	19
S84067	32	49	5112	16	328	40	2677	59	2329	33
S84068	236	35	3712	47	466	10	3453	30	2477	18
S84071	-	-	5287	12	344	32	3863	8	2576	9
S84072	268	31	5128	13	276	55	3726	16	2391	24
S84074	379	17	4478	31	319	45	2837	55	2256	45
S84079	366	22	3820	44	518	5	3226	44	1933	57
S84080	-	-	3962	43	619	2	3842	10	2156	49
S84084	231	36	4328	36	489	8	3319	39	2433	22
S84085	608	6	3795	45	334	36	3365	34	2346	32
S84087	365	24	4428	33	309	48	3018	50	2138	51
S84091	497	10	4845	20	311	47	3712	17	2513	13
S84092	195	39	4658	26	349	31	3494	28	2288	40
S84093	4	52	5612	7	384	23	3305	40	2637	5
S84094	-	-	4537	30	428	15	2874	53	2368	28
S84097	175	41	5328	11	589	3	3819	12	2608	8
S84098	453	15	4103	41	145	62	3694	19	2643	4
S84099	370	21	5678	5	412	18	3291	41	2650	3
S84103	352	26	4570	29	338	35	3920	5	2446	21
S84105	374	18	3520	51	178	60	4143	1	2238	46
S84106	-	-	3137	58	486	9	3022	49	2013	55
S84109	245	34	4328	35	378	24	3888	6	2261	44
S84111	254	32	4178	40	323	42	2656	60	2287	41
S84112	469	12	3595	50	314	46	3004	51	2379	26
S84116	372	19	3695	48	208	59	3851	9	2350	31
S84121	87	43	5562	9	321	43	3652	21	2414	23
S84123	524	7	3970	42	211	58	3129	47	2173	47
S84124	469	13	2670	59	301	49	2643	61	1839	59
S84131	61	46	2037	62	343	33	2842	54	2148	50
S84132	42	47	4812	22	372	25	3828	11	2312	36

Table 4.5.5. Cont'd. ...

Entry Name/ Cross No.	SUDAN		TUNISIA		TURKEY				Overall Mean (1)	
	Shambat		Beja		Ankara		Izmir (Menemen)			
	Y	R	Y	R	Y	R	Y	R	Y	R
S84135	32	50	5587	8	404	19	3124	48	2323	35
S84136	231	37	4678	25	525	4	3985	4	2375	27
S84137	407	16	3678	49	329	39	3323	37	1932	58
S84138	523	8	4703	24	458	11	3277	42	2367	29
S84141	925	2	4928	19	432	14	3346	35	2557	10
S84144	-	-	6312	3	321	44	3485	29	2703	1
S84145	249	33	5078	17	396	20	2323	63	2159	48
S84146	-	-	6362	2	278	54	3138	46	2083	52
S84147	203	38	5128	14	212	57	3569	25	2538	12
S84148	273	30	5403	10	385	22	3249	43	2491	14
S84151	78	44	5728	4	362	27	3596	24	2489	15
S84152	4	53	4312	37	281	53	3569	26	2290	39
S84154	-	-	6412	1	451	12	3874	7	2668	2
S84155	28	51	3462	53	329	38	3814	13	2480	17
S84156	365	23	5003	18	499	6	3809	14	2552	11
S84161	358	25	3195	56	334	37	3323	38	1650	62
S84163	370	20	4653	27	418	17	3666	20	2381	25
S84165	462	14	4353	34	426	16	3143	45	1798	60
S84166	649	4	3320	54	354	30	3337	36	1988	56
S84167	74	45	4462	32	291	50	3402	33	2326	34
S84175	292	29	3237	55	339	34	3619	22	2283	42
S84186	514	9	2512	60	392	21	2800	57	2050	54
S84200	181	40	1212	63	249	56	2689	58	1687	61
S84201	351	27	3153	57	446	13	2420	62	2074	53
ILB 1814	38	48	3495	52	355	29	3411	31	2275	43
ILB 1270	112	42	4840	21	289	51	3406	32	2311	37
Local Check	2548	1	2250	61	178	61	4042	3		
Location Mean	381		4228		345		3424			
S.E. of Mean	184.06		249.82		5.17		69.41			
L.S.D. at 5% for:										
Checks	600.16		814.59		16.85		226.33			
T.E. in S.B.	1342.00		1821.47		37.68		506.09			
T.E. in D.B.	1549.61		2103.25		43.51		584.38			
Checks Vs T.E.	1200.50		1629.42		33.70		452.73			
C.V. %	108.13		13.21		3.35		4.53			
Test > L. Check	0		42		55		0			

(1) Debre Zeit and Shambat were excluded from the overall mean.
T.E. = Tesst entries, S.B. = Same block, D.B. = Different blocks.

Table 4.5.6. The five heaviest seed yielding entries at the individual locations in the FBIF4N during 1986/87.

Rank	CANADA	EGYPT	ETHIOPIA	ITALY	MOROCCO	SUDAN	TUNISIA	TURKEY	
	Quebec	Sakha	Debre Zeit	Tarquinia	Douyet	Shambat	Beja	Ankara	Izmir
1	S 84 116	S 84 155	Local Check	S 84 141	S 84 92	Local Check	S 84 154	S 84 60	S 84 105
2	S 84 85	S 84 144	S 84 91	S 84 60	S 84 131	S 84 141	S 84 146	S 84 80	S 84 57
3	S 84 54	S 84 61	S 84 85	S 84 147	S 84 186	S 84 61	S 84 144	S 84 97	Local Check
4	S 84 94	S 84 71	S 84 124	S 84 151	S 84 57]	S 84 166	S 84 151	S 84 136	S 84 136
5	S 84 93	S 84 72	S 84 94	S 84 132	S 84 68]	S 84 51	S 84 99	S 84 79	S 84 103
					S 84 106]				
					S 84 175]				

The bracket indicates entries having the same rank.

Table 4.6.1. Time to flowering (days) of entries at different locations in the FBSLT during 1986/87.

Entry No.	Line	EGYPT	PAKISTAN	SUDAN	Overall Mean
		Sids	Islamabad	Shambat	
1	BF 2/2	57	71	43	57
2	Giza 3 Improved	57	72	43	57
3	Giza 402	56	72	44	57
4	Hudeiba 72	56	73	44	58
5	Reina Blanca	60	74	45	60
6	SM - L	56	72	44	57
7	ILB 2785	56	71	44	57
8	ILB 2786	59	75	44	59
9	ILB 2788	57	73	44	58
10	ILB 2789	59	73	45	59
11	NEB 2727/75	58	73	43	58
12	2095/76	56	73	44	58
13	187/2324/79	58	72	42	57
14	187/1104/80	58	73	43	58
15	314/1188/81B	60	73	44	59
16	343/1131/82	60	73	45	59
17	345/1197/82	57	72	42	57
18	Local Check	55	75	44	
Location Mean		**57**	**73**	**44**	
S.E. of Mean		1.15	0.68	0.33	
L.S.D. at 5%		3.30	1.97	0.96	
C.V. %		3.46	1.63	1.32	
Error d.f.		34	34	34	
Significance		*	*	*	

* = Significant at $P \leq 0.05$.

Table 4.6.2. Time to maturity (days) of entries at different locations in the FBSLT during 1986/87.

Entry No.	Line	PAKISTAN	SUDAN	Overall Mean
		Islamabad	Shambat	
1	BF 2/2	152	122	137
2	Giza 3 Improved	157	126	142
3	Giza 402	154	127	141
4	Hudeiba 72	157	125	141
5	Reina Blanca	161	128	145
6	SM - L	153	124	139
7	ILB 2785	160	128	144
8	ILB 2786	161	125	143
9	ILB 2788	158	127	143
10	ILB 2789	164	126	145
11	NEB 2727/75	163	128	146
12	2095/76	162	127	145
13	187/2324/79	161	126	144
14	187/1104/80	164	127	146
15	314/1188/81B	163	128	146
16	343/1131/82	161	128	145
17	345/1197/82	166	124	145
18	Local Check	167	122	
Location Mean		**160**	**126**	
S.E. of Mean		1.43	0.45	
L.S.D. at 5%		4.10	1.28	
C.V. %		1.54	0.61	
Error d.f.		34	34	
Significance		*	*	

* = Significant at $P \leq 0.05$.

Table 4.6.3. Plant height (cm) of entries at different locations in the FBSLT during 1986/87.

Entry No.	Line	PAKISTAN	SUDAN	Overall Mean
		Islamabad	Shambat	
1	BF 2/2	116	92	107
2	Giza 3 Improved	120	101	111
3	Giza 402	123	92	108
4	Hudeiba 72	118	88	103
5	Reina Blanca	108	90	99
6	SM - L	118	89	108
7	ILB 2785	121	101	111
8	ILB 2786	120	93	107
9	ILB 2788	123	89	106
10	ILB 2789	121	92	107
11	NEB 2727/75	116	95	106
12	2095/76	124	103	76
13	187/2324/79	124	98	111
14	187/1104/80	123	97	110
15	314/1188/81B	121	93	107
16	343/1131/82	118	95	107
17	345/1197/82	126	94	110
18	Local Check	120	82	
Location Mean		120	94	
S.E. of Mean		4.77	3.35	
L.S.D. at 5%		13.71	9.64	
C.V. %		6.88	6.21	
Error d.f.		34	34	
Significance		*	*	

* = Significant at $P \leq 0.05$.

Table 4.6.4. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the FBSLT during 1986/87.

Entry No.	Line	EGYPT		PAKISTAN		SUDAN		Overall Mean	
		Sids		Islamabad		Shambat			
		Y	R	Y	R	Y	R	Y	R
1	BF 2/2	2824	8	2179	1	2157	1	2387	4
2	Giza 3 Improved	2639	11	1010	14	1706	9	1785	12
3	Giza 402	2083	17	2224	7	1882	6	2063	10
4	Hudeiba 72	3241	3	1217	12	1882	7	2113	9
5	Reina Blanca	2546	12	3481	2	905	18	2311	5
6	SM - L	2037	18	2254	6	2074	2	2122	8
7	ILB 2785	2778	10	2293	5	1773	8	2281	6
8	ILB 2786	3426	1	1606	10	1340	16	2124	7
9	ILB 2788	2824	9	4	18	1294	17	1374	17
10	ILB 2789	2361	13	939	15	1403	14	1568	15
11	NEB 2727/75	3009	6	2882	3	1669	10	2520	2
12	2095/76	3241	4	870	16	1488	12	1866	11
13	187/2324/79	2194	15	45	17	2025	3	1421	16
14	187/1104/80	3426	2	2413	4	1419	13	2419	3
15	314/1188/81B	2870	7	3802	1	1350	15	2674	1
16	343/1131/82	2176	16	1217	13	1933	5	1775	13
17	345/1197/82	2361	14	1399	11	1514	11	1758	14
18	Local Check	3056	5	1980	9	1949	4		
Location Mean		**2727**		**1767**		**1654**			
S.E. of Mean		508.49		777.40		201.74			
L.S.D. at 5%		-		-		579.84			
C.V. %		32.29		76.18		21.13			
Error d.f.		34		34		34			
Significance		NS		NS		*			

* = Significant at $P \leq 0.05$, NS = Not significant.

4.7. FABA BEAN INTERNATIONAL DISEASE SCREENING NURSERIES

Faba bean entries having a moderate to a high level of resistance to ascochyta blight, chocolate spot and rust were identified at ICARDA's research sub-station at Lattakia in Syria. Seeds from these resistant sources were multiplied and used to form the Faba bean International Ascochyta Blight, Chocolate Spot and Rust Screening Nurseries.

Methods and Management

The suggested experimental design for these nurseries was randomized complete block with two replications. The suggested plot size was one row 1 m long accomodating 10 plants. The susceptible check was repeatedly sown after every two test entries/rows to serve as an indicator cum spreader row. In the absence of natural infestation the cooperators were advised to do the artificial inoculation as detailed in the instruction sheet provided. A 1-9 scale was recommended for scoring the disease severity.

4.7.1. FABA BEAN INTERNATIONAL ASCOCHYTA BLIGHT NURSERY (FBIABN)

Material

The Faba bean International Ascochyta Blight Nursery included 16 test entries. These entries were selections from the materials which originated from Iraq, Ethiopia, Lebanon, Syria, U.K., Egypt and ICARDA.

The susceptible check was the local land race from the location where the nursery was to be grown.

Results and Discussion

Eighteen sets of FBIABN were distributed to cooperators in 13 countries. The results were, however, received from 11 locations and are presented here. The reaction of entries to ascochyta blight (Ascochyta fabae) in different locations is given in Table 4.7.1.

Algeria: The nursery was conducted at Sidi Bel Abbes and the entries tested at this site were not the same as those at other locations. Except Syrian Local Large and Local Susceptible Check which rated 5 and 6, respectively, all other entries were rated as resistant (4 or less rating).

Italy: At Tarquinia in Italy seven entries namely Sel. 84-Lat. 3-AxA, Sel. 85-Lat. 77-AxA, Sel. 80-Lat. 14986-2, Sel. 80-Lat. 14422-1, Sel. 80-Lat. 14422-3, ILB 18-1/3, and Syrian Local Large were rated 4 or less and were resistant.

Poland: The nursery was conducted at Pulawy. Only one entry Sel. 80-Lat. 15035-3 was resistant.

Syria: The nursery was conducted at Al Ghab, Jableh and Hama. The natural infestation was low at all the locations and thus no conclusive inferences were possible.

Table 4.7.1. Reaction of faba bean entries to ascochyta blight in FBIABN at different locations during 1986/87.

Pedigree	Accession	Origin	ALGERIA	ITALY	POLAND	SYRIA			TUNISIA		TURKEY	U.K.
			Sidi Bel-Abbes	Tarquinia	Pulawy	Al-Ghab	Homs	Jableh	Ras Rajel	Tunis	Izmir	Cambridgeshire
Sel. 84-Lat. 3-AxA	L82001	ICARDA	-	3	8	3	1	5	2	3	5	3
Sel. 85-Lat. 24-AxA	L83127	ICARDA	NT	5	7	3	-	1	1	1	5	5
Sel. 85-Lat. 45-AxA	L83136	ICARDA	NT	5	7	3	-	3	1	1	5	4
Sel. 85-Lat. 75-AxA	L83149	ICARDA	NT	6	6	3	-	3	3	1	5	4
Sel. 85-Lat. 77-AxA	L83150	ICARDA	NT	2	5	3	-	5	1	1	5	3
Sel. 85-Lat. 84-AxA	L83151	ICARDA	NT	6	6	3	-	1	2	1	7	3
Sel. 80-LAt. 14986-2	BPL 266	ICARDA	NT	1	-	3	-	1	-	1	3	4
Sel. 80-Lat. 70015	BPL 74	Iraq	-	7	-	3	-	3	2	1	8	3
Sel. 80-Lat. 14422-1	BPL 460	Lebanon	-	1	-	-	-	-	1	-	-	-
Sel. 80-Lat. 14422-3	BPL 460	Lebanon	NT	3	-	3	-	3	1	5	4	1
Sel. 80-Lat. 15035-1	BPL 818	Ethiopia	4	5	5	3	-	3	1	1	3	2
Sel. 80-Lat. 15035-2	BPL 181	Ethiopia	3	6	-	-	-	-	1	1	7	5
Sel. 80-Lat. 15035-3	BPL 818	Ethiopia	NT	5	3	-	-	-	-	1	5	1
ILB 18-1/3	-	U.K.	3	1	6	3	-	3	3	3	5	4
Syrian Local Large	ILB 1814	Syria	5	4	8	3	-	5	2	1	8	6
Giza - 4	ILB 1820	Egypt	3	8	9	3	-	3	5	3	8	8
80-Lat. 14336	BPL 365	Turkey	3	NT	NT	NT	NT	NT	NT	NT	NT	NT
80-Lat. 14399	BPL 436	Spain	-	NT	NT	NT	NT	NT	NT	NT	NT	NT
80-Lat. 14427	BPL 460	Lebanon	-	NT	NT	NT	NT	NT	NT	NT	NT	NT
80-Lat. 14434-3	BPL 471	Lebanon	3	NT	NT	NT	NT	NT	NT	NT	NT	NT
80-Lat. 14435-1	BPL 472	Lebanon	3	NT	NT	NT	NT	NT	NT	NT	NT	NT
80-Lat. 14435-2	BPL 472	Lebanon	3	NT	NT	NT	NT	NT	NT	NT	NT	NT
80-Lat. 14435-3	BPL 472	Lebanon	3	NT	NT	NT	NT	NT	NT	NT	NT	NT
80-Lat. 14986-1	BPL 266	Greece	3	NT	NT	NT	NT	NT	NT	NT	NT	NT
80-LAT. A2	-	Unknown	4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Susceptible Local Check			6	8	9	3	-	5	4	5	7	8

NT = Not tested.

Tunisia: The nursery was conducted at Ras Rajel and Tunis. The natural infestations were low and all the entries including the local susceptible check were rated between 1 and 5. Thus conclusive inferences were not feasible.

Turkey: The nursery was conducted at Menemen in Izmir. Only three entries namely, Sel. 80-Lat. 14986-2, Sel. 80-Lat. 14422-3, and Sel. 80-Lat. 15035-1 with rating of 4 or less were resistant.

U.K.: The trial was conducted at Cambridgeshire. Except Sel. 85-Lat. 24-AxA, Sel. 80-Lat. 15035-2, Syrian Local Large, Giza 4 and Local Susceptible Check all other entries were rated as resistant (rating 1 to 4).

Across locations, four entries namely ILB 18-1/3, Sel. 80-Lat. 15035-1, Sel. 80-Lat 14986-2 and Sel. 80-Lat. 14422-3 occured most frequently among the resistant sources at various locations and needed special attention.

4.7.2. FABA BEAN INTERNATIONAL CHOCOLATE SPOT NURSERY (FBICSN)

Material

The Faba Bean International Chocolate Spot Nursery included 13 test entries. These entries were selections from the materials which originated from Ecuador, Ethiopia, Egypt, Greece, ICARDA and U.K.

The susceptible check was the local land race from the location where the nursery was to be grown.

Results and Discussion

Twenty one sets of FBICSN were distributed to cooperators in Algeria, Canada, Chile, Ecuador, Egypt, Ethiopia, France, West Germany, Italy, Libya, Morocco, Peru, Poland, Syria, Tunisia, Turkey, U.K. and Yemen Arab Republic but the result were received back from 11 locations covering 10 countries.

The reaction of entries to chocolate spot (Botrytis fabae) is presented in Table 4.7.2. and discussed as under:

Algeria: The nersery was planted at Sidi Bel Abbes. Ten entries were rated between 1 and 4, and were resistant.

Canada: The trial was conducted at Quebec. The reaction was reported for seven entries and none of the entries was rated as resistant.

Chile: The nursery was grown at Graneros . All the entries including the susceptible local check exhibited a rating between 1 to 4.

Ecuador: The nursery was grown at Santa Catalina. The susceptible check was rated at 5. Among 11 test entries reported, only two namely 81-Lat. 24857, and Rebaya-40 exhibited resistant reaction.

Ethiopia: The nursery was planted at Holleta. None of the entries had rating between 1 and 4 but three entries namely 81-Lat. 24857, 81-Lat.

Table 4.7.2. Reaction of faba bean entries to chocolate spot in FBICSN at different locations during 1986/87.

Pedigree	Accession	Origin	ALGERIA	CANADA	CHILE	ECUADOR	ETHIOPIA	EGYPT	POLAND	SYRIA	TUNISIA		U.K.
			Sidi - Bel Abbes	Quebec	Gra-neros	Santa - Catalina	Holetta	Giza	Strzelce	Idleb	INAT	Ras - Rajel	Cambrid-geshire
81 Lat. 24640-1	BPL 112	U.K.	3	NR	2	6	8	4	5	6	3	5	3
81 Lat. 24694	BPL 261	Greece	5	NR	-	6	9	4	5	5	3	4	4
81 Lat. 24857	BPL 710	Ecuador	2	NR	1	4	5	6	7	8	3	7	1
81 Lat. 24948-1	BPL 1179	Ecuador	1	7	1	5	5	6	3	7	3	4	2
81 Lat. 24948-2	BPL 1179	Ecuador	5	NR	1	-	9	7	7	6	5	7	4
81 Lat. 25114	BPL 1821	Ethiopia	4	NR	2	-	7	5	5	5	3	7	3
85 Lat. 30-1-BxB	L83114	ICARDA	2	NR	1	6	5	7	5	8	3	4	3
84 Lat. 2-BxR	L82010	ICARDA	2	NR	2	6	6	6	5	8	5	5	4
84 Lat. 16-BxR	L82011	ICARDA	1	7	1	7	7	6	7	7	5	5	2
84 Lat. 54-BxA	L82009	ICARDA	5	NR	1	7	7	6	5	7	3	7	4
82 Lat. 1	-	ICARDA	1	7	1	8	9	6	7	6	8	7	4
Syrian Local Large	ILB 1814	ICARDA	3	5	2	7	9	9	5	8	5	5	4
Rebaya - 40	ILB 365	Egypt	2	5	2	4	9	9	7	8	7	7	6
Local Susceptible Check			9	3	4	5	9	9	3	8	6	7	6

NR = Not recorded.

24948-1 and 85-Lat. 30-1-BxB had rating of 5 and exhibited tolerant reaction.

Egypt: The nursery was grown at Giza. Only two entries namely 81-Lat. 24640-1, and 81-Lat. 24694 exhibited resistant reaction.

Poland: The nursery was grown at Strzelce. Only two entries namely, 81-Lat. 24948-1 and susceptible local check exhibited rating of 3 .

Syria: The nursery was conducted at Idleb in syria. None of the entries was resistant, but two entries namely 81-Lat. 24694 and 81-Lat. 25114 were tolerant.

Tunisia: The nursery was grown at INAT and Ras Rajel. Seven entries at INAT and three entries at Ras Rajel were resistant. The three entries namely, 81-Lat. 24694, 81-Lat. 24948-1, and 85-Lat. 30-1-BxB were resistant at both the locations.

U.K.: The nursery was conducted at Cambrigeshire. Exept Rebaya-40 and Local susceptible check (which exhibited rating of 6) all other entries rated between 1 and 4, and were resistant.

Across all the locations, four entries namely 81-Lat. 24948-1, 81-Lat. 24640-1, 81-Lat. 24857 and 85-Lat. 30-1-BxB exhibited relatively broad based resistance/tolerance as compared to others.

4.7.3. FABA BEAN INTERNATIONAL RUST NURSERY (FBIRN)

Material

The Faba bean International Rust Nursery included 11 test entries. These entries were selections from the materials which originated from Egypt, Ecuador , Greece, Spain, ICARDA and Syria.

The susceptible check was the local land race from the location where the nursery was to be grown.

Results and Discussion

Fifteen sets of FBIRN were distributed to cooperators in Egypt, Ethiopia, Italy, Liberia, Peru, Poland, Portugal, Tunisia and Turkey. The results were received from 6 locations and are presented.

The disease reaction of the entries to rust (Uromyces fabae) at different locations is given in Table 4.7.3.

Egypt: The nursery was conducted at Giza. All the entries excluding the susceptible check were rated between 1 and 4 for rust reaction. The Botrytis ratings for these entries were also recorded and it was observed that except Sel. 83-Lat. 30244 and Local Susceptible Check (which had ratings at 7) all others had ratings between 1 and 4.

Ethiopia: The nursery was grown at Debre Zeit. Only one entry Sel. 83-Lat. 30164-1 was resistant.

Peru: The nursery was conducted at Cusco. All the entries except

Table 4.7.3. Rust reaction of faba bean lines at different locations in FBIRN during 1986/87.

Pedigree	Accession	Origin	EGYPT		ETHIOPIA	PORTUGAL	PERU	TURKEY
			Giza	*	Debre Zeit	Oeiras	Cusco	Izmir
Sel. 83-Lat. 30164-1	BPL 260	Greece	3	4	4	9	5	3
Sel. 83-Lat. 30168	BPL 263	Greece	3	3	8	9	3	3
Sel. 83-Lat. 30244	BPL 406	Spain	2	7	7	9	4	3
Sel. 84-Lat. 4	S83062	ICARDA	3	3	8	8	2	3
Sel. 81-Lat. 24948-1	BPL 1179	Ecuador	1	2	5	9	2	3
Sel. 84-Lat. 54-BxA	L82009	ICARDA	3	3	7	9	4	3
Sel. 84-Lat. 2-BxR	L82010	ICARDA	2	3	7	9	4	3
Sel. 84-Lat. 16-BxR	L82011	ICARDA	1	3	6	9	3	3
Sel. 84-Lat. 2-RxR	L82014	ICARDA	1	3	7	9	4	3
Syrian Local Large	ILB 1814	Syria	1	2	8	9	3	3
Rebaya - 40	ILB 365	Egypt	2	3	8	9	6	3
Local Susceptible Check			5	7	9	9	5	3

* The ratings are for Botrytis Fabae.

Rebaya-40, local susceptible check and Sel. 83-Lat. 30164-1 were rated as resistant.

Poland: The trial was conducted at Pulawy. There was no natural infestation of disease.

Portugal: The nursery was conducted at Oeiras. All entries had rating 8 or 9 and were susceptible.

Turkey: The nursery was conducted at Menemen in Izmir. All the entries including the susceptible check exhibited rating of 3.

Across locations, two entries namely Sel. 81-Lat. 24948-1 and Sel. 83-Lat. 30164-1 were relatively having broad based tolerance as compared to others.

5. LENTIL INTERNATIONAL TRIALS AND NURSERIES

Ten lentil international trials and nurseries were available to cooperators in 1986/87 season. These included yield trials, screening nurseries, segregating populations and agronomy trials. Except the agronomy trials all other trials and nurseries are discussed in this section. Cooperators were free to use these materials directly or indirectly for the improvement of lentils in their own national programs.

5.1. LENTIL INTERNATIONAL YIELD TRIAL - LARGE SEED (LIYT-L)

Material

The Lentil International Yield Trial - Large Seed comprised 23 test entries which were supplied and one local check to be supplied by the cooperator. The test entries were selections with seed size more than 4.5 g/100 seeds. The test entries were selected on the basis of their superior performance in international screening nursery.

Methods and Management

The suggested trial was a randomized complete block design with 3 replications. The recommended plot size was four rows, each 4 m long with inter row spacing of 25 cm. Eight hundred seeds per plot were supplied.

Sixty five sets of the trial were sent to cooperators in 29 countries. The results were however, returned from 37 trials from 21 countries. The agronomic information received from cooperators is given in Table 5.1.1.

Results and Discussion

The location mean for time to flowering (Table 5.1.2), time to maturity (Table 5.1.3), and plant height (Table 5.1.4) ranged from 60 days (for Karaj in Iran) to 163 (for Urfa in Turkey), 94 days (for Karaj in Iran) to 210 days (for Graneros in Chile), and 18 cm (for Quetta in Pakistan) to 82 cm (for Obregon in Mexico). On an average over locations, the entry means ranged from 103 to 120 days for time to flowering, 151 to 164 days for time to maturity, and 32 to 39 cm for plant height. The highest seed yield (Table 5.1.5.) was obtained at Obregon in Mexico (3479 kg/ha) and was, followed by El Kef in Tunisia (3143 kg/ha), Horsham in Australia (2977 kg/ha), Guelma in Algeria (2599 kg/ha), and Elvas in Portugal (2315 kg/ha). The seed yield at Quetta in Pakistan (105 kg/ha) was, however extremely poor and was followed by Mosul in Iraq (161 kg/ha), Erzurum in Turkey (337 kg/ha) and Catania in Italy (368 kg/ha). One of the entries, Precoz gave as high yield as 5059 kg/ha at Obregon in Mexico.

On an average over locations, the five best entries included ILL 5582, FLIP 84- 27L, FLIP84- 52L, FLIP85- 35L and ILL 5671 with respective seed yield of 1680, 1577, 1564, 1555 and 1549 kg/ha.

The ANOVA for seed yield revealed that the local check was excelled by some entries by a significant margin ($P \leq 0.05$) at 11 locations:
Horsham and Mallee in Australia, Graneros and Valdivia in Chile, Karaj in Iran, Catania in Italy, Terbol in Lebanon, Quetta and Islamabad in Pakistan,

Table 5.1.1. Agronomic data for different locations in the LIYT-L during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri- gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Kabul	-	-	-			-	-	-
ALGERIA	Guelma	NA	10.06.87		70		-	Trifluralin	SYRIE - 229
ALGERIA	Setif	NA	NA	NA				NA	NA
ALGERIA	Sidi Bel Abbes	16.02.87	13.05.87	15	90		-	-	SYRIE - 229
ARGENTINA	Mendoza	04.06.87	06.11.87	-			4	-	Precoz - ILL 4605
ARGENTINA	Perico	18.03.87	12.09.87	-			4	Metribuzin,	Precoz
AUSTRALIA	Horsham	03.06.87	11.12.87	-			-	Trifluralin	L - 11
AUSTRALIA	Walpeup	18.05.87	10.11.87		150		-	Trifluralin, Cyanazine	Laird
CHILE	Graneros	21.04.87	10.01.88	-			3	-	Sel. Sna.
CHILE	Temuco	01.09.87	12.01.88		60	75	-	Trifluralin, Thiuram	Araucana - INIA
CHILE	Valdivia	03.09.87	20.01.88	32	100	50	-	Linuron	Line 3074
COLOMBIA	Surbata	23.04.87	15.08.87	13	26	6	-	Afalon	Lentigu Comun
ECUADOR	Cunchibamba	05.01.87	26.07.87	36	92		2	Linuron, Marzo	E - 139
EGYPT	Sakha	02.12.86	15.05.87	37	75		-	Gesagard	Giza - 370
ETHIOPIA	Debre Zeit	14.07.87	19.10.87	-			-	-	NEL - 358
IRAN	Karaj	25.03.87	15.07.87	-			-	Diazinon	1 Ziba
IRAQ	Mosul	18.01.87	06.06.87	-			-	-	Local
ITALY	Catania	05.12.86	09.07.87	45	90		-	-	L - Barrafranca
JORDAN	Mushagar	16.12.86	02.06.87	-			-	-	Local
LEBANON	Terbol	17.11.86	10.06.87		50		-	Kerb, Bladex	Lebanese Local
LIBYA	El Safsaf	10.12.86	15.06.87	-			-	-	Unknown (1)
MEXICO	Sonora (CEMAY)	13.11.86	18.04.87	120	40		2	Polimat 1000	Guanafuato
MEXICO	Sonora (Obregon)	04.11.86	22.04.87	90	40		6	Polimat 1000	Guanafuato
MOROCCO	Marchouch	29.11.86	15.05.87	28	56	28	-	-	L - 56
PAKISTAN	Quetta (A.F.)	02.11.86	25.05.87	20	60		-	-	Local
PAKISTAN	Islamabad (NARC)	11.11.86	NA	NA			NA	NA	NA
PORTUGAL	Elvas	17.11.86	27.05.87		70		-	-	L - 211
SYRIA	Deir-ez-zor	25.11.86	17.06.87	-			-	-	Local
SYRIA	Tel Hadya	02.11.86	24.05.87		50		-	Kerb, Bladex, Fusilade, Supracide	ILL 4401
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA
TURKEY	Ankara (Haymana)	08.04.87	20.07.87	46	32		-	-	Pull - 11
TURKEY	Diyarbakir	19.11.86	03.06.87	40	60		-	-	Firat - 87
TURKEY	Erzurum	05.05.87	17.08.87	30	70		-	-	Pull - 11
TURKEY	Eskisehir	08.04.87	20.08.87	40	60		-	-	NA
TURKEY	Urfa	10.11.86	20.05.87	45	90		-	-	-

NA = Not available.

Table 5.1.2. Time to flowering (days) of entries at different locations in the LIYT-L during 1986/87.

Selection	ILL	Origin	ALGERIA	ARGENTINA		AUSTRALIA		CHILE			COLOMBIA
			Sidi Bel-Abbes	Mendoza	Perico	Horsham	Mallee	Graneros	Temuco	Valdivia	Surbata
Local large	4400	Syria	138	134	139	124	123	157	82	86	95
Precoz	4605	Argentina	118	124	79	111	111	130	74	78	80
74TA 19	5507	Syria	138	134	139	123	125	160	81	83	90
78S 26002	5582	Jordan	132	127	127	116	124	152	77	78	80
81S 38326	5671	Syria	138	129	135	126	125	160	83	81	95
82S 38342	5672	Syria	138	134	146	124	126	160	81	83	85
FLIP 84- 27L	5699	ICARDA	128	127	129	114	124	151	75	86	80
FLIP 84- 76L	5746	ICARDA	134	134	121	124	127	150	80	86	95
FLIP 84- 78L	5748	ICARDA	128	127	82	115	112	131	79	86	80
FLIP 84- 81L	5751	ICARDA	135	134	140	119	130	157	80	81	95
FLIP 84- 83L	5753	ICARDA	138	134	141	125	126	160	81	86	95
FLIP 84- 84L	5754	ICARDA	135	129	143	124	126	160	81	86	95
FLIP 84- 92L	5762	ICARDA	138	134	145	123	129	160	81	81	95
FLIP 84- 99L	5769	ICARDA	138	134	149	127	127	160	83	86	90
FLIP 84-100L	5770	ICARDA	138	132	146	125	124	160	82	81	95
FLIP 84-145L	5815	ICARDA	138	134	135	126	132	160	81	83	95
FLIP 84-147L	5816	ICARDA	132	127	145	117	127	160	80	83	95
FLIP 84-148L	5817	ICARDA	132	132	141	118	127	160	80	83	95
FLIP 84-152L	5821	ICARDA	132	124	134	114	124	150	74	86	80
FLIP 85- 2L	5840	ICARDA	138	134	119	129	133	157	81	83	95
FLIP 85- 3L	5841	ICARDA	138	134	143	122	130	160	82	81	95
FLIP 85- 4L	5842	ICARDA	134	129	143	119	130	160	78	83	95
FLIP 85- 35L	5873	ICARDA	128	129	129	114	125	153	74	78	80
Local Check			132	119	64	131	136	154	83	83	90
Location Mean			**134**	**130**	**130**	**121**	**126**	**155**	**80**	**83**	**90**
S.E. of Mean			0.29	2.45	2.77	0.94	2.08	1.54	0.87	0.00	
L.S.D. at 5%			0.83	6.97	7.88	2.67	5.91	4.40	2.48	0.00	
C.V. %			0.38	3.25	3.69	1.34	2.86	1.72	1.89	0.00	
Error d.f.			46	46	46	46	46	46	46	46	
Significance			*	*	*	*	*	*	*	*	

Cont'd. ...

Table 5.1.2. Cont'd. ...

Selection	ILL	ECUADOR	EGYPT	IRAN	ITALY	JORDAN	LEBANON	MEXICO		MOROCCO
		Cunchibamba	Sakha	Karaj	Catania	Mushagar	Terbol	Navojoa	Obergon	Marchouch
Local large	4400	105	95	62	135	116	137	96	116	124
Precoz	4605	59	63	57	131	112	129	71	76	100
74TA 19	5507	100	105	62	136	116	137	103	121	124
78S 26002	5582	90	92	54	134	110	136	76	91	114
81S 38326	5671	102	106	60	134	118	138	98	122	118
82S 38342	5672	108	108	65	135	124	137	105	125	124
FLIP 84- 27L	5699	85	89	53	134	110	136	86	98	110
FLIP 84- 76L	5746	110	100	56	136	112	136	97	107	114
FLIP 84- 78L	5748	82	77	57	136	112	136	75	76	110
FLIP 84- 81L	5751	95	102	59	135	116	136	100	116	118
FLIP 84- 83L	5753	112	103	65	135	118	138	107	124	124
FLIP 84- 84L	5754	110	100	63	135	116	137	103	118	124
FLIP 84- 92L	5762	105	104	63	136	118	138	106	121	124
FLIP 84- 99L	5769	120	106	63	135	118	138	106	124	118
FLIP 84-100L	5770	112	108	65	135	126	138	101	124	127
FLIP 84-145L	5815	100	104	61	135	126	138	100	118	124
FLIP 84-147L	5816	100	98	59	134	112	135	95	115	113
FLIP 84-148L	5817	100	102	59	134	112	135	102	116	112
FLIP 84-152L	5821	82	90	52	134	110	135	84	96	114
FLIP 85- 2L	5840	-	100	60	140	118	140	85	105	124
FLIP 85- 3L	5841	108	102	63	135	116	137	98	122	120
FLIP 85- 4L	5842	95	103	58	134	116	137	106	124	114
FLIP 85- 35L	5873	85	92	51	134	110	135	83	97	116
Local Check		105	62	65	144	112	143	80	90	126
Location Mean		**95**	**96**	**60**	**135**	**116**	**137**	**94**	**110**	**118**
S.E. of Mean			1.45	1.13	0.48		0.65	2.44	2.38	0.27
L.S.D. at 5%			4.11	3.23	1.37		1.84	6.94	6.77	0.78
C.V. %			2.60	3.30	0.62		0.82	4.48	3.75	0.40
Error d.f.			46	46	46		46	46	46	46
Significance			*	*	*		*	*	*	*

Cont'd. ...

Table 5.1.2. Cont'd. ...

Selection	ILL	PAKISTAN		PORTUGAL	SYRIA		TURKEY				(1) Overall Mean
		Quetta	Islamabad	Elvas	Deir-ez-zor	Tel Hadya	Ankara (Haymana)	Diyarbakir	Erzurum	Urfa	
Local large	4400	155	128	133	132	161	74	96	75	166	118
Precoz	4605	155	97	110	128	146	73	94	74	159	103
74TA 19	5507	155	126	133	127	162	74	97	74	166	119
78S 26002	5582	155	117	128	129	160	72	92	74	161	112
81S 38326	5671	155	127	134	127	161	74	96	71	163	118
82S 38342	5672	155	130	134	130	161	74	96	72	165	120
FLIP 84- 27L	5699	155	115	128	128	158	73	94	72	158	112
FLIP 84- 76L	5746	155	122	131	131	159	72	95	73	162	116
FLIP 84- 78L	5748	155	97	130	130	160	74	97	71	165	108
FLIP 84- 81L	5751	155	125	131	127	160	73	95	71	163	117
FLIP 84- 83L	5753	155	128	134	131	161	73	96	71	165	120
FLIP 84- 84L	5754	155	127	134	128	161	74	94	68	163	118
FLIP 84- 92L	5762	155	128	132	126	162	73	96	71	163	119
FLIP 84- 99L	5769	155	128	135	128	161	73	77	75	165	119
FLIP 84-100L	5770	155	128	134	129	162	74	96	75	165	120
FLIP 84-145L	5815	155	126	133	127	162	73	96	76	164	119
FLIP 84-147L	5816	155	125	130	131	160	74	94	71	165	117
FLIP 84-148L	5817	155	125	130	128	160	73	94	72	162	117
FLIP 84-152L	5821	155	114	128	130	155	72	96	69	159	112
FLIP 85- 2L	5840	155	127	133	127	162	73	100	72	167	118
FLIP 85- 3L	5841	155	129	133	130	162	74	96	70	163	119
FLIP 85- 4L	5842	155	125	131	129	162	73	94	75	166	118
FLIP 85- 35L	5873	155	114	128	130	158	72	94	69	157	112
Local Check		155	87	127	-	160	74	97	75	-	
Location Mean		**155**	**121**	**131**	**129**	**160**	**73**	**95**	**72**	**163**	
S.E. of Mean			0.85	0.75	0.63	0.71	0.67	4.16	0.44	1.31	
L.S.D. at 5%			2.41	2.14	1.78	2.01	-	-	1.26	3.74	
C.V. %			1.22	0.99	0.84	0.77	1.58	7.61	1.06	1.40	
Error d.f.			46	46	44	46	46	46	46	44	
Significance			*	*	*	*	NS	NS	*	*	

(1) Cunchibamba was excluded from the overall mean.
* = Significance at $P \leq 0.05$, NS = not significant.

Table 5.1.3. Time to maturity (days) of entries at different locations in the LIYT-L during 1986/87.

Selection	ILL	ALGERIA	ARGENTINA		AUSTRALIA	CHILE			COLOMBIA	ECUADOR
		Sidi Bel-Abbes	Perico	Mendoza	Horsham	Graneros	Temuco	Valdivia	Surbata	Cunchi-bamba
Local large	4400	184	176	155	188	210	132	135	165	207
Precoz	4605	173	125	155	183	210	127	134	140	129
74TA 19	5507	184	176	155	189	210	131	135	165	184
78S 26002	5582	181	164	155	181	210	126	134	140	175
81S 38326	5671	184	178	155	193	210	132	136	165	186
82S 38342	5672	186	177	155	193	205	132	138	-	200
FLIP 84- 27L	5699	181	178	155	189	210	134	132	165	170
FLIP 84- 76L	5746	181	168	155	188	210	132	132	165	184
FLIP 84- 78L	5748	184	163	155	190	210	132	138	165	180
FLIP 84- 81L	5751	181	178	155	184	210	132	136	165	180
FLIP 84- 83L	5753	184	177	155	189	210	131	137	165	207
FLIP 84- 84L	5754	181	176	155	188	210	132	-	165	191
FLIP 84- 92L	5762	181	178	155	192	210	132	139	165	182
FLIP 84- 99L	5769	181	177	155	188	210	132	137	165	200
FLIP 84-100L	5770	184	176	155	186	210	132	138	-	207
FLIP 84-145L	5815	181	171	155	184	210	132	139	165	188
FLIP 84-147L	5816	181	177	155	188	210	131	-	165	179
FLIP 84-148L	5817	181	176	155	181	210	133	136	165	182
FLIP 84-152L	5821	181	170	155	190	210	130	-	165	162
FLIP 85- 2L	5840	181	172	155	184	210	126	135	165	-
FLIP 85- 3L	5841	184	177	155	191	210	132	137	165	186
FLIP 85- 4L	5842	181	178	155	189	210	132	-	165	182
FLIP 85- 35L	5873	177	178	155	189	210	132	136	-	174
Local Check		181	122	155	195	210	132	135	165	200
Location Mean		182	170	155	188	210	131	136	163	184
S.E. of Mean		0.00	2.10		1.91		0.07	0.45		4.61
L.S.D. at 5%		0.00	5.99		5.45		0.19	1.28		13.13
C.V. %		0.00	2.14		1.76		0.09	1.57		4.33
Error d.f.		46	46		46		46	38		44
Significance		*	*		*		*	*		*

Cont'd. ...

Table 5.1.3. Cont'd. ...

Selection	ILL	EGYPT	IRAN	ITALY	JORDAN	LEBANON	MEXICO		MOROCCO	PAKISTAN
		Sakha	Karaj	Catania	Mushagar	Terbol	Navojoa	Obregon	Marchouch	Quetta
Local large	4400	155	96	191	148	180	151	196	158	185
Precoz	4605	130	70	188	148	169	130	142	150	185
74TA 19	5507	160	96	192	148	180	151	196	158	185
78S 26002	5582	158	93	191	150	175	139	196	157	185
81S 38326	5671	160	96	192	150	180	148	187	161	185
82S 38342	5672	160	97	192	152	184	151	196	163	185
FLIP 84- 27L	5699	150	92	192	152	178	144	196	154	185
FLIP 84- 76L	5746	155	94	191	148	180	146	196	157	185
FLIP 84- 78L	5748	145	96	192	150	184	139	196	154	185
FLIP 84- 81L	5751	160	97	192	148	180	147	187	160	185
FLIP 84- 83L	5753	160	99	192	148	180	152	196	158	185
FLIP 84- 84L	5754	160	97	191	150	179	150	196	158	185
FLIP 84- 92L	5762	160	97	192	150	181	147	187	163	185
FLIP 84- 99L	5769	160	97	192	150	180	150	196	161	185
FLIP 84-100L	5770	160	96	191	150	180	147	196	164	185
FLIP 84-145L	5815	155	94	191	152	184	147	196	163	185
FLIP 84-147L	5816	160	95	192	150	180	148	196	157	185
FLIP 84-148L	5817	160	95	191	148	179	150	196	155	185
FLIP 84-152L	5821	145	92	192	148	180	143	196	157	185
FLIP 85- 2L	5840	160	95	192	148	182	143	196	158	185
FLIP 85- 3L	5841	160	97	192	148	181	150	187	162	185
FLIP 85- 4L	5842	160	95	192	150	181	147	196	157	185
FLIP 85- 35L	5873	150	92	193	150	178	143	196	158	185
Local Check		145	96	193	150	184	137	196	162	185
Location Mean		155	94	192	149	180	146	192	159	185
S.E. of Mean		2.30	2.28	0.77		0.79	1.44	3.43	0.00	
L.S.D. at 5%		6.55	6.48	-		2.24	4.09	9.75	0.00	
C.V. %		2.57	4.18	0.70		0.76	1.71	3.09	0.00	
Error d.f.		46	46	46		46	46	46	46	
Significance		*	*	NS		*	*	*	*	

Cont'd. ...

Table 5.1.3. Cont'd. ...

Selection	ILL	PORTUGAL	SYRIA		TURKEY				(1) Overall Mean
		Elvas	Deir-ez-zor	Tel Hadya	Ankara (Haymana)	Erzurum	Eskisehir	Urfa	
Local large	4400	190	181	199	101	109	107	188	163
Precoz	4605	173	180	194	96	106	101	186	151
74TA 19	5507	190	182	200	103	109	108	191	163
78S 26002	5582	187	183	197	99	110	101	186	160
81S 38326	5671	190	182	200	103	110	106	191	163
82S 38342	5672	190	181	200	104	109	108	191	164
FLIP 84- 27L	5699	186	181	197	101	108	102	186	161
FLIP 84- 76L	5746	188	179	198	100	110	105	188	162
FLIP 84- 78L	5748	188	182	200	103	109	106	190	161
FLIP 84- 81L	5751	190	181	199	99	108	106	189	162
FLIP 84- 83L	5753	190	181	203	104	110	108	189	164
FLIP 84- 84L	5754	188	179	199	99	109	105	189	163
FLIP 84- 92L	5762	190	182	200	101	109	107	191	163
FLIP 84- 99L	5769	190	182	200	101	110	107	189	163
FLIP 84-100L	5770	190	181	200	103	110	107	191	163
FLIP 84-145L	5815	188	181	199	99	107	104	186	162
FLIP 84-147L	5816	187	181	197	99	109	105	186	162
FLIP 84-148L	5817	184	181	198	100	109	105	186	162
FLIP 84-152L	5821	184	184	196	101	109	103	186	161
FLIP 85- 2L	5840	190	183	199	99	105	102	191	162
FLIP 85- 3L	5841	191	182	200	102	110	107	191	163
FLIP 85- 4L	5842	188	179	198	101	109	105	188	163
FLIP 85- 35L	5873	185	182	197	100	108	102	186	161
Local Check		173	-	195	102	111	102	-	
Location Mean		**187**	**181**	**199**	**101**	**109**	**105**	**188**	
S.E. of Mean		1.11	1.31	0.69	0.91	0.32	0.64	1.07	
L.S.D. at 5%		3.15	-	1.95	2.60	0.92	1.83	3.05	
C.V. %		1.03	1.25	0.60	1.57	0.51	1.06	0.98	
Error d.f.		46	44	46	46	46	46	44	
Significance		*	NS	*	*	*	*	*	

(1) Valdivia, Surbata and Cunchibamba were excluded from the overall mean.
* = Significance at $P \leq 0.05$, NS = not significance.

Table 5.1.4. Plant height (cm) of entries at different locations in the LIYT-L during 1986/87.

Selection	ILL	ALGERIA			ARGENTINA		AUSTRALIA		CHILE		
		Guelma	Sidi Bel-Abbes	Setif	Mendoza	Perico	Horsham	Mallee	Graneros	Temuco	Valdivia
Local large	4400	57	33	25	38	69	37	29	32	40	17
Precoz	4605	54	28	23	34	69	31	31	28	33	20
74TA 19	5507	67	28	23	36	78	37	28	30	34	20
78S 26002	5582	54	30	25	40	62	34	33	35	37	19
81S 38326	5671	58	27	24	35	72	36	30	37	38	20
82S 38342	5672	58	28	25	39	70	37	30	35	38	21
FLIP 84- 27L	5699	50	30	28	32	80	35	31	32	33	15
FLIP 84- 76L	5746	60	30	28	45	60	37	27	37	36	16
FLIP 84- 78L	5748	64	33	27	45	75	43	37	25	41	23
FLIP 84- 81L	5751	44	29	24	36	68	31	27	28	34	21
FLIP 84- 83L	5753	62	26	25	35	71	39	30	35	37	18
FLIP 84- 84L	5754	56	26	24	41	62	34	28	33	36	-
FLIP 84- 92L	5762	46	26	23	32	74	35	30	35	37	21
FLIP 84- 99L	5769	64	30	26	40	69	36	32	38	40	21
FLIP 84-100L	5770	54	30	24	39	73	38	32	37	42	18
FLIP 84-145L	5815	56	29	25	38	74	36	30	33	39	17
FLIP 84-147L	5816	48	30	27	41	67	33	29	37	36	-
FLIP 84-148L	5817	58	30	26	34	71	33	29	33	33	19
FLIP 84-152L	5821	58	28	26	36	77	38	36	37	35	-
FLIP 85- 2L	5840	60	27	22	39	74	35	25	35	33	17
FLIP 85- 3L	5841	70	30	22	37	80	37	32	35	41	17
FLIP 85- 4L	5842	52	28	24	39	73	35	28	38	34	-
FLIP 85- 35L	5873	58	30	27	41	79	32	32	30	33	16
Local Check		49	30	27	35	49	51	43	33	37	25
Location Mean		**57**	**29**	**25**	**38**	**71**	**36**	**31**	**34**	**37**	**19**
S.E. of Mean		0.34	1.41	0.40	2.48	2.95	1.65	1.90	4.34	1.54	0.55
L.S.D. at 5%		0.97	4.02	1.13	7.06	8.39	4.69	5.41	-	4.39	1.58
C.V. %		1.04	8.43	2.76	11.38	7.23	7.89	10.71	22.31	7.31	5.05
Error d.f.		46	46	46	46	46	46	46	46	46	38
Significance		*	*	*	*	*	*	*	NS	*	*

Cont'd. ...

Table 5.1.4. Cont'd. ...

Selection	ILL	COLOMBIA	IRAN	IRAQ	ITALY	JORDAN	LEBANON	MEXICO		MOROCCO	PAKISTAN
		Surbata	Karaj	Mosul	Catania	Mushagar	Terbol	Navojoa	Obregon	Marchouch	Quetta
Local large	4400	36	26	29	34	35	38	36	73	35	22
Precoz	4605	39	23	19	29	30	33	40	70	33	15
74TA 19	5507	28	23	20	32	31	35	35	89	36	19
78S 26002	5582	31	24	20	33	30	35	35	81	34	12
81S 38326	5671	37	25	26	32	34	36	37	93	37	20
82S 38342	5672	41	26	25	33	31	38	30	91	41	17
FLIP 84- 27L	5699	42	22	24	33	37	37	40	94	36	19
FLIP 84- 76L	5746	40	26	25	32	35	39	37	71	34	19
FLIP 84- 78L	5748	50	29	39	35	33	35	41	80	46	22
FLIP 84- 81L	5751	31	25	24	32	31	33	38	90	31	16
FLIP 84- 83L	5753	30	28	28	33	30	35	33	90	32	22
FLIP 84- 84L	5754	35	24	26	32	31	35	38	75	27	17
FLIP 84- 92L	5762	40	27	21	31	33	32	37	94	32	18
FLIP 84- 99L	5769	32	26	25	34	41	35	36	80	40	18
FLIP 84-100L	5770	38	24	29	31	32	36	36	89	39	17
FLIP 84-145L	5815	40	24	27	32	31	38	36	83	38	16
FLIP 84-147L	5816	33	23	25	31	28	36	35	74	31	14
FLIP 84-148L	5817	26	24	25	32	30	32	34	67	32	16
FLIP 84-152L	5821	33	23	26	34	35	35	42	80	35	17
FLIP 85- 2L	5840	38	20	24	31	30	36	39	77	34	15
FLIP 85- 3L	5841	32	23	29	35	35	33	37	85	32	22
FLIP 85- 4L	5842	33	23	23	33	30	38	35	95	33	18
FLIP 85- 35L	5873	30	23	26	31	30	38	43	80	36	18
Local Check		45	28	38	33	40	39	45	75	41	20
Location Mean		36	24	26	32	33	36	37	82	35	18
S.E. of Mean			1.24	1.03	1.51		1.39	1.04	1.74	2.60	1.28
L.S.D. at 5%			3.53	2.93	-		3.94	2.95	4.95	7.41	3.63
C.V. %			8.78	6.86	8.04		6.71	4.81	3.66	12.81	12.42
Error d.f.			46	46	46		46	46	46	46	46
Significance			*	*	NS		*	*	*	*	*

Cont'd. ...

Table 5.1.4. Cont'd. ...

Selection	ILL	PORTUGAL	SYRIA		TURKEY					(1) Overall Mean
		Elvas	Deir-ez-zor	Tel Hadya	Ankara (Haymana)	Diyarbakir	Erzurum	Eskisehir	Urfa	
Local large	4400	53	28	31	28	31	21	28	29	36
Precoz	4605	38	19	25	23	26	18	23	27	32
74TA 19	5507	48	32	28	26	29	20	26	29	35
78S 26002	5582	50	23	32	25	26	20	25	29	34
81S 38326	5671	49	26	34	26	31	21	27	29	36
82S 38342	5672	47	25	33	27	29	21	29	30	36
FLIP 84- 27L	5699	47	22	31	25	28	19	27	31	36
FLIP 84- 76L	5746	51	21	34	26	31	21	25	29	35
FLIP 84- 78L	5748	59	28	36	27	31	21	29	34	39
FLIP 84- 81L	5751	48	28	30	25	27	19	24	29	33
FLIP 84- 83L	5753	54	26	34	27	29	21	28	30	36
FLIP 84- 84L	5754	45	22	28	25	29	19	27	28	34
FLIP 84- 92L	5762	47	27	32	27	28	20	24	27	35
FLIP 84- 99L	5769	48	32	32	26	32	21	28	30	37
FLIP 84-100L	5770	54	26	31	26	30	20	28	30	36
FLIP 84-145L	5815	50	24	29	25	28	20	26	29	35
FLIP 84-147L	5816	50	26	29	26	29	18	24	26	34
FLIP 84-148L	5817	51	30	30	25	28	18	24	27	33
FLIP 84-152L	5821	47	24	31	25	31	20	25	29	36
FLIP 85- 2L	5840	49	27	28	24	28	19	25	26	34
FLIP 85- 3L	5841	47	31	34	27	31	20	28	30	37
FLIP 85- 4L	5842	45	21	29	25	28	18	24	27	34
FLIP 85- 35L	5873	44	27	30	25	29	21	23	29	35
Local Check		46	-	32	28	37	22	31	-	
Location Mean		**49**	**26**	**31**	**26**	**29**	**20**	**26**	**29**	
S.E. of Mean		2.38	2.98	1.18	0.68	1.29	0.25	1.18	1.07	
L.S.D. at 5%		6.77	-	3.35	1.95	3.67	0.70	3.35	3.06	
C.V. %		8.48	19.92	6.58	4.59	7.61	2.14	7.76	6.43	
Error d.f.		46	44	46	46	46	46	46	44	
Significance		*	NS	*	*	*	*	*	*	

(1) Valdivia excluded from the overall mean.
* = Significant at $P \leq 0.05$, NS = not significant.

Table 5.1.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LIYT-L during 1986/87.

Selection	ILL	ALGERIA						ARGENTINA				AUSTRALIA				CHILE	
		Guelma		Sidi Bel Abbes		Setif		Mendoza		Perico		Horsham		Mallee		Graneros	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	4400	2693	8	1132	2	1742	15	883	24	1572	17	3025	15	2048	15	1014	20
Precoz	4605	2620	13	1153	1	1417	24	2475	2	2128	4	1118	24	1651	21	1319	13
74TA 19	5507	2464	15	1083	6	1425	21	1258	19	1706	9	3029	14	2032	16	903	22
78S 26002	5582	2651	10	1076	7	1842	6	2283	3	1728	6	3430	6	3476	1	2083	5
81S 38326	5671	2047	24	903	10	1550	19	1900	7	1583	16	3646	3	2810	6	1319	14
82S 38342	5672	2073	23	1007	8	1417	23	942	23	1689	10	3070	11	1762	19	1597	12
FLIP 84- 27L	5699	3219	2	806	15	1650	17	1650	9	1706	8	3299	9	2349	11	2153	3
FLIP 84- 76L	5746	2307	19	576	21	1883	4	983	22	1450	19	3352	7	968	24	1806	11
FLIP 84- 78L	5748	2781	6	972	9	1842	5	1625	10	1656	12	3032	13	2921	5	1250	17
FLIP 84- 81L	5751	2688	9	403	24	1713	16	2183	4	1683	11	2594	19	2444	10	1042	19
FLIP 84- 83L	5753	2526	14	826	13	1767	10	1017	21	1450	20	3349	8	2619	7	1111	18
FLIP 84- 84L	5754	2141	21	868	11	1558	18	2017	6	1634	13	3460	5	1222	22	972	21
FLIP 84- 92L	5762	2328	18	736	19	1750	14	1400	17	1618	14	2592	20	2079	13	1319	15
FLIP 84- 99L	5769	2411	16	819	14	1750	13	1500	14	1300	23	3671	2	2079	14	2083	4
FLIP 84-100L	5770	2396	17	1090	5	1425	22	1567	11	1611	15	3582	4	2190	12	2500	1
FLIP 84-145L	5815	3146	3	1090	4	1750	12	1450	15	1411	21	2281	22	2937	4	1944	8
FLIP 84-147L	5816	2714	7	778	17	1892	3	1417	16	1572	18	2726	17	2587	8	2014	6
FLIP 84-148L	5817	2073	22	778	18	1808	8	1883	8	1917	5	2188	23	1889	18	1875	9
FLIP 84-152L	5821	3620	1	465	23	1825	7	1508	13	2178	3	3712	1	3270	2	2014	7
FLIP 85- 2L	5840	2641	12	861	12	1517	20	1133	20	2239	2	2898	16	1698	20	583	24
FLIP 85- 3L	5841	2917	5	799	16	1758	11	1317	18	1400	22	3066	12	2556	9	625	23
FLIP 85- 4L	5842	2281	20	653	20	1775	9	2150	5	1272	24	2673	18	1937	17	2222	2
FLIP 85- 35L	5873	2651	11	535	22	1933	2	1550	12	1721	7	3201	10	3000	3	1806	10
Local Check		2995	4	1097	3	2250	1	3500	1	2250	1	2446	21	1079	23	1250	16
Location Mean		**2599**		**854**		**1718**		**1650**		**1686**		**2977**		**2233**		**1534**	
S.E. of Mean		305.47		119.16		140.43		273.07		207.14		146.02		344.70		301.64	
L.S.D. at 5%		-		339.20		399.74		777.30		589.62		415.65		981.20		858.62	
C.V. %		20.36		24.16		14.16		28.67		21.27		8.50		26.73		34.07	
Error d.f.		46		46		46		46		46		46		46		46	
Significance		NS		*		*		*		*		*		*		*	
Ent. > L. Check		-		0		0		0		0		16		14		3	

Cont'd. ...

Table 5.1.5. Cont'd. ...

Selection	ILL	CHILE				COLOMBIA		ECUADOR		EGYPT		IRAN		IRAQ	
		Temuco		Valdivia		Surbata		Cunchibamba		Sakha		Karaj		Mosul	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	4400	2180	8	815	3	397	14	375	19	1278	21	784	16	105	21
Precoz	4605	1882	12	885	1	297	18	829	5	1292	20	530	24	79	22
74TA 19	5507	2151	10	849	2	953	6	241	22	1514	12	876	10	111	20
78S 26002	5582	2157	9	516	12	1219	2	925	4	2264	1	782	17	176	11
81S 38326	5671	2706	2	707	6	320	15	427	17	1347	18	1266	3	129	18
82S 38342	5672	1482	18	608	9	-	-	498	14	1903	5	848	12	59	24
FLIP 84- 27L	5699	1374	19	184	20	497	13	1019	3	1597	11	728	20	161	13
FLIP 84- 76L	5746	1856	14	298	17	622	10	129	23	1486	13	1286	2	193	6
FLIP 84- 78L	5748	1492	17	735	5	320	16	349	21	1264	22	872	11	177	9
FLIP 84- 81L	5751	1541	16	707	7	555	11	691	10	1319	19	1444	1	136	16
FLIP 84- 83L	5753	2229	7	504	13	755	8	537	13	2014	2	817	14	74	23
FLIP 84- 84L	5754	3057	1	-	-	1108	3	473	16	1681	8	995	8	174	12
FLIP 84- 92L	5762	2236	6	581	11	52	20	691	9	1444	14	829	13	185	7
FLIP 84- 99L	5769	2330	4	318	16	625	9	422	18	1875	6	1173	5	220	3
FLIP 84-100L	5770	1870	13	591	10	-	-	633	11	1972	3	999	7	176	10
FLIP 84-145L	5815	1835	15	187	19	555	12	351	20	1361	16	1228	4	131	17
FLIP 84-147L	5816	1291	21	-	-	1078	4	692	8	1819	7	797	15	180	8
FLIP 84-148L	5817	1268	22	736	4	1528	1	590	12	1944	4	952	9	148	15
FLIP 84-152L	5821	1323	20	-	-	297	17	1052	2	1653	9	715	21	201	4
FLIP 85- 2L	5840	635	24	266	18	125	19	-	-	1417	15	760	19	125	19
FLIP 85- 3L	5841	2081	11	325	15	25	21	480	15	1222	23	649	22	197	5
FLIP 85- 4L	5842	1032	23	-	-	1000	5	701	7	1194	24	780	18	155	14
FLIP 85- 35L	5873	2244	5	467	14	-	-	1091	1	1347	17	637	23	308	1
Local Check		2434	3	646	8	927	7	703	6	1611	10	1025	6	255	2
Location Mean		**1862**		**546**		**631**		**604**		**1576**		**907**		**161**	
S.E. of Mean		257.55		81.07				155.17		290.86		137.59		42.18	
L.S.D. at 5%		733.12		232.11				442.27		-		391.64		120.08	
C.V. %		23.96		25.70				44.48		31.97		26.27		45.45	
Error d.f.		46		38				44		46		46		46	
Significance		*		*				*		NS		*		*	
Ent. > L. Check		0		1				0		-		1		0	

Cont'd. ...

Table 5.1.5. Cont'd. ...

Selection	ILL	ITALY		JORDAN		LEBANON		LIBYA		MEXICO				MOROCCO	
		Catania		Mushagar		Terbol		El Safsaf		Navojoa		Obregon		Marchouch	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	4400	383	7	1593	9	1713	14	921	16	528	22	2328	24	1267	8
Precoz	4605	240	24	1751	6	1912	7	1054	9	1787	2	5059	1	1350	6
74TA 19	5507	317	21	1424	17	1731	13	921	15	565	20	3057	19	1358	5
78S 26002	5582	360	15	1842	5	2093	4	1150	4	908	8	3759	7	1383	3
81S 38326	5671	377	8	1409	19	1954	6	1004	11	799	11	3400	13	1188	10
82S 38342	5672	420	3	1418	18	1222	24	808	21	389	24	2352	23	1138	13
FLIP 84- 27L	5699	363	14	2087	2	2213	3	888	18	1278	6	4330	3	1375	4
FLIP 84- 76L	5746	493	1	1502	12	2065	5	1258	1	908	9	3298	16	1429	1
FLIP 84- 78L	5748	371	11	1484	13	1704	16	900	17	1574	3	3711	9	1300	7
FLIP 84- 81L	5751	350	17	1473	15	1829	8	1208	3	722	13	3869	6	1246	9
FLIP 84- 83L	5753	407	6	1160	24	1815	9	646	23	444	23	2806	21	1029	17
FLIP 84- 84L	5754	413	5	1742	7	1815	10	883	20	834	10	3661	10	975	20
FLIP 84- 92L	5762	377	9	1471	16	1759	12	954	12	592	17	3750	8	1050	15
FLIP 84- 99L	5769	420	4	1542	11	1639	20	929	14	722	12	3528	11	1175	12
FLIP 84-100L	5770	443	2	1667	8	1676	17	1125	7	574	19	2606	22	1000	19
FLIP 84-145L	5815	373	10	1591	10	1315	23	1021	10	658	15	3157	18	921	23
FLIP 84-147L	5816	370	12	1358	22	1801	11	1217	2	546	21	3352	15	1050	16
FLIP 84-148L	5817	370	13	1358	21	1708	15	1150	5	574	18	3391	14	1421	2
FLIP 84-152L	5821	307	23	2111	1	2315	2	888	19	1333	4	3426	12	1017	18
FLIP 85- 2L	5840	313	22	1478	14	1519	21	708	22	1148	7	3935	5	650	24
FLIP 85- 3L	5841	353	16	1338	23	1671	18	621	24	630	16	3228	17	1054	14
FLIP 85- 4L	5842	350	18	1362	20	1662	19	1142	6	704	14	2839	20	958	22
FLIP 85- 35L	5873	327	20	1971	4	2491	1	1058	8	1306	5	4248	4	1175	11
Local Check		327	19	2084	3	1319	22	938	13	2556	1	4409	2	975	21
Location Mean		**368**		**1592**		**1789**		**975**		**920**		**3479**		**1145**	
S.E. of Mean		34.80		169.30		123.01		113.45		199.67		441.63		183.60	
L.S.D. at 5%		99.07		481.91		350.15		322.94		568.37		1257.11		-	
C.V. %		16.39		18.41		11.91		20.16		37.59		21.99		27.77	
Error d.f.		46		46		46		46		46		46		46	
Significance		*		*		*		*		*		*		NS	
Ent. > L. Check		2		0		18		0		0		0		-	

Cont'd. ...

Table 5.1.5. Cont'd. ...

Selection	ILL	PAKISTAN				PORTUGAL		SYRIA				TUNISIA			
		Quetta		Islamabad		Elvas		Deir-ez-zor		Tel Hadya		Beja		El Kef	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	Y	Y	R
Local large	4400	280	1	717	18	2285	15	1021	9	1310	17	1217	23	3244	12
Precoz	4605	7	23	899	14	1382	24	225	23	826	24	1937	11	2333	22
74TA 19	5507	83	13	1068	9	2415	10	1867	2	998	22	1733	16	2489	21
78S 26002	5582	3	24	865	16	2722	3	1042	8	1646	6	2308	4	4422	1
81S 38326	5671	157	6	663	20	2597	4	1242	5	1433	10	1900	12	3733	4
82S 38342	5672	61	18	1023	12	2004	21	1175	6	1039	21	2512	1	3178	14
FLIP 84- 27L	5699	62	17	1888	2	2567	5	346	21	1876	1	1225	22	3222	13
FLIP 84- 76L	5746	208	4	1218	5	1792	22	358	20	1647	5	1650	18	3756	3
FLIP 84- 78L	5748	50	19	1039	10	2319	14	500	16	1186	19	1442	21	3533	6
FLIP 84- 81L	5751	102	10	551	23	2322	12	850	14	1398	12	1525	19	2956	17
FLIP 84- 83L	5753	228	2	1281	4	2190	18	950	12	1144	20	1733	15	2533	19
FLIP 84- 84L	5754	210	3	583	21	2242	17	358	18	1421	11	1200	24	3422	8
FLIP 84- 92L	5762	145	8	1105	8	2283	16	975	11	1330	16	2058	8	3267	10
FLIP 84- 99L	5769	111	9	934	13	2146	20	1558	3	1666	4	1692	17	3022	16
FLIP 84-100L	5770	78	14	1036	11	2326	11	1087	7	1541	9	1950	9	3933	2
FLIP 84-145L	5815	102	11	1583	3	2451	8	917	13	1341	14	2208	5	3067	15
FLIP 84-147L	5816	66	16	565	22	2519	6	1367	4	1332	15	1867	13	2111	24
FLIP 84-148L	5817	48	20	2486	1	2471	7	2142	1	1731	2	2437	3	2178	23
FLIP 84-152L	5821	34	21	798	17	2811	2	358	19	1614	8	1950	10	2511	20
FLIP 85- 2L	5840	15	22	1142	6	2153	19	1017	10	979	23	2458	2	3422	7
FLIP 85- 3L	5841	75	15	695	19	1717	23	577	15	1256	18	2092	6	3244	11
FLIP 85- 4L	5842	161	5	1122	7	2319	13	250	22	1376	13	1483	20	3644	5
FLIP 85- 35L	5873	84	12	872	15	2421	9	492	17	1716	3	1775	14	2933	18
Local Check		153	7	507	24	3096	1	-	-	1616	7	2083	7	3267	9
Location Mean		**105**		**1027**		**2315**		**899**		**1392**		**1852**		**3143**	
S.E. of Mean		41.14		191.91		219.49		367.55		107.95		319.50		482.56	
L.S.D. at 5%		117.10		546.26		624.79		1047.60		307.29		-		-	
C.V. %		67.84		32.38		16.43		70.83		13.43		29.89		26.60	
Error d.f.		46		46		46		44		46		46		46	
Significance		*		*		*		*		*		NS		NS	
Ent. > L. Check		1		9		0		-		0		-		-	

Cont'd. ...

Table 5.1.5. Cont'd. ...

Selection	ILL	TUNISIA		TURKEY										Overall Mean (1)	
		Oued Meliz		Ankara		Diyarbakir		Erzurum		Eskisehir		Urfa			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	4400	1413	11	1130	2	1750	3	286	18	1258	5	713	15	1369	17
Precoz	4605	1413	10	203	24	958	22	290	17	854	24	627	17	1337	22
74TA 19	5507	1527	4	906	8	944	23	277	19	1163	14	600	20	1375	16
78S 26002	5582	1507	6	354	22	1250	17	318	14	1133	16	756	9	1680	1
81S 38326	5671	1693	2	891	9	1514	11	330	12	1275	2	807	8	1549	5
82S 38342	5672	1040	21	734	15	1569	6	193	24	1179	12	602	19	1310	23
FLIP 84- 27L	5699	1760	1	651	17	1292	16	419	6	917	22	1029	2	1577	2
FLIP 84- 76L	5746	1447	8	828	13	1542	8	419	5	1383	1	853	5	1444	11
FLIP 84- 78L	5748	1367	14	563	21	1069	20	400	7	1175	13	833	6	1450	10
FLIP 84- 81L	5751	1260	18	745	14	1361	15	344	10	1200	9	458	23	1405	15
FLIP 84- 83L	5753	1027	22	990	5	1028	21	234	23	1183	11	700	16	1354	20
FLIP 84- 84L	5754	1200	20	1172	1	1236	18	443	3	979	21	913	3	1421	13
FLIP 84- 92L	5762	1320	17	859	10	1556	7	273	20	1254	6	727	11	1426	12
FLIP 84- 99L	5769	1220	19	1068	3	903	24	313	15	875	23	738	10	1482	8
FLIP 84-100L	5770	913	24	859	11	1778	2	291	16	1275	3	720	14	1508	6
FLIP 84-145L	5815	1380	12	646	18	1833	1	258	21	1271	4	622	18	1478	9
FLIP 84-147L	5816	1513	5	984	6	1528	10	367	9	1004	19	480	22	1412	14
FLIP 84-148L	5817	1373	13	1021	4	1514	12	321	13	1192	10	547	21	1505	7
FLIP 84-152L	5821	1487	7	583	19	1542	9	463	1	1129	17	900	4	1564	3
FLIP 85- 2L	5840	1667	3	724	16	1361	14	456	2	992	20	722	12	1355	19
FLIP 85- 3L	5841	980	23	854	12	1389	13	373	8	1217	8	827	7	1337	21
FLIP 85- 4L	5842	1420	9	917	7	1653	4	236	22	1146	15	720	13	1362	18
FLIP 85- 35L	5873	1327	16	344	23	1583	5	435	4	1100	18	1182	1	1555	4
Local Check		1353	15	578	20	1125	19	338	11	1225	7	-	-		
Location Mean		1359		775		1387		337		1141		742			
S.E. of Mean		142.87		91.50		225.88		28.64		103.49		79.85			
L.S.D. at 5%		406.68		260.45		-		81.53		294.58		227.59			
C.V. %		18.21		20.44		28.22		14.74		15.71		18.63			
Error d.f.		46		46		46		46		46		44			
Significance		*		*		NS		*		*		*			
Ent. > L. Check		0		12		-		6		0		0			

(1) Valdivia, Surbata and Cunchibamba were excluded from the overall mean.
* = Significnat at $P \leq 0.05$, NS = not significnat.

Table 5.1.6. The five heaviesT seed yielding enTries aT The individual locaTions in The LIYT-L during 1986/87.

	ALGERIA			ARGENTINA		AUSTRALIA		CHILE	
Rank	Guelma	Sidi Bel Abbes	SeTif	Perico	Mendoza	Horsham	Mallee	Graneros	Temuco
1	FLIP84-152L	ILL 4605	Local Check	Local Check	Local Check	FLIP84-152L	78S 26002	FLIP84-100L	FLIP84- 84L
2	FLIP84- 27L	ILL 4400	FLIP85- 35L	FLIP85- 2L	ILL 4605	FLIP84- 99L	FLIP84-152L	FLIP85- 4L	81S 38326
3	FLIP84-145L	Local Check	FLIP84-147L	FLIP84-152L	78S 26002	81S 38326	FLIP85- 35L	FLIP84- 27L	Local Check
4	Local Check	FLIP84-145L	FLIP84- 76L	ILL 4605	FLIP84- 81L	FLIP84-100L	FLIP84-145L	FLIP84- 99L	FLIP84- 99L
5	FLIP85- 3L	FLIP84-100L	FLIP84- 78L] 78S 26002	FLIP84-148L	FLIP85- 4L	FLIP84- 84L	FLIP84- 78L	78S 26002	FLIP85- 35L

ConT'd 2/..

	CHILE	COLOMBIA	ECUADOR	EGYPT	IRAN	IRAQ	ITALY	JORDAN	LEBANON
Rank	Valdivia	SurbaTa	Cunchibamba	Sakha	Karaj	Mosul	CaTania	Mushagar	Terbol
1	ILL 4605	FLIP84-148L	FLIP85- 35L	78S 26002	FLIP84- 81L	FLIP85- 35L	FLIP84- 76L	FLIP84-152L	FLIP85- 35L
2	ILL 5507	78S 26002	FLIP84-152L	FLIP84- 83L	FLIP84- 76L	Local Check	FLIP84-100L	FLIP84- 27L	FLIP84-152L
3	ILL 4400	FLIP84- 84L	FLIP84- 27L	FLIP84-100L	81S 38326	FLIP84- 99L	81S 38342	Local Check	FLIP84- 27L
4	FLIP84-148L	FLIP84-147L	78S 26002	FLIP84-148L	FLIP84-145L	FLIP84-152L	FLIP84- 99L	FLIP85- 35L	78S 26002
5	FLIP84- 78L	FLIP85- 4L	ILL 4605	81S 38342	ILL 5869	FLIP85- 3L	FLIP84- 84L	78S 26002	FLIP84- 76L

ConT'd 2/..

	LIBYA	MEXICO		MOROCCO	PAKISTAN		PORTUGAL	SYRIA	
Rank	El Safsaf	Navojoa	Obregon	Marchouch	Islamabad	QueTTa	Elvas	Deir-ez-zor	Tel Hadya
1	FLIP84- 76L	Local Check	ILL 4605	FLIP84- 76L	FLIP84-148L	ILL 4400	Local Check	FLIP84-148L	FLIP84- 27L
2	FLIP84-147L	ILL 4605	Local Check	FLIP84-148L	FLIP84- 27L	FLIP84- 83L	FLIP84-152L	ILL 5507	FLIP84-148L
3	FLIP84- 81L	FLIP84- 78L	FLIP84- 27L	78S 26002	FLIP84-145L	FLIP84- 84L	78S 26002	FLIP84- 99L	FLIP85- 35L
4	78S 26002	FLIP84-152L	FLIP85- 35L	FLIP84- 27L	FLIP84- 83L	FLIP84- 76L	81S 38326	FLIP84-147L	FLIP84- 99L
5	FLIP84-148L	FLIP85- 35L	FLIP85- 2L	ILL 5507	FLIP84- 76L	FLIP85- 4L	FLIP84- 27L	81S 38326	FLIP84- 76L

ConT'd 2/..

	TUNISIA			TURKEY				
Rank	Boja	El Kef	Oued Meliz	Ankara	Diyarbakir	Erzurum	Eskisehir	Urfa
1	81S 38342	78S 26002	FLIP84- 27L	FLIP84- 84L	FLIP84-145L	FLIP84-152L	FLIP84- 76L	FLIP85- 35L
2	FLIP85- 2L	FLIP84- 84L	81S 38326	ILL 4400	FLIP84-100L	FLIP85- 2L	81S 38326	FLIP84- 27L
3	FLIP84-148L	FLIP84- 76L	FLIP85- 2L	FLIP84- 99L	ILL 4400	FLIP84- 84L	FLIP84-100L	FLIP84- 84L
4	78S 26002	81S 38326	ILL 5507	FLIP84-148L	FLIP85- 4L	FLIP85- 35L	FLIP84-145L	FLIP84-152L
5	FLIP84-145L	FLIP85- 4L	FLIP84-147L	FLIP84- 83L	FLIP85- 35L	FLIP84- 76L] FLIP84- 27L	ILL 4400	FLIP84- 76L

The brackets indicate entries having the same rank.

and Ankara and Erzurum in Turkey.

The five best entries in each of the locations are given in Table 5.1.6. The entries FLIP85- 35L, FLIP84- 52L, FLIP84- 76L and FLIP84- 27L occured most frequently among the five heaviest yielders and were thus comparatively better in adaptation.

The mean seed yield and rank of common entries over different years is given in Table 5.1.7. It was observed that the entry ILL 5582 ranked number 1 and was followed by FLIP84- 78L, FLIP84-100L, FLIP84- 99L and FLIP84- 83L.

Table 5.1.7. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in LIYT-L during 1985/86 and 1986/87.

Entry Name	Selection	1985/86		1986/87		Mean	
		Y	R	Y	R	Y	R
ILL 4400	Syrian Local Large	1181	9	1369	6	1275	8
ILL 4605	Precoz	1256	5	1337	8	1297	7
ILL 5582	78S 26002	1537	1	1680	1	1608	1
ILL 5672	81S 38326	1193	7	1310	9	1252	9
ILL 5746	FLIP84- 76L	1187	8	1444	5	1315	6
ILL 5748	FLIP84- 78L	1393	2	1450	4	1421	2
ILL 5753	FLIP84- 83L	1351	3	1354	7	1352	5
ILL 5769	FLIP84- 99L	1224	6	1482	3	1353	4
ILL 5770	FLIP84-100L	1286	4	1508	2	1397	3

5.2. LENTIL INTERNATIONAL YIELD TRIAL - SMALL SEED (LIYT-S)

Material

The material for the Lentil International Yield Trial - Small Seed comprised of 23 test entries and one local check to be supplied by the cooperator. The test entries were selections with seed size less than 4.5 g/100 seeds and were selected from the international screening nurseries based on their superior yield performance. Out of 23 test entries, 21 were developed at ICARDA through hybridization.

Methods and Management

The trial design was a randomised complete block with four replications. The suggested plot size was four rows each 4 m long with an inter row spacing of 25 cm. Thirty seven sets of trials were distributed to cooperators in 19 countries. The results were received for 22 trials from 15 countries and are reported. The agronomic practices employed at different locations are given in Table 5.2.1.

Results and Discussion

The data on time to flowering, time to maturity and plant height are given in Tables 5.2.2, 5.2.3 and 5.2.4 respectively. The location means for days to flowering, days to maturity and plant height ranged from 69 days (for Debre Zeit, Ethiopia) to 164 days (for Urfa in Turkey), 120 days (for Darul Aman in Afghanistan) to 197 days (for Tel Hadya in Syria), and 18 cm (for Quetta in Pakistan) to 49 cm (for Elvas in Portugal), respectively. The entries 76TA 66005, FLIP84- 26L, FLIP84- 29L, FLIP84- 49L, and FLIP84- 75L flowered and matured earliest, and the entries FLIP84-159L and FLIP84- 62L with plant height of 35 cm were the tallest.

The seed yield and rank of entries at different locations is given in Table 5.2.5. The ANOVA revealed that the differences among the entries were significant for 19 out of 22 locations reporting data. The seed yields varied from 59 kg/ha at Quetta in Pakistan to 2903 kg/ha at Horsham in Australia. Among significant locations, at 12 locations some of the entries exceeded the local check by a significant margin. On the basis of average over locations the top five entries included FLIP85- 16L, FLIP84- 43L, FLIP84- 26L, FLIP84- 44L and 76TA 66005 with seed yields of 1428, 1398, 1392, 1370, and 1359 kg/ha, respectively.

The five best entries at different locations are given in Table 5.2.6. Some of the lines namely 76TA 66005, FLIP84- 26L, FLIP84- 58L, FLIP84- 59L and FLIP85- 16L occured most frequently among the top five than others and were thus comparatively widely adapted.

On the basis of average over two years for the common entries (Table 5.2.7), FLIP84-29L ranked number 1 and was closely followed by FLIP84- 58L FLIP84- 44L, 76TA 66005, FLIP84- 59L and FLIP84- 26L with seed yields of 1517, 1503, 1494, 1480, 1479 and 1476 kg/ha respectively.

Table 5.2.7. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in LIYT-S during 1985/86 and 1986/87.

Entry Name	Selection	1985/86		1986/87		Mean	
		Y	R	Y	R	Y	R
ILL 1939	-	1578	6	1306	7	1442	7
ILL 4401	Syrian Local Small	1207	11	1112	11	1160	11
ILL 5562	76TA 66005	1600	5	1359	3	1480	4
ILL 5698	FLIP84- 26L	1559	7	1392	1	1476	6
ILL 5700	FLIP84- 29L	1700	1	1334	5	1517	1
ILL 5715	FLIP84- 44L	1618	3	1370	2	1494	3
ILL 5720	FLIP84- 49L	1539	8	1301	8	1417	8
ILL 5728	FLIP84- 58L	1678	2	1327	6	1503	2
ILL 5729	FLIP84- 59L	1617	4	1341	4	1479	5
ILL 5731	FLIP84- 61L	1348	9	1222	9	1285	9
ILL 5732	FLIP84- 62L	1337	10	1208	10	1273	10

Table 5.2.1. Agronomic data for different locations in the LIYT-S during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AFGHANISTAN	Darul Aman	09.03.87	21.07.87	30	60		5	-	L - 36268-598
ALGERIA	Sidi Bel Abbes	16.02.87	15.05.87	15	90		-	-	SERYE - 229
AUSTRALIA	Horsham	03.06.87	11.12.87		150		-	Trifluralin, Cyanazine	L - 11
AUSTRALIA	Walpeup	18.05.87	10.11.87		150		-	Trifluralin, Cyanazine	L - 11
COLOMBIA	Surbata	23.04.87	30.08.87	13	266	100	-	Afalon, Linuron	Lentega Comun
COSTA RICA	Santa Lucia	17.10.86	11.03.87	20	60		2	Alaclor, Paraquat, Carbofuran, Malathion	Cride
ETHIOIPIA	Debre Zeit	14.07.87	19.10.87	-			-	-	NEL - 358
ITALY	Catania	06.12.86	09.07.87	45	90		-	-	Local
JORDAN	Mushagar	16.12.86	26.05.87	-			-	-	Local
LEBANON	Terbol	17.11.86	10.06.87		50		-	Kerb, Bladex	Lebanese Local
MOROCCO	Marchouch	29.11.86	15.05.87	28	56	28	-	-	L - 24
PAKISTAN	Faisalabad (UAF)	03.11.86	22.04.87	1 bag DAP			-	-	NA
PAKISTAN	Islamabad (NARC)	12.11.86	NA	NA					NA
PAKISTAN	Karak	12.10.86	01.05.87		50		-	-	Local
PAKISTAN	Quetta (AZRI)	02.11.86	25.05.87	20	60		-	-	Local
PORTUGAL	Elvas	17.11.86	28.05.87		70		-	-	L - 211
SYRIA	Deir-Ez-Zor	25.11.86	03.06.87	-			8	-	Local
SYRIA	Tel Hadya	02.11.86	23.05.87		50		-	Kerb, Bladex, Pusilade, Supracide	ILL 4400
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA
TURKEY	Diyarbakir	19.11.86	04.06.87	40	60		-	-	Firat 87
TURKEY	Urfa	10.11.86	20.05.87	45	90		-	-	-

Table 5.2.2. Time to flowering (days) of entries at different locations in the LIYT-S during 1986/87.

Selection	ILL	Origin	AFGHANISTAN	ALGERIA	AUSTRALIA		COLOMBIA	COSTA RICA	ETHIOPIA	ITALY	JORDAN	LEBANON
			Darul Aman	S. Bel-Abbes	Horsham	Walpeup	Surbata	Santa-Lucia	Debre-Zeit	Catania	Mush-agar	Terbol
ILL 1939	1939	Morocco	73	132	118	126	95	95	77	135	112	138
Syrian L. Small	4401	Syria	73	128	122	123	90	95	70	133	116	136
76TA 66005	5562	Jordan	71	132	115	120	75	81	61	134	110	133
FLIP 84- 26L	5698	ICARDA	71	128	113	125	80	81	64	133	110	135
FLIP 84- 29L	5700	ICARDA	71	132	114	127	80	89	64	133	110	135
FLIP 84- 43L	5714	ICARDA	74	143	128	129	85	88	75	136	124	139
FLIP 84- 44L	5715	ICARDA	74	141	126	130	88	95	72	136	112	139
FLIP 84- 49L	5720	ICARDA	72	132	115	123	80	81	66	133	110	135
FLIP 84- 58L	5728	ICARDA	73	128	114	122	88	95	-	133	110	133
FLIP 84- 59L	5729	ICARDA	74	138	128	130	100	95	-	135	116	138
FLIP 84- 61L	5731	ICARDA	72	132	121	128	88	95	72	133	110	138
FLIP 84- 62L	5732	ICARDA	73	138	125	127	88	95	70	135	124	139
FLIP 84- 75L	5745	ICARDA	71	132	113	127	78	81	62	133	110	136
FLIP 84- 82L	5752	ICARDA	71	128	114	125	80	81	63	133	112	136
FLIP 84- 88L	5758	ICARDA	74	135	120	128	95	95	-	133	112	136
FLIP 84-159L	5828	ICARDA	75	139	127	132	100	95	-	136	124	140
FLIP 84-161L	5830	ICARDA	74	128	124	125	83	81	72	134	110	137
FLIP 84-167L	5836	ICARDA	74	132	118	133	95	88	-	133	112	135
FLIP 85- 16L	5854	ICARDA	75	142	129	127	85	88	77	134	116	139
FLIP 85- 25L	5863	ICARDA	73	138	124	129	100	95	-	134	112	137
FLIP 85- 27L	5865	ICARDA	74	142	125	127	100	88	-	133	112	139
FLIP 85- 31L	5869	ICARDA	75	138	125	125	83	88	70	135	122	140
FLIP 85- 33L	5871	ICARDA	73	138	126	130	85	88	73	135	124	139
Local Check			74	132	132	140	98	88	66	136	110	143
Location Mean			73	134	121	127	88	89	69	134	114	137
S.E. of Mean			0.58	0.11	1.63	1.65	2.68	4.21		0.33		0.59
L.S.D. at 5%			1.65	0.32	4.60	4.66	5.55	-		0.92		1.66
C.V. %			1.60	0.17	2.69	2.60	4.31	6.67		0.49		0.86
Error d.f.			69	69	69	69	23	23		69		69
Significance			*	*	*	*	*	NS		*		*

Cont'd. ...

Table 5.2.2. Cont'd. ...

Selection	ILL	MOROCCO	PAKISTAN			PORTUGAL	SYRIA		TURKEY		(1) Overall Mean
		Marchouch	Islamabad	Karak	Quetta (AZRI)	Elvas	Deir-ez-zor	Tel-Hadya	Diyarbakir	Urfa	
ILL 1939	1939	118	133	123	155	132	128	160	95	159	124
Syrian L. Small	4401	125	123	123	155	132	126	158	95	165	123
76TA 66005	5562	108	113	119	155	127	125	159	93	161	118
FLIP 84- 26L	5698	110	115	122	155	129	127	157	94	162	119
FLIP 84- 29L	5700	108	115	121	155	129	127	158	93	160	120
FLIP 84- 43L	5714	126	134	120	155	133	129	165	97	163	126
FLIP 84- 44L	5715	125	135	119	155	133	131	164	96	164	126
FLIP 84- 49L	5720	114	121	118	155	128	128	158	93	162	120
FLIP 84- 58L	5728	112	119	125	155	128	128	159	93	162	121
FLIP 84- 59L	5729	126	136	119	155	135	132	164	96	165	127
FLIP 84- 61L	5731	118	124	125	155	131	127	160	91	166	123
FLIP 84- 62L	5732	126	134	119	155	135	127	161	96	165	126
FLIP 84- 75L	5745	108	117	122	155	128	127	158	93	162	119
FLIP 84- 82L	5752	122	118	121	155	128	133	158	93	161	120
FLIP 84- 88L	5758	116	124	125	155	131	130	160	94	164	124
FLIP 84-159L	5828	126	128	123	155	134	127	166	97	165	127
FLIP 84-161L	5830	114	121	123	155	131	128	158	94	164	121
FLIP 84-167L	5836	118	128	123	155	132	126	161	93	167	123
FLIP 85- 16L	5854	118	137	121	155	135	132	165	96	166	125
FLIP 85- 25L	5863	118	132	123	155	133	129	160	94	164	125
FLIP 85- 27L	5865	126	133	124	155	134	130	161	93	167	126
FLIP 85- 31L	5869	125	126	120	155	134	131	165	97	169	125
FLIP 85- 33L	5871	126	133	119	155	136	127	160	96	170	126
Local Check		126	110	100	155	127	129	162	101	-	
Location Mean		**119**	**125**	**121**	**155**	**131**	**128**	**161**	**95**	**164**	
S.E. of Mean		0.00	1.31	1.55		0.65	0.68	0.60	0.74	0.99	
L.S.D. at 5%		0.00	3.70	4.39		1.84	1.92	1.70	2.07	2.78	
C.V. %		0.00	2.10	2.58		1.00	1.06	0.75	1.56	1.20	
Error d.f.		69	69	69		69	69	69	69	66	
Significance		*	*	*		*	*	*	*	*	

(1) Debre Zeit was excluded from the overall mean.
* = Significant at $P \leq 0.05$, NS = not signifcant.

Table 5.2.3. Time to maturity (days) of entries at different locations in the LIYT-S during 1986/87.

Selection	ILL	AFGHANISTAN Darul Aman	ALGERIA Sidi Bel-Abbes	AUSTRALIA Horsham	COLOMBIA Surbata	COSTA RICA Santa Lucia	ITALY Catania	JORDAN Mushagar	LEBANON Terbol
ILL 1939	1939	122	181	188	153	138	191	150	178
Syrian Local Small	4401	118	181	182	153	147	189	150	175
76TA 66005	5562	118	181	185	140	135	190	150	179
FLIP 84- 26L	5698	119	181	189	140	138	191	148	178
FLIP 84- 29L	5700	119	181	189	140	137	190	148	178
FLIP 84- 43L	5714	122	183	184	153	136	191	150	178
FLIP 84- 44L	5715	121	184	186	153	136	190	148	176
FLIP 84- 49L	5720	119	177	185	140	136	190	148	173
FLIP 84- 58L	5728	121	177	182	153	138	189	148	171
FLIP 84- 59L	5729	119	184	187	165	138	190	151	178
FLIP 84- 61L	5731	119	181	185	153	145	190	148	177
FLIP 84- 62L	5732	122	184	191	153	138	191	152	179
FLIP 84- 75L	5745	120	181	189	140	138	190	148	179
FLIP 84- 82L	5752	122	181	192	140	138	190	148	178
FLIP 84- 88L	5758	120	181	189	165	142	191	150	178
FLIP 84-159L	5828	121	184	187	165	141	191	152	180
FLIP 84-161L	5830	121	181	184	140	137	190	148	174
FLIP 84-167L	5836	120	181	185	165	143	190	150	174
FLIP 85- 16L	5854	119	184	184	140	137	190	150	177
FLIP 85- 25L	5863	120	184	184	165	138	189	150	174
FLIP 85- 27L	5865	123	181	184	165	150	190	148	177
FLIP 85- 31L	5869	122	181	181	140	136	190	148	176
FLIP 85- 33L	5871	121	184	193	153	141	191	152	179
Local Check		123	181	196	165	120	192	150	184
Location Mean		**120**	**182**	**187**	**151**	**138**	**190**	**149**	**177**
S.E. of Mean		0.75	0.14	1.48	6.65	1.67	0.25		0.84
L.S.D. at 5%		2.13	0.41	4.17	13.75	3.45	0.70		2.38
C.V. %		1.25	0.16	1.58	6.21	1.71	0.26		0.95
Error d.f.		69	69	69	23	23	69		69
Significance		*	*	*	*	*	*		*

Cont'd. ...

Table 5.2.3. Cont'd. ...

Selection	ILL	MOROCCO	PAKISTAN		PORTUGAL	SYRIA		TURKEY	Overall Mean
		Marchouch	Karak	Quetta (AZRI)	Elvas	Deir-ez-zor	Tel Hadya	Urfa	
ILL 1939	1939	157	189	185	188	181	197	187	172
Syrian Local Small	4401	157	189	185	187	182	196	187	172
76TA 66005	5562	148	187	185	185	179	196	188	170
FLIP 84- 26L	5698	150	188	185	189	184	196	187	170
FLIP 84- 29L	5700	148	187	185	185	185	196	188	170
FLIP 84- 43L	5714	157	189	185	187	180	199	189	172
FLIP 84- 44L	5715	157	187	185	184	179	198	190	172
FLIP 84- 49L	5720	150	187	185	179	184	196	186	169
FLIP 84- 58L	5728	152	191	185	182	183	195	187	170
FLIP 84- 59L	5729	157	187	185	189	182	200	190	173
FLIP 84- 61L	5731	154	190	185	185	178	197	188	172
FLIP 84- 62L	5732	157	187	185	190	183	202	188	173
FLIP 84- 75L	5745	148	189	185	185	182	195	187	170
FLIP 84- 82L	5752	157	187	185	186	185	196	187	171
FLIP 84- 88L	5758	152	190	185	185	181	196	189	173
FLIP 84-159L	5828	156	189	185	189	180	200	190	174
FLIP 84-161L	5830	150	189	185	190	181	197	187	170
FLIP 84-167L	5836	154	190	185	185	181	199	189	173
FLIP 85- 16L	5854	154	188	185	188	182	197	188	171
FLIP 85- 25L	5863	157	189	185	186	179	196	188	172
FLIP 85- 27L	5865	156	190	185	188	183	199	190	174
FLIP 85- 31L	5869	156	188	185	185	179	198	188	170
FLIP 85- 33L	5871	157	187	185	190	180	201	190	174
Local Check		156	173	185	177	182	200	-	
Location Mean		**154**	**188**	**185**	**186**	**181**	**197**	**188**	
S.E. of Mean		0.00	1.00		1.59	1.17	0.71	0.81	
L.S.D. at 5%		0.00	2.82		4.49	3.31	1.99	2.30	
C.V. %		0.00	1.07		1.71	1.30	0.72	0.87	
Error d.f.		69	69		69	69	69	66	
Significance		*	*		*	*	*	*	

* = Significant at $P \leq 0.05$.

Table 5.2.4. Plant height (cm) of entries at different locations in the LIYT-S during 1986/87.

Selection	ILL	AFGHANISTAN	ALGERIA	AUSTRALIA		COLOMBIA	COSTA RICA	ITALY	JORDAN	LEBANON
		Darul Aman	Sidi Bel-Abbes	Horsham	Walpeup	Surbata	Santa Lucia	Catania	Mushagar	Terbol
ILL 1939	1939	37	34	38	33	33	30	33	39	41
Syrian L. Small	4401	25	28	35	27	35	22	33	35	35
76TA 66005	5562	29	31	38	29	38	36	31	34	38
FLIP 84- 26L	5698	28	30	37	31	37	29	34	35	35
FLIP 84- 29L	5700	25	30	37	32	37	29	34	32	38
FLIP 84- 43L	5714	31	31	37	30	40	32	31	35	40
FLIP 84- 44L	5715	30	30	38	32	33	29	32	33	38
FLIP 84- 49L	5720	26	30	33	30	38	32	29	37	37
FLIP 84- 58L	5728	33	31	35	30	38	28	32	39	36
FLIP 84- 59L	5729	30	33	36	32	28	30	33	35	41
FLIP 84- 61L	5731	30	30	39	33	35	31	32	33	37
FLIP 84- 62L	5732	40	35	44	29	36	33	34	33	41
FLIP 84- 75L	5745	31	30	38	31	38	38	31	38	35
FLIP 84- 82L	5752	28	30	39	32	38	35	31	36	37
FLIP 84- 88L	5758	26	34	36	31	36	26	34	35	37
FLIP 84-159L	5828	34	33	41	31	41	29	36	30	39
FLIP 84-161L	5830	31	28	37	28	35	25	31	33	34
FLIP 84-167L	5836	28	31	33	28	30	26	31	32	34
FLIP 85- 16L	5854	30	30	38	33	32	30	31	37	39
FLIP 85- 25L	5863	27	30	39	29	30	22	33	31	37
FLIP 85- 27L	5865	36	30	36	27	29	20	30	32	38
FLIP 85- 31L	5869	33	29	38	29	35	23	34	32	35
FLIP 85- 33L	5871	39	31	41	32	35	28	34	36	40
Local Check		40	30	42	27	42	27	32	34	42
Location Mean		**31**	**31**	**38**	**30**	**35**	**28**	**32**	**34**	**38**
S.E. of Mean		2.14	1.07	1.47	1.50	2.17	1.77	0.98	2.10	1.17
L.S.D. at 5%		6.04	3.03	4.15	4.22	4.48	3.66	2.77	-	3.31
C.V. %		13.80	7.00	7.82	9.94	8.74	8.81	6.07	8.67	6.25
Error d.f.		69	69	69	69	23	23	69	23	69
Significance		*	*	*	*	*	*	*	NS	*

Cont'd. ...

Table 5.2.4. Cont'd. ...

Selection	ILL	MOROCCO	PAKISTAN		PORTUGAL	SYRIA		TURKEY		Overall Mean
		Marchouch	Karak	Quetta (AZRI)	Elvas	Deir-ez-zor	Tel Hadya	Diyarbakir	Urfa	
ILL 1939	1939	37	33	19	54	28	32	28	31	34
Syrian L. Small	4401	37	33	16	48	27	32	26	30	31
76TA 66005	5562	36	30	17	50	27	33	27	33	33
FLIP 84- 26L	5698	34	33	15	50	27	31	28	30	32
FLIP 84- 29L	5700	30	31	16	49	29	33	28	30	32
FLIP 84- 43L	5714	36	36	19	48	24	32	26	31	33
FLIP 84- 44L	5715	36	32	18	49	24	32	29	28	32
FLIP 84- 49L	5720	35	33	17	46	26	30	26	29	31
FLIP 84- 58L	5728	33	32	16	46	29	31	28	28	32
FLIP 84- 59L	5729	35	37	19	56	34	30	29	28	33
FLIP 84- 61L	5731	33	32	17	49	28	32	29	31	32
FLIP 84- 62L	5732	38	31	18	55	29	33	31	31	35
FLIP 84- 75L	5745	37	31	17	44	25	33	29	30	33
FLIP 84- 82L	5752	35	33	18	46	27	34	30	31	33
FLIP 84- 88L	5758	35	32	19	47	24	33	29	30	32
FLIP 84-159L	5828	38	39	22	51	27	34	35	32	35
FLIP 84-161L	5830	33	33	17	49	23	30	27	29	31
FLIP 84-167L	5836	35	27	16	53	24	30	26	29	30
FLIP 85- 16L	5854	32	32	19	51	24	32	27	29	32
FLIP 85- 25L	5863	32	31	18	48	21	33	31	28	30
FLIP 85- 27L	5865	31	32	18	51	28	30	28	27	31
FLIP 85- 31L	5869	33	26	19	52	23	30	28	28	31
FLIP 85- 33L	5871	39	32	18	51	25	30	31	29	34
Local Check		38	29	21	47	25	32	40	-	
Location Mean		35	32	18	49	26	32	29	30	
S.E. of Mean		2.05	0.86	1.11	2.33	2.40	0.82	1.01	1.09	
L.S.D. at 5%		-	2.42	3.14	6.58	-	2.31	2.87	3.08	
C.V. %		11.80	5.36	12.50	9.43	18.49	5.17	7.06	7.39	
Error d.f.		69	69	69	69	69	69	69	66	
Significance		NS	*	*	*	NS	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 5.2.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LIYT-S during 1986/87.

Selection	ILL	AFGHANISTAN		ALGERIA		AUSTRALIA				COLOMBIA		COSTA RICA		ITALY		JORDAN	
		Darul Aman		Sidi Bel-Abbes		Horsham		Walpeup		Surbata		Santa Lucia		Catania		Mushagar	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 1939	1939	393	17	1292	2	3067	9	1469	6	770	18	754	13	2417	13	1695	15
Local Small	4401	279	24	620	23	2499	21	1109	14	740	19	360	21	2233	18	1625	17
76TA 66005	5562	302	23	1026	11	3045	10	1589	2	1060	11	29	24	2600	9	1948	9
FLIP 84- 26L	5698	475	12	885	16	2645	18	1543	4	676	21	1600	6	2817	2	2115	3
FLIP 84- 29L	5700	347	20	896	14	2785	15	1560	3	699	20	1680	5	2067	22	1815	14
FLIP 84- 43L	5714	469	14	1068	8	3407	3	1366	8	1475	2	1731	3	2767	4	1893	11
FLIP 84- 44L	5715	641	6	1089	7	3451	2	1286	9	1052	12	1691	4	2683	5	1975	6
FLIP 84- 49L	5720	692	3	958	12	2609	20	1046	16	1199	7	1903	1	2017	23	2270	2
FLIP 84- 58L	5728	494	10	865	17	3400	4	1491	5	922	14	566	16	2617	8	2043	4
FLIP 84- 59L	5729	458	16	1047	9	3199	6	1366	7	829	16	731	15	2633	6	1928	10
FLIP 84- 61L	5731	889	2	797	19	2760	16	897	21	784	17	874	11	2533	10	1563	19
FLIP 84- 62L	5732	675	4	1276	3	3240	5	1017	18	1085	9	451	17	2367	14	1310	23
FLIP 84- 75L	5745	313	22	891	15	2755	17	1263	10	1233	5	874	12	2300	16	2363	1
FLIP 84- 82L	5752	459	15	917	13	3137	7	1246	11	903	15	383	19	2300	15	1963	7
FLIP 84- 88L	5758	474	13	1115	6	2465	22	1160	13	1204	6	160	22	2500	11	1448	21
FLIP 84-159L	5828	482	11	1203	4	2870	12	1091	15	1074	10	383	18	2167	20	1445	22
FLIP 84-161L	5830	542	7	849	18	3084	8	794	22	648	23	886	10	2117	21	1230	24
FLIP 84-167L	5836	345	21	750	20	2346	23	971	20	1322	4	371	20	2217	19	1670	16
FLIP 85- 16L	5854	380	19	1115	5	3516	1	1686	1	995	13	926	9	2633	7	1955	8
FLIP 85- 25L	5863	393	18	641	22	2830	14	743	23	1148	8	749	14	2800	3	1545	20
FLIP 85- 27L	5865	901	1	651	21	2857	13	983	19	673	22	86	23	2267	17	1840	12
FLIP 85- 31L	5869	653	5	573	24	2615	19	1040	17	599	24	1120	8	2983	1	1838	13
FLIP 85- 33L	5871	526	8	1042	10	2977	11	1229	12	1369	3	1846	2	2433	12	1575	18
Local Check		501	9	1333	1	2102	24	246	24	1494	1	1383	7	1583	24	2040	5
Location Mean		503		954		2903		1175		998		897		2419		1795	
S.E. of Mean		115.06		105.68		162.21		122.19		260.10		463.72		182.09		151.53	
L.S.D. at 5%		324.55		298.11		457.57		345.66		-		-		513.65		427.42	
C.V. %		45.71		22.16		11.18		20.81		36.86		73.08		15.06		16.88	
Error d.f.		69		69		69		69		23		23		69		69	
Significance		*		*		*		*		NS		NS		*		*	
Ent. > L. Check		2		0		20		23		-		-		21		0	

Cont'd. ...

Table 5.2.5. Cont'd. ...

Selection	ILL	LEBANON		MOROCCO		PAKISTAN								PORTUGAL		SYRIA	
		Terbol		Marchouch		Faisalabad		Islamabad		Karak		Quetta (AZRI)		Elvas		Deir-ez-zor	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 1939	1939	1799	22	975	6	378	22	290	18	550	6	48	12	2780	9	365	20
Local Small	4401	1837	20	631	20	444	19	188	24	470	12	46	13	2119	22	738	4
76TA 66005	5562	1938	14	1016	5	733	4	555	6	303	21	31	20	3243	1	444	14
FLIP 84- 26L	5698	2194	5	1134	2	622	10	459	8	358	15	5	24	2878	6	294	23
FLIP 84- 29L	5700	2201	4	1022	4	556	13	766	2	425	13	20	23	3044	5	388	18
FLIP 84- 43L	5714	2042	9	869	11	733	5	263	21	665	2	79	4	2756	10	332	22
FLIP 84- 44L	5715	1899	16	869	10	489	17	291	17	350	16	50	10	3128	3	590	8
FLIP 84- 49L	5720	2188	6	841	13	689	8	601	5	493	8	51	9	2615	12	490	10
FLIP 84- 58L	5728	2354	1	622	21	711	7	356	15	578	5	37	16	3195	2	394	17
FLIP 84- 59L	5729	2226	2	666	19	244	24	391	13	775	1	31	19	2592	13	1238	1
FLIP 84- 61L	5731	1837	19	600	22	400	20	430	12	335	17	55	7	2821	7	569	9
FLIP 84- 62L	5732	1951	12	934	8	533	14	700	4	230	22	24	21	2590	14	338	21
FLIP 84- 75L	5745	2097	7	1128	3	511	15	554	7	315	19	49	11	2472	16	407	16
FLIP 84- 82L	5752	2201	3	1247	1	711	6	439	11	328	18	76	5	2396	19	414	15
FLIP 84- 88L	5758	1903	15	731	16	511	16	448	10	168	23	55	6	3067	4	490	11
FLIP 84-159L	5828	1858	17	516	24	1111	2	875	1	478	10	258	1	2257	20	372	19
FLIP 84-161L	5830	1757	23	731	17	667	9	387	14	160	24	22	22	2551	15	657	6
FLIP 84-167L	5836	1840	18	784	14	578	12	452	9	478	11	46	15	2225	21	863	2
FLIP 85- 16L	5854	2056	8	969	7	489	18	286	19	663	3	52	8	2647	11	769	3
FLIP 85- 25L	5863	1951	13	763	15	622	11	295	16	493	7	87	3	2424	18	231	24
FLIP 85- 27L	5865	1830	21	531	23	267	23	248	22	368	14	36	17	1941	24	675	5
FLIP 85- 31L	5869	1993	11	703	18	800	3	189	23	480	9	32	18	2004	23	448	13
FLIP 85- 33L	5871	2017	10	909	9	378	21	713	3	315	20	46	14	2425	17	460	12
Local Check		1160	24	853	12	1689	1	282	20	595	4	174	2	2781	8	607	7
Location Mean		**1964**		**835**		**619**		**436**		**432**		**59**		**2623**		**524**	
S.E. of Mean		104.44		148.20		197.06		128.64		128.98		25.65		222.46		144.40	
L.S.D. at 5%		295.61		418.05		485.79		362.87		-		72.34		627.51		407.31	
C.V. %		10.64		35.49		55.10		59.06		59.72		87.35		16.96		55.15	
Error d.f.		69		69		46		69		69		69		69		69	
Significance		*		*		*		*		NS		*		*		*	
Ent. > L. Check		23		0		0		4		-		1		0		1	

Cont'd. ...

Table 5.2.5. Cont'd. ...

Selection	ILL	SYRIA		TUNISIA						TURKEY				Overall Mean (1)	
		Tel Hadya		Beja		El Kef		Oued Meliz		Diyarbakir		Urfa			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 1939	1939	1684	9	2250	17	548	9	1668	9	1688	7	880	2	1306	9
S. L. Small	4401	1528	13	2288	15	488	16	1480	18	1177	17	695	10	1112	22
76TA 66005	5562	1809	1	2663	4	668	2	1690	8	1500	11	938	1	1359	5
FLIP 84- 26L	5698	1730	6	2869	3	400	20	1520	16	1698	5	787	5	1392	3
FLIP 84- 29L	5700	1729	7	2550	6	418	18	1735	6	1302	15	805	4	1334	7
FLIP 84- 43L	5714	1712	8	2381	11	415	19	1260	24	1427	13	592	18	1398	2
FLIP 84- 44L	5715	1795	2	1800	23	325	22	1285	23	1708	4	665	12	1370	4
FLIP 84- 49L	5720	1343	16	2281	16	510	15	1765	5	708	24	708	9	1301	10
FLIP 84- 58L	5728	1283	19	2131	19	633	4	2000	1	990	23	573	19	1327	8
FLIP 84- 59L	5729	828	22	3194	1	560	8	1855	3	1156	18	637	13	1341	6
FLIP 84- 61L	5731	1623	11	2388	10	695	1	1700	7	1042	21	550	20	1222	15
FLIP 84- 62L	5732	651	23	2533	8	535	11	1500	17	1521	8	627	15	1208	18
FLIP 84- 75L	5745	1766	3	1881	22	545	10	1430	19	1688	6	770	6	1286	11
FLIP 84- 82L	5752	1733	5	1913	21	593	7	1330	22	1208	16	768	7	1245	13
FLIP 84- 88L	5758	1545	12	2533	7	593	6	1615	11	1146	19	767	8	1219	16
FLIP 84-159L	5828	1300	18	2658	5	623	5	1765	4	1458	12	808	3	1234	14
FLIP 84-161L	5830	1148	20	2342	14	283	24	1665	10	1510	9	608	16	1154	21
FLIP 84-167L	5836	1498	14	2375	12	383	21	1390	20	1354	14	693	11	1164	20
FLIP 85- 16L	5854	1739	4	2963	2	530	13	1585	13	1781	1	593	17	1428	1
FLIP 85- 25L	5863	1632	10	2425	9	320	23	1540	15	1500	10	528	23	1204	19
FLIP 85- 27L	5865	1308	17	2344	13	530	12	1605	12	1042	22	543	21	1107	23
FLIP 85- 31L	5869	1373	15	2163	18	655	3	1935	2	1052	20	542	22	1218	17
FLIP 85- 33L	5871	484	24	2025	20	465	17	1565	14	1760	2	633	14	1259	12
Local Check		1100	21	1719	24	530	14	1390	21	1719	3	-	-		
Location Mean		**1431**		**2361**		**510**		**1595**		**1381**		**683**			
S.E. of Mean		95.77		230.02		57.91		118.22		155.75		79.50			
L.S.D. at 5%		270.15		648.83		163.36		333.48		439.34		224.46			
C.V. %		13.39		19.48		22.71		14.83		22.56		23.28			
Error d.f.		69		69		69		69		69		66			
Significance		*		*		*		*		*		*			
Ent. > L. Check		15		12		1		6		0		-			

(1) Quetta (AZRI) was excluded from the overall mean.
* = Significant at P $\leq$ 0.05, NS = not significant.

Table 5.2.6. The five heaviest seed yielding entries at the individual locations in the LIYT-S during 1986/87.

	AFGHANISTAN	ALGERIA	AUSTRALIA		COLOMBIA	COSTA RICA	ITALY	JORDAN
Rank	Darul Aman	Sidi Bel Abbes	Horsham	Walpeup	Surbata	Santa Lucia	Catania	Mushagar
1	FLIP85- 27L	Local Check	FLIP85- 16L	FLIP85- 16L	Local Check	FLIP84- 49L	FLIP85- 31L	FLIP84- 75L
2	FLIP84- 61L	ILL 1939	FLIP84- 44L	76TA 66005	FLIP84- 43L	FLIP85- 33L	FLIP84- 26L	FLIP84- 49L
3	FLIP84- 49L	FLIP84- 62L	FLIP84- 43L	FLIP84- 29L	FLIP85- 33L	FLIP84- 43L	FLIP85- 25L	FLIP84- 26L
4	FLIP84- 62L	FLIP84-159L	FLIP84- 58L	FLIP84- 26L	FLIP84-167L	FLIP84- 44L	FLIP84- 43L	FLIP84- 58L
5	FLIP85- 31L	FLIP85- 16L FLIP84- 88L	FLIP84- 62L	FLIP84- 58L	FLIP84- 75L	FLIP84- 29L	FLIP84- 44L	Local Check

Cont'd 2/..

	LEBANON	MOROCCO	PAKISTAN				PORTUGAL
Rank	Terbol	Marchouch	Faisalabad	Karak	Islamabad	Quetta (AZRI)	Elvas
1	FLIP84- 58L	FLIP84- 82L	Local Check	FLIP84- 59L	FLIP84-159L	FLIP84-159L	76TA 66005
2	FLIP84- 59L	FLIP84- 26L	FLIP84-159L	FLIP84- 43L	FLIP84- 29L	Local Check	FLIP84- 58L
3	FLIP84- 82L	FLIP84- 75L	FLIP85- 31L	FLIP85- 16L	FLIP85- 33L	FLIP85- 25L	FLIP84- 44L
4	FLIP84- 29L	FLIP84- 29L	76TA 66005	Local Check	FLIP84- 62L	FLIP84- 43L	FLIP84- 88L
5	FLIP84- 26L	76TA 66005	FLIP84- 43L	FLIP84- 58L	FLIP84- 49L	FLIP84- 82L	FLIP84- 29L

Cont'd 2/..

	SYRIA		TUNISIA			TURKEY	
Rank	Deir-ez-zor	Tel Hadya	Beja	El Kef	Oued Meliz	Diyarbakir	Urfa
1	FLIP84- 59L	76TA 66005	FLIP84- 59L	FLIP84- 61L	FLIP84- 58L	FLIP85- 16L	76TA 66005
2	FLIP84-167L	FLIP84- 44L	FLIP85- 16L	76TA 66005	FLIP85- 31L	FLIP85- 33L	ILL 1939
3	FLIP85- 16L	FLIP84- 75L	FLIP84- 26L	FLIP85- 31L	FLIP84- 59L	Local Check	FLIP84-159L
4	ILL 4401	FLIP85- 16L	76TA 66005	FLIP84- 58L	FLIP84-159L	FLIP84- 44L	FLIP84- 29L
5	FLIP85- 27L	FLIP84- 82L	FLIP84-159L	FLIP84-159L	FLIP84- 49L	FLIP84- 26L	FLIP84- 26L

The bracket indicates entries having the same rank.

5.3. LENTIL INTERNATIONAL SCREENING NURSERY - LARGE SEED (LISN-L)

Material

The Lentil International Screening Nursery - Large Seed comprised 42 test entries and 3 checks, two of the checks namely Syrian Local Large (ILL 4400) and Precoz (ILL 4605) were supplied, and one local check was to be added by the cooperator. All the test entries in this nursery were developed at ICARDA through hybridization and were selected based on their superior performance at ICARDA sites in Syria and Lebanon.

Methods and Management

The material comprising 42 test entries and three checks was sown in an augmented block design in three blocks comprising 14 test entries and 3 checks repeated in every block. The suggested plot size was single row 4 m long accomodating 200 plants with between-row spacing of 25 cm.

Sixty eight sets of the nursery were supplied to different coperators in 27 countries but the results were received from 42 locations in 22 countries. The agronomic data received from the cooperators is presented in Table 5.3.1.

Results and Discussion

The data on time to flowering (Table 5.3.2) revealed that flowering was earliest in 52 days at Karaj-1 in Iran and latest in 213 days at Ankara in Turkey. The entries namely, FLIP 86-21L, FLIP 87-17L, FLIP 86-19L, FLIP 86-15L, FLIP 86-12L and FLIP 87-22L were earliest to flower in 105-106 days and were earlier than Precoz. The entry FLIP 84-144L was the latest to flower in 119 days. The data on time to maturity (Table 5.3.3) revealed that the lines flowering earlier were, in general, also earlier in maturity.

The plant height data (Table 5.3.4) revealed that the entry means ranged between 28 and 33 cm, FLIP 86-12L being the tallest and Precoz being the shortest in plant height.

The results pertaining to the adjusted seed yield at different locations (Table 5.3.5) showed that the performance of entries at Horsham in Australia was the best with average yield of 4271 kg/ha and was followed by Setif in Algeria (2669 kg/ha); Oued Meliz in Tunisia (2023 kg/ha) and Elvas in Portugal (2002 kg/ha). The ANOVA for the experiment revealed that at some of the locations namely Khroub in Algeria, Horsham in Australia, Oroumieh in Iran, Jubeiha in Jordan, Terbol in Lebanon, Culiacan in Mexico, Marchouch in Morocco, Quetta-2 in Pakistan, El Encin in Spain, Idleb and Izra'a in Syria, El Kef in Tunisia, and Erzurum in Turkey, 13, 3, 1, 2, 3, 22, 28, 2, 1, 1, 1, 2 and 1 test entries, respectively, outyielded the respective local checks by significant margins. The entry means over all locations revealed that FLIP 86-5L was the top yielder with an average yield of 1618 kg/ha and was followed by FLIP 87-17L, FLIP 87-5L, FLIP 85-1L and FLIP 87-20L, with seed yields of 1583, 1509, 1488, and 1480 kg/ha,

Table 5.3.1. Agronomic data for different locations in the LISN-L during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri- gation	Insecticide/Fungicide/Herbicide	Local Check
ALGERIA	Khroub	07.01.87	23.06.87	17	45		-	Treflan	SYRIE - 229
ALGERIA	Setif	07.12.86	11.06.87	NA			-	NA	NA
ALGERIA	Zidane (S.B.A.)	04.12.86	10.05.87		46		-	-	SYRIE - 229
AUSTRALIA	Horsham	24.07.87	22.12.87		150		-	Trifluralin, Cyanazine	Laird
BANGLADESH	Mymensingh	25.11.86	16.04.87	-			-	-	BM 513
CHILE	Chillan	11.06.87	03.12.87		90		-	-	Araucana - INIA
ECUADOR	Cunchibamba	05.01.87	08.08.87	36	92		2	Linuron, Carbamato,	E - 139
EGYPT	Sids	03.12.86	-	-			1	-	NA
ETHIOPIA	Debre Zeit	14.07.87	08.10.87	-			-		NEL - 358
INDIA	New Delhi	27.11.86	28.04.87	20	40		1	Metasystox	L - 4076
IRAN	Ghazvin	09.04.87	26.06.87	9	24		-	-	Kouhin Local
IRAN	Hamadan	12.04.87	25.07.87		69		4	-	NA
IRAN	Karaj	18.04.87	20.07.87	24	72		8	Treflan, Metasystox	Ghazvin Local
IRAN	Oroumieh	15.12.86	23.06.87	-			-	Ambosh	Mardum
IRAQ	Dohuk	23.11.86	25.05.87	40	46		-	-	L. C.
JORDAN	Jubeiha	NA		20	40				
LEBANON	Terbol	17.11.86	10.06.87		50		-	Kerb, Bladex	Lebanese Local
LIBYA	Tagura	05.11.86	05.05.87	30	60		-	-	NA
MEXICO	Culiacan	09.12.86	05.05.87	-			2	-	Sel. Guanajuato
MEXICO	Sonora (Valley)	13.12.86	13.04.87	120	40		4	Polimat 1000	Guanajuato
MOROCCO	Marchouch	29.11.86	14.05.87	28	56	28	-	-	L - 56
NEPAL	Khumaltar	30.10.86	15.05.87	20	60	20	-	-	Simrik
PAKISTAN	Faisalabad (NIAB)	13.11.86	10.05.87	20	60		1	-	Masoor 85 (Var 9-6)
PAKISTAN	Quetta (ARI)	05.02.87	25.05.87	20	60		-	-	NA
PAKISTAN	Quetta (Sariab)	11.11.86	26.05.87	20	50		3	-	L. C.
PORTUGAL	Elvas	18.11.86	01.06.87		70		-	-	L - 211
SPAIN	El Encin	26.11.86	09.06.87	24	72		-	Prometryne	Angela (LEC-42)
SYRIA	Gelline	09.12.86	18.05.87	20	20		-	-	NA
SYRIA	Heimo	20.11.86	17.05.87		50		-	-	ILL 8
SYRIA	Idleb	03.12.86	29.05.87		60		-	-	Local
SYRIA	Izra'a	07.12.86	25.05.87	12	38		-	-	NA
SYRIA	Tel Hadya	02.11.86	23.05.87		50		-	Kerb, Bladex, Fusilade, Supracide	ILL 4401
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA
TURKEY	Ankara (Univ)	23.10.86	21.06.87	22	60		-	-	Kislik - Pull-11
TURKEY	Haymana	08.04.87	22.07.87	46	32		-	-	NA
TURKEY	Diyarbakir	19.11.86	03.06.87	40	60		-	-	Firat 87
TURKEY	Erzurum	04.05.87	16.08.87	30	70		-	-	Pull - 11
TURKEY	Eskisehir	08.04.87	18.08.87	40	60		-	-	NA
TURKEY	Urfa	10.11.86	15.05.87	45	90		-	-	-

Table 5.3.2. Adjusted time to flowering (days) of entries at different locations in the LISN-L during 1986/87.

Selection	ILL	Origin	ALGERIA			AUSTRALIA	BANGLADESH	CHILE	ECUADOR	EGYPT	ETHIOPIA	IRAN
			Sidi Bel-Abbes	Khroub	Setif	Horsham	Mymensingh	Chillan	Cunchi-bamba	Sids	Debre-Zeit	Ghazvin
78S 26024(23)	5593	Jordan	121	109	131	98	94	116	109	91	72	52
FLIP 84- 71L	5741	ICARDA	123	109	133	98	NF	118	101	-	-	58
FLIP 84- 74L	5744	ICARDA	121	103	133	95	NF	121	102	93	-	54
FLIP 84-144L	5814	ICARDA	124	103	139	98	NF	121	102	97	-	51
FLIP 84-149L	5818	ICARDA	122	96	132	98	96	119	112	87	-	57
FLIP 84-156L	5825	ICARDA	124	101	130	95	38	119	102	87	80	58
FLIP 85- 1L	5839	ICARDA	123	102	141	93	102	121	-	-	78	51
FLIP 85- 7L	5845	ICARDA	124	107	134	98	NF	118	103	91	-	51
FLIP 86- 3L	5989	ICARDA	119	96	132	91	97	117	97	89	64	51
FLIP 86- 5L	5991	ICARDA	114	99	127	91	96	117	87	84	61	54
FLIP 86- 8L	5994	ICARDA	119	101	130	98	38	121	102	84	60	54
FLIP 86- 10L	5996	ICARDA	119	98	135	93	97	117	87	87	60	51
FLIP 86- 12L	5998	ICARDA	110	102	121	91	66	125	67	67	54	51
FLIP 86- 13L	5999	ICARDA	111	97	136	91	79	117	67	69	61	53
FLIP 86- 15L	6001	ICARDA	110	100	120	91	44	121	82	67	49	54
FLIP 86- 16L	6002	ICARDA	109	102	133	91	55	116	88	69	43	51
FLIP 86- 18L	6004	ICARDA	109	101	116	91	79	114	76	68	45	54
FLIP 86- 19L	6005	ICARDA	109	96	122	91	59	119	68	70	51	54
FLIP 86- 21L	6007	ICARDA	109	101	122	91	54	110	76	66	51	54
FLIP 87- 1L	6191	ICARDA	122	104	131	98	NF	121	102	87	-	58
FLIP 87- 2L	6192	ICARDA	122	101	138	95	NF	109	109	89	-	52
FLIP 87- 3L	6193	ICARDA	121	101	130	98	NF	118	101	89	73	51
FLIP 87- 4L	6194	ICARDA	122	100	131	98	NF	121	104	84	-	58
FLIP 87- 5L	6195	ICARDA	122	98	135	98	76	121	97	89	75	51
FLIP 87- 6L	6196	ICARDA	122	101	139	98	NF	121	97	89	71	57
FLIP 87- 7L	6197	ICARDA	118	101	137	95	82	119	102	79	58	54
FLIP 87- 8L	6198	ICARDA	123	103	136	98	98	121	97	87	-	55
FLIP 87- 9L	6199	ICARDA	122	109	131	98	NF	118	101	99	-	60

Table 5.3.2. Cont'd. ...

Selection	ILL	Origin	ALGERIA			AUSTRALIA	BANGLADESH	CHILE	ECUADOR	EGYPT	ETHIOPIA	IRAN
			Sidi Bel-Abbes	Khroub	Setif	Horsham	Mymensingh	Chillan	Cunchi-bamba	Sids	Debre-Zeit	Ghazvin
FLIP 87- 10L	6200	ICARDA	122	109	134	98	NF	118	111	99	-	58
FLIP 87- 11L	6201	ICARDA	121	106	134	98	NF	121	107	94	75	54
FLIP 87- 12L	6202	ICARDA	121	101	127	93	NF	119	102	84	-	54
FLIP 87- 13L	6203	ICARDA	119	102	140	95	NF	109	109	91	72	55
FLIP 87- 14L	6024	ICARDA	121	103	138	98	NF	117	97	93	80	51
FLIP 87- 15L	6205	ICARDA	118	101	133	98	94	121	104	84	64	57
FLIP 87- 16L	6206	ICARDA	120	98	133	93	96	119	97	84	71	51
FLIP 87- 17L	6207	ICARDA	118	101	133	95	89	114	103	86	63	51
FLIP 87- 18L	6208	ICARDA	111	101	125	91	61	110	67	69	54	51
FLIP 87- 19L	6209	ICARDA	121	98	139	91	60	125	82	69	54	51
FLIP 87- 20L	6210	ICARDA	120	103	125	91	97	125	77	67	58	51
FLIP 87- 21L	6211	ICARDA	112	101	133	91	52	122	83	73	46	52
FLIP 87- 22L	6212	ICARDA	109	102	117	91	NF	116	86	63	44	52
FLIP 87- 23L	6213	ICARDA	110	100	116	91	55	118	81	71	48	52
Local	4400	Syria	123	109	139	98	-	121	106	96	-	59
Precoz	4605	Argentina	110	95	127	91	57	109	63	68	53	52
Local Check	-		119	99	138	103	49	121	107	62	64	52
Location Mean			**118**	**101**	**132**	**95**	**73**	**118**	**94**	**78**	**61**	**54**
S.E. of Mean			0.51	0.94	2.06	0.00	1.08	0.94	3.99	0.96	1.55	2.03
L.S.D. at 5% for:												
Checks			2.00	3.70	8.07	0.00	6.57	3.70	15.65	3.78	9.40	7.96
Test entries in the same block			3.46	6.41	13.97	0.00	11.38	6.41	27.10	6.54	16.29	13.79
Test entries in different blocks			4.00	7.40	16.13	0.00	13.94	7.40	31.29	7.55	19.95	15.92
Checks Vs test entries			3.26	6.04	13.17	0.00	11.39	6.04	25.55	6.17	16.29	13.00
C.V. %			0.75	1.61	2.70	0.00	3.99	1.38	7.71	2.14	5.93	6.54

Cont'd. ...

Table 5.3.2. Cont'd. ...

Selection	ILL	IRAN				IRAQ	INDIA	JORDAN	LEBANON	LIBYA	MEXICO
		Hamadan	Oroumieh	Karaj-1	Karaj-2	Dohuk	New Delhi	Jubeiha	Terbol	Tagura	Culiacan
78S 26024(23)	5593	60	144	52	59	143	86	106	139	105	76
FLIP 84- 71L	5741	61	153	53	64	141	111	107	139	105	84
FLIP 84- 74L	5744	63	153	56	63	142	102	103	137	122	89
FLIP 84-144L	5814	62	153	58	65	146	108	106	139	120	88
FLIP 84-149L	5818	61	144	54	61	139	102	104	135	119	87
FLIP 84-156L	5825	56	153	53	62	140	-	-	137	120	80
FLIP 85- 1L	5839	62	141	55	60	142	103	103	141	103	84
FLIP 85- 7L	5845	59	153	55	64	141	101	107	139	86	84
FLIP 86- 3L	5989	55	141	51	57	137	96	107	137	102	74
FLIP 86- 5L	5991	56	141	50	54	139	-	103	135	107	79
FLIP 86- 8L	5994	54	141	50	54	142	97	108	137	99	69
FLIP 86- 10L	5996	56	141	51	56	139	85	105	135	102	72
FLIP 86- 12L	5998	60	144	51	59	135	-	106	131	68	47
FLIP 86- 13L	5999	63	141	52	59	141	82	106	133	66	59
FLIP 86- 15L	6001	56	141	49	57	134	71	104	131	76	47
FLIP 86- 16L	6002	56	144	50	58	138	80	107	131	74	50
FLIP 86- 18L	6004	55	153	52	58	136	80	106	131	74	47
FLIP 86- 19L	6005	57	153	50	57	134	-	104	131	75	47
FLIP 86- 21L	6007	58	144	50	57	136	73	104	131	76	43
FLIP 87- 1L	6191	63	144	54	64	136	98	106	137	111	87
FLIP 87- 2L	6192	57	153	53	62	140	106	107	137	118	87
FLIP 87- 3L	6193	60	144	51	61	141	103	106	137	86	86
FLIP 87- 4L	6194	53	153	53	64	141	100	103	137	127	90
FLIP 87- 5L	6195	63	153	52	60	141	100	107	137	114	85
FLIP 87- 6L	6196	60	153	52	60	140	102	109	137	87	84
FLIP 87- 7L	6197	55	141	49	54	141	-	103	135	98	62
FLIP 87- 8L	6198	60	144	53	61	141	103	103	137	114	88
FLIP 87- 9L	6199	60	153	55	66	143	106	107	139	120	87
FLIP 87- 10L	6200	62	153	55	63	140	101	106	137	103	90

Table 5.3.2. Cont'd. ...

Selection	ILL	IRAN				IRAQ	INDIA	JORDAN	LEBANON	LIBYA	MEXICO
		Hamadan	Oroumieh	Karaj-1	Karaj-2	Dohuk	New Delhi	Jubeiha	Terbol	Tagura	Culiacan
FLIP 87- 11L	6201	60	153	52	61	142	102	104	139	109	72
FLIP 87- 12L	6202	61	144	50	57	139	105	103	135	85	49
FLIP 87- 13L	6203	57	153	52	61	140	101	106	135	121	83
FLIP 87- 14L	6024	61	153	51	63	141	100	107	135	119	86
FLIP 87- 15L	6205	61	144	51	58	139	89	107	137	102	70
FLIP 87- 16L	6206	55	141	51	56	141	85	105	137	101	71
FLIP 87- 17L	6207	56	141	49	59	140	101	107	137	104	67
FLIP 87- 18L	6208	57	144	52	60	135	72	106	131	69	50
FLIP 87- 19L	6209	58	155	54	60	134	77	106	131	72	57
FLIP 87- 20L	6210	57	141	56	61	137	70	106	133	73	57
FLIP 87- 21L	6211	56	144	55	62	136	103	107	131	79	51
FLIP 87- 22L	6212	53	144	50	59	134	72	106	131	74	41
FLIP 87- 23L	6213	56	144	50	59	134	73	106	131	75	46
Local	4400	61	144	56	62	143	104	106	138	115	85
Precoz	4605	56	144	51	58	134	72	107	131	75	59
Local Check	-	61	154	50	65	145	76	105	143	113	56
Location Mean		**59**	**147**	**52**	**60**	**139**	**93**	**106**	**136**	**97**	**70**
S.E. of Mean		0.69	0.39	0.30	0.92	1.05	0.65	1.27	0.39	5.36	1.99
L.S.D. at 5% for:											
Checks		2.72	1.51	1.19	3.58	4.14	2.56	4.98	1.51	21.06	7.80
T.E. in the same block		4.72	2.62	2.07	6.21	7.17	4.44	8.63	2.62	36.47	13.50
T.E. in different blocks		5.45	3.02	2.39	7.17	8.28	5.12	9.97	3.02	42.14	15.59
Checks Vs test entries		4.45	2.47	1.95	5.85	6.76	4.18	8.14	2.47	34.39	12.73
C.V. %		2 .05	0.45	1.02	2.63	1.31	1.37	2.12	0.49	9.56	4.94

Cont'd. ...

Table 5.3.2. Cont'd. ...

Selection	ILL	MEXICO	MOROCCO	NEPAL	PAKISTAN			PORTUGAL	SPAIN	SYRIA	
		Sonora	Marchouch	Khumaltar	Faisalabad	Quetta-1	Quetta-2	Elvas	El Encin	Guelma	Heimo
78S 26024(23)	5593	104	120	143	121	87	151	133	151	118	144
FLIP 84- 71L	5741	105	120	146	123	87	148	133	148	122	144
FLIP 84- 74L	5744	102	125	140	119	86	153	128	152	121	143
FLIP 84-144L	5814	107	123	141	123	88	152	127	153	120	146
FLIP 84-149L	5818	101	119	129	119	84	148	124	153	118	143
FLIP 84-156L	5825	93	122	130	122	84	150	127	152	120	143
FLIP 85- 1L	5839	67	121	139	123	88	149	128	159	123	146
FLIP 85- 7L	5845	109	121	147	118	87	151	133	151	121	144
FLIP 86- 3L	5989	89	112	144	118	82	151	124	149	114	146
FLIP 86- 5L	5991	90	115	131	114	79	151	119	147	115	143
FLIP 86- 8L	5994	83	115	148	107	79	149	127	148	118	143
FLIP 86- 10L	5996	90	112	135	122	82	154	121	149	114	146
FLIP 86- 12L	5998	64	106	139	81	78	152	106	150	114	129
FLIP 86- 13L	5999	67	106	143	81	77	150	106	152	113	136
FLIP 86- 15L	6001	68	107	130	82	75	152	106	145	113	132
FLIP 86- 16L	6002	66	105	143	80	80	148	130	153	113	136
FLIP 86- 18L	6004	66	105	138	80	74	149	133	154	113	137
FLIP 86- 19L	6005	65	105	135	84	79	153	106	149	114	138
FLIP 86- 21L	6007	65	105	134	83	79	150	106	146	111	135
FLIP 87- 1L	6191	91	114	122	118	88	151	127	152	121	146
FLIP 87- 2L	6192	91	117	152	117	85	149	133	152	119	144
FLIP 87- 3L	6193	104	117	148	115	87	153	112	150	119	144
FLIP 87- 4L	6194	93	122	127	119	86	151	127	154	119	143
FLIP 87- 5L	6195	73	118	139	118	88	150	127	153	122	146
FLIP 87- 6L	6196	92	123	141	121	84	150	127	154	117	143
FLIP 87- 7L	6197	68	115	146	104	79	151	121	152	113	143
FLIP 87- 8L	6198	100	121	141	121	88	152	127	153	122	146
FLIP 87- 9L	6199	91	120	148	122	87	150	112	154	123	144

Table 5.3.2. Cont'd. ...

Selection	ILL	MEXICO	MOROCCO	NEPAL	PAKISTAN			PORTUGAL	SPAIN	SYRIA	
		Sonora	Marchouch	Khumaltar	Faisalabad	Quetta-1	Quetta-2	Elvas	El Encin	Guelma	Heimo
FLIP 87- 10L	6200	93	120	146	121	87	150	112	152	121	144
FLIP 87- 11L	6201	83	122	148	122	86	148	128	154	124	143
FLIP 87- 12L	6202	101	112	150	121	84	149	124	152	113	143
FLIP 87- 13L	6203	104	120	151	117	83	153	130	150	117	144
FLIP 87- 14L	6024	102	118	139	117	88	151	127	150	115	146
FLIP 87- 15L	6205	87	122	136	106	84	151	127	148	117	143
FLIP 87- 16L	6206	90	112	150	120	82	153	124	149	113	146
FLIP 87- 17L	6207	84	107	129	117	81	150	112	153	120	144
FLIP 87- 18L	6208	64	114	124	81	78	151	106	148	113	129
FLIP 87- 19L	6209	72	108	129	83	77	149	106	151	112	131
FLIP 87- 20L	6210	64	106	139	82	78	151	106	152	113	136
FLIP 87- 21L	6211	74	109	133	84	80	151	133	153	111	136
FLIP 87- 22L	6212	66	105	151	80	74	151	133	149	112	136
FLIP 87- 23L	6213	66	105	146	82	76	151	130	153	113	131
Local	4400	105	122	141	123	87	149	122	152	125	145
Precoz	4605	73	105	149	83	78	148	115	149	111	131
Local Check	-	80	128	138	93	83	150	120	162	117	-
Location Mean		**85**	**115**	**140**	**106**	**83**	**150**	**122**	**152**	**117**	**141**
S.E. of Mean		2.19	0.61	4.05	0.51	0.69	0.61	7.81	0.87	0.65	1.25
L.S.D. at 5% for:											
Checks		8.58	2.39	15.91	2.00	2.72	2.39	30.66	3.42	2.56	7.59
T.E. in the same block		14.86	4.14	27.56	3.46	4.72	4.14	53.10	5.92	4.44	13.14
T.E. in different blocks		17.16	4.78	31.82	4.00	5.45	4.78	61.32	6.84	5.12	16.10
Checks Vs test entries		14.01	3.90	25.98	3.26	4.45	3.90	50.07	5.59	4.18	13.15
C.V. %		4.46	0.92	5.01	0.84	1.46	0.70	11.13	1.00	0.97	1.53

Cont'd. ...

Table 5.3.2. Cont'd. ...

Selection	ILL	SYRIA			TURKEY					(1) Overall Mean
		Idleb	Izra'a	Tel Hadya	Haymana	Ankara	Diyarbakir	Erzurum	Urfa	
78S 26024(23)	5593	130	129	162	74	214	93	76	160	116
FLIP 84- 71L	5741	134	130	165	74	214	96	74	159	115
FLIP 84- 74L	5744	134	126	165	75	213	96	76	154	118
FLIP 84-144L	5814	134	127	166	74	216	95	77	159	119
FLIP 84-149L	5818	131	132	162	74	215	93	72	160	116
FLIP 84-156L	5825	135	129	162	75	213	96	72	163	116
FLIP 85- 1L	5839	131	130	163	76	213	98	75	161	112
FLIP 85- 7L	5845	132	128	165	72	214	93	76	160	117
FLIP 86- 3L	5989	130	127	160	74	216	95	73	160	113
FLIP 86- 5L	5991	131	130	160	73	212	93	74	154	112
FLIP 86- 8L	5994	131	124	160	72	212	90	74	160	113
FLIP 86- 10L	5996	130	123	160	76	214	95	73	159	113
FLIP 86- 12L	5998	126	124	158	76	213	95	73	157	106
FLIP 86- 13L	5999	130	125	158	75	210	95	75	160	107
FLIP 86- 15L	6001	127	125	155	72	212	93	74	162	106
FLIP 86- 16L	6002	128	124	157	73	211	90	76	158	108
FLIP 86- 18L	6004	126	126	154	71	211	93	76	155	107
FLIP 86- 19L	6005	126	124	155	73	213	93	76	155	106
FLIP 86- 21L	6007	127	124	155	73	212	93	72	155	105
FLIP 87- 1L	6191	133	129	166	75	210	92	73	160	116
FLIP 87- 2L	6192	131	128	165	73	214	93	76	159	117
FLIP 87- 3L	6193	132	129	165	74	211	93	74	160	115
FLIP 87- 4L	6194	132	128	165	75	215	93	72	160	117
FLIP 87- 5L	6195	133	125	165	75	214	95	77	158	116
FLIP 87- 6L	6196	136	132	165	72	212	90	74	160	116
FLIP 87- 7L	6197	131	131	160	73	215	96	74	162	111
FLIP 87- 8L	6198	133	125	165	77	215	95	73	158	117
FLIP 87- 9L	6199	134	127	166	74	212	93	74	159	118

Table 5.3.2. Cont'd. ...

Selection	ILL	SYRIA			TURKEY					(1) Overall Mean
		Idleb	Izra'a	Tel Hadya	Haymana	Ankara	Diyarbakir	Erzurum	Urfa	
FLIP 87- 10L	6200	134	126	164	74	214	93	74	158	117
FLIP 87- 11L	6201	135	129	165	74	213	96	74	162	117
FLIP 87- 12L	6202	130	127	162	74	213	93	76	160	113
FLIP 87- 13L	6203	134	126	164	73	212	93	74	157	117
FLIP 87- 14L	6024	134	126	166	74	216	95	79	159	117
FLIP 87- 15L	6205	131	126	160	74	212	96	74	160	114
FLIP 87- 16L	6206	131	129	161	74	214	92	73	160	114
FLIP 87- 17L	6207	128	127	160	72	212	90	74	157	112
FLIP 87- 18L	6208	126	125	156	74	213	92	73	157	105
FLIP 87- 19L	6209	126	122	160	76	216	-	77	159	108
FLIP 87- 20L	6210	126	125	156	77	214	95	73	161	108
FLIP 87- 21L	6211	126	124	155	73	214	93	76	158	110
FLIP 87- 22L	6212	126	125	155	73	213	96	74	155	106
FLIP 87- 23L	6213	128	126	155	73	212	90	78	155	108
Local	4400	133	129	165	74	211	95	74	160	118
Precoz	4605	127	124	154	73	214	94	75	157	107
Local Check	-	133	126	160	74	214	94	75	-	
Location Mean		**130**	**127**	**161**	**74**	**213**	**92**	**75**	**159**	
S.E. of Mean		0.77	0.93	0.56	0.30	0.73	1.16	1.02	1.47	
L.S.D. at 5% for:										
Checks		3.02	3.66	2.20	1.19	2.88	4.53	4.00	8.96	
T.E. in the same block		5.23	6.34	3.82	2.07	4.98	7.85	6.92	15.51	
T.E. in different blocks		6.04	7.32	4.41	2.39	5.75	9.07	8.00	19.00	
Checks Vs test entries		4.94	5.98	3.60	1.95	4.70	7.40	6.53	15.52	
C.V. %		1.02	1.22	0.61	0.72	0.60	2.17	2.37	1.61	

(1) Cunchibamba, Jubeiha, Mymensingh, New Delhi, Debre Zeit and Diyarbakir were excluded from the overall mean.
T.E. = Test entries.

Table 5.3.3. Adjusted time to maurity (days) of entries at different locations in the LISN-L during 1986/87.

Selection	ILL	ALGERIA		AUSTRALIA	BANGLADESH	CHILE	ECUADOR	IRAN		
		Khroub	Setif	Horsham	Mymensingh	Chillan	Cunchibamba	Ghazvin	Hamadan	Karaj-1
78S 26024(23)	5593	161	187	146	NM	171	-	79	101	87
FLIP 84- 71L	5741	163	186	144	NM	170	221	81	101	93
FLIP 84- 74L	5744	169	185	144	NM	175	213	80	100	90
FLIP 84-144L	5814	164	185	142	NM	175	-	76	103	93
FLIP 84-149L	5818	160	182	147	NM	175	-	79	95	90
FLIP 84-156L	5825	162	186	149	NM	175	197	81	94	90
FLIP 85- 1L	5839	160	178	144	133	175	-	77	104	89
FLIP 85- 7L	5845	170	186	151	NM	170	171	77	98	89
FLIP 86- 3L	5989	162	173	144	132	171	171	79	97	89
FLIP 86- 5L	5991	166	176	142	NM	175	160	76	93	86
FLIP 86- 8L	5994	167	176	154	NM	175	-	73	94	85
FLIP 86- 10L	5996	161	176	142	131	169	171	75	97	86
FLIP 86- 12L	5998	163	179	139	110	175	148	77	97	87
FLIP 86- 13L	5999	166	182	144	128	171	138	80	105	88
FLIP 86- 15L	6001	167	176	134	103	175	160	73	92	81
FLIP 86- 16L	6002	170	182	146	105	170	138	77	99	85
FLIP 86- 18L	6004	169	179	141	110	170	148	78	91	89
FLIP 86- 19L	6005	167	176	139	102	175	139	77	90	88
FLIP 86- 21L	6007	162	175	137	111	170	152	73	97	83
FLIP 87- 1L	6191	163	179	149	NM	175	-	81	105	89
FLIP 87- 2L	6192	168	185	146	NM	170	185	78	93	92
FLIP 87- 3L	6193	168	182	151	NM	170	185	78	95	88
FLIP 87- 4L	6194	162	181	147	NM	175	197	80	91	90
FLIP 87- 5L	6195	163	182	142	NM	175	171	75	103	86
FLIP 87- 6L	6196	169	185	156	NM	175	-	80	97	86
FLIP 87- 7L	6197	169	186	156	115	175	-	74	96	89
FLIP 87- 8L	6198	159	181	149	NM	175	185	78	97	89
FLIP 87- 9L	6199	162	186	146	NM	170	-	82	101	93

Table 5.3.3. Cont'd. ...

Selection	ILL	ALGERIA		AUSTRALIA	BANGLADESH	CHILE	ECUADOR	IRAN		
		Khroub	Setif	Horsham	Mymensingh	Chillan	Cunchibamba	Ghazvin	Hamadan	Karaj-1
FLIP 87- 10L	6200	168	185	144	NM	170	221	79	105	93
FLIP 87- 11L	6201	167	185	149	NM	175	197	78	98	89
FLIP 87- 12L	6202	164	179	144	NM	175	-	75	94	90
FLIP 87- 13L	6203	166	181	144	NM	169	221	81	97	89
FLIP 87- 14L	6024	164	182	139	NM	171	-	76	100	86
FLIP 87- 15L	6205	165	176	144	NM	175	-	78	98	84
FLIP 87- 16L	6206	162	174	139	130	169	171	76	96	89
FLIP 87- 17L	6207	168	179	144	116	170	185	77	91	81
FLIP 87- 18L	6208	158	177	139	107	170	127	75	96	84
FLIP 87- 19L	6209	164	178	139	109	177	148	74	98	84
FLIP 87- 20L	6210	161	179	144	129	175	141	77	96	93
FLIP 87- 21L	6211	170	186	141	109	175	141	76	92	91
FLIP 87- 22L	6212	168	186	141	NM	169	148	80	97	89
FLIP 87- 23L	6213	162	177	138	140	171	148	82	100	93
Local	4400	163	185	150	-	175	213	80	99	92
Precoz	4605	159	174	133	105	169	131	74	95	85
Local Check	-	168	186	165	96	175	225	77	98	89
Location Mean		**165**	**181**	**145**	**116**	**173**	**186**	**77**	**97**	**88**
S.E. of Mean		0.90	1.05	0.96	2.16	0.19	6.93	0.88	1.26	2.32
L.S.D. at 5% for:										
Checks		3.54	4.14	3.78	13.14	0.76	27.20	3.46	4.95	9.10
T.E. in the same block		6.14	7.17	6.54	22.77	1.31	47.10	6.00	8.58	15.76
T.E. in different locks		7.09	8.28	7.55	27.88	1.51	54.39	6.92	9.91	18.19
Checks Vs test entries		5.79	6.76	6.17	22.77	1.23	44.42	5.65	8.09	14.86
C.V. %		0.95	1.01	1.15	6.58	0.19	10.85	1.97	2.25	4.54

Cont'd. ...

Table 5.3.3. Cont'd. ...

Selection	ILL	IRAN		IRAQ	INDIA	JORDAN	LEBANON	LIBYA	MEXICO	
		Karaj-2	Oroumieh	Dohuk	New Delhi	Jubeiha	Terbol	Tagura	Culiacan	Sonora
78S 26024(23)	5593	91	174	179	171	161	176	182	134	140
FLIP 84- 71L	5741	97	169	181	33	164	178	181	135	152
FLIP 84- 74L	5744	96	174	181	123	161	179	176	136	148
FLIP 84-144L	5814	96	167	178	-	160	180	175	136	144
FLIP 84-149L	5818	95	171	181	123	161	177	181	135	149
FLIP 84-156L	5825	97	174	181	-	-	177	180	135	149
FLIP 85- 1L	5839	90	169	177	-	163	180	171	135	146
FLIP 85- 7L	5845	92	169	179	173	167	176	179	135	146
FLIP 86- 3L	5989	89	172	177	131	164	176	180	127	138
FLIP 86- 5L	5991	92	174	175	-	157	175	178	134	143
FLIP 86- 8L	5994	90	171	175	128	161	175	178	131	149
FLIP 86- 10L	5996	91	172	177	128	154	176	179	127	140
FLIP 86- 12L	5998	90	167	179	-	160	176	159	123	134
FLIP 86- 13L	5999	90	172	177	128	164	178	161	130	134
FLIP 86- 15L	6001	90	169	175	115	161	169	157	121	138
FLIP 86- 16L	6002	97	171	176	172	161	168	158	123	140
FLIP 86- 18L	6004	90	169	181	171	165	170	158	117	146
FLIP 86- 19L	6005	90	169	175	-	157	171	177	118	137
FLIP 86- 21L	6007	90	171	175	118	157	167	160	111	137
FLIP 87- 1L	6191	92	167	179	123	160	178	175	135	144
FLIP 87- 2L	6192	91	171	181	183	159	176	181	134	141
FLIP 87- 3L	6193	94	169	176	178	159	176	172	134	146
FLIP 87- 4L	6194	97	171	176	123	161	175	179	136	149
FLIP 87- 5L	6195	92	167	177	128	158	178	178	133	144
FLIP 87- 6L	6196	94	174	179	128	161	179	181	133	142
FLIP 87- 7L	6197	90	174	179	-	157	185	176	133	137
FLIP 87- 8L	6198	94	167	177	-	160	178	178	135	148
FLIP 87- 9L	6199	96	171	177	178	164	178	181	136	142

Table 5.3.3. Cont'd. ...

Selection	ILL	IRAN		IRAQ	INDIA	JORDAN	LEBANON	LIBYA	MEXICO	
		Karaj-2	Oroumieh	Dohuk	New Delhi	Jubeiha	Terbol	Tagura	Culiacan	Sonora
FLIP 87- 10L	6200	96	169	181	170	161	178	180	137	140
FLIP 87- 11L	6201	93	171	176	128	163	177	179	132	151
FLIP 87- 12L	6202	94	169	179	133	159	175	178	131	140
FLIP 87- 13L	6203	91	169	176	173	170	170	179	135	152
FLIP 87- 14L	6024	91	167	177	128	160	176	177	134	140
FLIP 87- 15L	6205	90	171	175	122	157	173	180	127	149
FLIP 87- 16L	6206	89	172	176	128	160	176	180	125	138
FLIP 87- 17L	6207	89	169	175	171	165	172	182	125	145
FLIP 87- 18L	6208	89	167	176	122	160	172	166	118	134
FLIP 87- 19L	6209	91	169	177	124	160	176	159	123	134
FLIP 87- 20L	6210	91	167	177	113	159	172	155	122	134
FLIP 87- 21L	6211	92	171	176	178	160	168	163	120	143
FLIP 87- 22L	6212	93	169	176	159	161	176	156	115	140
FLIP 87- 23L	6213	91	171	176	160	164	170	156	129	141
Local	4400	95	169	180	145	158	179	180	137	144
Precoz	4605	89	169	175	126	160	170	157	119	136
Local Check	-	96	175	179	139	161	184	178	134	141
Location Mean		**92**	**170**	**178**	**144**	**161**	**176**	**173**	**129**	**142**
S.E. of Mean		0.75	1.17	0.90	28.27	1.84	0.47	1.31	0.61	1.70
L.S.D. at 5% for:										
Checks		2.93	4.60	3.54	110.97	7.21	1.85	5.12	2.39	6.67
T.E. in the same block		5.07	7.96	6.14	192.21	12.48	3.21	8.87	4.14	11.56
T.E. in different blocks		5.85	9.19	7.09	221.94	14.41	3.70	10.25	4.78	13.34
Checks Vs test entries		4.78	7.51	5.79	181.24	11.77	3.02	8.37	3.90	10.90
C.V. %		1.40	1.19	0.88	43.57	2.02	0.47	1.31	0.82	2.07

Cont'd. ...

Table 5.3.3. Cont'd. ...

Selection	ILL	MOROCCO	NEPAL	PAKISTAN			PORTUGAL	SPAIN	SYRIA	
		Marchouch	Khumaltar	Faisalabad	Quetta-1	Quetta-2	Elvas	El Encin	Gelline	Heimo
78S 26024(23)	5593	158	198	164	190	113	183	185	153	177
FLIP 84- 71L	5741	158	198	164	188	113	183	181	154	174
FLIP 84- 74L	5744	159	190	164	192	115	183	188	165	179
FLIP 84-144L	5814	158	197	163	189	113	184	188	166	173
FLIP 84-149L	5818	155	195	160	188	113	183	190	165	179
FLIP 84-156L	5825	159	195	161	190	113	183	193	167	179
FLIP 85- 1L	5839	158	197	164	192	113	180	190	164	178
FLIP 85- 7L	5845	158	192	159	190	113	185	189	153	177
FLIP 86- 3L	5989	155	191	161	187	109	182	186	163	175
FLIP 86- 5L	5991	152	190	163	190	113	183	183	162	179
FLIP 86- 8L	5994	156	190	158	188	113	183	183	160	179
FLIP 86- 10L	5996	155	183	163	190	109	182	181	161	175
FLIP 86- 12L	5998	144	197	139	189	105	170	179	153	178
FLIP 86- 13L	5999	155	191	145	189	105	182	184	162	175
FLIP 86- 15L	6001	147	181	139	191	105	173	182	165	176
FLIP 86- 16L	6002	148	181	141	188	105	183	188	146	177
FLIP 86- 18L	6004	146	181	140	191	105	185	187	153	177
FLIP 86- 19L	6005	146	181	140	191	105	173	185	153	174
FLIP 86- 21L	6007	146	181	140	190	105	173	181	152	174
FLIP 87- 1L	6191	159	197	159	187	113	180	184	164	175
FLIP 87- 2L	6192	156	198	158	188	113	185	185	153	174
FLIP 87- 3L	6193	158	195	157	190	113	173	180	151	177
FLIP 87- 4L	6194	155	195	160	188	113	183	192	165	179
FLIP 87- 5L	6195	155	197	159	188	109	180	190	163	173
FLIP 87- 6L	6196	156	190	162	190	113	185	193	166	179
FLIP 87- 7L	6197	156	198	163	190	113	183	191	166	179
FLIP 87- 8L	6198	159	197	163	189	113	170	185	165	178
FLIP 87- 9L	6199	158	198	163	190	113	173	186	154	174

Table 5.3.3. Cont'd. ...

Selection	ILL	MOROCCO	NEPAL	PAKISTAN			PORTUGAL	SPAIN	SYRIA	
		Marchouch	Khumaltar	Faisalabad	Quetta-1	Quetta-2	Elvas	El Encin	Gelline	Heimo
FLIP 87- 10L	6200	158	198	162	188	113	183	184	150	174
FLIP 87- 11L	6201	156	181	165	188	113	185	191	164	176
FLIP 87- 12L	6202	152	180	162	190	113	183	188	163	176
FLIP 87- 13L	6203	158	198	158	191	113	185	183	154	174
FLIP 87- 14L	6024	152	197	158	189	113	180	181	165	178
FLIP 87- 15L	6205	158	181	158	190	113	183	185	158	176
FLIP 87- 16L	6206	155	197	162	189	109	180	181	161	175
FLIP 87- 17L	6207	156	192	158	190	113	173	185	153	174
FLIP 87- 18L	6208	146	180	139	189	105	170	182	156	175
FLIP 87- 19L	6209	148	197	143	187	105	170	186	158	175
FLIP 87- 20L	6210	146	180	142	189	105	170	188	156	178
FLIP 87- 21L	6211	146	192	142	188	105	185	184	152	174
FLIP 87- 22L	6212	146	181	140	190	105	183	179	150	174
FLIP 87- 23L	6213	146	181	142	190	105	183	184	150	177
Local	4400	158	192	161	190	113	179	185	162	176
Precoz	4605	145	188	142	189	105	175	187	149	174
Local Check	-	158	181	149	189	109	175	200	172	-
Location Mean		**154**	**190**	**154**	**190**	**110**	**179**	**186**	**159**	**176**
S.E. of Mean		0.81	5.44	1.05	0.84	0.00	3.85	1.71	5.30	1.03
L.S.D. at 5% for:										
Checks		3.16	21.36	4.14	3.29	0.00	15.11	6.71	20.78	6.25
T.E. in the same block		5.47	37.00	7.17	5.70	0.00	26.17	11.63	36.00	10.83
T.E. in different blocks		6.32	42.72	8.28	6.59	0.00	30.22	13.43	41.57	13.26
Checks Vs test entries		5.16	34.89	6.76	5.38	0.00	24.68	10.97	33.95	10.83
C.V. %		0.91	4.95	1.19	0.77	0.00	3.72	1.59	5.76	1.21

Cont'd. ...

Table 5.3.3. Cont'd. ...

Selection	ILL	SYRIA			TURKEY					(1) Overall Mean
		Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Erzurum	Eskisehir	Urfa	
78S 26024(23)	5593	169	173	202	235	101	111	100	186	152
FLIP 84- 71L	5741	171	172	202	237	104	110	103	186	153
FLIP 84- 74L	5744	171	172	203	239	103	115	103	182	154
FLIP 84-144L	5814	167	177	203	236	103	110	108	188	153
FLIP 84-149L	5818	171	174	201	238	99	110	101	187	153
FLIP 84-156L	5825	173	176	201	238	105	112	106	191	154
FLIP 85- 1L	5839	165	173	199	234	100	108	99	188	152
FLIP 85- 7L	5845	171	171	202	235	103	110	98	186	152
FLIP 86- 3L	5989	163	169	200	238	104	111	100	185	151
FLIP 86- 5L	5991	170	169	200	237	103	110	99	182	151
FLIP 86- 8L	5994	171	168	201	237	97	111	101	187	151
FLIP 86- 10L	5996	165	171	200	235	104	110	99	185	150
FLIP 86- 12L	5998	167	171	196	234	100	110	99	177	147
FLIP 86- 13L	5999	166	171	199	233	101	109	101	185	150
FLIP 86- 15L	6001	171	168	196	237	100	110	98	188	147
FLIP 86- 16L	6002	167	170	195	234	104	106	99	184	148
FLIP 86- 18L	6004	167	169	195	234	100	109	98	182	148
FLIP 86- 19L	6005	165	165	197	237	98	109	99	182	147
FLIP 86- 21L	6007	171	165	194	236	96	109	97	182	145
FLIP 87- 1L	6191	175	170	202	232	101	112	102	185	153
FLIP 87- 2L	6192	171	170	200	238	100	110	102	186	152
FLIP 87- 3L	6193	170	170	200	234	105	109	100	186	151
FLIP 87- 4L	6194	171	175	201	238	103	113	103	188	153
FLIP 87- 5L	6195	166	178	200	234	104	100	108	179	152
FLIP 87- 6L	6196	169	172	201	237	104	113	101	188	154
FLIP 87- 7L	6197	167	175	201	239	106	111	99	189	154
FLIP 87- 8L	6198	168	172	199	237	105	112	102	185	152
FLIP 87- 9L	6199	171	172	203	236	104	108	103	186	153

Table 5.3.3. Cont'd. ...

Selection	ILL	SYRIA			TURKEY					(1) Overall Mean
		Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Erzurum	Eskisehir	Urfa	
FLIP 87- 10L	6200	171	171	201	237	105	111	104	185	153
FLIP 87- 11L	6201	171	173	203	238	104	111	101	188	153
FLIP 87- 12L	6202	167	168	203	237	103	111	100	187	151
FLIP 87- 13L	6203	167	169	199	235	103	108	99	184	151
FLIP 87- 14L	6024	166	172	201	235	101	112	103	185	151
FLIP 87- 15L	6205	168	170	200	237	100	109	100	182	151
FLIP 87- 16L	6206	167	170	200	234	99	108	99	185	150
FLIP 87- 17L	6207	169	166	199	236	96	107	98	184	149
FLIP 87- 18L	6208	164	169	195	-	97	107	99	177	146
FLIP 87- 19L	6209	164	165	195	237	100	107	100	177	147
FLIP 87- 20L	6210	164	172	196	235	101	107	99	188	148
FLIP 87- 21L	6211	167	165	195	238	98	106	99	184	148
FLIP 87- 22L	6212	167	170	198	236	103	106	99	182	148
FLIP 87- 23L	6213	167	169	195	234	102	106	99	180	148
Local	4400	171	173	204	238	104	112	103	186	153
Precoz	4605	167	166	195	234	98	107	98	183	146
Local Check	-	170	172	200	237	103	112	101	-	
Location Mean		**168**	**171**	**199**	**237**	**102**	**110**	**101**	**184**	
S.E. of Mean		1.80	0.73	0.47	0.88	0.61	0.53	0.41	1.47	
L.S.D. at 5% for:										
Checks		7.05	2.88	1.85	3.46	2.39	2.07	1.60	8.96	
T.E. in the same block		12.20	4.98	3.21	6.00	4.14	3.58	2.78	15.51	
T.E. in different blocks		14.09	5.75	3.70	6.92	4.78	4.14	3.21	19.00	
Checks Vs test entries		11.51	4.70	3.02	5.65	3.90	3.38	2.62	15.52	
C.V. %		1.85	0.74	0.41	0.67	1.04	0.83	0.70	1.38	

(1) Cunchibamba, Jubeiha, Ankara, Mymensingh and New Delhi were excluded from the overall mean.
T.E. = Test entries.

Table 5.3.4. Adjusted plant height (cm) of entries at different locations in the LISN-L during 1986/87.

Selection	ILL	ALGERIA			AUSTRALIA	BANGLADESH	CHILE	ECUADOR	IRAN	
		Khroub	Setif	Sidi Bel-Abbes	Horsham	Mymensingh	Chillan	Cunchi-bamba	Ghazvin	Hamadan
78S 26024(23)	5593	37	24	29	33	-	27	40	17	21
FLIP 84- 71L	5741	37	28	27	33	-	40	34	20	28
FLIP 84- 74L	5744	38	30	31	31	34	31	31	20	24
FLIP 84-144L	5814	35	24	30	34	-	35	37	20	27
FLIP 84-149L	5818	35	27	29	34	4	39	25	15	25
FLIP 84-156L	5825	33	29	29	34	4	36	31	17	26
FLIP 85- 1L	5839	37	22	25	32	37	32	-	15	23
FLIP 85- 7L	5845	37	24	27	33	-	40	32	21	23
FLIP 86- 3L	5989	35	27	25	37	47	32	35	17	21
FLIP 86- 5L	5991	28	26	31	30	4	26	37	18	26
FLIP 86- 8L	5994	33	26	26	32	4	31	33	15	21
FLIP 86- 10L	5996	30	26	28	32	40	30	37	15	25
FLIP 86- 12L	5998	40	28	30	37	35	22	48	22	30
FLIP 86- 13L	5999	35	24	30	37	38	22	41	19	24
FLIP 86- 15L	6001	30	31	31	29	49	21	33	18	22
FLIP 86- 16L	6002	32	29	29	32	37	27	46	16	25
FLIP 86- 18L	6004	30	28	29	30	27	35	34	15	27
FLIP 86- 19L	6005	35	29	31	29	48	31	35	19	22
FLIP 86- 21L	6007	28	30	29	29	49	26	29	15	22
FLIP 87- 1L	6191	35	26	28	33	-	27	29	16	27
FLIP 87- 2L	6192	35	24	29	32	-	32	30	20	24
FLIP 87- 3L	6193	32	23	24	28	-	37	40	16	22
FLIP 87- 4L	6194	28	26	31	29	46	31	23	17	28
FLIP 87- 5L	6195	35	26	25	32	-	32	39	17	24
FLIP 87- 6L	6196	28	27	29	29	45	31	35	20	19
FLIP 87- 7L	6197	33	28	31	31	49	26	31	17	22
FLIP 87- 8L	6198	32	25	30	34	-	35	35	17	25
FLIP 87- 9L	6199	37	30	29	33	-	37	44	18	28

Selection	ILL	ALGERIA			AUSTRALIA	BANGLADESH	CHILE	ECUADOR	IRAN	
		Khroub	Setif	Sidi Bel-Abbes	Horsham	Mymensingh	Chillan	Cunchi-bamba	Ghazvin	Hamadan
FLIP 87- 10L	6200	37	29	27	30	-	37	30	21	31
FLIP 87- 11L	6201	33	26	31	33	4	26	39	17	23
FLIP 87- 12L	6202	33	28	26	35	40	31	31	17	23
FLIP 87- 13L	6203	32	27	29	28	-	37	28	15	23
FLIP 87- 14L	6024	32	27	25	42	-	22	28	15	20
FLIP 87- 15L	6205	30	27	31	29	4	24	27	15	23
FLIP 87- 16L	6206	35	26	30	37	34	32	37	16	23
FLIP 87- 17L	6207	27	24	29	28	30	37	34	18	27
FLIP 87- 18L	6208	32	24	25	37	34	22	33	20	21
FLIP 87- 19L	6209	35	26	25	34	37	17	39	15	27
FLIP 87- 20L	6210	37	24	30	36	34	25	33	18	29
FLIP 87- 21L	6211	32	24	27	28	28	32	38	17	27
FLIP 87- 22L	6212	30	28	29	33	-	37	36	18	28
FLIP 87- 23L	6213	37	30	29	30	51	37	40	20	30
Local	4400	37	26	27	34	-	34	32	17	25
Precoz	4605	28	26	26	26	38	26	32	17	23
Local Check	-	29	26	25	46	32	35	37	19	23
Location Mean		**33**	**26**	**28**	**33**	**39**	**31**	**35**	**17**	**25**
S.E. of Mean		1.61	1.02	0.71	1.95	1.51	1.75	2.53	1.12	1.50
L.S.D. at 5% for:										
Checks		6.32	4.00	2.78	7.67	9.21	6.86	9.92	4.41	5.90
T.E. in the same block		10.95	6.92	4.81	13.28	15.95	11.88	17.19	7.63	10.22
T.E. in different blocks		12.64	8.00	5.55	15.33	19.53	13.72	19.84	8.81	11.80
Checks Vs test entries		10.32	6.53	4.53	12.52	15.95	11.21	16.20	7.19	9.64
C.V. %		8.45	6.66	4.37	10.22	11.71	9.82	13.75	11.13	10.62

Cont'd ...

Table 5.3.4. Cont'd. ...

Selection	ILL	IRAN			IRAQ	JORDAN	LEBANON	LIBYA	MEXICO	
		Karaj-1	Karaj-2	Oroumieh	Dohuk	Jubeiha	Terbol	Tagura	Culiacan	Sonora
78S 26024(23)	5593	23	26	14	31	45	29	29	51	42
FLIP 84- 71L	5741	22	27	16	34	37	34	29	53	43
FLIP 84- 74L	5744	22	25	13	33	39	41	29	47	38
FLIP 84-144L	5814	19	25	20	35	35	36	31	44	34
FLIP 84-149L	5818	20	27	18	37	36	39	24	41	40
FLIP 84-156L	5825	19	27	16	35	-	33	24	45	37
FLIP 85- 1L	5839	19	22	16	32	35	33	26	48	43
FLIP 85- 7L	5845	22	27	13	34	32	29	29	58	43
FLIP 86- 3L	5989	24	22	14	32	39	33	26	40	34
FLIP 86- 5L	5991	24	25	11	34	44	36	24	48	40
FLIP 86- 8L	5994	21	21	12	35	39	33	26	57	36
FLIP 86- 10L	5996	22	22	15	33	30	36	21	49	36
FLIP 86- 12L	5998	30	24	17	30	44	39	31	40	44
FLIP 86- 13L	5999	27	26	22	32	40	36	21	32	42
FLIP 86- 15L	6001	25	28	13	34	39	36	26	38	43
FLIP 86- 16L	6002	23	29	14	33	29	29	29	51	46
FLIP 86- 18L	6004	23	27	14	32	36	34	26	39	42
FLIP 86- 19L	6005	25	29	12	38	36	36	19	42	44
FLIP 86- 21L	6007	22	28	16	30	33	31	24	38	41
FLIP 87- 1L	6191	20	23	15	30	38	33	31	43	39
FLIP 87- 2L	6192	26	22	16	32	41	31	24	47	38
FLIP 87- 3L	6193	21	22	14	31	44	31	26	48	40
FLIP 87- 4L	6194	20	28	16	38	31	39	24	40	38
FLIP 87- 5L	6195	23	24	18	33	35	33	28	43	39
FLIP 87- 6L	6196	27	26	15	33	39	39	24	58	43
FLIP 87- 7L	6197	24	27	15	36	39	36	19	41	36
FLIP 87- 8L	6198	22	21	17	33	44	36	26	40	43
FLIP 87- 9L	6199	21	26	15	30	42	34	34	54	36

Table 5.3.4. Cont'd. ...

Selection	ILL	IRAN			IRAQ	JORDAN	LEBANON	LIBYA	MEXICO	
		Karaj-1	Karaj-2	Oroumieh	Dohuk	Jubeiha	Terbol	Tagura	Culiacan	Sonora
FLIP 87- 10L	6200	22	24	17	34	40	37	29	53	40
FLIP 87- 11L	6201	23	24	13	36	41	31	24	41	42
FLIP 87- 12L	6202	24	26	15	33	39	39	29	45	39
FLIP 87- 13L	6203	22	23	11	32	34	29	29	47	36
FLIP 87- 14L	6024	22	26	14	34	40	39	26	44	37
FLIP 87- 15L	6205	21	23	12	35	39	36	19	49	39
FLIP 87- 16L	6206	19	22	17	31	38	33	26	37	35
FLIP 87- 17L	6207	25	23	17	37	37	31	26	53	46
FLIP 87- 18L	6208	21	24	17	27	35	31	26	38	43
FLIP 87- 19L	6209	26	26	14	29	38	29	26	50	41
FLIP 87- 20L	6210	18	25	18	32	48	39	36	42	38
FLIP 87- 21L	6211	29	26	16	33	37	31	24	46	43
FLIP 87- 22L	6212	27	22	13	33	39	31	29	47	45
FLIP 87- 23L	6213	31	25	17	32	44	34	29	56	38
Local	4400	20	23	16	32	38	36	30	42	41
Precoz	4605	23	23	12	30	39	28	27	41	45
Local Check	-	23	27	14	34	36	38	27	65	45
Location Mean		**23**	**25**	**15**	**33**	**38**	**34**	**27**	**46**	**41**
S.E. of Mean		1.19	1.93	0.77	0.81	2.25	1.51	1.52	2.99	0.65
L.S.D. at 5% for:										
Checks		4.69	7.55	3.02	3.16	8.83	5.92	5.97	11.74	2.56
T.E. in the same block		8.12	13.08	5.23	5.47	15.29	10.26	10.34	20.33	4.44
T.E. in different blocks		9.37	15.11	6.04	6.32	17.65	11.85	11.94	23.48	5.12
Checks Vs test entries		7.66	12.34	4.94	5.16	14.42	9.68	9.75	19.17	4.18
C.V. %		9.07	13.42	8.73	4.24	10.40	7.72	9.80	11.16	2.76

Cont'd. ...

Table 5.3.4. Cont'd. ...

Selection	ILL	MOROCCO	NEPAL	PAKISTAN			PORTUGAL	SPAIN	SYRIA	
		Marchouch	Khumaltar	Faisalabad	Quetta-1	Quetta-2	Elvas	El Encin	Guelma	Heimo
78S 26024(23)	5593	30	24	54	30	19	34	27	41	40
FLIP 84- 71L	5741	33	27	59	30	20	39	31	43	40
FLIP 84- 74L	5744	38	26	49	30	21	43	31	38	40
FLIP 84-144L	5814	36	31	43	31	18	45	33	50	46
FLIP 84-149L	5818	41	31	54	34	25	41	31	41	47
FLIP 84-156L	5825	39	26	49	38	25	41	35	41	40
FLIP 85- 1L	5839	32	24	40	34	19	40	31	52	41
FLIP 85- 7L	5845	38	29	56	20	21	46	31	50	41
FLIP 86- 3L	5989	33	27	56	31	19	47	34	47	41
FLIP 86- 5L	5991	41	25	53	30	21	41	27	37	43
FLIP 86- 8L	5994	41	26	51	29	21	46	27	36	44
FLIP 86- 10L	5996	30	27	50	25	21	45	32	55	44
FLIP 86- 12L	5998	39	27	49	34	23	37	34	51	42
FLIP 86- 13L	5999	31	24	38	31	22	30	30	50	36
FLIP 86- 15L	6001	37	31	50	24	25	38	29	45	40
FLIP 86- 16L	6002	31	28	63	27	22	39	35	49	40
FLIP 86- 18L	6004	32	29	46	27	20	39	30	34	35
FLIP 86- 19L	6005	35	36	47	27	21	38	31	37	40
FLIP 86- 21L	6007	39	29	43	27	24	38	25	37	42
FLIP 87- 1L	6191	35	27	54	34	18	35	28	43	33
FLIP 87- 2L	6192	29	28	56	32	19	34	31	36	40
FLIP 87- 3L	6193	34	30	55	25	18	34	30	38	36
FLIP 87- 4L	6194	35	26	52	29	24	43	33	43	40
FLIP 87- 5L	6195	33	28	52	34	20	50	28	41	41
FLIP 87- 6L	6196	41	26	50	31	21	41	33	37	44
FLIP 87- 7L	6197	24	31	56	30	24	38	31	45	40
FLIP 87- 8L	6198	32	28	52	37	21	37	30	46	38
FLIP 87- 9L	6199	35	32	53	23	20	36	34	46	40

Table 5.3.4. Cont'd. ...

Selection	ILL	MOROCCO	NEPAL	PAKISTAN			PORTUGAL	SPAIN	SYRIA	
		Marchouch	Khumaltar	Faisalabad	Quetta-1	Quetta-2	Elvas	El Encin	Guelma	Heimo
FLIP 87- 10L	6200	34	27	52	29	21	29	27	49	39
FLIP 87- 11L	6201	31	29	50	31	20	44	25	35	39
FLIP 87- 12L	6202	31	24	55	38	22	41	27	47	45
FLIP 87- 13L	6203	36	26	53	28	19	39	29	43	37
FLIP 87- 14L	6024	40	24	52	37	19	47	28	48	41
FLIP 87- 15L	6205	35	26	46	32	19	43	29	45	40
FLIP 87- 16L	6206	32	28	50	27	18	40	33	52	46
FLIP 87- 17L	6207	26	15	54	24	19	41	29	28	43
FLIP 87- 18L	6208	36	26	50	33	25	35	36	47	39
FLIP 87- 19L	6209	36	27	54	29	20	45	30	45	44
FLIP 87- 20L	6210	36	17	41	40	21	30	37	46	35
FLIP 87- 21L	6211	25	26	50	26	21	49	30	41	37
FLIP 87- 22L	6212	32	38	44	28	24	46	29	34	39
FLIP 87- 23L	6213	34	35	55	23	24	34	31	45	43
Local	4400	34	30	57	32	21	36	33	45	40
Precoz	4605	38	26	43	27	22	35	28	41	38
Local Check	-	35	27	49	32	20	37	36	41	-
Location Mean		**35**	**27**	**51**	**30**	**21**	**39**	**31**	**43**	**40**
S.E. of Mean		1.93	1.01	1.56	2.25	1.02	3.78	2.30	3.35	0.24
L.S.D. at 5% for:										
Checks		7.55	3.95	6.14	8.83	4.00	14.85	9.02	13.14	1.43
T.E. in the same block		13.08	6.84	10.63	15.29	6.92	25.72	15.62	22.76	2.48
T.E. in different blocks		15.11	7.90	12.27	17.65	8.00	29.70	18.04	26.28	3.04
Checks Vs tesst entries		12.34	6.45	10.02	14.42	6.53	24.26	14.73	21.46	2.48
C.V. %		9.58	6.36	5.35	12.97	8.40	16.70	12.93	13.46	1.02

Cont'd. ...

Table 5.3.4. Cont'd. ...

Selection	ILL	SYRIA			TURKEY					(1) Overall Mean
		Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Erzurum	Eskisehir	Urfa	
78S 26024(23)	5593	35	25	32	19	29	20	25	29	30
FLIP 84- 71L	5741	37	22	30	21	26	19	26	32	32
FLIP 84- 74L	5744	36	26	31	21	27	19	29	37	31
FLIP 84-144L	5814	36	28	31	22	24	21	25	34	32
FLIP 84-149L	5818	32	28	29	20	24	18	23	32	32
FLIP 84-156L	5825	33	29	29	23	26	20	28	29	31
FLIP 85- 1L	5839	34	35	31	20	23	19	20	32	30
FLIP 85- 7L	5845	35	38	30	22	27	18	26	27	32
FLIP 86- 3L	5989	28	25	27	21	21	20	19	30	30
FLIP 86- 5L	5991	36	27	29	17	27	18	25	33	30
FLIP 86- 8L	5994	37	31	29	19	24	18	20	28	30
FLIP 86- 10L	5996	31	25	31	22	24	20	21	28	30
FLIP 86- 12L	5998	33	43	36	19	31	24	26	34	33
FLIP 86- 13L	5999	32	27	29	25	26	20	25	31	29
FLIP 86- 15L	6001	32	31	29	21	27	17	25	28	30
FLIP 86- 16L	6002	32	31	30	21	29	21	23	31	32
FLIP 86- 18L	6004	30	23	30	21	25	19	23	27	29
FLIP 86- 19L	6005	34	26	29	17	25	18	24	28	30
FLIP 86- 21L	6007	34	27	25	19	27	19	21	33	29
FLIP 87- 1L	6191	34	25	31	21	28	21	24	29	30
FLIP 87- 2L	6192	35	31	30	22	24	18	26	29	30
FLIP 87- 3L	6193	30	24	25	21	24	21	22	27	29
FLIP 87- 4L	6194	34	28	29	20	27	18	25	31	31
FLIP 87- 5L	6195	33	28	31	19	25	20	21	30	31
FLIP 87- 6L	6196	29	28	29	18	29	20	23	27	31
FLIP 87- 7L	6197	29	27	29	22	26	18	24	26	30
FLIP 87- 8L	6198	28	28	31	18	25	20	20	30	30
FLIP 87- 9L	6199	37	23	35	21	27	20	25	27	32

Table 5.3.4. Cont'd. ...

Selection	ILL	SYRIA			TURKEY					(1) Overall Mean
		Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Erzurum	Eskisehir	Urfa	
FLIP 87- 19L	6200	37	21	30	23	24	20	26	30	31
FLIP 87- 11L	6201	37	36	31	18	25	17	22	27	30
FLIP 87- 12L	6202	32	27	30	22	25	19	24	31	31
FLIP 87- 13L	6203	32	28	29	21	25	18	25	23	29
FLIP 87- 14L	6024	31	29	26	18	26	22	23	29	31
FLIP 87- 15L	6205	34	30	28	19	25	19	22	25	29
FLIP 87- 16L	6206	31	25	31	20	23	20	19	28	30
FLIP 87- 17L	6207	33	39	25	16	24	18	22	29	30
FLIP 87- 18L	6208	28	47	31	-	24	20	23	31	30
FLIP 87- 19L	6209	31	29	30	20	27	21	20	24	30
FLIP 87- 20L	6210	41	43	31	21	28	21	21	31	31
FLIP 87- 21L	6211	32	35	25	21	26	20	21	23	30
FLIP 87- 22L	6212	33	24	30	21	24	21	25	26	31
FLIP 87- 23L	6213	31	32	30	24	28	19	26	30	32
Local	4400	36	26	28	23	28	21	25	32	31
Precoz	4605	29	25	26	19	23	18	23	23	28
Local Check	-	35	24	30	23	28	21	27	-	
Location Mean		**33**	**29**	**29**	**21**	**26**	**20**	**24**	**29**	
S.E. of Mean		1.07	1.35	1.43	0.74	1.72	0.51	0.84	1.25	
L.S.D. at 5% for:										
Checks		4.21	5.29	5.60	2.90	6.74	2.00	3.29	7.59	
T.E. in the same block		7.29	9.16	9.70	5.02	11.67	3.46	5.70	13.14	
T.E. in different blocks		8.41	10.58	11.21	5.79	13.47	4.00	6.59	16.10	
Checks Vs test entries		6.87	8.64	9.15	4.73	11.00	3.26	5.38	13.15	
C.V. %		5.61	8.15	8.42	7.00	11.50	4.51	6.14	7.45	

(1) Mymensingh, Cunchibamba, Jubeiha and Ankara were excluded from the overall mean.
T.E. = Test entries.

Table 5.3.5. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LISN-L during 1986/87.

Selection	ILL	ALGERIA				AUSTRALIA		BANGLADESH		CHILE		ECUADOR		IRAN			
		Khroub		Setif		Horsham		Mymensingh		Chillan		Cunchibamba		Ghazvin		Hamadan	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
78S 26024(23)	5593	1162	26	2944	13	4902	10	–	–	229	39	–	–	277	20	644	20
FLIP 84- 71L	5741	631	42	3744	3	4752	12	–	–	964	5	375	25	254	22	311	41
FLIP 84- 74L	5744	1241	20	2511	28	4252	26	127	24	535	23	–	–	232	27	467	34
FLIP 84-144L	5814	1001	34	3944	2	4746	13	–	–	560	21	–	–	58	42	222	44
FLIP 84-149L	5818	1210	25	2161	38	3592	41	–	–	609	17	–	–	277	21	600	25
FLIP 84-156L	5825	866	38	2861	16	4302	22	–	–	792	12	313	27	54	43	333	40
FLIP 85- 1L	5839	1282	19	3044	9	4236	27	136	17	1038	2	–	–	202	30	756	6
FLIP 85- 7L	5845	2756	1	1894	41	4852	11	–	–	1111	1	456	23	310	15	578	26
FLIP 86- 3L	5989	1220	23	2494	30	5066	8	136	15	596	19	1156	13	325	14	889	4
FLIP 86- 5L	5991	1741	9	1611	44	3902	30	–	–	388	32	1331	9	310	16	267	42
FLIP 86- 8L	5994	803	39	2361	31	4292	23	–	–	756	13	–	–	254	23	533	30
FLIP 86- 10L	5996	970	36	2694	23	5166	4	152	12	854	9	1138	15	214	29	422	38
FLIP 86- 12L	5998	1220	24	2794	19	4046	29	176	9	0	44	1469	7	114	38	689	16
FLIP 86- 13L	5999	1376	17	2994	11	4526	16	131	18	560	22	1269	11	0	45	0	45
FLIP 86- 15L	6001	1116	29	2561	25	2662	45	349	3	388	33	1075	16	332	13	733	8
FLIP 86- 16L	6002	600	43	2744	21	4332	21	136	14	155	40	1444	8	510	3	711	15
FLIP 86- 18L	6004	1069	32	2844	17	3402	42	15	27	560	20	1194	12	343	11	911	2
FLIP 86- 19L	6005	710	40	1761	42	3632	38	205	7	351	34	1525	6	432	7	600	24
FLIP 86- 21L	6007	991	35	1661	43	4092	28	109	25	388	31	1944	3	343	12	667	17
FLIP 87- 1L	6191	1845	8	3594	6	4396	18	–	–	413	29	–	–	47	44	489	33
FLIP 87- 2L	6192	2662	2	2744	20	4382	20	–	–	449	26	544	20	399	9	511	31
FLIP 87- 3L	6193	1631	12	2644	24	5072	7	–	–	817	10	1144	14	443	6	644	18
FLIP 87- 4L	6194	1147	27	2561	27	3632	37	163	10	976	4	313	27	65	40	467	35
FLIP 87- 5L	6195	1626	13	4294	1	4676	14	–	–	817	11	325	26	169	35	889	3
FLIP 87- 6L	6196	1053	33	2061	40	4382	19	215	6	425	28	–	–	243	24	733	9
FLIP 87- 7L	6197	2116	4	1561	45	2702	44	152	11	278	35	–	–	410	8	733	11
FLIP 87- 8L	6198	2001	6	3694	4	5016	9	–	–	707	14	181	29	58	41	622	22
FLIP 87- 9L	6199	1381	15	2194	36	5542	1	–	–	854	8	–	–	232	26	511	32

Table 5.3.5. Cont'd. ...

Selection	ILL	ALGERIA				AUSTRALIA		BANGLADESH		CHILE		ECUADOR		IRAN			
		Khroub		Setif		Horsham		Mymensingh		Chillan		Cunchibamba		Ghazvin		Hamadan	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 10L	6200	1850	7	2244	35	4402	17	-	-	1001	3	469	22	232	25	378	39
FLIP 87- 11L	6201	1241	21	2061	39	4262	24	-	-	241	38	475	21	299	18	733	12
FLIP 87- 12L	6202	647	41	3261	8	5472	2	272	5	682	15	-	-	554	1	733	10
FLIP 87- 13L	6203	2537	3	3544	7	4532	15	-	-	964	6	-	-	277	19	244	43
FLIP 87- 14L	6024	1657	11	2894	15	3706	34	-	-	155	41	-	-	225	28	556	27
FLIP 87- 15L	6205	1085	31	2561	26	3902	31	-	-	462	24	-	-	110	39	733	13
FLIP 87- 16L	6206	1282	18	2894	14	5146	5	141	13	964	7	1325	10	191	33	756	5
FLIP 87- 17L	6207	1725	10	3644	5	5332	3	-	-	633	16	-	-	465	4	444	37
FLIP 87- 18L	6208	1095	30	2494	29	3066	43	467	2	118	42	781	18	136	36	622	21
FLIP 87- 19L	6209	1376	16	2994	10	3766	33	196	8	0	45	1900	4	202	31	622	23
FLIP 87- 20L	6210	2063	5	2694	22	3606	39	136	16	0	43	1681	5	125	37	556	28
FLIP 87- 21L	6211	1506	14	2194	37	3812	32	-	-	266	37	2013	2	532	2	444	36
FLIP 87- 22L	6212	444	45	2244	34	3702	35	-	-	449	25	-	-	399	10	978	1
FLIP 87- 23L	6213	881	37	2794	18	3652	36	43	26	449	27	2400	1	299	17	644	19
Local	4400	1239	22	2950	12	5120	6	-	-	600	18	231	24	193	32	533	29
Precoz	4605	1125	28	2300	32	3600	40	499	1	270	36	823	17	189	34	711	14
Local Check	-	546	44	2283	33	4257	25	345	4	404	30	-	-	459	5	756	7
Location Mean		**1286**		**2669**		**4271**		**196**		**526**		**1029**		**264**		**596**	
S.E. of Mean		163.69		368.68		149.94		60.21		145.69		67.96		28.53		128.62	
L.S.D. at 5% for:																	
Checks		642.53		1447.17		588.55		366.32		571.88		413.48		111.98		504.87	
T.E. in S.B.		1112.89		2506.58		1019.39		634.48		990.52		716.16		193.96		874.46	
T.E. in D.B.		1285.06		2894.34		1177.09		777.07		1143.75		877.12		223.97		1009.74	
Checks Vs T.E.		1049.41		2363.58		961.24		634.57		934.01		716.27		182.90		824.57	
C.V. %		22.06		23.93		6.08		88.60		48.96		17.68		18.71		37.46	
Test > L. Check		13		0		3		0		0		-		0		0	

Cont'd. ...

Table 5.3.5. Cont'd. ...

Selection	ILL	IRAN						IRAQ		INDIA		JORDAN		LEBANON		LIBYA	
		Karaj-1		Karaj-2		Oroumieh		Dohuk		New Delhi		Jubeiha		Terbol		Tagura	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
78S 26024(23)	5593	1215	7	1243	13	259	16	719	40	33	11	1075	10	1858	15	446	12
FLIP 84- 71L	5741	570	39	270	41	319	8	1719	23	-	-	75	39	1302	38	639	7
FLIP 84- 74L	5744	737	31	1025	19	418	3	3163	1	0	18	974	13	1302	39	31	42
FLIP 84-144L	5814	370	42	1351	10	217	23	2319	7	-	-	760	24	1173	41	383	18
FLIP 84-149L	5818	859	26	1424	7	381	4	1563	25	0	18	79	36	1914	12	545	10
FLIP 84-156L	5825	670	33	1406	9	156	32	563	43	-	-	0	45	969	43	87	36
FLIP 85- 1L	5839	1126	10	597	31	351	7	2319	8	0	18	4283	2	1506	29	349	21
FLIP 85- 7L	5845	426	40	586	34	557	1	1985	17	33	10	0	44	1636	23	266	26
FLIP 86- 3L	5989	937	22	711	27	112	39	2385	5	0	18	760	23	2617	2	323	22
FLIP 86- 5L	5991	693	32	752	25	80	42	2096	13	-	-	1203	7	1969	8	423	15
FLIP 86- 8L	5994	1193	9	744	26	226	21	1563	26	0	18	65	40	1636	24	18	45
FLIP 86- 10L	5996	581	38	637	28	140	35	1919	18	45	6	703	27	2840	1	356	20
FLIP 86- 12L	5998	1204	8	365	39	187	27	985	35	-	-	1179	8	1506	28	307	23
FLIP 86- 13L	5999	637	35	1064	17	147	34	1919	19	0	18	731	26	1062	42	84	37
FLIP 86- 15L	6001	204	43	256	42	76	44	496	45	0	18	174	33	1469	32	29	43
FLIP 86- 16L	6002	404	41	462	37	176	29	852	38	33	16	751	25	1414	33	235	28
FLIP 86- 18L	6004	637	34	595	32	124	38	1119	33	33	8	351	31	1636	21	62	40
FLIP 86- 19L	6005	870	25	153	45	246	17	963	36	-	-	32	43	1947	10	23	44
FLIP 86- 21L	6007	1315	6	160	44	192	25	683	41	0	18	79	37	1691	20	111	35
FLIP 87- 1L	6191	1115	11	543	36	221	22	1385	28	0	18	779	22	1562	27	189	32
FLIP 87- 2L	6192	1093	12	1551	4	293	13	2319	9	33	13	1628	5	1858	14	973	1
FLIP 87- 3L	6193	1004	15	544	35	357	6	2252	10	33	14	1056	11	1802	19	253	27
FLIP 87- 4L	6194	1426	3	1070	16	304	10	2163	11	0	18	165	34	1469	31	171	33
FLIP 87- 5L	6195	1393	4	1495	6	272	15	1252	30	-	-	817	20	2173	5	443	14
FLIP 87- 6L	6196	1348	5	1072	14	289	14	2630	3	0	18	122	35	2547	3	631	8
FLIP 87- 7L	6197	993	18	886	22	58	45	496	44	-	-	879	17	858	45	225	30
FLIP 87- 8L	6198	937	23	1573	3	239	19	2119	12	0	18	664	29	2062	6	728	4
FLIP 87- 9L	6199	115	44	1542	5	311	9	1852	20	33	15	47	41	2191	4	639	6

Table 5.3.5. Cont'd. ...

Selection	ILL	IRAN						IRAQ		INDIA		JORDAN		LEBANON		LIBYA	
		Karaj-1		Karaj-2		Oroumieh		Dohuk		New Delhi		Jubeiha		Terbol		Tagura	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 10L	6200	593	36	1247	12	296	12	1452	27	-	-	1104	9	1414	34	491	11
FLIP 87- 11L	6201	1004	14	1777	1	241	18	2363	6	0	18	79	38	1858	17	801	3
FLIP 87- 12L	6202	1493	2	1070	15	444	2	2030	15	0	18	1279	6	1914	11	445	13
FLIP 87- 13L	6203	993	20	920	21	367	5	1985	16	-	-	180	32	1858	13	679	5
FLIP 87- 14L	6024	793	29	1421	8	159	31	1785	21	-	-	903	14	1340	36	937	2
FLIP 87- 15L	6205	904	24	801	23	192	26	1030	34	227	4	803	21	1858	16	405	17
FLIP 87- 16L	6206	593	37	1013	20	169	30	2652	2	55	5	701	28	951	44	407	16
FLIP 87- 17L	6207	1004	16	1035	18	299	11	1585	24	33	12	7570	1	1969	7	197	31
FLIP 87- 18L	6208	1704	1	211	43	92	41	1785	22	-	-	1779	4	1840	18	159	34
FLIP 87- 19L	6209	1004	17	449	38	77	43	852	37	-	-	874	18	1340	35	79	38
FLIP 87- 20L	6210	804	28	592	33	176	28	1252	31	345	2	2693	3	1562	26	563	9
FLIP 87- 21L	6211	104	45	612	30	132	37	1119	32	33	9	999	12	1636	22	61	41
FLIP 87- 22L	6212	993	19	614	29	149	33	852	39	-	-	894	16	1947	9	286	25
FLIP 87- 23L	6213	1081	13	764	24	133	36	585	42	278	3	32	42	1191	40	64	39
Local	4400	815	27	1274	11	238	20	2489	4	20	21	898	15	1315	37	378	19
Precoz	4605	970	21	316	40	104	40	1378	29	37	7	541	30	1500	30	293	24
Local Check	-	748	30	1677	2	204	24	2089	14	583	1	825	19	1593	25	228	29
Location Mean		**877**		**910**		**221**		**1666**		**60**		**905**		**1644**		**338**	
S.E. of Mean		259.87		165.02		46.08		287.46		53.94		321.99		146.79		121.46	
L.S.D. at 5% for:																	
Checks		1020.05		647.73		180.86		1128.36		211.74		1263.88		576.20		476.76	
T.E. in S.B.		1766.77		1121.90		313.26		1954.38		366.74		2189.11		998.00		825.77	
T.E. in D.B.		2040.09		1295.46		361.72		2256.72		423.47		2527.77		1152.39		953.52	
Checks Vs T.E.		1665.98		1057.90		295.38		1842.88		345.82		2064.22		941.07		778.67	
C.V. %		51.32		31.41		36.10		29.88		159.10		62.03		15.46		62.25	
Test > L. Check		0		0		1		0		0		2		3		0	

Cont'd. ...

Table 5.3.5. Cont'd. ...

Selection	ILL	MEXICO				MOROCCO		NEPAL		PAKISTAN						PORTUGAL	
		Culiacan		Sonora		Marchouch		Khumaltar		Faisalabad		Quetta-1		Quetta-2		Elvas	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
78S 26024(23)	5593	1545	10	2395	7	1456	10	61	16	270	35	908	33	211	36	1910	26
FLIP 84- 71L	5741	621	42	840	40	981	31	61	17	219	37	988	29	101	44	2252	19
FLIP 84- 74L	5744	498	44	1099	34	606	40	0	40	240	36	738	40	207	37	2552	8
FLIP 84-144L	5814	893	29	173	45	714	37	18	32	292	33	1374	14	160	42	1571	34
FLIP 84-149L	5818	695	39	1987	13	331	43	0	43	307	32	1748	5	334	22	2294	18
FLIP 84-156L	5825	830	33	1099	35	306	44	0	44	57	43	1618	8	389	18	3202	2
FLIP 85- 1L	5839	1234	19	2284	8	639	39	18	31	30	45	1714	6	271	26	1688	31
FLIP 85- 7L	5845	1291	17	840	41	1181	21	61	20	542	21	838	36	249	30	3085	3
FLIP 86- 3L	5989	1567	9	2061	12	1264	19	18	30	583	19	2314	1	455	14	2563	7
FLIP 86- 5L	5991	1347	15	1765	19	1106	29	0	42	487	22	1548	9	375	20	2760	5
FLIP 86- 8L	5994	1247	18	1599	25	1306	18	41	27	404	27	1278	16	573	5	2169	20
FLIP 86- 10L	5996	1834	1	728	42	1114	26	18	33	691	15	1124	24	387	19	1863	28
FLIP 86- 12L	5998	1338	16	1950	16	1439	11	18	34	402	28	1484	11	648	3	1763	30
FLIP 86- 13L	5999	1014	28	1950	14	1389	15	38	28	582	20	1234	18	515	11	2355	16
FLIP 86- 15L	6001	1221	21	2543	5	–	–	41	26	1153	9	1278	15	572	6	2502	9
FLIP 86- 16L	6002	1171	24	4284	2	581	41	101	10	1466	4	598	44	455	15	2444	11
FLIP 86- 18L	6004	788	38	2062	11	1506	6	101	9	643	17	738	41	467	13	1485	37
FLIP 86- 19L	6005	1100	25	2543	6	1506	5	91	12	1202	8	1248	17	559	7	1544	36
FLIP 86- 21L	6007	1025	27	1876	17	1106	28	0	37	749	14	648	43	894	1	1335	40
FLIP 87- 1L	6191	816	36	1173	33	1139	25	108	7	395	30	2134	3	226	33	2321	17
FLIP 87- 2L	6192	847	31	1062	37	1481	8	61	19	405	26	1198	21	228	32	2502	10
FLIP 87- 3L	6193	1216	23	1618	23	1431	12	151	4	398	29	888	34	162	41	1169	42
FLIP 87- 4L	6194	1041	26	1321	30	331	42	241	1	289	34	1168	23	514	12	2402	15
FLIP 87- 5L	6195	1225	20	1506	26	814	36	58	22	892	11	2134	2	275	25	2405	13
FLIP 87- 6L	6196	1348	14	1876	18	956	32	0	41	139	41	858	35	270	27	1560	35
FLIP 87- 7L	6197	824	34	1321	31	931	33	0	39	473	23	938	30	214	35	1369	39
FLIP 87- 8L	6198	619	43	1950	15	1114	27	18	36	153	40	1954	4	391	17	1663	32
FLIP 87- 9L	6199	633	41	1284	32	1156	24	81	14	425	25	578	45	101	43	1019	44

Table 5.3.5. Cont'd. ...

Selection	ILL	MEXICO				MOROCCO		NEPAL		PAKISTAN						PORTUGAL	
		Culiacan		Sonora		Marchouch		Khumaltar		Faisalabad		Quetta-1		Quetta-2		Elvas	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 10L	6200	250	45	2173	9	1381	16	61	15	165	38	758	38	91	45	560	45
FLIP 87- 11L	6201	1650	7	1654	21	1231	20	0	38	436	24	1678	7	195	38	2035	24
FLIP 87- 12L	6202	1667	5	1376	29	1156	23	0	45	55	44	1188	22	284	24	1827	29
FLIP 87- 13L	6203	822	35	951	39	1031	30	61	18	351	31	1018	28	255	29	2727	6
FLIP 87- 14L	6024	877	30	505	44	814	35	18	29	156	39	1064	26	235	31	2105	22
FLIP 87- 15L	6205	1699	4	1488	27	1406	14	41	25	757	13	908	32	336	21	2069	23
FLIP 87- 16L	6206	1826	2	728	43	1339	17	108	6	611	18	1224	19	257	28	2405	14
FLIP 87- 17L	6207	1352	13	1395	28	1531	3	201	2	792	12	688	42	192	39	1244	41
FLIP 87- 18L	6208	1706	3	3784	3	1464	9	58	23	1639	1	1404	12	527	10	2121	21
FLIP 87- 19L	6209	1476	12	1728	20	1639	1	58	21	1126	10	914	31	188	40	1571	33
FLIP 87- 20L	6210	1615	8	1617	24	1414	13	18	35	1568	3	1494	10	545	8	1163	43
FLIP 87- 21L	6211	1664	6	1062	36	1506	7	81	13	1403	6	748	39	392	16	3027	4
FLIP 87- 22L	6212	799	37	2062	10	1531	4	101	8	660	16	788	37	614	4	3219	1
FLIP 87- 23L	6213	1217	22	951	38	1181	22	101	11	1284	7	1208	20	734	2	2435	12
Local	4400	673	40	1630	22	892	34	53	24	133	42	1033	27	222	34	1375	38
Precoz	4605	1504	11	2574	4	1533	2	200	3	1461	5	1073	25	543	9	2033	25
Local Check	-	840	32	4315	1	642	38	120	5	1594	2	1377	13	325	23	1881	27
Location Mean		**1127**		**1847**		**1118**		**58**		**676**		**1192**		**359**		**2002**	
S.E. of Mean		56.77		50.12		71.85		85.66		38.56		168.55		50.45		429.02	
L.S.D. at 5% for:																	
Checks		222.83		196.73		282.02		336.22		151.35		661.61		198.04		1684.03	
T.E. in S.B.		385.95		340.75		488.47		582.36		262.15		1145.93		343.01		2916.83	
T.E. in D.B.		445.66		393.46		564.04		672.45		302.70		1323.21		396.08		3368.06	
Checks Vs T.E.		363.93		321.31		460.61		549.14		247.19		1080.56		323.44		2750.43	
C.V. %		8.72		4.70		11.45		249.72		9.89		24.49		24.33		37.11	
Test > L. Check		22		0		28		0		0		0		2		0	

Cont'd. ...

Table 5.3.5. Cont'd. ...

Selection	ILL	SPAIN		SYRIA										TUNISIA	
		El Encin		Gelline		Heimo		Idleb		Izra'a		Tel Hadya		Beja	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
78S 26024(23)	5593	723	42	1378	30	2480	9	2098	1	1674	20	1266	4	1778	19
FLIP 84- 71L	5741	1726	12	1828	11	830	43	791	27	807	42	957	17	1378	24
FLIP 84- 74L	5744	1494	18	1794	12	3200	1	1099	12	2141	10	1231	6	2011	15
FLIP 84-144L	5814	1727	11	1878	7	850	42	720	31	1052	37	1238	5	1161	29
FLIP 84-149L	5818	995	32	1244	36	2550	7	843	22	1407	29	953	18	0	44
FLIP 84-156L	5825	1842	9	2694	1	2720	4	1283	7	4474	1	697	32	1811	17
FLIP 85- 1L	5839	609	45	1278	35	2570	6	1433	3	1719	19	982	16	2761	3
FLIP 85- 7L	5845	1447	19	878	43	2080	19	591	36	1407	30	1021	13	2128	12
FLIP 86- 3L	5989	826	36	1578	20	2110	16	609	35	1452	28	918	19	1161	33
FLIP 86- 5L	5991	9004	1	1494	25	1820	27	877	17	1607	24	1348	1	2111	14
FLIP 86- 8L	5994	921	35	1344	32	2000	21	1364	4	1607	23	857	23	1661	21
FLIP 86- 10L	5996	1188	24	1728	15	2210	13	1308	5	2252	8	1089	9	1161	35
FLIP 86- 12L	5998	809	38	1878	8	1270	35	359	45	785	43	374	42	1161	25
FLIP 86- 13L	5999	2102	3	1378	31	650	44	559	37	1385	32	395	40	1161	30
FLIP 86- 15L	6001	793	40	1894	5	2550	8	443	42	2274	6	815	25	0	45
FLIP 86- 16L	6002	720	43	1578	22	1810	28	377	44	3207	4	615	33	0	41
FLIP 86- 18L	6004	744	41	328	45	1270	36	624	33	1341	34	519	38	0	40
FLIP 86- 19L	6005	1094	26	1844	9	2020	20	970	16	2074	11	847	24	861	37
FLIP 86- 21L	6007	647	44	1644	18	1390	33	761	28	1874	13	409	39	961	36
FLIP 87- 1L	6191	1683	13	1578	24	950	40	864	19	1252	36	811	26	3361	1
FLIP 87- 2L	6192	1991	8	1278	34	870	41	1215	9	1807	16	1000	15	0	39
FLIP 87- 3L	6193	1677	15	2078	3	2660	5	872	18	2207	9	1085	10	2328	8
FLIP 87- 4L	6194	1253	21	1744	14	1400	32	698	32	807	41	889	22	2261	10
FLIP 87- 5L	6195	1681	14	1328	33	1990	22	1184	10	1652	22	1302	2	1161	27
FLIP 87- 6L	6196	982	33	594	44	1900	25	1292	6	1541	26	1017	14	2111	13
FLIP 87- 7L	6197	1058	28	894	42	1120	37	540	40	1007	38	302	45	1561	22
FLIP 87- 8L	6198	1317	20	1678	17	1900	26	743	29	519	45	1142	7	2661	5
FLIP 87- 9L	6199	1504	17	1778	13	2120	15	841	23	1341	35	754	29	2828	2

Table 5.3.5. Cont'd. ...

Selection	ILL	SPAIN		SYRIA										TUNISIA	
		El Encin		Gelline		Heimo		Idleb		Izra'a		Tel Hadya		Beja	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 10L	6200	2037	6	1228	37	2190	14	730	30	1007	39	776	27	2378	7
FLIP 87- 11L	6201	955	34	1394	28	1970	23	1000	15	1341	33	1295	3	1811	18
FLIP 87- 12L	6202	1066	27	1644	19	2720	3	1494	2	1541	27	1039	11	2261	11
FLIP 87- 13L	6203	822	37	1828	10	1540	29	614	34	1874	14	615	34	2678	4
FLIP 87- 14L	6024	1227	23	1928	4	2100	17	823	24	2252	7	736	30	1161	26
FLIP 87- 15L	6205	1134	25	2194	2	2300	12	1063	13	1941	12	911	20	1811	16
FLIP 87- 16L	6206	2096	4	1578	21	1930	24	791	26	1585	25	704	31	1161	28
FLIP 87- 17L	6207	797	39	1578	23	2310	11	1168	11	2541	5	1128	8	1378	23
FLIP 87- 18L	6208	2374	2	1678	16	1030	38	397	43	1852	15	555	37	1161	34
FLIP 87- 19L	6209	1665	16	928	41	1490	30	848	21	1719	18	342	44	1161	31
FLIP 87- 20L	6210	2014	7	1878	6	3070	2	854	20	4185	2	395	41	1161	32
FLIP 87- 21L	6211	1232	22	978	40	1430	31	473	41	1674	21	359	43	1678	20
FLIP 87- 22L	6212	1016	30	1128	39	1360	34	540	39	741	44	615	35	0	43
FLIP 87- 23L	6213	996	31	1378	29	1000	39	544	38	1741	17	776	28	0	42
Local	4400	1797	10	1167	38	2323	10	1029	14	911	40	900	21	2300	9
Precoz	4605	1033	29	1417	27	2087	18	804	25	1400	31	583	36	567	38
Local Check	-	2052	5	1450	26	-	-	1215	8	3511	3	1035	12	2617	6
Location Mean		1503		1491		1895		899		1767		836		1615	
S.E. of Mean		319.64		392.58		197.37		89.24		147.96		229.61		755.87	
L.S.D. at 5% for:															
Checks		1254.68		1540.99		1200.90		350.28		580.79		901.30		2967.00	
T.E. in S.B.		2173.17		2669.07		2080.01		606.70		1005.96		1561.09		5138.99	
T.E. in D.B.		2509.36		3081.97		2547.49		700.56		1161.59		1802.59		5934.00	
Checks Vs T.E.		2049.20		2516.80		2080.33		572.09		948.58		1472.03		4846.82	
C.V. %		36.85		45.60		18.04		17.20		14.50		47.57		90.00	
Test > L. Check		1		0		-		1		1		0		0	

Cont'd. ...

Table 5.3.5. Cont'd. ...

Selection	ILL	TUNISIA				TURKEY								(1) Overall Mean	
		El Kef		Oued Meliz		Haymana		Diyarbakir *		Erzurum		Urfa			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
78S 26024(23)	5593	1433	10	2756	1	151	29	-	-	397	38	1427	10	1386	11
FLIP 84- 71L	5741	1033	28	2356	13	214	26	-	-	477	30	1373	12	1141	35
FLIP 84- 74L	5744	1317	14	1989	28	985	3	2667	1	450	35	1860	3	1362	12
FLIP 84-144L	5814	1350	13	2156	19	989	2	2200	2	126	45	1433	9	1169	30
FLIP 84-149L	5818	867	30	789	45	110	31	-	-	730	7	1007	35	1141	34
FLIP 84-156L	5825	1067	27	1589	35	547	8	-	-	770	3	1007	34	1350	15
FLIP 85- 1L	5839	1800	3	1656	34	301	19	-	-	526	18	1300	16	1488	4
FLIP 85- 7L	5845	1283	18	2156	20	26	37	1933	5	344	40	1307	15	1281	21
FLIP 86- 3L	5989	1300	15	2556	7	364	15	-	-	766	4	1553	7	1431	6
FLIP 86- 5L	5991	1567	6	2389	12	197	27	-	-	584	13	1967	1	1618	1
FLIP 86- 8L	5994	1267	19	1289	42	0	42	-	-	530	17	1233	21	1190	29
FLIP 86- 10L	5996	1200	20	2556	8	489	11	-	-	819	2	1807	4	1388	10
FLIP 86- 12L	5998	650	39	2056	22	426	14	-	-	433	36	1060	29	1116	38
FLIP 86- 13L	5999	1200	21	1556	38	426	13	1333	4	499	25	1153	26	1156	32
FLIP 86- 15L	6001	517	42	1389	40	47	35	-	-	517	21	1153	25	1089	39
FLIP 86- 16L	6002	583	40	2456	11	0	45	-	-	264	43	640	42	1222	26
FLIP 86- 18L	6004	533	41	856	44	0	43	1700	11	477	29	1373	11	944	43
FLIP 86- 19L	6005	967	29	1489	39	47	34	-	-	530	16	900	40	1122	37
FLIP 86- 21L	6007	767	33	2189	17	0	41	-	-	570	14	1060	28	1048	41
FLIP 87- 1L	6191	1550	7	2256	15	834	4	1667	12	593	12	1060	30	1312	19
FLIP 87- 2L	6192	1083	26	2256	14	276	23	-	-	344	41	1493	8	1357	13
FLIP 87- 3L	6193	733	36	1856	32	276	24	2200	2	757	5	1040	31	1398	9
FLIP 87- 4L	6194	1917	2	1989	26	1172	1	-	-	757	6	1007	33	1212	28
FLIP 87- 5L	6195	800	32	2656	2	614	7	1800	9	419	37	1633	5	1509	3
FLIP 87- 6L	6196	-	-	1589	36	360	18	1867	6	477	32	1327	13	1256	22
FLIP 87- 7L	6197	1167	23	1389	41	297	22	-	-	544	15	967	38	921	44
FLIP 87- 8L	6198	1650	5	2256	16	676	6	1767	10	659	11	1233	22	1423	8
FLIP 87- 9L	6199	1283	17	1556	37	526	9	-	-	504	24	1293	18	1240	24

Table 5.3.5. Cont'd. ...

Selection	ILL	TUNISIA				TURKEY								Overall Mean (1)	
		El Kef		Oued Meliz		Haymana		Diyarbakir *		Erzurum		Urfa			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 10L	6200	1533	8	2456	10	151	30	-	-	504	22	1240	20	1215	27
FLIP 87- 11L	6201	1417	11	1989	27	172	28	-	-	490	26	1940	2	1338	17
FLIP 87- 12L	6202	1767	4	2189	18	235	25	-	-	517	20	553	43	1429	7
FLIP 87- 13L	6203	1483	9	2556	6	26	38	1667	12	517	19	960	39	1352	14
FLIP 87- 14L	6024	1200	22	2106	21	676	5	-	-	326	42	1580	6	1231	25
FLIP 87- 15L	6205	217	44	1889	31	0	40	-	-	717	8	287	44	1253	23
FLIP 87- 16L	6206	2000	1	2056	24	301	21	-	-	979	1	1140	27	1338	18
FLIP 87- 17L	6207	1133	24	1756	33	51	33	-	-	504	23	1187	23	1583	2
FLIP 87- 18L	6208	750	34	2056	23	364	17	-	-	473	33	980	36	1339	16
FLIP 87- 19L	6209	1100	25	2556	5	301	20	-	-	139	44	1313	14	1131	36
FLIP 87- 20L	6210	850	31	2656	3	364	16	1500	14	713	9	1300	17	1480	5
FLIP 87- 21L	6211	333	43	2556	4	1	39	-	-	384	39	1040	32	1156	33
FLIP 87- 22L	6212	733	35	956	43	26	36	1133	17	704	10	973	37	1039	42
FLIP 87- 23L	6213	683	38	1956	29	0	44	1367	15	477	31	1253	19	1052	40
Local	4400	1350	12	2033	25	488	12	1842	6	458	34	1156	24	1282	20
Precoz	4605	700	37	1900	30	92	32	-	-	484	28	818	41	1158	31
Local Check	-	1300	16	2533	9	500	10	1833	16	489	27	-	-		
Location Mean		**1103**		**2023**		**303**		**1780**		**522**		**1194**			
S.E. of Mean		88.19		177.43		207.24				55.39		58.20			
L.S.D. at 5% for:															
Checks		346.18		696.46		813.47				217.43		354.14			
T.E. in S.B.		599.59		1206.31		1408.98				376.60		613.38			
T.E. in D.B.		692.35		1392.92		1626.95				434.86		751.24			
Checks Vs T.E.		565.39		1137.49		1328.60				355.12		613.48			
C.V. %		13.85		15.20		113.44				18.40		8.44			
Test > L. Check		2		0		0				1		-			

(1) Mymensingh, Cunchibamba, New Delhi, Marchouch, Khumaltar, El Kef, Haymana and Diyarbakir were excluded from the overall mean. T.E. = Test entries, S.B. = Same block, D.B. = Different blocks.
* = Location not analysed and thus mean values are unadjusted.

Table 5.3.6. The five heaviest seed yielding entries at the individual locations in the LISN-L during 1986/87.

	ALGERIA		AUSTRALIA	BANGLADESH	CHILE	ECUADOR	IRAN			
Rank	Khroub	Setif	Horsham	Mymensingh	Chillan	Cunchibamba	Ghazvin	Hamadan	Karaj-1	Karaj-2
1	FLIP85- 7L	FLIP87- 5L	FLIP87- 9L	ILL 4400	FLIP85- 7L	FLIP87- 23L	FLIP87- 12L	FLIP87- 22L	FLIP87- 18L	FLIP87- 11L
2	FLIP87- 2L	FLIP84-144L	FLIP87- 12L	FLIP87- 18L	FLIP85- 1L	FLIP87- 21L	FLIP87- 21L	FLIP86- 18L	FLIP87- 12L	Local Check
3	FLIP87- 13L	FLIP84- 71L	FLIP87- 17L	FLIP86- 15L	FLIP87- 10L	FLIP86- 21L	FLIP86- 16L	FLIP87- 5L	FLIP87- 4L	FLIP87- 8L
4	FLIP87- 7L	FLIP87- 8L	FLIP86- 10L	ILL 4605	FLIP87- 4L	FLIP87- 19L	FLIP87- 17L	FLIP87- 3L	FLIP87- 5L	FLIP87- 2L
5	FLIP87- 20L	FLIP87- 17L	FLIP87- 16L	FLIP87- 12L	FLIP84- 71L	FLIP87- 20L	Local Check	FLIP87- 16L	FLIP87- 6L	FLIP87- 9L

Cont'd 2/..

Table 5.3.6. Cont'd. ...

	IRAN	IRAQ	INDIA	JORDAN	LEBANON	LIBYA	MEXICO		MOROCCO
Rank	Oroumieh	Dohuk	New Delhi	Juboiha	Terbol	Tagura	Culiacan	Sonora	Marchouch
1	FLIP85- 7L	FLIP84- 74L	Local Check	FLIP87- 17L	FLIP86- 10L	FLIP87- 2L	FLIP86- 10L	Local Check	FLIP87- 19L
2	FLIP87- 12L	FLIP87- 16L	FLIP87- 20L	FLIP85- 1L	FLIP86- 3L	FLIP87- 14L	FLIP87- 16L	FLIP86-16L	ILL 4605
3	FLIP84- 74L	FLIP87- 6L	FLIP87- 23L	FLIP87- 20L	FLIP87- 6L	FLIP87- 11L	FLIP87- 18L	FLIP87- 18L	FLIP87- 17L]
4	FLIP84-149L	ILL 4400	FLIP87- 15L	FLIP87- 18L	FLIP87- 9L	FLIP87- 8L	FLIP87- 15L	ILL 4605	FLIP84-144L]
5	FLIP87- 13L	FLIP87- 3L	FLIP87- 16L	FLIP87- 2L	FLIP87- 5L	FLIP87- 13L	FLIP87- 12L	FLIP86- 15L	FLIP86- 19L]
									FLIP86- 18L]

Cont'd 2/..

Table 5.3.6. Cont'd. ...

	NEPAL	PAKISTAN			PORTUGAL	SPAIN	SYRIA		
Rank	Khumaltar	Faisalabad	Quetta-1	Quetta-2	Elvas	El Encin	Golline	Heimo	Idleb
1	FLIP87- 4L	FLIP87- 18L	FLIP86- 21L	FLIP86- 3L	FLIP87- 22L	FLIP86- 5L	FLIP84-156L	FLIP84- 74L	ILL 5593
2	FLIP87- 17L	LocaL Check	FLIP87- 23L	FLIP87- 5L]	FLIP84-156L	FLIP87- 18L	FLIP87- 15L	FLIP87- 20L	FLIP87- 12L
3	ILL 4605	FLIP87- 20L	FLIP86- 12L	FLIP87- 1L]	FLIP85- 7L	FLIP86- 13L	FLIP87- 3L	FLIP87- 12L	FLIP85- 1L
4	FLIP87- 3L	FLIP86- 16L	FLIP87- 22L	FLIP87- 8L	FLIP87- 21L	FLIP87- 16L	FLIP87- 14L	FLIP84-156L	FLIP86- 8L
5	LocaL Check	ILL 4605	FLIP86- 8L	FLIP84-149L	FLIP86- 5L	LocaL Check	FLIP86- 15L	FLIP87- 3L	FLIP86- 10L

Cont'd 2/..

Table 5.3.6. Cont'd. ...

	SYRIA		TUNISIA			TURKEY			
Rank	Izra'a	Tel Hadya	Beja	El Kef	Oued Meliz	Haymana	Diyarbakir	Erzurum	Urfa
1	FLIP84-156L	FLIP86- 5L	FLIP87- 1L	FLIP87- 16L	ILL 5593	FLIP87- 4L	FLIP84- 74L	FLIP87- 16L	FLIP86- 5L
2	FLIP87- 20L	FLIP87- 5L	FLIP87- 9L	FLIP87- 4L	FLIP87- 5L	FLIP84-144L	FLIP84-144L]	FLIP86- 10L	FLIP87- 11L
3	Local Check	FLIP87- 11L	FLIP85- 1L	FLIP85- 1L	FLIP87- 20L	FLIP84- 74L	FLIP87- 3L]	FLIP84-156L	FLIP84- 74L
4	FLIP86- 16L	ILL 5593	FLIP87- 13L	FLIP87- 12L	FLIP87- 21L]	FLIP87- 1L	FLIP86- 13L	FLIP86- 3L	FLIP86- 10L
5	FLIP87- 17L	FLIP84-144L	FLIP87- 8L	FLIP87- 8L	FLIP87- 19L]	FLIP87- 14L	FLIP85- 7L	FLIP87- 3L]	FLIP87- 5L
					FLIP87- 13L]			FLIP87- 4L]	

The brackets indicate entries having the same rank.

respectively.

The five heaviest seed yielding entries at different locations are given in Table 5.3.6. The entry FLIP 87-12L occurred most frequently among the top five heavy yielders and was followed by FLIP 87-5L, FLIP 87-16L and FLIP 87-20L. These entries were relatively more adaptable than others.

5.4. LENTIL INTERNATIONAL SCREENING NURSERY - SMALL SEED (LISN-S)

Material

The material for the Lentil International Screening Nursery - Small Seed comprised of 52 test entries. In addition, there were three checks, two namely Syrian Local Small (ILL 4401) and 78S 26013 (ILL 5588) were supplied and one local check was to be used by the cooperator. Most of these entries were selected from the materials developed and tested at ICARDA sites in Syria and Lebanon.

Methods and Management

The material was sown in an augmented block design. The entries were suggested to be accomodated in four blocks, each block containing 13 test entries and 3 checks. The suggested plot size was single row 4 m long with inter row spacing of 25 cm. Forty three sets of screening nursery were sent to cooperators in 20 countries and the results were received from 29 locations from 14 countries. The agronomic data received from cooperators are given in Table 5.4.1.

Results and Discussion

The data on time to flowering (Table 5.4.2) showed that flowering was earliest at Karaj in Iran (54 days) and latest at Ankara in Turkey (211 days). The entry means over all locations revealed that FLIP 87-52L was the earliest to flower in 114 days and FLIP 86-26L was the latest to flower in 122 days. The entry mean for time to maturity ranged from 147 to 151 days (Table 5.4.3). The plant height data (Table 5.4.4) revealed that the entries were tallest at Gelline in Syria (43 cm) . The entry means overall locations ranged from 28 cm to 34 cm and the entry FLIP 87-53L was the tallest.

Adjusted seed yields of different entries over locations are given in Table 5.4.5. The location mean was highest at Horsham in Australia (4643 kg/ha), and was followed by Beja in Tunisia (2634 kg/ha), Izra'a (2318 kg/ha) and Heimo (2066 kg/ha) in Syria, Terbol in Lebanon (2046 kg/ha), and Oued Meliz in Tunisia (2019 kg/ha). The ANOVA of the experimental design revealed that at Horsham (Australia), Ghazvin (Iran), Jubeiha (Jordan), Terbol (Lebanon), Marchouch (Morocco), Quetta (Pakistan), El Encin (Spain), Gelline and Tel Hadya in Syria, and Oued Meliz in Tunisia 27, 9, 2, 15, 1, 1, 2, 2, 1 and 1 test entries, respectively, exceeded the local check by a significant margin.

The five heaviest yielders at each location are given in Table 5.4.6. It was noticed that FLIP 87-57L occurred most frequently among the top five

Table 5.4.1. Agronomic data for different locations in the LISN-S during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
AUSTRALIA	Horsham	24.07.87	22.12.87		150		-	Trifluralıne, Cyanazine, Thiodan, Ripcord	Laird
CHINA	Xining (Quinghi)	22.04.87	23.08.87	34	69		1	-	NA
ETHIOPIA	Debre Zeit	14.07.87	NA	-			-	-	NEL - 358
IRAN	Hamadan	12.04.87	25.07.87		69		4	-	NA
IRAN	Ghazvin	09.04.87	30.06.87	9	24		-	-	Kouhin
IRAN	Karaj	18.04.87	20.07.87	24	72		8	Treflan, Metasystox	1 Ziba
JORDAN	Jubeiha	NA	NA	20	40				NA
JORDAN	Marow	18.12.86	NA	20	60		-	-	NA
LEBANON	Terbol	17.11.86	10.06.87		50		-	Kerb, Bladex	Lebanese Local
MOROCCO	Marchouch	29.11.86	13.05.87	14	28	14	-	-	L - 24
PAKISTAN	Faisalabad (AARI)	17.11.86	NA	25	50		-	-	Masoor - 85
PAKISTAN	Islamabad (NARC)	NA	NA	NA			NA	NA	NA
PAKISTAN	Sarai Naurang	01.11.86					NA	NA	NA
PAKISTAN	Quetta (ARI)	05.02.87	15.05.87	20	60		-	-	Local
PAKISTAN	Quetta (Sariab)	11.11.86	26.05.87	20	50		3	-	NA
PORTUGAL	Elvas	18.11.86	06.06.87		70		-	-	L - 188
SPAIN	El Encin	24.11.86	15.06.87	24	72		-	Prometryne	Angela (LEC-42)
SYRIA	Gelline	09.12.86	16.05.87	20	20		-	-	NA
SYRIA	Heimo	20.11.86	17.05.87		50		-	-	Horani
SYRIA	Idleb	03.12.86	22.05.87		60		-	-	Horani
SYRIA	Izra'a	07.12.86	22.05.87	12	38		-	-	NA
SYRIA	Tel Hadya	02.11.86	20.05.87		50		-	Kerb, Bladex, Fusilade, Supracide	ILL 4400
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA
TURKEY	Ankara (UAF)	23.10.86	20.06.87	22	60		-	-	Kislik Yesil-21
TURKEY	Diyarbakir	19.11.86	04.06.87	-			-	-	Local
TURKEY	Urfa	10.11.86	20.05.87	45	90		-	-	-

NA = Not available

Table 5.4.2. Adjusted time to flowering (days) of entries at different locations in the LISN-S during 1986/87.

Selection	ILL	Origin	AUSTRALIA	CHINA	ETHIOPIA	IRAN			JORDAN		LEBANON
			Horsham	Xining	Debre Zeit *	Ghazvin	Hamadan	Karaj	Jubeiha	Marow	Terbol
ILL 241	241	Syria	99	55	-	61	66	55	126	113	138
FLIP 84- 51L	5722	ICARDA	91	48	47	52	57	50	129	111	139
FLIP 84-105L	5775	ICARDA	98	56	-	53	58	51	131	110	137
FLIP 85- 19L	5857	ICARDA	93	59	-	59	60	54	128	111	137
FLIP 85- 22L	5860	ICARDA	96	57	-	62	66	56	125	113	136
FLIP 85- 32L	5870	ICARDA	99	52	-	55	66	53	128	112	140
FLIP 86- 26L	6012	ICARDA	99	58	-	63	66	56	128	113	138
FLIP 86- 28L	6014	ICARDA	95	54	75	59	59	51	129	109	143
FLIP 86- 29L	6015	ICARDA	96	60	-	55	62	53	129	112	140
FLIP 86- 32L	6018	ICARDA	93	54	-	52	64	53	131	112	138
FLIP 86- 44L	6030	ICARDA	95	57	-	52	60	55	129	111	139
FLIP 86- 45L	6031	ICARDA	89	51	-	50	64	52	131	111	136
FLIP 86- 61L	6047	ICARDA	98	56	-	62	63	57	126	112	139
FLIP 86- 62L	6048	ICARDA	96	54	-	54	60	54	124	111	136
FLIP 86- 63L	6049	ICARDA	93	51	-	62	57	54	130	111	139
FLIP 86- 64L	6050	ICARDA	98	56	70	55	63	54	129	110	137
FLIP 86- 65L	6051	ICARDA	96	62	-	60	61	54	123	112	140
FLIP 87- 24L	6214	ICARDA	96	57	-	50	61	54	133	111	136
FLIP 87- 25L	6215	ICARDA	98	59	-	61	62	55	128	110	137
FLIP 87- 26L	6216	ICARDA	95	59	-	59	62	56	126	111	135
FLIP 87- 27L	6217	ICARDA	96	57	-	52	62	55	129	111	136
FLIP 87- 28L	6218	ICARDA	93	59	-	52	65	55	130	110	137
FLIP 87- 29L	6219	ICARDA	95	57	-	61	62	57	130	110	137
FLIP 87- 30L	6220	ICARDA	95	59	-	56	61	56	131	111	137
FLIP 87- 31L	6221	ICARDA	96	57	-	55	63	54	130	112	136
FLIP 87- 32L	6222	ICARDA	96	59	-	57	60	53	130	111	136
FLIP 87- 33L	6223	ICARDA	98	56	-	52	63	55	131	111	137
FLIP 87- 34L	6224	ICARDA	95	59	-	56	65	56	126	110	137
FLIP 87- 35L	6225	ICARDA	96	59	-	57	65	55	132	111	136
FLIP 87- 36L	6226	ICARDA	96	57	-	59	64	55	125	111	134
FLIP 87- 37L	6227	ICARDA	93	57	-	52	62	57	127	110	137
FLIP 87- 38L	6228	ICARDA	95	59	-	52	65	55	131	110	137

Table 5.4.2. Cont'd. ...

Selection	ILL	Origin	AUSTRALIA	CHINA	ETHIOPIA	IRAN			JORDAN		LEBANON
			Horsham	Xining	Debre Zeit *	Ghazvin	Hamadan	Karaj	Jubeiha	Marow	Terbol
FLIP 87- 39L	6229	ICARDA	93	59	-	56	62	55	127	110	137
FLIP 87- 40L	6230	ICARDA	96	55	-	59	63	55	122	111	136
FLIP 87- 41L	6231	ICARDA	94	57	-	59	62	53	122	111	136
FLIP 87- 42L	6232	ICARDA	95	54	-	56	62	55	130	110	137
FLIP 87- 43L	6233	ICARDA	95	59	-	59	62	51	128	111	137
FLIP 87- 44L	6234	ICARDA	93	56	-	56	60	55	129	110	135
FLIP 87- 45L	6235	ICARDA	98	57	-	52	61	56	130	109	137
FLIP 87- 46L	6236	ICARDA	99	55	72	58	59	52	127	112	136
FLIP 87- 47L	6237	ICARDA	93	56	68	56	54	56	127	109	135
FLIP 87- 48L	6238	ICARDA	96	51	70	50	61	53	132	113	136
FLIP 87- 49L	6239	ICARDA	91	59	-	60	63	55	130	112	136
FLIP 87- 50L	6240	ICARDA	98	59	-	62	61	57	130	110	139
FLIP 87- 51L	6241	ICARDA	98	56	-	52	57	51	129	111	139
FLIP 87- 52L	6242	ICARDA	89	48	55	50	54	49	133	111	134
FLIP 87- 53L	6243	ICARDA	93	59	-	54	61	51	124	112	140
FLIP 87- 54L	6244	ICARDA	98	57	-	53	61	58	128	111	141
FLIP 87- 55L	6245	ICARDA	91	56	-	50	61	53	131	111	136
FLIP 87- 56L	6246	ICARDA	92	50	77	56	60	52	122	111	136
FLIP 87- 57L	6247	ICARDA	99	57	77	56	64	52	128	113	136
FLIP 87- 58L	6248	ICARDA	99	60	-	62	65	53	123	113	136
S.L.S.	4401	Syria	96	57	-	56	62	53	129	111	138
78S 26013	5588	Jordan	96	58	-	53	62	55	129	111	137
Local Check			105	62	61	56	62	56	127	111	141
Location Mean			**96**	**57**	**67**	**56**	**62**	**54**	**128**	**111**	**137**
S.E. of Mean			0.43	0.79	-	1.56	0.92	0.62	1.28	0.34	0.55
L.S.D. at 5% for:											
Checks			1.50	2.72	-	5.41	3.17	2.14	4.44	1.19	1.91
Test entries in the same block			3.00	5.44	-	10.82	6.34	4.28	8.88	2.38	3.83
Test entries in different blocks			3.46	6.28	-	12.49	7.33	4.94	10.25	2.75	4.42
Checks Vs test entries			2.74	4.97	-	9.88	5.79	3.91	8.11	2.17	3.49
C.V. %			0.90	2.78	-	5.62	2.97	2.28	2.01	0.62	0.81

Cont'd. ...

Table 5.4.2. Cont'd. ...

Selection	ILL	MOROCCO	PAKISTAN					PORTUGAL	SPAIN	SYRIA
		Marchouch	Faisalabad (AARI)	Quetta (ARI)	Quetta (SARIAB)	Sarai-Naurang	Islamabad (NARC)	Elvas	El Encin	Gelline
ILL 241	241	126	118	87	152	131	129	129	154	123
FLIP 84- 51L	5722	114	128	83	150	89	109	123	150	121
FLIP 84-105L	5775	114	107	85	150	130	127	126	156	123
FLIP 85- 19L	5857	123	123	86	154	124	128	129	-	122
FLIP 85- 22L	5860	121	112	83	153	128	130	126	155	121
FLIP 85- 32L	5870	123	119	85	149	126	129	129	147	123
FLIP 86- 26L	6012	125	124	87	149	131	138	129	154	122
FLIP 86- 28L	6014	113	100	83	147	119	124	129	151	123
FLIP 86- 29L	6015	121	117	83	150	125	130	126	150	121
FLIP 86- 32L	6018	115	120	85	151	123	131	130	153	122
FLIP 86- 44L	6030	123	118	81	151	130	133	130	153	125
FLIP 86- 45L	6031	117	116	83	152	131	130	129	156	120
FLIP 86- 61L	6047	123	115	82	154	130	128	130	148	123
FLIP 86- 62L	6048	117	122	85	150	122	139	129	153	120
FLIP 86- 63L	6049	120	116	87	153	127	133	129	153	124
FLIP 86- 64L	6050	121	103	80	150	117	118	129	157	120
FLIP 86- 65L	6051	124	116	89	149	131	129	130	154	125
FLIP 87- 24L	6214	121	120	85	151	127	129	126	152	121
FLIP 87- 25L	6215	123	121	82	150	125	127	124	151	121
FLIP 87- 26L	6216	124	123	80	153	125	127	124	153	117
FLIP 87- 27L	6217	121	124	83	150	126	130	129	151	122
FLIP 87- 28L	6218	121	121	82	151	125	128	130	152	119
FLIP 87- 29L	6219	118	122	83	151	123	136	123	151	117
FLIP 87- 30L	6220	120	122	83	150	122	135	126	156	119
FLIP 87- 31L	6221	121	122	81	151	127	131	123	151	118
FLIP 87- 32L	6222	117	120	83	151	121	131	126	148	118
FLIP 87- 33L	6223	120	120	83	152	123	128	126	159	121
FLIP 87- 34L	6224	123	119	82	154	128	127	127	150	120
FLIP 87- 35L	6225	121	124	83	152	123	130	123	152	119
FLIP 87- 36L	6226	123	120	81	151	129	130	121	150	119
FLIP 87- 37L	6227	123	119	82	151	124	127	130	156	120
FLIP 87- 38L	6228	123	123	82	149	126	128	130	154	121

Table 5.4.2. Cont'd. ...

Selection	ILL	MOROCCO	PAKISTAN					PORTUGAL	SPAIN	SYRIA
		Marchouch	Faisalabad (AARI)	Quetta (ARI)	Quetta (SARIAB)	Sarai-Naurang	Islamabad (NARC)	Elvas	El Encin	Gelline
FLIP 87- 39L	6229	123	119	82	152	125	133	130	151	119
FLIP 87- 40L	6230	123	120	81	149	127	130	123	148	117
FLIP 87- 41L	6231	123	119	83	150	122	130	121	151	119
FLIP 87- 42L	6232	123	113	80	151	123	129	121	155	119
FLIP 87- 43L	6233	120	122	83	150	127	134	126	150	121
FLIP 87- 44L	6234	121	121	80	150	122	129	123	158	120
FLIP 87- 45L	6235	121	126	83	148	124	127	126	153	120
FLIP 87- 46L	6236	123	108	81	151	116	127	121	154	118
FLIP 87- 47L	6237	115	126	83	148	99	115	120	147	115
FLIP 87- 48L	6238	117	111	83	147	115	130	129	160	121
FLIP 87- 49L	6239	119	124	83	151	123	130	129	156	123
FLIP 87- 50L	6240	123	117	85	149	127	136	130	154	125
FLIP 87- 51L	6241	114	107	85	150	124	127	126	154	122
FLIP 87- 52L	6242	106	116	83	148	101	112	120	145	114
FLIP 87- 53L	6243	122	122	87	147	129	139	133	155	126
FLIP 87- 54L	6244	126	123	82	152	131	142	134	149	123
FLIP 87- 55L	6245	121	113	85	149	119	129	129	157	122
FLIP 87- 56L	6246	123	108	81	150	118	127	126	149	115
FLIP 87- 57L	6247	123	118	81	152	126	128	126	150	120
FLIP 87- 58L	6248	123	124	87	148	131	137	129	149	122
S.L.S.	4401	124	120	86	151	127	129	130	155	122
78S 26013	5588	122	120	83	151	128	130	129	155	122
Local Check		126	95	82	151	102	100	120	160	120
Location Mean		**121**	**117**	**83**	**151**	**123**	**127**	**126**	**153**	**121**
S.E. of Mean		1.02	0.93	0.50	0.55	1.05	1.22	0.25	0.93	0.47
L.S.D. at 5% for:										
Checks		3.54	3.21	1.73	1.89	3.64	4.23	0.87	3.21	1.63
T.E. in the same block		7.09	6.42	3.46	3.78	7.27	8.46	1.73	6.42	3.26
T.E. in different blocks		8.18	7.42	4.00	4.37	8.40	9.76	2.00	7.42	3.77
Checks Vs test entries		6.47	5.86	3.16	3.45	6.64	7.72	1.58	5.86	2.98
C.V. %		1.69	1.59	1.20	0.73	1.72	1.92	0.40	1.21	0.78

Cont'd. ...

Table 5.4.2. Cont'd. ...

Selection	ILL	SYRIA				TURKEY			(1) Overall Mean
		Heimo	Idleb	Izra'a	Tel Hadya	Ankara (Univ.)	Diyarbakir	Urfa	
ILL 241	241	144	130	128	165	211	94	166	120
FLIP 84- 51L	5722	149	131	133	162	210	-	168	116
FLIP 84-105L	5775	146	131	131	160	214	95	164	118
FLIP 85- 19L	5857	143	131	130	164	210	95	163	120
FLIP 85- 22L	5860	144	134	127	159	211	96	159	119
FLIP 85- 32L	5870	144	143	131	161	210	96	158	120
FLIP 86- 26L	6012	144	133	133	164	210	94	167	122
FLIP 86- 28L	6014	144	131	129	164	211	97	158	117
FLIP 86- 29L	6015	144	131	125	161	212	94	158	119
FLIP 86- 32L	6018	146	131	130	163	213	-	165	119
FLIP 86- 44L	6030	146	131	131	162	211	95	154	119
FLIP 86- 45L	6031	146	130	126	161	211	95	161	118
FLIP 86- 61L	6047	143	131	131	163	213	95	162	120
FLIP 86- 62L	6048	146	133	128	162	209	93	162	119
FLIP 86- 63L	6049	146	134	128	161	211	97	160	119
FLIP 86- 64L	6050	145	135	128	164	210	-	166	118
FLIP 86- 65L	6051	146	132	126	166	212	95	170	120
FLIP 87- 24L	6214	146	130	127	162	213	93	159	119
FLIP 87- 25L	6215	143	132	129	160	213	97	163	119
FLIP 87- 26L	6216	145	131	128	161	209	-	163	119
FLIP 87- 27L	6217	146	133	125	161	211	93	158	119
FLIP 87- 28L	6218	143	134	133	160	212	97	159	119
FLIP 87- 29L	6219	144	133	134	162	214	93	161	119
FLIP 87- 30L	6220	144	133	134	162	214	95	161	120
FLIP 87- 31L	6221	144	130	126	161	212	94	158	118
FLIP 87- 32L	6222	146	133	125	161	209	-	163	118
FLIP 87- 33L	6223	144	131	127	160	212	95	160	119
FLIP 87- 34L	6224	145	131	129	160	213	97	163	119
FLIP 87- 35L	6225	146	130	126	162	213	95	161	119
FLIP 87- 36L	6226	144	133	130	159	211	94	157	118
FLIP 87- 37L	6227	143	131	134	161	211	95	159	119
FLIP 87- 38L	6228	143	131	132	160	215	95	161	119

Table 5.4.2. Cont'd. ...

Selection	ILL	SYRIA				TURKEY			Overall Mean (1)
		Heimo	Idleb	Izra'a	Tel Hadya	Ankara (Univ.)	Diyarbakir	Urfa	
FLIP 87- 39L	6229	143	131	130	160	213	97	163	119
FLIP 87- 40L	6230	144	134	131	160	214	96	160	119
FLIP 87- 41L	6231	144	130	126	160	208	96	160	118
FLIP 87- 42L	6232	143	132	131	161	210	93	163	118
FLIP 87- 43L	6233	144	125	130	161	212	95	158	119
FLIP 87- 44L	6234	143	132	133	161	210	93	163	118
FLIP 87- 45L	6235	144	133	128	160	212	97	161	119
FLIP 87- 46L	6236	144	130	127	159	208	94	160	117
FLIP 87- 47L	6237	139	127	127	160	212	95	159	115
FLIP 87- 48L	6238	148	130	127	162	213	93	161	117
FLIP 87- 49L	6239	146	133	128	163	213	97	165	120
FLIP 87- 50L	6240	144	131	133	166	214	93	160	121
FLIP 87- 51L	6241	146	134	126	160	211	95	157	117
FLIP-87- 52L	6242	141	126	131	161	213	95	162	114
FLIP 87- 53L	6243	146	132	128	166	209	93	170	120
FLIP 87- 54L	6244	145	131	133	166	211	93	163	121
FLIP 87- 55L	6245	148	130	126	165	213	95	158	118
FLIP 87- 56L	6246	144	130	128	159	208	94	160	116
FLIP 87- 57L	6247	144	130	129	159	211	98	160	119
FLIP 87- 58L	6248	144	134	128	164	211	-	162	121
S.L.S.	4401	143	132	131	162	212	95	159	119
78S 26013	5588	145	131	128	161	212	94	160	119
Local Check		145	130	131	161	210	95	-	
Location Mean		**144**	**131**	**129**	**162**	**211**	**95**	**161**	
S.E. of Mean		0.87	0.52	0.95	0.58	0.50	0.69	1.45	
L.S.D. at 5% for:									
Checks		3.01	1.80	3.30	2.02	1.73	2.38	6.54	
T.E. in the same block		6.02	3.60	6.60	4.04	3.46	4.76	13.09	
T.E. in different blocks		6.95	4.16	7.62	4.66	4.00	5.49	16.03	
Checks Vs test entries		5.50	3.29	6.03	3.69	3.16	4.34	12.67	
C.V. %		1.21	0.79	1.48	0.72	0.47	1.60	1.81	

(1) Debre Zeit, El Encin and Diyarbakir were excluded from the overall mean.
T.E. = Test entries, * = Location not analysed and thus mean values are unadjusted.

Table 5.4.3. Adjusted time to maturity (days) of entries at different locations in the LISN-S during 1986/87.

Selection	ILL	AUSTRALIA	CHINA	IRAN			JORDAN		LEBANON	MOROCCO	PAKISTAN
		Horsham	Xining	Ghazvin	Hamadan	Karaj	Jubeiha	Marow *	Terbol	Marchouch	Sariab
ILL 241	241	155	112	79	104	93	141	145	179	159	189
FLIP 84- 51L	5722	151	113	75	94	88	143	145	179	144	189
FLIP 84-105L	5775	148	112	79	94	83	143	145	179	144	188
FLIP 85- 19L	5857	144	115	80	94	84	144	145	175	152	191
FLIP 85- 22L	5860	148	107	80	106	85	143	145	173	157	192
FLIP 85- 32L	5870	148	117	79	105	90	144	145	177	157	189
FLIP 86- 26L	6012	150	115	82	100	94	145	145	177	155	191
FLIP 86- 28L	6014	143	110	80	99	84	143	145	177	144	187
FLIP 86- 29L	6015	143	121	78	100	91	143	145	177	153	191
FLIP 86- 32L	6018	137	118	77	103	83	142	145	175	156	190
FLIP 86- 44L	6030	148	105	78	95	90	143	145	169	155	189
FLIP 86- 45L	6031	137	117	78	100	86	140	145	175	152	190
FLIP 86- 61L	6047	146	110	80	98	88	140	145	175	152	189
FLIP 86- 62L	6048	142	117	75	97	84	142	145	171	152	190
FLIP 86- 63L	6049	148	104	80	92	83	143	145	175	151	191
FLIP 86- 64L	6050	151	117	78	97	88	144	145	175	152	188
FLIP 86- 65L	6051	147	119	79	101	88	142	145	173	148	191
FLIP 87- 24L	6214	142	112	79	100	89	142	145	175	158	190
FLIP 87- 25L	6215	146	118	79	100	91	140	145	171	152	187
FLIP 87- 26L	6216	146	112	80	104	90	144	145	173	152	190
FLIP 87- 27L	6217	142	111	79	102	89	142	145	171	158	189
FLIP 87- 28L	6218	149	115	78	103	91	143	145	171	156	190
FLIP 87- 29L	6219	148	113	78	102	90	143	145	171	155	190
FLIP 87- 30L	6220	148	119	75	101	91	145	145	171	151	189
FLIP 87- 31L	6221	148	108	78	101	92	145	145	175	153	191
FLIP 87- 32L	6222	137	118	78	99	89	142	145	171	152	191
FLIP 87- 33L	6223	148	103	77	103	93	143	145	173	151	188
FLIP 87- 34L	6224	146	111	77	102	90	140	145	173	152	189
FLIP 87- 35L	6225	147	118	79	105	88	142	145	175	158	191
FLIP 87- 36L	6226	148	114	79	104	93	141	145	175	153	191
FLIP 87- 37L	6227	149	115	79	99	92	144	145	171	152	191
FLIP 87- 38L	6228	144	118	78	102	89	143	145	171	152	186

Table 5.4.3. Cont'd. ...

Selection	ILL	AUSTRALIA	CHINA	IRAN			JORDAN		LEBANON	MOROCCO	PAKISTAN
		Horsham	Xining	Ghazvin	Hamadan	Karaj	Jubeiha	Marow *	Terbol	Marchouch	Sariab
FLIP 87- 39L	6229	146	121	78	99	88	140	145	173	152	190
FLIP 87- 40L	6230	140	115	80	102	92	145	145	175	153	189
FLIP 87- 41L	6231	140	111	79	100	88	145	145	175	153	191
FLIP 87- 42L	6232	146	108	78	98	89	144	145	173	152	190
FLIP 87- 43L	6233	146	106	79	102	89	143	145	171	151	189
FLIP 87- 44L	6234	144	115	78	98	91	143	145	171	152	189
FLIP 87- 45L	6235	138	111	76	99	87	143	145	173	151	187
FLIP 87- 46L	6236	145	110	78	99	89	145	145	175	153	189
FLIP 87- 47L	6237	138	113	79	96	88	143	145	179	144	187
FLIP 87- 48L	6238	145	113	78	97	85	142	145	173	152	188
FLIP 87- 49L	6239	142	120	78	105	87	142	145	173	152	191
FLIP 87- 50L	6240	148	119	79	98	89	145	145	177	155	186
FLIP 87- 51L	6241	148	113	77	90	85	143	145	177	144	189
FLIP 87- 52L	6242	142	125	79	95	86	142	145	185	140	189
FLIP 87- 53L	6243	142	118	78	99	86	142	145	177	156	188
FLIP 87- 54L	6244	144	108	80	100	90	145	145	179	156	191
FLIP 87- 55L	6245	142	116	79	99	85	142	145	177	158	191
FLIP 87- 56L	6246	140	107	79	99	91	145	145	175	153	192
FLIP 87- 57L	6247	150	116	78	98	84	145	145	175	153	189
FLIP 87- 58L	6248	148	119	63	104	93	145	145	179	153	187
S.L.S.	4401	144	113	79	100	85	143	145	177	155	190
78S 26013	5588	146	115	78	100	88	142	145	174	156	189
Local Check		155	119	81	102	89	143	145	185	153	190
Location Mean		146	114	78	100	88	143	145	175	153	189
S.E. of Mean		1.08	1.98	0.36	0.98	1.34	0.73	-	0.50	1.86	0.55
L.S.D. at 5% for:											
Checks		3.73	6.87	1.26	3.38	4.65	2.53	-	1.73	6.43	1.91
T.E. in the same block		7.45	13.73	2.51	6.75	9.30	5.06	-	3.46	12.86	3.83
T.E. in different blocks		8.61	15.86	2.90	7.79	10.74	5.84	-	4.00	14.85	4.42
Checks Vs test entries		6.80	12.54	2.30	6.16	8.49	4.62	-	3.16	11.74	3.49
C.V. %		1.48	3.48	0.93	1.95	3.05	1.02	-	0.57	2.43	0.58

Cont'd. ...

Table 5.4.3. Cont'd. ...

Selection	ILL	PAKISTAN	PORTUGAL	SPAIN	SYRIA					TURKEY		(1) Overall Mean
		Quetta (ARI)	Elvas	El Encin	Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Ankara (Univ.)	Urfa	
-	241	110	180	186	164	177	169	169	200	234	189	151
FLIP 84- 51L	5722	110	178	185	161	177	171	170	200	234	191	149
FLIP 84-105L	5775	110	183	190	161	171	171	168	195	239	189	148
FLIP 85- 19L	5857	110	179	-	158	170	169	166	200	236	191	148
FLIP 85- 22L	5860	110	177	188	156	171	166	163	196	234	184	148
FLIP 85- 32L	5870	110	177	178	160	171	166	167	199	234	186	149
FLIP 86- 26L	6012	110	180	183	164	176	168	172	200	233	189	151
FLIP 86- 28L	6014	110	178	186	153	173	171	166	197	236	188	147
FLIP 86- 29L	6015	110	185	182	156	171	166	166	196	237	186	149
FLIP 86- 32L	6018	110	175	188	154	173	168	166	198	237	191	148
FLIP 86- 44L	6030	110	175	189	157	175	166	166	195	236	189	147
FLIP 86- 45L	6031	110	178	189	160	173	170	164	199	235	188	148
FLIP 86- 61L	6047	110	176	181	157	170	168	166	200	237	190	148
FLIP 86- 62L	6048	110	178	186	153	173	168	165	196	232	188	147
FLIP 86- 63L	6049	110	175	196	161	171	168	166	195	237	189	147
FLIP 86- 64L	6050	110	179	191	157	170	169	166	199	236	191	149
FLIP 86- 65L	6051	110	175	182	158	173	168	170	200	236	191	149
FLIP 87- 24L	6214	110	175	191	155	173	168	166	196	236	188	148
FLIP 87- 25L	6215	110	176	182	156	170	167	166	196	237	186	148
FLIP 87- 26L	6216	110	176	183	154	170	167	166	199	234	191	148
FLIP 87- 27L	6217	110	175	186	157	173	168	165	196	235	188	148
FLIP 87- 28L	6218	110	176	187	159	170	167	168	196	237	186	148
FLIP 87- 29L	6219	110	178	184	155	171	171	167	195	239	189	148
FLIP 87- 30L	6220	110	175	186	153	171	171	167	195	240	189	148
FLIP 87- 31L	6221	110	177	184	156	171	167	165	196	236	185	148
FLIP 87- 32L	6222	110	178	182	152	173	168	165	198	233	188	147
FLIP 87- 33L	6223	110	175	183	156	171	168	165	195	237	189	147
FLIP 87- 34L	6224	110	176	183	157	170	167	165	199	237	191	148
FLIP 87- 35L	6225	110	178	190	155	173	168	168	198	238	188	149
FLIP 87- 36L	6226	110	177	183	156	171	168	168	196	235	183	148
FLIP 87- 37L	6227	110	176	188	160	170	167	165	198	236	186	148
FLIP 87- 38L	6228	110	176	183	159	170	165	168	196	240	186	148

Table 5.4.3. Cont'd. ...

Selection	ILL	PAKISTAN	PORTUGAL	SPAIN	SYRIA					TURKEY		(1) Overall Mean
		Quetta (ARI)	Elvas	El Encin	Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Ankara (Univ.)	Urfa	
FLIP 87- 39L	6229	110	176	185	156	170	167	165	199	238	186	148
FLIP 87- 40L	6230	110	177	179	158	171	168	165	200	240	187	148
FLIP 87- 41L	6231	110	177	180	160	171	167	165	199	233	187	148
FLIP 87- 42L	6232	110	176	187	156	170	169	166	196	236	188	147
FLIP 87- 43L	6233	110	175	185	152	171	166	165	197	235	185	147
FLIP 87- 44L	6234	110	176	191	156	170	169	166	199	237	188	148
FLIP 87- 45L	6235	110	175	186	153	171	171	165	198	236	189	147
FLIP 87- 46L	6236	110	177	186	157	173	167	165	196	232	189	148
FLIP 87- 47L	6237	110	178	191	161	171	166	167	195	-	185	147
FLIP 87- 48L	6238	110	175	189	161	179	171	168	196	237	188	148
FLIP 87- 49L	6239	110	178	189	157	173	168	165	196	238	191	149
FLIP 87- 50L	6240	110	175	187	161	171	171	168	197	239	189	149
FLIP 87- 51L	6241	110	175	190	161	171	168	165	195	236	189	147
FLIP 87- 52L	6242	110	178	182	162	177	168	167	200	237	188	149
FLIP 87- 53L	6243	110	175	187	159	173	168	168	200	233	191	149
FLIP 87- 54L	6244	110	179	180	159	176	170	167	200	234	190	149
FLIP 87- 55L	6245	110	178	190	160	179	171	165	200	238	188	149
FLIP 87- 56L	6246	110	177	181	158	171	167	164	199	234	189	148
FLIP 87- 57L	6247	110	177	184	159	175	168	169	196	234	186	149
FLIP 87- 58L	6248	110	180	178	164	171	168	164	200	235	189	149
S.L.S.	4401	110	178	187	157	173	167	166	199	235	189	148
78S 26013	5588	110	179	188	158	172	167	165	197	237	188	148
Local Check		110	180	191	159	175	169	173	198	234	-	
Location Mean		**110**	**178**	**186**	**158**	**172**	**168**	**167**	**198**	**236**	**188**	
S.E. of Mean			1.62	1.32	1.55	1.11	0.60	0.56	0.87	0.40	0.78	
L.S.D. at 5% for:												
Checks			5.59	4.58	5.37	3.84	2.06	1.93	3.01	1.38	3.53	
T.E. in S.B.			11.18	9.15	10.74	7.67	4.12	3.87	6.02	2.77	7.06	
T.E. in D.B.			12.91	10.57	12.40	8.86	4.76	4.47	6.95	3.19	8.64	
Checks Vs test entries			10.21	8.36	9.81	7.01	3.76	3.53	5.50	2.53	6.83	
C.V. %			1.82	1.42	1.97	1.29	0.71	0.67	0.88	0.35	0.83	

(1) El Encin and Ankara were excluded from the overall mean. T.E. = Test entries, S.B. = Same block, D.B. = Diferent blocks., * = Location not analysed and thus mean values are unadjusted.

Table 5.4.4. Adjusted plant height (cm) of entries at different locations in the LISN-S during 1986/87.

Selection	ILL	AUSTRALIA	CHINA	IRAN			JORDAN		LEBANON	MOROCCO	PAKISTAN	
		Horsham	Xining	Ghazvin	Hamadan	Karaj	Jubeiha	Marow	Terbol	Marchouch	Faisal-abad	Quetta (ARI)
ILL 241	241	33	37	19	22	20	32	23	42	41	32	16
FLIP 84- 51L	5722	29	42	20	22	21	40	30	35	35	45	16
FLIP 84-105L	5775	34	32	19	23	23	37	29	38	32	39	18
FLIP 85- 19L	5857	32	35	19	23	22	32	30	34	34	38	11
FLIP 85- 22L	5860	30	36	21	20	18	36	25	40	34	27	12
FLIP 85- 32L	5870	31	42	18	22	19	32	28	42	35	37	13
FLIP 86- 26L	6012	33	42	21	21	19	32	25	44	30	24	13
FLIP 86- 28L	6014	29	38	18	23	18	31	28	35	36	41	15
FLIP 86- 29L	6015	36	37	18	24	21	42	31	34	39	35	16
FLIP 86- 32L	6018	33	41	19	23	20	38	34	35	34	38	17
FLIP 86- 44L	6030	29	31	18	21	20	40	21	30	27	32	17
FLIP 86- 45L	6031	33	31	19	16	18	28	27	40	31	28	16
FLIP 86- 61L	6047	32	34	16	16	17	35	28	37	37	39	17
FLIP 86- 62L	6048	27	38	16	20	21	39	33	35	31	40	15
FLIP 86- 63L	6049	32	38	18	20	22	21	23	35	26	37	15
FLIP 86- 64L	6050	30	35	14	21	18	35	27	37	32	32	14
FLIP 86- 65L	6051	30	37	19	25	20	38	36	40	33	39	16
FLIP 87- 24L	6214	33	38	18	19	23	33	29	40	31	33	19
FLIP 87- 25L	6215	35	40	22	20	20	36	32	39	40	41	18
FLIP 87- 26L	6216	37	40	21	22	23	40	32	39	28	35	19
FLIP 87- 27L	6217	35	40	21	23	25	34	27	35	32	35	20
FLIP 87- 28L	6218	28	37	20	17	20	30	32	34	37	36	20
FLIP 87- 29L	6219	34	39	18	24	25	41	22	30	34	50	17
FLIP 87- 30L	6220	31	-	18	25	20	46	25	32	27	43	21
FLIP 87- 31L	6221	30	39	20	25	20	37	26	40	36	30	18
FLIP 87- 32L	6222	28	37	20	22	24	38	33	38	37	41	21
FLIP 87- 33L	6223	29	38	20	23	24	34	27	40	36	45	19
FLIP 87- 34L	6224	30	39	21	28	25	31	27	39	35	33	16
FLIP 87- 35L	6225	32	37	21	23	25	41	29	42	29	40	16
FLIP 87- 36L	6226	32	37	19	18	22	42	25	37	43	31	14
FLIP 87- 37L	6227	32	39	21	23	21	30	31	37	35	41	22
FLIP 87- 38L	6228	30	38	20	22	19	34	30	41	43	45	20

Table 5.4.4. Cont'd. ...

Selection	ILL	AUSTRALIA	CHINA	IRAN			JORDAN		LEBANON	MOROCCO	PAKISTAN	
		Horsham	Xining	Ghazvin	Hamadan	Karaj	Jubeiha	Marow	Terbol	Marchouch	Faisal-abad	Quetta (ARI)
FLIP 87- 39L	6229	29	38	20	24	21	35	27	41	42	42	18
FLIP 87- 40L	6230	35	40	19	26	21	32	28	40	38	51	17
FLIP 87- 41L	6231	34	38	20	26	20	37	28	42	33	37	19
FLIP 87- 42L	6232	30	39	18	21	22	34	29	44	42	30	18
FLIP 87- 43L	6233	34	39	19	28	22	26	28	38	33	43	16
FLIP 87- 44L	6234	30	-	21	28	23	32	33	39	38	33	18
FLIP 87- 45L	6235	34	40	20	22	23	39	27	35	25	47	21
FLIP 87- 46L	6236	32	38	16	25	20	37	24	37	32	29	15
FLIP 87- 47L	6237	29	41	20	21	23	38	22	38	19	34	18
FLIP 87- 48L	6238	32	36	19	20	25	40	30	38	23	40	24
FLIP 87- 49L	6239	33	37	20	24	23	33	34	40	29	37	19
FLIP 87- 50L	6240	29	35	17	19	21	40	25	35	27	36	16
FLIP 87- 51L	6241	29	37	15	22	22	31	27	38	31	34	17
FLIP 87- 52L	6242	30	40	19	27	26	42	29	45	37	38	19
FLIP 87- 53L	6243	28	37	15	23	21	35	26	40	38	44	18
FLIP 87- 54L	6244	36	42	16	17	22	30	32	34	41	36	21
FLIP 87- 55L	6245	32	43	20	21	26	38	30	35	37	31	21
FLIP 87- 56L	6246	30	39	20	27	21	37	28	42	37	30	17
FLIP 87- 57L	6247	35	34	20	25	23	34	28	42	42	44	16
FLIP 87- 58L	6248	29	39	23	22	22	37	20	37	28	23	13
S.L.S.	4401	34	38	18	20	22	34	28	39	35	37	15
78S 26013	5588	33	37	17	20	22	34	27	36	37	39	18
Local Check		35	51	18	21	22	35	30	42	34	42	16
Location Mean		32	38	19	22	22	35	28	38	34	37	17
S.E. of Mean		1.08	1.34	1.03	1.19	0.93	1.87	2.33	2.26	1.18	2.23	0.62
L.S.D. at 5% for:												
Checks		3.75	4.65	3.56	4.13	3.21	6.45	8.05	7.83	4.09	7.72	2.14
T.E. in S.B.		7.50	9.30	7.11	8.26	6.42	12.91	16.10	15.66	8.18	15.44	4.28
T.E. in D.B.		8.66	10.74	8.21	9.53	7.42	14.91	18.59	18.08	9.44	17.83	4.94
Checks Vs T.E.		6.85	8.49	6.49	7.54	5.86	11.79	14.70	14.29	7.47	14.10	3.91
C.V. %		6.74	7.82	10.96	10.96	8.60	10.65	16.55	11.92	6.92	12.02	7.14

Cont'd. ...

Table 5.4.4. Cont'd. ...

Selection	ILL	PAKISTAN	PORTUGAL	SPAIN	SYRIA					TURKEY		(1) Overall Mean
		Sariab	Elvas	El Encin	Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Ankara (Univ.)	Urfa	
ILL 241	241	29	32	35	39	39	38	37	27	20	31	31
FLIP 84- 51L	5722	36	34	36	43	42	36	40	31	23	32	33
FLIP 84-105L	5775	31	44	39	36	40	35	30	30	23	30	31
FLIP 85- 19L	5857	33	36	-	32	32	30	20	26	21	27	28
FLIP 85- 22L	5860	27	32	36	45	39	29	24	27	21	30	29
FLIP 85- 32L	5870	30	40	28	44	39	31	27	22	20	29	30
FLIP 86- 26L	6012	28	40	34	34	35	28	19	29	20	30	28
FLIP 86- 28L	6014	34	31	30	36	32	34	28	26	19	30	29
FLIP 86- 29L	6015	35	35	40	42	41	36	33	27	23	30	32
FLIP 86- 32L	6018	39	35	31	45	40	37	35	35	22	32	33
FLIP 86- 44L	6030	27	31	28	32	36	29	29	31	21	29	28
FLIP 86- 45L	6031	31	35	36	42	37	33	27	29	21	30	29
FLIP 86- 61L	6047	24	34	39	34	42	32	36	33	20	31	30
FLIP 86- 62L	6048	31	40	36	56	31	27	33	25	20	28	30
FLIP 86- 63L	6049	32	34	30	37	36	34	27	30	20	27	28
FLIP 86- 64L	6050	30	24	34	37	38	32	21	31	20	27	28
FLIP 86- 65L	6051	31	28	26	28	33	30	38	31	19	30	30
FLIP 87- 24L	6214	34	38	42	53	40	30	31	30	21	32	31
FLIP 87- 25L	6215	25	36	31	52	38	27	32	31	23	30	32
FLIP 87- 26L	6216	27	36	36	42	37	32	36	29	22	29	31
FLIP 87- 27L	6217	33	35	40	45	37	30	38	29	20	32	31
FLIP 87- 28L	6218	30	34	28	46	31	29	34	31	24	31	30
FLIP 87- 29L	6219	31	34	32	33	36	34	27	32	24	25	30
FLIP 87- 30L	6220	33	39	30	37	38	31	23	28	25	26	30
FLIP 87- 31L	6221	29	35	36	42	41	34	31	27	22	29	31
FLIP 87- 32L	6222	29	38	34	48	41	33	33	29	20	29	32
FLIP 87- 33L	6223	27	34	36	35	44	31	31	33	26	29	31
FLIP 87- 34L	6224	27	34	40	47	33	29	30	27	23	31	30
FLIP 87- 35L	6225	29	33	36	48	32	30	24	29	25	30	31
FLIP 87- 36L	6226	35	32	30	39	38	31	34	29	24	31	31
FLIP 87- 37L	6227	32	29	31	40	38	29	40	27	24	31	31
FLIP 87- 38L	6228	31	34	31	43	36	31	32	28	25	31	32

Table 5.4.4. Cont'd. ...

Selection	ILL	PAKISTAN	PORTUGAL	SPAIN	SYRIA				TURKEY		(1) Overall Mean
		Sariab	Elvas	El Encin	Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Ankara (Univ.)	Urfa	
FLIP 87- 39L	6229	28	36	33	48	38	32	36	29	23	30	32
FLIP 87- 40L	6230	31	35	32	47	39	31	26	28	24	29	32
FLIP 87- 41L	6231	28	35	38	49	36	31	34	27	23	27	31
FLIP 87- 42L	6232	31	34	35	39	33	34	24	29	21	27	30
FLIP 87- 43L	6233	34	36	32	42	41	34	29	29	22	30	31
FLIP 87- 44L	6234	19	36	39	52	36	34	37	31	21	27	31
FLIP 87- 45L	6235	29	36	34	40	39	34	30	26	23	30	31
FLIP 87- 46L	6236	27	32	30	47	32	31	29	24	19	28	29
FLIP 87- 47L	6237	29	39	30	34	32	31	31	28	–	30	29
FLIP 87- 48L	6238	28	38	34	47	40	35	33	31	20	30	32
FLIP 87- 49L	6239	28	38	34	50	42	35	33	32	21	30	32
FLIP 87- 50L	6240	28	39	36	40	42	34	24	32	22	30	30
FLIP 87- 51L	6241	32	24	34	38	38	31	32	27	19	29	29
FLIP 87- 52L	6242	33	38	39	46	42	35	36	30	23	28	33
FLIP 87- 53L	6243	33	40	35	78	38	34	29	32	22	32	34
FLIP 87- 54L	6244	27	39	27	50	33	30	20	27	18	30	30
FLIP 87- 55L	6245	35	40	37	42	39	33	35	32	22	32	32
FLIP 87- 56L	6246	26	37	36	43	35	34	31	27	23	30	31
FLIP 87- 57L	6247	30	40	36	39	37	28	29	28	20	27	31
FLIP 87- 58L	6248	30	37	32	40	35	31	21	30	23	30	28
S.L.S.	4401	27	36	31	43	36	32	30	29	21	30	30
78S 26013	5588	28	32	32	44	40	31	33	29	20	29	30
Local Check		30	33	34	41	41	32	29	30	24	–	
Location Mean		**30**	**35**	**33**	**43**	**37**	**32**	**31**	**29**	**22**	**29**	
S.E. of Mean		1.31	2.46	0.92	4.04	0.65	1.49	1.45	1.21	0.55	0.34	
L.S.D. at 5% for:												
Checks		4.54	8.52	3.20	13.96	2.23	5.15	5.00	4.19	1.90	1.52	
T.E. in the same block		9.08	17.04	6.40	27.93	4.47	10.30	10.01	8.38	3.80	3.05	
T.E. in different blocks		10.49	19.68	7.39	32.25	5.16	11.89	11.55	9.67	4.39	3.73	
Checks Vs Test entries		8.29	15.56	5.84	25.50	4.08	9.40	9.04	7.65	3.47	2.95	
C.V. %		8.80	14.16	5.53	18.99	3.46	9.26	9.46	8.35	5.53	2.31	

(1) Xining, El Encin and Ankara were excluded from the overall mean.
T.E. = Test entries, S.B. = Same block, D.B. = Different blocks.

Table 5.4.5. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LISN-S during 1986/87.

Selection	ILL	AUSTRALIA		CHINA		IRAN						JORDAN	
		Horsham		Xining		Ghazvin		Hamadan		Karaj		Jubeiha	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 241	241	4803	25	344	33	451	9	883	7	1652	6	409	13
FLIP 84- 51L	5722	5110	14	682	10	484	8	661	17	1537	11	423	11
FLIP 84-105L	5775	4680	29	594	11	406	14	661	16	1470	13	390	15
FLIP 85- 19L	5857	5150	13	147	50	347	22	239	52	711	33	190	44
FLIP 85- 22L	5860	4493	36	325	35	306	27	817	9	1963	3	343	24
FLIP 85- 32L	5870	4963	19	231	43	195	47	683	14	1619	9	381	17
FLIP 86- 26L	6012	4273	42	207	44	340	23	1283	1	2230	1	352	21
FLIP 86- 28L	6014	3920	46	987	4	173	49	594	26	1304	14	371	19
FLIP 86- 29L	6015	4473	37	939	5	284	31	817	10	1119	20	1085	2
FLIP 86- 32L	6018	4357	40	494	18	362	19	950	5	711	32	238	35
FLIP 86- 44L	6030	4270	43	390	29	329	25	528	34	848	27	256	33
FLIP 86- 45L	6031	5287	7	409	26	206	44	483	40	589	37	176	45
FLIP 86- 61L	6047	5230	9	425	25	258	36	572	29	978	25	152	48
FLIP 86- 62L	6048	3397	53	584	12	406	12	683	13	533	40	219	38
FLIP 86- 63L	6049	4540	35	325	36	206	45	594	28	1493	12	314	27
FLIP 86- 64L	6050	4610	30	85	53	214	43	406	44	0	53	476	9
FLIP 86- 65L	6051	3697	52	426	24	273	33	550	30	0	54	219	37
FLIP 87- 24L	6214	5227	10	498	17	195	46	417	43	189	52	219	39
FLIP 87- 25L	6215	5390	5	377	30	258	37	239	53	467	42	190	42
FLIP 87- 26L	6216	4770	27	459	21	169	51	239	54	422	43	205	41
FLIP 87- 27L	6217	5187	11	529	15	351	21	350	47	200	51	133	49
FLIP 87- 28L	6218	4780	26	92	52	192	48	839	8	278	47	190	43
FLIP 87- 29L	6219	3860	50	194	46	229	41	394	45	748	31	409	12
FLIP 87- 30L	6220	4040	45	-	-	573	3	594	25	1148	18	609	6
FLIP 87- 31L	6221	3883	47	164	48	151	52	483	41	796	28	714	4
FLIP 87- 32L	6222	5007	18	693	9	351	20	550	31	678	35	104	51
FLIP 87- 33L	6223	4870	23	236	42	151	53	394	46	659	36	314	28
FLIP 87- 34L	6224	5090	17	350	32	492	6	506	35	689	34	219	40
FLIP 87- 35L	6225	4587	33	266	38	229	40	1017	4	400	44	85	52
FLIP 87- 36L	6226	4593	32	338	34	584	2	283	50	1219	17	457	10
FLIP 87- 37L	6227	5250	8	246	40	147	54	506	37	222	50	171	47
FLIP 87- 38L	6228	4820	24	461	20	381	17	506	36	389	45	171	46

Table 5.4.5. Cont'd. ...

Selection	ILL	AUSTRALIA		CHINA		IRAN						JORDAN	
		Horsham		Xining		Ghazvin		Hamadan		Karaj		Jubeiha	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 39L	6229	5930	1	470	19	425	10	239	55	589	38	248	34
FLIP 87- 40L	6230	4913	22	402	27	551	4	617	23	1263	15	-	-
FLIP 87- 41L	6231	4073	44	579	13	418	11	550	33	1141	19	323	26
FLIP 87- 42L	6232	4580	34	445	23	536	5	506	38	767	30	348	22
FLIP 87- 43L	6233	4350	41	256	39	329	24	261	51	1026	22	390	16
FLIP 87- 44L	6234	5510	4	-	-	369	18	639	18	489	41	262	32
FLIP 87- 45L	6235	4470	38	242	41	218	42	594	27	548	39	294	29
FLIP 87- 46L	6236	4593	31	396	28	318	26	617	22	1563	10	495	8
FLIP 87- 47L	6237	3060	54	1028	3	262	35	794	11	1048	21	323	25
FLIP 87- 48L	6238	4957	20	737	8	295	28	417	42	267	48	1666	1
FLIP 87- 49L	6239	5717	3	353	31	251	38	883	6	0	55	114	50
FLIP 87- 50L	6240	2000	55	502	16	295	30	328	48	970	26	380	18
FLIP 87- 51L	6241	3770	51	101	51	295	29	594	24	1637	8	656	5
FLIP 87- 52L	6242	4437	39	908	6	395	16	617	20	1000	23	76	53
FLIP 87- 53L	6243	5787	2	1037	1	395	15	1083	3	1233	16	47	54
FLIP 87- 54L	6244	4930	21	148	49	169	50	639	19	267	49	229	36
FLIP 87- 55L	6245	5387	6	1035	2	406	13	483	39	356	46	276	31
FLIP 87- 56L	6246	5153	12	315	37	606	1	283	49	1674	5	400	14
FLIP 87- 57L	6247	4743	28	453	22	484	7	1150	2	1796	4	1066	3
FLIP 87- 58L	6248	3863	49	175	47	251	39	550	32	1652	7	343	23
S.L.S.	4401	5098	16	198	45	275	32	617	21	994	24	281	30
78S 26013	5588	5103	15	544	14	133	55	700	12	783	29	357	20
Local Check		3880	48	894	7	267	34	667	15	2156	2	533	7
Location Mean		4643		465		307		602		974		363	
S.E. of Mean		120.50		138.96		27.26		132.52		398.95		87.18	
L.S.D. at 5% for:													
Checks		416.94		480.82		94.33		458.53		1380.40		301.64	
T.E. in S.B.		833.87		961.64		188.67		917.06		2760.80		603.29	
T.E. in D.B.		962.87		1110.40		217.86		1058.93		3187.90		696.62	
Checks Vs T.E.		761.33		877.98		172.26		837.28		2520.63		550.81	
C.V. %		5.19		62.75		17.75		44.06		82.47		48.91	
Test > L. Check		27		0		9		0		0		2	

Cont'd. ...

Table 5.4.5. Cont'd. ...

Selection	ILL	JORDAN		LEBANON		MOROCCO		PAKISTAN					
		Marow		Terbol		Marchouch		Faisalabad *		Quetta (ARI)		Sariab	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 241	241	–	–	1819	37	725	16	–	–	248	49	1571	36
FLIP 84- 51L	5722	775	16	1968	32	1342	1	–	–	373	31	2144	13
FLIP 84-105L	5775	495	22	2745	9	967	6	222	9	455	13	1004	49
FLIP 85- 19L	5857	–	–	1116	54	133	49	167	13	158	53	1451	44
FLIP 85- 22L	5860	497	21	2375	21	625	31	–	–	606	3	2241	10
FLIP 85- 32L	5870	587	19	2042	30	650	24	111	14	363	34	1491	41
FLIP 86- 26L	6012	457	24	1208	53	775	14	–	–	185	51	1851	21
FLIP 86- 28L	6014	–	–	1301	52	942	7	556	2	262	47	1674	33
FLIP 86- 29L	6015	837	14	2708	14	650	22	278	7	393	25	2401	6
FLIP 86- 32L	6018	1210	7	1708	40	1225	2	333	4	162	52	2004	15
FLIP 86- 44L	6030	–	–	1579	43	17	54	222	9	355	35	1694	30
FLIP 86- 45L	6031	–	–	1542	44	75	52	222	9	388	26	2204	11
FLIP 86- 61L	6047	437	25	1394	47	358	39	333	4	288	43	601	54
FLIP 86- 62L	6048	1550	3	1597	41	825	12	–	–	146	54	994	51
FLIP 86- 63L	6049	475	23	1412	46	492	35	–	–	483	11	1794	24
FLIP 86- 64L	6050	1037	10	1894	35	108	51	389	3	271	46	811	52
FLIP 86- 65L	6051	–	–	2042	28	425	37	–	–	–	–	1294	46
FLIP 87- 24L	6214	1020	11	1375	50	275	41	–	–	276	44	2004	16
FLIP 87- 25L	6215	–	–	2005	31	308	40	–	–	540	7	351	55
FLIP 87- 26L	6216	–	–	1782	38	158	48	–	–	426	18	1461	43
FLIP 87- 27L	6217	900	12	2153	26	200	46	–	–	335	38	1764	27
FLIP 87- 28L	6218	–	–	2727	10	208	45	–	–	493	9	1741	28
FLIP 87- 29L	6219	–	–	2245	23	917	9	–	–	332	39	1774	26
FLIP 87- 30L	6220	585	20	2745	7	617	32	–	–	384	27	1614	34
FLIP 87- 31L	6221	1697	1	2486	18	650	23	–	–	335	37	1831	22
FLIP 87- 32L	6222	–	–	2042	27	925	8	–	–	414	21	1774	25
FLIP 87- 33L	6223	635	18	2356	22	517	34	–	–	560	6	1894	19
FLIP 87- 34L	6224	1247	6	2505	16	258	43	–	–	295	42	791	53
FLIP 87- 35L	6225	–	–	1764	39	425	36	–	–	188	50	1694	31
FLIP 87- 36L	6226	–	–	2819	6	650	25	–	–	309	41	2561	4
FLIP 87- 37L	6227	–	–	2171	25	633	26	–	–	576	4	2461	5
FLIP 87- 38L	6228	–	–	2394	20	633	27	–	–	382	28	2391	7

Table 5.4.5. Cont'd. ...

Selection	ILL	JORDAN		LEBANON		MOROCCO		PAKISTAN					
		Marow		Terbol		Marchouch		Faisalabad *		Quetta (ARI)		Sariab	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 39L	6229	-	-	2727	11	233	44	-	-	423	19	1351	45
FLIP 87- 40L	6230	-	-	2708	13	625	28	-	-	401	24	1501	40
FLIP 87- 41L	6231	-	-	3153	1	700	18	-	-	447	16	1991	18
FLIP 87- 42L	6232	-	-	2394	19	58	53	-	-	379	29	1151	47
FLIP 87- 43L	6233	0	28	3079	3	1067	4	-	-	367	33	2704	3
FLIP 87- 44L	6234	-	-	2616	15	108	50	-	-	406	22	1681	32
FLIP 87- 45L	6235	-	-	2745	8	192	47	-	-	492	10	2164	12
FLIP 87- 46L	6236	637	17	2708	12	625	30	-	-	459	12	1511	39
FLIP 87- 47L	6237	335	26	1912	34	867	10	-	-	432	17	1464	42
FLIP 87- 48L	6238	-	-	1319	51	0	55	-	-	372	32	1804	23
FLIP 87- 49L	6239	1180	8	1375	49	1175	3	-	-	563	5	994	50
FLIP 87- 50L	6240	125	27	1079	55	392	38	-	-	339	36	2354	9
FLIP 87- 51L	6241	1395	5	3079	4	842	11	333	4	404	23	2914	2
FLIP 87- 52L	6242	-	-	1819	36	1050	5	1111	1	329	40	1114	48
FLIP 87- 53L	6243	-	-	2486	17	800	13	56	15	254	48	2364	8
FLIP 87- 54L	6244	-	-	2171	24	583	33	-	-	662	2	1871	20
FLIP 87- 55L	6245	1050	9	1375	48	275	42	222	9	531	8	2054	14
FLIP 87- 56L	6246	817	15	3153	2	625	29	-	-	451	14	1571	35
FLIP 87- 57L	6247	0	28	2931	5	700	17	-	-	419	20	3131	1
FLIP 87- 58L	6248	0	28	2042	29	700	19	-	-	895	1	1531	38
S.L.S.	4401	843	13	1583	42	681	21	-	-	272	45	1730	29
78S 26013	5588	1521	4	1917	33	694	20	-	-	377	30	1540	37
Local Check		1668	2	1514	45	750	15	276	8	451	15	2003	17
Location Mean		**800**		**2046**		**593**		**322**		**381**		**1744**	
S.E. of Mean		210.14		161.11		75.83		-		59.31		268.00	
L.S.D. at 5% for:													
Checks		727.10		557.45		262.39		-		205.22		927.28	
T.E. in S.B.		1454.21		1114.89		524.78		-		410.44		1854.56	
T.E. in D.B.		1679.17		1287.36		605.97		-		473.93		2141.46	
Checks Vs T.E.		1327.70		1017.90		479.13		-		374.73		1693.23	
C.V. %		70.65		15.75		25.66		-		31.14		30.73	
Test > L. Check		0		15		1		-		1		0	

Cont'd. ...

Table 5.4.5. Cont'd. ...

Selection	ILL	PORTUGAL		SPAIN		SYRIA									
		Elvas		El Encin		Gelline		Heimo		Idleb		Izra'a		Tel Hadya	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 241	241	1328	25	1459	6	1583	41	1685	40	2019	16	2139	29	1133	7
FLIP 84- 51L	5722	1411	21	954	36	1350	50	2825	5	1549	43	3161	5	1012	20
FLIP 84-105L	5775	1286	26	1921	1	1300	51	1515	46	2602	2	2761	15	1023	18
FLIP 85- 19L	5857	1947	9	-	-	1783	35	1785	36	1422	48	983	54	585	52
FLIP 85- 22L	5860	1361	23	1275	11	1483	47	1605	44	2160	10	1472	47	1133	8
FLIP 85- 32L	5870	1803	10	676	50	2133	24	1405	51	1149	54	806	55	631	51
FLIP 86- 26L	6012	2003	8	929	38	883	54	1815	34	1595	38	2272	26	1144	5
FLIP 86- 28L	6014	1153	37	914	39	1500	46	865	55	1640	35	4228	2	532	54
FLIP 86- 29L	6015	1544	17	1711	2	1883	30	2055	27	1540	44	2739	16	781	45
FLIP 86- 32L	6018	1506	19	1483	5	2383	12	2275	18	2202	9	1983	34	1122	10
FLIP 86- 44L	6030	378	55	883	42	700	55	1735	38	2459	4	1294	51	937	23
FLIP 86- 45L	6031	1647	14	699	48	1633	39	2205	21	2087	13	2317	24	898	29
FLIP 86- 61L	6047	1239	31	1190	19	1433	49	1875	32	2246	7	1783	39	873	33
FLIP 86- 62L	6048	1214	32	611	52	1883	31	1475	47	1828	30	2517	21	567	53
FLIP 86- 63L	6049	1194	36	218	54	2450	10	1425	49	1921	21	1828	38	873	34
FLIP 86- 64L	6050	656	52	1573	3	1933	29	2235	20	1239	52	1850	37	1097	11
FLIP 86- 65L	6051	1122	39	693	49	1983	27	1755	37	1944	20	2650	17	1026	17
FLIP 87- 24L	6214	1714	13	1091	22	2833	3	2075	26	1971	17	2050	31	888	30
FLIP 87- 25L	6215	956	44	1355	9	2233	19	1685	41	1583	40	1450	48	927	25
FLIP 87- 26L	6216	1756	11	1081	26	2633	6	1305	53	1668	33	1450	49	980	21
FLIP 87- 27L	6217	1406	22	1332	10	2933	2	2375	16	1332	51	2983	10	1336	1
FLIP 87- 28L	6218	1239	30	863	44	2133	23	2075	25	1165	53	1583	45	1065	13
FLIP 87- 29L	6219	978	42	1021	32	2150	22	2395	15	1857	25	2028	32	841	37
FLIP 87- 30L	6220	669	51	815	46	1950	28	2465	13	2104	12	2628	19	788	44
FLIP 87- 31L	6221	919	47	1214	17	1833	32	2155	23	2237	8	1872	36	834	38
FLIP 87- 32L	6222	2039	7	633	51	2433	11	2545	10	1596	37	2850	14	1048	14
FLIP 87- 33L	6223	953	46	1042	30	1500	45	2345	17	2117	11	2894	13	1033	16
FLIP 87- 34L	6224	1497	20	871	43	2383	13	1995	29	1620	36	1583	43	799	42
FLIP 87- 35L	6225	689	50	1073	27	2483	9	1415	50	1582	41	1717	40	1122	9
FLIP 87- 36L	6226	1128	38	821	45	1683	38	1715	39	2332	5	2139	30	1048	15
FLIP 87- 37L	6227	956	45	1221	14	2083	25	2155	22	1461	47	2517	20	745	48
FLIP 87- 38L	6228	1356	24	1230	12	1533	42	2035	28	2250	6	1050	53	745	47

Table 5.4.5. Cont'd. ...

Selection	ILL	PORTUGAL		SPAIN		SYRIA									
		Elvas		El Encin		Gelline		Heimo		Idleb		Izra'a		Tel Hadya	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 39L	6229	639	53	1436	7	2383	14	2405	14	2021	15	2250	28	820	40
FLIP 87- 40L	6230	1636	15	1193	18	1733	37	1275	54	1566	42	1606	42	888	31
FLIP 87- 41L	6231	1253	27	1115	20	1733	36	1785	35	1528	45	1672	41	866	35
FLIP 87- 42L	6232	831	49	1230	13	2333	15	1975	30	1421	49	1583	44	777	46
FLIP 87- 43L	6233	1253	28	1217	16	2650	5	3045	3	2085	14	3094	9	916	28
FLIP 87- 44L	6234	1122	40	485	53	2083	26	2475	12	1953	18	2250	27	1076	12
FLIP 87- 45L	6235	836	48	955	35	2550	8	1395	52	1948	19	3961	3	927	26
FLIP 87- 46L	6236	1603	16	1051	29	2183	20	1825	33	1867	24	1206	52	877	32
FLIP 87- 47L	6237	969	43	1434	8	1150	53	1435	48	1023	55	1561	46	724	49
FLIP 87- 48L	6238	1731	12	992	34	3983	1	3145	1	1713	32	5183	1	930	24
FLIP 87- 49L	6239	1531	18	1084	24	2233	18	2655	7	1519	46	3117	7	813	41
FLIP 87- 50L	6240	1203	34	1490	4	1250	52	1605	43	1757	31	1361	50	671	50
FLIP 87- 51L	6241	628	54	1061	28	1800	33	2485	11	1586	39	3161	6	863	36
FLIP 87- 52L	6242	2497	3	1099	21	2283	16	2615	8	1872	23	2450	22	792	43
FLIP 87- 53L	6243	2539	2	950	37	2683	4	2955	4	2711	1	2917	12	1133	6
FLIP 87- 54L	6244	1247	29	1036	31	1433	48	3085	2	1833	28	3450	4	478	55
FLIP 87- 55L	6245	2072	6	1217	15	2583	7	2575	9	1830	29	3117	8	1165	2
FLIP 87- 56L	6246	2186	5	1091	23	1783	34	2085	24	1835	27	1939	35	1165	3
FLIP 87- 57L	6247	2553	1	1083	25	1533	43	1915	31	1414	50	2406	23	1165	4
FLIP 87- 58L	6248	2469	4	913	40	1633	40	1515	45	2512	3	2272	25	973	22
S.L.S.	4401	1115	41	785	47	1513	44	1623	42	1852	26	2000	33	923	27
78S 26013	5588	1213	33	886	41	2275	17	2270	19	1918	22	2633	18	1017	19
Local Check		1198	35	1010	33	2163	21	2783	6	1642	34	2917	11	830	39
Location Mean		1343		1046		1983		2066		1814		2318		917	
S.E. of Mean		305.66		92.50		108.25		305.58		190.98		366.37		78.79	
L.S.D. at 5% for:															
Checks		1057.61		320.05		374.56		1057.31		660.81		1267.67		272.63	
T.E. in S.B.		2115.22		640.10		749.13		2114.63		1321.63		2535.34		545.26	
T.E. in D.B.		2442.44		739.13		865.02		2441.76		1526.09		2927.55		629.61	
Checks Vs T.E.		1931.21		584.42		683.96		1930.67		1206.66		2314.78		497.82	
C.V. %		45.53		17.68		10.92		29.58		21.05		31.62		17.19	
Test > L. Check		0		2		2		0		0		0		1	

Cont'd. ...

Table 5.4.5. Cont'd. ...

Selection	ILL	TUNISIA						TURKEY						(1) Overall Mean	
		Beja		El Kef		Oued Meliz		Ankara (Univ.)		Diyarbakir		Urfa			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 241	241	2454	37	425	53	1812	31	28	9	–	–	1638	19	1576	33
FLIP 84- 51L	5722	3438	3	575	46	4412	1	–	–	–	–	1905	11	1959	2
FLIP 84-105L	5775	2388	40	875	38	2512	13	47	5	–	–	1172	44	1657	23
FLIP 85- 19L	5857	1404	52	1492	21	1278	49	31	8	–	–	1352	36	1296	52
FLIP 85- 22L	5860	1704	50	475	51	1012	52	0	20	1080	19	1772	14	1534	39
FLIP 85- 32L	5870	1354	54	1375	28	1812	33	123	3	–	–	1772	13	1458	45
FLIP 86- 26L	6012	1404	53	1575	17	912	54	0	20	–	–	2225	3	1554	36
FLIP 86- 28L	6014	1838	49	725	42	2612	10	2	19	–	–	1398	31	1481	44
FLIP 86- 29L	6015	2554	31	1575	18	2712	9	42	6	1160	17	1932	10	1787	10
FLIP 86- 32L	6018	2954	17	658	43	2498	16	–	–	–	–	1212	43	1682	19
FLIP 86- 44L	6030	1888	47	1175	34	2512	12	–	–	–	–	1518	27	1345	48
FLIP 86- 45L	6031	2154	45	1258	33	1498	45	–	–	–	–	2185	4	1592	30
FLIP 86- 61L	6047	2154	44	842	40	778	55	13	15	–	–	925	49	1324	50
FLIP 86- 62L	6048	2704	25	408	54	1798	35	–	–	–	–	918	50	1328	49
FLIP 86- 63L	6049	2488	35	1275	32	2512	14	–	–	–	–	1358	34	1574	35
FLIP 86- 64L	6050	604	55	1592	15	1278	50	10	16	–	–	1352	35	1231	53
FLIP 86- 65L	6051	2954	15	1008	36	1498	44	6	17	–	–	945	48	1397	47
FLIP 87- 24L	6214	2754	24	1608	12	1998	27	–	–	1720	3	1558	24	1634	25
FLIP 87- 25L	6215	3204	10	1592	14	2178	24	–	–	–	–	1405	29	1487	43
FLIP 87- 26L	6216	2254	42	1592	16	2278	22	26	10	2360	1	1658	18	1500	41
FLIP 87- 27L	6217	3054	14	1708	6	2398	20	–	–	–	–	1772	12	1769	11
FLIP 87- 28L	6218	3354	4	1492	20	1778	36	–	–	1920	2	1232	41	1576	32
FLIP 87- 29L	6219	2438	39	1375	27	2412	17	–	–	–	–	865	52	1547	38
FLIP 87- 30L	6220	2788	23	1690	9	3612	3	–	–	–	–	1332	38	1763	12
FLIP 87- 31L	6221	3104	13	2225	1	1312	47	–	–	1440	8	1612	20	1596	28
FLIP 87- 32L	6222	3254	8	358	55	3298	4	–	–	–	–	1425	28	1810	8
FLIP 87- 33L	6223	2788	22	1525	19	3112	6	–	–	–	–	1372	33	1724	16
FLIP 87- 34L	6224	2904	19	1692	8	1678	38	–	–	–	–	2378	1	1620	27
FLIP 87- 35L	6225	3654	2	858	39	1998	26	–	–	1280	12	1212	42	1502	40
FLIP 87- 36L	6226	2554	32	1675	10	1812	32	3	18	–	–	1985	9	1727	15
FLIP 87- 37L	6227	3254	9	1942	2	1978	28	–	–	1200	16	1405	30	1692	18
FLIP 87- 38L	6228	2904	18	1392	26	1578	42	–	–	–	–	1138	45	1549	37

Table 5.4.5. Cont'd. ...

Selection	ILL	TUNISIA						TURKEY						Overall Mean (1)	
		Beja		El Kef		Oued Meliz		Ankara (Univ.)		Diyarbakir		Urfa			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 39L	6229	3104	11	1592	13	2178	23	267	1	-	-	912	51	1679	20
FLIP 87- 40L	6230	3104	12	1675	11	1012	53	18	13	1400	9	1585	22	1592	29
FLIP 87- 41L	6231	2854	21	1775	5	1812	30	84	4	1560	6	1665	17	1634	24
FLIP 87- 42L	6232	1554	51	1692	7	1778	37	14	14	1360	10	1392	32	1428	46
FLIP 87- 43L	6233	2688	27	1475	22	3212	5	-	-	1240	14	865	53	1915	3
FLIP 87- 44L	6234	2554	30	1842	3	1578	40	19	12	-	-	1072	47	1657	22
FLIP 87- 45L	6235	2688	26	1475	23	2512	15	-	-	-	-	1998	8	1762	13
FLIP 87- 46L	6236	2454	36	475	50	1312	48	-	-	-	-	2172	5	1576	34
FLIP 87- 47L	6237	1888	48	1275	31	1912	29	-	-	1240	14	1572	23	1297	51
FLIP 87- 48L	6238	2904	20	1358	30	2298	21	-	-	-	-	1345	37	1890	4
FLIP 87- 49L	6239	3704	1	558	47	2998	7	-	-	-	-	1265	39	1742	14
FLIP 87- 50L	6240	2038	46	775	41	2412	18	-	-	-	-	718	54	1197	54
FLIP 87- 51L	6241	2438	38	1425	25	3612	2	-	-	-	-	1612	21	1841	6
FLIP 87- 52L	6242	2554	29	508	49	1798	34	-	-	-	-	1118	46	1625	26
FLIP 87- 53L	6243	2654	28	458	52	2898	8	-	-	-	-	2038	6	2077	1
FLIP 87- 54L	6244	3254	7	642	45	1578	41	-	-	-	-	1538	25	1657	21
FLIP 87- 55L	6245	2954	16	658	44	2398	19	-	-	-	-	2278	2	1805	9
FLIP 87- 56L	6246	2204	43	1775	4	2612	11	-	-	1280	12	1718	15	1823	7
FLIP 87- 57L	6247	2504	34	1375	29	1612	39	-	-	1680	4	1665	16	1861	5
FLIP 87- 58L	6248	2504	33	525	48	1112	51	40	7	-	-	1518	26	1584	31
S.L.S.	4401	2275	41	963	37	1425	46	25	11	1160	17	2017	7	1497	42
78S 26013	5588	3263	6	1450	24	2000	25	-	-	1340	11	1233	40	1695	17
Local Check		3275	5	1163	35	1510	43	140	2	1680	4	-	-		
Location Mean		2634		1214		2019		45		1456		1504			
S.E. of Mean		329.22		232.25		421.03		3.92		-		137.78			
L.S.D. at 5% for:															
Checks		1139.12		803.61		1456.80		17.65		-		619.92			
T.E. in S.B.		2278.24		1607.21		2913.60		35.30		-		1239.84			
T.E. in D.B.		2630.68		1855.85		3364.34		43.23		-		1518.49			
Checks Vs T.E.		2080.05		1467.40		2660.15		34.18		-		1200.65			
C.V. %		25.00		38.28		41.70		32.46		-		18.17			
Test > L. Check		0		0		1		1		-		0			

(1) Xining, Jubeiha, Marow, Faisalabad, El encin, Ankara and Diyarbakir were excluded from the overall mean.
T.E. = Test entries, S.B. = Same block, D.B. = Different blocks.
* = Location not analysed and thus mean values are unadjusted.

Table 5.4.6. The five heaviest seed yielding entries at the individual locations in the LISN-S during 1986/87.

	AUSTRALIA	CHINA	IRAN			JORDAN		LEBANON	MOROCCO
Rank	Horsham	Xining	Ghazvin	Hamadan	Karaj	Jubeiha	Marow	Terbol	Marchouch
1	FLIP87- 39L	FLIP87- 53L	FLIP87- 56L	FLIP86- 26L	FLIP86- 26L	FLIP87- 48L	FLIP87- 31L	FLIP87- 41L]	FLIP84- 51L
2	FLIP87- 53L	FLIP87- 55L	FLIP87- 36L	FLIP87- 57L	Local Check	FLIP86- 29L	FLIP86- 29L	FLIP87- 56L]	FLIP86- 32L
3	FLIP87- 49L	FLIP87- 47L	FLIP87- 30L	FLIP87- 53L	FLIP85- 22L	flip87- 57L	FLIP87- 56L	FLIP87- 43L	FLIP87- 49L
4	FLIP87- 44L	FLIP86- 28L	FLIP87- 40L	FLIP87- 35L	FLIP87- 57L	FLIP87- 31L	FLIP87- 46L	FLIP87- 51L	FLIP87- 43L
5	FLIP87- 25L	FLIP86- 29L	FLIP87- 42L	FLIP86- 32L	FLIP87- 56L	FLIP87- 51L	FLIP85- 32L	FLIP87- 57L	FLIP87- 52L

Cont'd 2/..

	PAKISTAN			PORTUGAL	SPAIN	SYRIA		
Rank	Faisalabad	Quetta (ARI)	Quetta (Sariab)	Elvas	El Encin	Gelline	Heimo	Idleb
1	FLIP87- 52L	FLIP87- 58L	FLIP87- 57L	FLIP87- 57L	FLIP84-105L	FLIP87- 48L	FLIP87- 48L	FLIP87- 53L
2	FLIP86- 28L	FLIP87- 54L	FLIP87- 51L	FLIP87- 53L	FLIP86- 29L	FLIP87- 27L	FLIP87- 54L	FLIP84-105L
3	FLIP86- 64L	FLIP85- 22L	FLIP87- 43L	FLIP87- 52L	FLIP86- 64L	FLIP87- 24L	FLIP87- 43L	FLIP87- 58L
4	FLIP86- 32L]	FLIP87- 37L	FLIP87- 36L	FLIP87- 58L	FLIP87- 50L	FLIP87- 53L	FLIP87- 53L	FLIP86- 44L
5	FLIP86- 61L] FLIP87- 51L]	FLIP87- 49L	FLIP87- 37L	FLIP87- 56L	FLIP86- 32L	FLIP87- 43L	FLIP84- 51L	FLIP87- 36L

Cont'd 2/..

	SYRIA		TUNISIA			TURKEY		
Rank	Izra'a	Tel Hadya	Beja	El Kef	Oued Meliz	Ankara	Diyarbakir	Urfa
1	FLIP87- 48L	FLIP87- 27L	FLIP87- 49L	FLIP87- 31L	FLIP84- 51L	FLIP87- 39L	FLIP87- 26L	FLIP87- 34L
2	FLIP86- 28L	FLIP87- 55L]	FLIP87- 35L	FLIP87- 37L	FLIP87- 51L]	Local Check	FLIP87- 28L	FLIP87- 55L
3	FLIP87- 45L	FLIP87- 56L]	FLIP84- 51L	FLIP87- 44L	FLIP87- 30L]	FLIP85- 32L	FLIP87- 24L	FLIP86- 26L
4	FLIP87- 54L	FLIP87- 57L]	FLIP87- 28L	FLIP87- 56L	FLIP87- 32L	FLIP87- 41L	FLIP87- 57L]	FLIP86- 45L
5	FLIP84- 51L] FLIP87- 51L]	FLIP86- 26L	Local Check	FLIP87- 41L	FLIP87- 43L	FLIP84-105L	Local Check]	FLIP87- 46L

The brackets indicate entries having the same rank.

heaviest yielders and was followed by FLIP 87-53L, FLIP 87-56L and FLIP 87-43L. These lines were relatively more adaptable.

5.5. LENTIL INTERNATIONAL SCREENING NURSERY - EARLY (LISN-E)

Material

The material for the Lentil International Screening Nursery - Early comprised of 45 test entries and 3 checks, two checks were supplied and one local check was to be added by the cooperator. The entries were selected on the basis of their performance from the germplasm collections and progenies from crosses grown at ICARDA.

Methods and Management

The material comprising 45 test entries and 3 checks was suggested to be planted in an augmented block design. In each block 15 test entries alongwith 3 check entries were sown in single row plots of 4 m length. The spacings between the rows were suggested to be 25 cm.

Sixty sets of screening nursery were supplied to cooperators in 30 countries and the data were received for 34 sets from 21 countries. The data on agronomic characters received from the cooperators are presented in Table 5.5.1.

Results and Discussion

The location mean for time to flowering (Table 5.5.2) ranged from 50 days for Karaj in Iran to 159 days for Tel Hadya in Syria. At 18 locations the location mean for time to flowering was almost same or earlier to that of the respective local check. This revealed that most of the lines supplied in this trial by ICARDA were earlier in flowering. Among the entries FLIP 86-14L was the earliest in flowering (90 days) and was closely followed by FLIP 86-17L, FLIP86-21L, FLIP 86-50L. At Mymensingh in Bangladesh some of the lines did not flower.

The location means for time to maturity (Table 5.5.3) ranged from 74 days at Ghazvin in Iran to 208 days at Larissa in Greece. The overall entry means for time to maturity revealed that the entries FLIP 86-21L, ILL 4605 (Precoz), ILL 1712, ILL 2573 and ILL 4403 were earliest in maturity (131-132)days .

The plant height of entries at different locations is given in Table 5.5.4. The plant height was tallest for FLIP 84-78L and FLIP 86-51L (32 cm) and was followed by FLIP 86-41L (30 cm).

The adjusted seed yield and rank of entries is given in Table 5.5.5. The highest location mean for seed yield was recorded at Faisalabad in Pakistan (9762 kg/ha) and was followed by Horsham in Australia (3889 kg/ha), Oued Meliz in Tunisia (2126 kg/ha), Pulway in Poland (1744 kg/ha), Beja in Tunisia (1712 kg/ha), and Terbol in Lebanon (1621 kg/ha). Among the entries, FLIP 84-112L gave the highest seed yield of 1621 kg/ha which was

Table 5.5.1. Agronomic data for different locations in the LISN-E during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri- gation	Insecticide/Fungicide/Herbicide	Local Check
ALGERIA	Sidi Bel Abbes	16.02.87	08.05.87	15	90		-	-	SYRIE - 229
ALGERIA	Haboul	03.12.86	09.05.87		40		-	-	SYRIE - 229
ALGERIA	Zidane	04.12.86	07.05.87		40		-	-	SYRIE - 229
AUSTRALIA	Horsham	24.07.87	22.12.87		150		-	Trifloralin, Cyanazine, Thiodan, Ripcord	Laird
BANGLADESH	Mymensingh	25.11.86	15.03.87	-			-	-	Bm 513
BRAZIL	Santa Maria	29.06.87	12.11.87	8	60	50	-	-	DF4.80
BURMA	Aungban	13.11.86	14.03.87	50	100		-	-	Aungban
EGYPT	Bahteem	03.12.86	12.05.87	36	72		-	-	Giza - 370
ETHIOPIA	Akaki	18.07.87	16.11.87	-			-	-	NEL - 358
ETHIOPIA	Debre Zeit	14.07.87	10.10.87	-			-	-	NEL - 358
GREECE	Larissa	21.11.86	18.06.87		60		-	Endosulfan, Carbaryl	Dimitra
INDIA	New Delhi	28.11.86	18.04.87	20	40		1	Basudin, Metasystox	L - 830
IRAN	Ghazvin	09.04.87	22.06.87	9	24		-	-	Local
IRAN	Karaj	18.04.87	20.07.87	24	72		8	Treflan, Metasystox	Ghazvin Local
JORDAN	Jubeiha	NA	NA	20	40		-	NA	NA
JORDAN	Marow (Irbid)	18.12.86		20	60		-	-	NA
LEBANON	Terbol	18.11.86	07.06.87		50		-	Kerb, Bladex	Lebanese Local
NEPAL	Khumaltar	30.10.86	30.04.87	20	40		-	-	Simrik
PAKISTAN	Bahawalpur (ARS)	10.11.86	05.04.87	25	62		-	-	Masoor - 85
PAKISTAN	Faisalabad (AARI)	17.11.86		25	50		-	-	Masoor - 85
PAKISTAN	Faisalabad (UAF)	03.11.86	22.04.87	-			-	-	9 - 6
PAKISTAN	Islamabad (NARC)	-	-	-			-	-	-
PAKISTAN	Quetta (ARI)	05.02.87	15.06.87	-			-	Benlate, Calixin M, Actellic	Local
POLAND	Pulawy	16.04.87	21.07.87	30	80	120	-	Gesagard, Actellic, Benlate, Calixin M	Trebisowska
SPAIN	Madrid	26.11.86	01.06.87	24	72		-	Prometryne	ANGELA (LEC - 42)
SYRIA	Tel Hadya	02.11.86	20.05.87		50		-	Kerb, Bladex, Fusilade, Supracide	ILL 4401
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Mateur	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA
TURKEY	Diyarbakir	19.11.86	03.06.87	40	60		-	-	Firat - 87
TURKEY	Eskisehir	08.04.87	18.08.87	40	60				NA
YEMEN A.R.	Dhamar	04.03.87	23.06.87	30	60	30	2	-	Dhamari

NA = Not available.

Table 5.5.2. Adjusted time to flowering (days) of entries at different locations in the LISN-E during 1986/87.

Selection	ILL	Origin	ALGERIA			AUSTRALIA	BANGLADESH	BRAZIL	BURMA	EGYPT	ETHIOPIA
			Haboul	Sidi Bel-Abbes	Zidane	Horsham	Mymensingh	Santa-Maria	Aungban	Bahteem	Debre-Zeit
ILL 358	358	Mexico	115	104	122	93	NF	90	71	94	67
ILL 784	784	Egypt	122	114	123	98	NF	83	71	86	-
EL-42	1712	Ethiopia	113	94	111	92	72	86	68	77	51
L 528(75)	1983	Ethiopia	121	104	119	92	75	83	73	79	48
L 1057	2022	Ethiopia	121	101	121	92	73	83	68	77	47
Pant. L 538	2500	India	113	104	112	92	72	79	74	78	47
Pant. L 406	2501	India	111	105	120	91	77	87	74	83	52
Pant. L 639	2573	India	120	101	122	91	79	80	71	79	47
L 1278	2580	India	119	102	116	91	76	83	69	77	48
L 1282	2581	India	113	101	113	91	74	76	66	74	40
LL 1	2582	India	119	102	109	91	76	80	69	81	42
B 77	3493	India	115	104	120	91	82	83	71	77	50
LG 46	3517	India	121	104	122	92	81	83	74	79	42
LL 37	3601	India	121	101	122	92	75	79	73	77	51
LL 57	3614	India	121	105	127	93	87	90	73	86	56
LP 286	4377	India	120	104	119	91	76	83	71	80	49
162	4403	Pakistan	121	101	120	92	73	83	74	78	48
Fam 370	5486	Egypt	120	94	119	95	61	76	64	72	39
FLIP 84- 78L	5748	ICARDA	121	104	111	92	76	79	73	83	51
FLIP 84-112L	5782	ICARDA	121	104	111	92	69	83	74	82	48
FLIP 86- 14L	6000	ICARDA	114	95	107	91	55	60	67	68	49
FLIP 86- 17L	6003	ICARDA	114	95	107	91	NF	60	67	68	49
FLIP 86- 21L	6007	ICARDA	114	94	111	92	53	59	67	68	48
FLIP 86- 38L	6024	ICARDA	113	94	114	91	NF	80	70	75	50
FLIP 86- 39L	6025	ICARDA	119	102	109	91	76	76	69	77	42
FLIP 86- 40L	6026	ICARDA	119	102	111	91	91	90	74	80	52
FLIP 86- 41L	6027	ICARDA	120	101	114	98	88	83	64	80	49
FLIP 86- 42L	6028	ICARDA	120	101	114	98	88	97	69	81	67
FLIP 86- 49L	6035	ICARDA	119	95	109	91	NF	60	68	68	49

Table 5.5.2. Cont'd. ...

Selection	ILL	Origin	ALGERIA			AUSTRALIA	BANGLADESH	BRAZIL	BURMA	EGYPT	ETHIOPIA
			Haboul	Sidi Bel-Abbes	Zidane	Horsham	Mymensingh	Santa-Maria	Aungban	Bahteem	Debre-Zeit
FLIP 86- 50L	6036	ICARDA	112	95	107	91	59	60	74	68	51
FLIP 86- 51L	6037	ICARDA	112	94	110	91	61	56	64	72	48
FLIP 86- 53L	6039	ICARDA	119	102	120	95	NF	97	76	86	-
FLIP 87- 64L	6254	ICARDA	115	101	114	91	NF	93	71	84	55
FLIP 87- 65L	6255	ICARDA	119	102	118	91	73	76	69	80	51
FLIP 87- 66L	6256	ICARDA	119	102	117	91	88	87	74	81	48
FLIP 87- 67L	6257	ICARDA	115	101	113	91	NF	93	69	80	71
FLIP 87- 68L	6258	ICARDA	114	101	120	92	78	79	74	74	49
FLIP 87- 69L	6259	ICARDA	119	102	109	91	87	76	73	80	59
FLIP 87- 70L	6260	ICARDA	113	101	119	92	73	79	74	76	50
FLIP 87- 71L	6261	ICARDA	113	94	111	92	72	86	68	77	48
FLIP 87- 72L	6262	ICARDA	114	101	113	92	81	79	74	75	54
FLIP 87- 73L	6263	ICARDA	115	101	111	91	NF	87	69	77	47
FLIP 87- 74L	6264	ICARDA	112	94	110	91	82	93	71	80	56
FLIP 87- 75L	6265	ICARDA	114	101	112	92	79	86	73	77	51
FLIP 87- 76L	6266	ICARDA	114	95	108	91	81	80	74	74	51
Jord. Local	4354	Jordan	121	103	119	92	NF	90	73	81	66
Precoz	4605	Argentina	113	94	109	91	58	57	69	68	51
Local Check			120	104	116	104	49	80	67	68	67
Location Mean			117	100	115	92	75	80	71	77	51
S.E. of Mean			0.75	0.58	0.81	0.39	0.94	0.69	1.56	0.00	0.47
L.S.D. at 5% for:											
Checks			2.93	2.27	3.16	1.51	5.74	2.72	6.11	0.00	1.85
Test entries in the same block			5.07	3.93	5.47	2.62	9.94	4.72	10.59	0.00	3.21
Test entries in different blocks			5.85	4.53	6.32	3.02	12.17	5.45	12.23	0.00	3.70
Checks Vs test entries			4.78	3.70	5.16	2.47	9.94	4.45	9.99	0.00	3.02
C.V. %			1.10	1.00	1.22	0.72	2.73	1.51	3.82	0.00	1.75

Cont'd. ...

Table 5.5.2. Cont'd. ...

Selection	ILL	ETHIOPIA	GREECE	INDIA	IRAN		JORDAN		LEBANON	NEPAL
		Akaki	Larissa	New Delhi	Ghazvin	Karaj	Jubeiha	Marow	Terbol	khumaltar
ILL 358	358	60	150	91	60	53	126	114	141	143
ILL 784	784	72	152	85	66	52	126	112	135	145
EL-42	1712	52	149	76	48	51	127	107	133	128
L 528(75)	1983	49	151	76	48	50	126	106	135	154
L 1057	2022	48	150	79	49	51	126	107	135	146
Pant. L 538	2500	48	150	79	48	50	126	106	135	153
Pant. L 406	2501	52	152	78	49	49	124	110	135	122
Pant. L 639	2573	45	149	79	59	51	124	108	133	126
L 1278	2580	43	151	78	49	48	-	-	133	122
L 1282	2581	48	148	79	59	50	125	109	137	146
LL 1	2582	45	150	75	49	49	123	-	133	133
B 77	3493	48	150	85	59	50	125	109	135	142
LG 46	3517	48	151	80	48	50	126	107	135	141
LL 37	3601	48	150	68	49	51	126	106	135	131
LL 57	3614	54	159	86	49	50	123	-	141	122
LP 286	4377	46	148	81	59	52	125	109	135	126
162	4403	48	151	76	48	50	126	108	131	152
Fam 370	5486	40	149	75	59	51	123	111	135	130
FLIP 84- 78L	5748	51	158	87	48	50	124	109	139	156
FLIP 84-112L	5782	47	153	77	48	49	127	109	139	145
FLIP 86- 14L	6000	51	150	67	49	49	124	108	131	124
FLIP 86- 17L	6003	48	151	67	49	49	124	107	131	146
FLIP 86- 21L	6007	45	151	68	49	51	126	107	129	144
FLIP 86- 38L	6024	51	148	75	59	50	124	108	131	126
FLIP 86- 39L	6025	43	150	72	49	49	124	-	133	121
FLIP 86- 40L	6026	48	150	78	49	48	125	107	135	144
FLIP 86- 41L	6027	45	148	81	59	51	123	111	137	136
FLIP 86- 42L	6028	61	148	88	62	54	126	111	131	129
FLIP 86- 49L	6035	46	159	69	49	49	124	107	131	145

Table 5.5.2. Cont'd. ...

Selection	ILL	ETHIOPIA	GREECE	INDIA	IRAN		JORDAN		LEBANON	NEPAL
		Akaki	Larissa	New Delhi	Ghazvin	Karaj	Jubeiha	Marow	Terbol	khumaltar
FLIP 86- 50L	6036	48	152	71	49	49	124	107	131	131
FLIP 86- 51L	6037	51	149	87	59	50	125	108	131	136
FLIP 86- 53L	6039	69	150	94	60	59	123	107	133	151
FLIP 87- 64L	6254	65	148	81	60	52	125	111	133	148
FLIP 87- 65L	6255	48	150	76	49	50	124	110	133	125
FLIP 87- 66L	6256	48	150	78	49	48	124	107	135	128
FLIP 87- 67L	6257	68	148	85	60	54	125	109	131	143
FLIP 87- 68L	6258	51	149	70	48	49	126	106	129	134
FLIP 87- 69L	6259	48	145	79	49	49	124	107	131	127
FLIP 87- 70L	6260	48	149	76	48	51	126	106	133	152
FLIP 87- 71L	6261	49	152	68	49	49	126	106	131	128
FLIP 87- 72L	6262	51	149	80	48	51	126	106	133	144
FLIP 87- 73L	6263	48	148	76	59	50	124	108	129	138
FLIP 87- 74L	6264	56	147	85	59	51	125	108	131	134
FLIP 87- 75L	6265	48	149	73	49	50	127	106	133	135
FLIP 87- 76L	6266	46	150	69	49	49	124	107	131	120
Jord. Local	4354	61	149	83	52	50	124	108	136	146
Precoz	4605	53	150	70	43	51	125	108	130	144
Local Check		59	156	71	52	50	126	107	145	128
Location Mean		**52**	**151**	**77**	**52**	**50**	**125**	**108**	**134**	**137**
S.E. of Mean		1.26	0.99	0.84	5.63	0.39	0.61	1.12	0.67	1.63
L.S.D. at 5% for:										
Checks		4.95	3.89	3.29	22.11	1.51	2.39	4.41	2.62	6.39
T.E. in the same block		8.58	6.74	5.70	38.29	2.62	4.14	7.63	4.53	11.06
T.E. in different blocks		9.91	7.78	6.59	44.22	3.02	4.78	8.81	5.23	12.78
Checks Vs test entries		8.09	6.35	5.38	36.11	2.47	3.90	7.19	4.27	10.43
C.V. %		4.23	1.14	1.88	18.75	1.32	0.86	1.80	0.86	2.06

Cont'd. ...

Table 5.5.2. Cont'd. ...

Selection	ILL	PAKISTAN			POLAND	SPAIN	SYRIA	TURKEY	YEMEN A.R.	(1) Overall Mean
		Faisalabad (AARI)	Islamabad	Quetta	Pulawy	Madrid	Tel Hadya	Diyarbakir	Dhamar	
ILL 358	358	116	121	80	60	148	162	89	61	101
ILL 784	784	119	121	83	60	153	164	92	76	103
EL-42	1712	103	106	74	56	148	156	97	54	94
L 528(75)	1983	105	109	80	57	145	162	94	56	97
L 1057	2022	101	109	80	56	149	160	94	54	97
Pant. L 538	2500	105	109	80	56	148	159	91	54	96
Pant. L 406	2501	101	112	77	57	151	162	92	54	96
Pant. L 639	2573	103	115	74	56	146	162	92	55	96
L 1278	2580	103	106	76	57	148	160	95	54	95
L 1282	2581	103	113	74	56	145	156	92	55	95
LL 1	2582	103	108	76	56	148	160	98	54	95
B 77	3493	113	113	76	56	145	160	92	55	97
LG 46	3517	105	107	80	57	141	160	93	54	97
LL 37	3601	109	109	80	57	142	162	94	54	96
LL 57	3614	112	118	80	57	154	164	95	66	100
LP 286	4377	109	113	80	57	148	160	92	59	97
162	4403	105	109	74	56	147	159	94	54	96
Fam 370	5486	99	96	80	55	151	154	95	53	94
FLIP 84- 78L	5748	113	96	80	57	149	160	97	54	98
FLIP 84-112L	5782	99	94	80	56	148	162	94	54	96
FLIP 86- 14L	6000	93	84	74	60	146	154	95	54	90
FLIP 86- 17L	6003	93	84	74	60	146	155	95	54	91
FLIP 86- 21L	6007	93	87	74	60	144	155	94	52	91
FLIP 86- 38L	6024	101	110	74	55	150	156	89	55	94
FLIP 86- 39L	6025	95	105	76	56	147	157	95	54	93
FLIP 86- 40L	6026	105	106	80	56	151	162	92	54	97
FLIP 86- 41L	6027	105	111	77	56	148	159	89	55	96
FLIP 86- 42L	6028	111	119	80	60	147	162	92	63	99
FLIP 86- 49L	6035	93	84	74	60	146	154	92	54	92

Table 5.5.2. Cont'd. ...

Selection	ILL	PAKISTAN			POLAND	SPAIN	SYRIA	TURKEY	YEMEN A.R.	(1) Overall Mean
		Faisalabad (AARI)	Islamabad	Quetta	Pulawy	Madrid	Tel Hadya	Diyarbakir	Dhamar	
FLIP 86- 50L	6036	93	93	80	60	147	154	92	54	91
FLIP 86- 51L	6037	93	89	74	60	148	154	89	55	92
FLIP 86- 53L	6039	112	114	83	60	147	160	95	70	102
FLIP 87- 64L	6254	97	113	80	55	145	160	89	65	98
FLIP 87- 65L	6255	105	104	80	60	150	162	95	56	95
FLIP 87- 66L	6256	108	108	76	56	146	160	95	54	96
FLIP 87- 67L	6257	103	113	80	56	144	159	89	67	98
FLIP 87- 68L	6258	93	102	74	56	144	156	91	54	93
FLIP 87- 69L	6259	109	108	80	56	149	157	92	54	95
FLIP 87- 70L	6260	101	107	76	56	143	162	94	56	96
FLIP 87- 71L	6261	101	106	80	55	146	158	94	54	94
FLIP 87- 72L	6262	103	109	83	60	150	157	91	56	96
FLIP 87- 73L	6263	99	113	74	54	148	154	89	55	95
FLIP 87- 74L	6264	105	110	80	54	146	157	89	57	96
FLIP 87- 75L	6265	101	107	80	56	142	159	94	56	95
FLIP 87- 76L	6266	99	98	77	57	146	154	95	56	92
Jord. Local	4354	110	115	80	57	150	162	93	61	99
Precoz	4605	97	93	80	60	147	155	92	55	92
Local Check		101	98	83	62	160	162	92	50	
Location Mean		**103**	**105**	**78**	**58**	**148**	**159**	**93**	**56**	
S.E. of Mean		2.62	1.39	0.10	0.10	0.90	0.19	0.58	0.60	
L.S.D. at 5% for:										
Checks		10.29	5.45	0.38	0.38	3.54	0.76	2.27	2.36	
T.E. in the same block		17.82	9.44	0.65	0.65	6.14	1.31	3.93	4.09	
T.E. in different blocks		20.58	10.90	0.76	0.76	7.09	1.51	4.53	4.72	
Checks Vs test entries		16.80	9.00	0.62	0.62	5.79	1.23	3.70	3.85	
C.V. %		4.41	2.28	0.21	0.29	1.06	0.21	1.08	1.86	

(1) Debre Zeit, Jubeiha, Marow and Dhamar were excluded from the overall mean.
T.E. = Test entries., NF = Not flowered.

Table 5.5.3. Adjusted time to maturity (days) of entries at different locations in the LISN-E during 1986/87.

Selection	ILL	ALGERIA		AUSTRALIA	BANGLADESH	BRAZIL	BURMA	EGYPT	ETHIOPIA	GREECE	INDIA	IRAN	
		Haboul	Sidi - Bel Abbes	Horsham	Mymensingh	Santa-Maria	Aungban	Bahteem	Akaki	Larissa	New - Delhi	Karaj	Ghazvin
ILL 358	358	218	152	145	NM	132	140	146	112	208	146	82	75
ILL 784	784	-	156	142	NM	134	124	156	-	208	144	79	78
EL-42	1712	126	150	130	112	120	120	127	119	211	134	80	72
L 528(75)	1983	125	153	143	104	132	120	134	106	211	135	75	73
L 1057	2022	125	153	140	104	132	120	129	101	211	137	74	72
Pant. L 538	2500	125	153	145	105	120	120	129	118	211	138	78	73
Pant. L 406	2501	128	151	143	106	120	124	150	123	208	141	82	73
Pant. L 639	2573	212	152	132	107	120	124	124	96	208	139	77	73
L 1278	2580	128	148	133	108	132	120	145	89	208	140	73	72
L 1282	2581	212	152	142	111	120	120	141	123	201	137	79	73
LL 1	2582	125	151	128	105	132	120	145	97	208	136	75	73
B 77	3493	212	156	137	109	120	124	126	96	208	144	76	73
LG 46	3517	125	150	130	112	132	124	129	118	211	140	77	74
LL 37	3601	125	153	135	109	132	124	144	99	211	124	75	73
LL 57	3614	129	151	141	113	132	124	155	97	208	143	79	72
LP 286	4377	212	152	142	105	120	120	126	92	208	140	73	72
162	4403	128	153	127	107	120	120	129	118	211	135	81	72
Fam 370	5486	215	156	145	116	132	124	131	90	208	134	88	75
FLIP 84- 78L	5748	125	157	155	120	132	124	154	-	211	143	89	77
FLIP 84-112L	5782	131	157	148	115	132	124	159	121	211	138	81	75
FLIP 86- 14L	6000	125	151	148	107	115	120	147	94	208	125	81	75
FLIP 86- 17L	6003	128	151	143	NM	115	120	150	97	201	128	81	74
FLIP 86- 21L	6007	126	150	140	111	115	120	127	101	211	124	75	75
FLIP 86- 38L	6024	212	152	137	NM	132	124	124	95	208	135	76	75
FLIP 86- 39L	6025	128	148	141	106	132	120	145	101	208	129	72	72
FLIP 86- 40L	6026	128	151	148	108	132	124	150	99	208	141	79	73
FLIP 86- 41L	6027	221	152	142	NM	132	124	151	116	208	141	79	76
FLIP 86- 42L	6028	215	156	155	118	132	124	124	122	208	145	88	76
FLIP 86- 49L	6035	128	151	143	NM	115	120	150	97	201	127	77	74

Table 5.5.3. Cont'd. ...

Selection	ILL	ALGERIA		AUSTRALIA	BANGLADESH	BRAZIL	BURMA	EGYPT	ETHIOPIA	GREECE	INDIA	IRAN	
		Haboul	Sidi - Bel Abbes	Horsham	Mymensingh	Santa-Maria	Aungban	Bahteem	Akaki	Larissa	New - Delhi	Karaj	Ghazvin
FLIP 86- 50L	6036	125	151	148	106	115	124	150	98	208	130	77	74
FLIP 86- 51L	6037	218	152	145	112	115	120	124	96	208	124	78	77
FLIP 86- 53L	6039	128	151	143	NM	134	140	155	-	208	146	88	60
FLIP 87- 64L	6254	212	152	137	NM	132	124	146	90	201	140	77	75
FLIP 87- 65L	6255	125	151	143	102	120	120	150	98	208	137	81	74
FLIP 87- 66L	6256	129	151	133	112	132	124	147	89	208	141	77	73
FLIP 87- 67L	6257	212	152	142	NM	132	124	141	116	208	145	78	79
FLIP 87- 68L	6258	125	153	135	113	120	124	134	120	211	126	79	73
FLIP 87- 69L	6259	129	151	138	108	120	120	150	92	208	141	81	73
FLIP 87- 70L	6260	125	153	143	107	120	120	129	97	204	135	79	74
FLIP 87- 71L	6261	125	153	135	110	132	120	127	97	211	125	76	74
FLIP 87- 72L	6262	128	153	143	118	136	124	154	101	204	139	89	76
FLIP 87- 73L	6263	216	152	137	NM	120	124	141	95	208	137	74	75
FLIP 87- 74L	6264	212	149	127	115	132	124	124	95	201	142	78	75
FLIP 87- 75L	6265	128	153	140	109	132	124	134	120	211	129	76	75
FLIP 87- 76L	6266	125	151	146	NM	120	124	155	97	208	128	79	76
Jord. Local	4354	73	155	144	106	132	124	152	124	209	141	79	76
Precoz	4605	155	149	137	97	115	120	129	100	207	126	77	75
Local Check		157	154	165	85	134	120	155	113	209	129	88	75
Location Mean		151	152	142	109	126	123	141	104	208	135	79	74
S.E. of Mean		49.62	1.11	1.31	7.59	0.00	0.00	3.36	1.25	1.35	0.30	1.64	0.39
L.S.D. at 5% for:													
Checks		194.77	4.34	5.15	13.14	0.00	0.00	13.17	4.90	5.29	1.19	6.45	1.51
T.E. in S.B.		337.34	7.52	8.92	16.10	0.00	0.00	22.81	8.48	9.16	2.07	11.18	2.62
T.E. in D.B.		389.53	8.68	10.30	13.15	0.00	0.00	26.34	9.79	10.58	2.39	12.91	3.02
Checks Vs T.E.		318.10	7.09	8.41	2.54	0.00	0.00	21.51	8.00	8.64	1.95	10.54	2.47
C.V. %		58.64	1.26	1.60	2.00	0.00	0.00	4.12	2.31	1.12	0.39	3.59	0.90

Cont'd. ...

Table 5.5.3. Cont'd. ...

Selection	ILL	JORDAN		LEBANON	NEPAL	PAKISTAN	POLAND	SPAIN	SYRIA	TURKEY	YEMEN	(1) Overall Mean
		Jubeiha	Marow	Terbol	Khumaltar	Quetta	Pulawy	Madrid	Tel-Hadya	Eskisehir	Dhamar	
ILL 358	358	168	143	179	198	108	91	182	199	93	105	140
ILL 784	784	168	139	179	198	108	91	187	202	92	115	141
EL-42	1712	156	137	171	173	105	89	187	195	92	96	132
L 528(75)	1983	159	137	171	181	109	89	179	195	95	105	135
L 1057	2022	159	137	171	179	105	89	182	195	95	96	134
Pant. L 538	2500	168	139	169	170	105	89	177	195	89	96	133
Pant. L 406	2501	167	141	175	194	106	90	185	196	94	96	137
Pant. L 639	2573	166	137	169	172	104	89	180	193	95	96	132
L 1278	2580	-	-	169	194	110	90	183	194	93	96	135
L 1282	2581	168	143	171	190	104	89	177	195	100	96	135
LL 1	2582	164	-	171	174	106	90	187	195	90	96	134
B 77	3493	168	139	173	190	104	89	178	196	100	96	135
LG 46	3517	161	136	171	179	105	89	172	195	95	96	133
LL 37	3601	161	137	171	173	105	92	173	196	90	105	134
LL 57	3614	170	-	175	183	110	92	188	199	92	106	138
LP 286	4377	166	139	169	172	104	89	184	196	93	96	133
162	4403	152	139	169	170	105	89	179	196	94	96	132
Fam 370	5486	181	138	175	192	108	89	188	202	93	96	137
FLIP 84- 78L	5748	161	141	181	196	115	95	186	204	100	105	143
FLIP 84-112L	5782	161	143	179	196	113	92	185	200	100	105	141
FLIP 86- 14L	6000	162	139	175	200	106	96	179	196	97	96	136
FLIP 86- 17L	6003	162	141	175	200	106	93	180	196	96	96	136
FLIP 86- 21L	6007	161	137	169	170	105	91	175	194	96	96	131
FLIP 86- 38L	6024	166	136	171	181	104	89	186	195	101	96	134
FLIP 86- 39L	6025	164	-	175	194	110	90	180	196	95	96	135
FLIP 86- 40L	6026	162	140	175	200	110	93	186	196	96	96	139
FLIP 86- 41L	6027	166	141	175	198	108	91	184	199	101	96	139
FLIP 86- 42L	6028	181	139	173	198	112	96	180	200	99	105	139
FLIP 86- 49L	6035	162	139	175	200	106	93	180	195	98	96	135

Table 5.5.3. Cont'd. ...

Selection	ILL	JORDAN		LEBANON	NEPAL	PAKISTAN	POLAND	SPAIN	SYRIA	TURKEY	YEMEN	(1) Overall Mean
		Jubeiha	Marow	Terbol	Khumaltar	Quetta	Pulawy	Madrid	Tel-Hadya	Eskisehir	Dhamar	
FLIP 86- 50L	6036	162	139	175	200	106	97	182	196	101	96	137
FLIP 86- 51L	6037	164	139	175	181	104	91	183	199	95	96	133
FLIP 86- 53L	6039	162	140	175	192	110	96	184	199	100	110	141
FLIP 87- 64L	6254	166	138	169	181	104	91	176	195	103	96	135
FLIP 87- 65L	6255	162	140	175	183	110	93	185	196	96	96	136
FLIP 87- 66L	6256	164	140	171	183	106	90	182	196	91	96	135
FLIP 87- 67L	6257	166	140	171	195	104	91	178	196	99	105	138
FLIP 87- 68L	6258	168	137	171	170	109	89	181	198	95	96	133
FLIP 87- 69L	6259	167	140	171	194	106	90	179	196	91	96	136
FLIP 87- 70L	6260	162	138	171	179	105	89	175	195	90	96	133
FLIP 87- 71L	6261	161	138	171	170	105	92	179	195	95	96	133
FLIP 87- 72L	6262	168	138	173	179	109	92	183	195	99	96	138
FLIP 87- 73L	6263	166	138	169	181	104	89	182	196	94	96	134
FLIP 87- 74L	6264	164	139	169	181	104	89	179	193	103	96	133
FLIP 87- 75L	6265	161	137	171	190	109	92	174	195	95	96	135
FLIP 87- 76L	6266	162	139	173	200	106	92	182	196	97	96	137
Jord. Local	4354	163	140	176	195	110	92	185	200	99	105	140
Precoz	4605	160	138	170	175	105	91	183	194	95	96	132
Local Check		165	140	184	175	109	97	194	196	101	96	
Location Mean		**165**	**139**	**173**	**185**	**107**	**91**	**182**	**196**	**96**	**98**	
S.E. of Mean		1.59	0.99	0.77	2.92	0.82	0.84	0.67	0.45	0.94	0.10	
L.S.D. at 5% for:												
Checks		6.25	3.89	3.02	11.44	3.23	3.29	2.62	1.77	3.70	0.38	
T.E. in S.B.		10.83	6.74	5.23	19.82	5.59	5.70	4.53	3.07	6.41	0.65	
T.E. in D.B.		12.50	7.78	6.04	22.89	6.45	6.59	5.23	3.54	7.40	0.76	
Checks Vs T.E.		10.21	6.35	4.94	18.69	5.27	5.38	4.27	2.89	6.04	0.62	
C.V. %		1.71	1.23	0.77	2.72	1.33	1.59	0.64	0.40	1.70	0.17	

(1) Haboul, Mymensingh, Akaki, Jubeiha and Marow were excluded from the overall mean.
T.E. = Test entries, S.B. = Same block, D.B. = Different blocks., NM = Not matured.

Table 5.5.4. Adjusted plant height (cm) of entries at different locations in the LISN-E during 1986/87.

Selection	ILL	ALGERIA			AUSTRALIA	BANGLADESH	BRAZIL	BURMA	GREECE	IRAN		JORDAN
		Haboul	Sidi Bel-Abbes	Zidane	Horsham	Mymensingh	Santa-Maria	Aungban	Larissa	Ghazvin	Karaj	Jubeiha
ILL 358	358	23	32	27	34	-	23	29	30	13	19	27
ILL 784	784	23	27	27	31	-	22	23	30	14	19	29
EL-42	1712	24	27	25	30	52	27	31	25	16	20	44
L 528(75)	1983	19	27	25	30	29	27	36	30	12	20	23
L 1057	2022	19	25	25	30	42	23	33	25	15	21	28
Pant. L 538	2500	19	22	25	25	33	27	25	25	12	24	31
Pant. L 406	2501	23	27	25	31	49	26	29	30	10	22	27
Pant. L 639	2573	18	32	19	26	39	29	25	30	10	19	30
L 1278	2580	28	31	25	31	43	29	24	30	11	22	-
L 1282	2581	18	27	27	28	38	19	27	30	9	18	25
LL 1	2582	21	29	25	31	42	29	28	30	11	22	29
B 77	3493	16	27	24	29	38	21	30	25	12	20	22
LG 46	3517	19	25	25	32	55	24	32	25	14	23	31
LL 37	3601	17	25	20	29	47	25	30	25	16	25	37
LL 57	3614	23	29	28	31	36	30	27	30	10	21	28
LP 286	4377	18	30	24	21	39	27	33	30	8	21	33
162	4403	19	25	28	27	42	28	31	30	13	21	33
Fam 370	5486	18	27	27	34	42	24	33	25	15	21	33
FLIP 84- 78L	5748	29	32	30	38	55	28	34	25	20	22	37
FLIP 84-112L	5782	24	27	30	37	41	25	28	30	17	24	28
FLIP 86- 14L	6000	33	31	30	35	34	23	33	30	15	22	39
FLIP 86- 17L	6003	28	31	28	34	-	22	36	25	16	23	47
FLIP 86- 21L	6007	29	27	28	33	41	27	31	30	16	25	31
FLIP 86- 38L	6024	33	30	27	30	-	28	29	35	13	20	29
FLIP 86- 39L	6025	28	29	25	29	30	26	30	30	11	23	30
FLIP 86- 40L	6026	23	31	28	34	37	25	30	30	15	24	36
FLIP 86- 41L	6027	28	37	29	34	-	26	29	40	13	20	34
FLIP 86- 42L	6028	23	27	27	29	35	24	29	30	14	22	29
FLIP 86- 49L	6035	33	29	25	36	-	26	36	25	19	23	39

Table 5.5.4. Cont'd. ...

Selection	ILL	ALGERIA			AUSTRALIA	BANGLADESH	BRAZIL	BURMA	GREECE	IRAN		JORDAN
		Haboul	Sidi Bel-Abbes	Zidane	Horsham	Mymensingh	Santa-Maria	Aungban	Larissa	Ghazvin	Karaj	Jubeiha
FLIP 86- 50L	6036	33	29	30	35	34	22	31	30	19	26	39
FLIP 86- 51L	6037	33	37	29	39	41	28	29	40	16	27	41
FLIP 86- 53L	6039	28	31	25	35	-	32	30	30	15	24	33
FLIP 87- 64L	6254	26	30	24	29	-	24	35	30	8	22	27
FLIP 87- 65L	6255	28	31	25	33	46	25	39	25	14	25	29
FLIP 87- 66L	6256	23	29	25	33	38	24	24	30	11	24	34
FLIP 87- 67L	6257	28	32	27	29	-	27	32	30	14	22	34
FLIP 87- 68L	6258	24	27	28	30	44	30	31	25	12	23	29
FLIP 87- 69L	6259	23	29	22	29	37	24	31	30	11	20	28
FLIP 87- 70L	6260	19	25	20	27	47	28	31	30	12	20	21
FLIP 87- 71L	6261	19	27	25	29	37	24	36	25	17	22	21
FLIP 87- 72L	6262	19	25	25	30	27	32	31	30	17	22	31
FLIP 87- 73L	6263	23	32	24	31	-	24	29	25	24	20	19
FLIP 87- 74L	6264	23	30	27	27	44	24	24	30	13	24	36
FLIP 87- 75L	6265	19	25	28	30	28	21	31	25	18	24	26
FLIP 87- 76L	6266	23	29	25	30	-	29	30	30	15	25	38
Jord. Local	4354	25	32	29	32	39	23	31	30	16	23	36
Precoz	4605	25	27	25	29	30	26	30	25	14	22	34
Local Check		28	31	28	46	31	34	27	35	17	22	35
Location Mean		24	29	26	32	40	26	30	29	14	22	32
S.E. of Mean		1.52	1.07	1.07	2.00	3.13	2.43	2.60	0.10	1.74	1.05	2.09
L.S.D. at 5% for:												
Checks		5.97	4.21	4.21	7.83	19.02	9.53	10.20	0.38	6.84	4.14	8.21
T.E. in S.B.		10.34	7.29	7.29	13.57	32.94	16.50	17.66	0.65	11.85	7.17	14.21
T.E. in D.B.		11.94	8.41	8.41	15.67	40.35	19.05	20.39	0.76	13.68	8.28	16.41
Checks Vs T.E.		9.75	6.87	6.87	12.79	32.95	15.56	16.65	0.62	11.17	6.76	13.40
C.V. %		10.93	6.42	7.03	10.88	17.51	16.13	14.92	0.57	21.31	8.13	11.47

Cont'd. ...

Table 5.5.4. Cont'd. ...

Selection	ILL	JORDAN	LEBANON	NEPAL	PAKISTAN		POLAND	SPAIN	SYRIA	TURKEY	YEMEN	(1) Overall Mean
		Marow	Terbol	Khumaltar	Faisalabad (AARI)	Quetta	Pulawy	Madrid	Tel-Hadya	Eskisehir	Dhamar	
ILL 358	358	16	36	29	45	24	35	35	30	21	31	28
ILL 784	784	16	29	26	39	20	27	40	35	18	-	26
EL-42	1712	32	31	38	41	18	32	27	28	18	31	27
L 528(75)	1983	35	23	28	42	18	31	25	24	23	25	26
L 1057	2022	24	26	29	43	20	30	31	20	20	26	26
Pant. L 538	2500	21	23	26	45	18	31	25	20	17	26	24
Pant. L 406	2501	16	23	22	48	22	28	28	25	18	31	26
Pant. L 639	2573	15	23	32	41	20	31	30	28	17	29	25
L 1278	2580	-	20	22	48	24	29	30	24	22	31	27
L 1282	2581	18	26	26	48	20	27	34	25	17	26	25
LL 1	2582	-	28	19	37	22	26	24	19	20	27	25
B 77	3493	20	23	31	33	21	28	32	28	18	27	25
LG 46	3517	25	29	37	46	23	30	25	25	20	29	27
LL 37	3601	24	29	36	43	16	29	31	23	15	26	26
LL 57	3614	-	23	18	52	22	30	28	28	16	30	26
LP 286	4377	15	23	39	49	20	35	32	25	18	26	27
162	4403	25	26	31	51	20	32	25	24	19	27	26
Fam 370	5486	18	31	34	40	23	35	30	31	19	26	27
FLIP 84- 78L	5748	39	33	38	56	23	35	37	36	22	32	32
FLIP 84-112L	5782	26	31	31	42	20	31	28	33	21	34	28
FLIP 86- 14L	6000	25	33	29	26	22	30	30	30	21	30	28
FLIP 86- 17L	6003	28	33	28	30	21	23	38	30	22	30	28
FLIP 86- 21L	6007	27	33	27	29	20	32	31	26	22	27	27
FLIP 86- 38L	6024	23	29	36	31	18	32	40	37	19	30	29
FLIP 86- 39L	6025	-	26	27	46	22	27	36	29	20	23	27
FLIP 86- 40L	6026	29	36	21	38	21	29	36	28	22	30	28
FLIP 86- 41L	6027	30	31	32	40	25	28	30	40	23	28	30
FLIP 86- 42L	6028	16	39	33	36	21	35	38	32	20	32	28
FLIP 86- 49L	6035	29	33	27	32	18	25	30	27	25	26	28

Table 5.5.4. Cont'd. ...

Selection	ILL	JORDAN	LEBANON	NEPAL	PAKISTAN		POLAND	SPAIN	SYRIA	TURKEY	YEMEN	(1) Overall Mean
		Marow	Terbol	Khumaltar	Faisalabad (AARI)	Quetta	Pulawy	Madrid	Tel-Hadya	Eskisehir	Dhamar	
FLIP 86- 50L	6036	26	36	29	33	24	23	32	34	24	30	29
FLIP 86- 51L	6037	28	33	31	39	25	36	32	43	24	32	32
FLIP 86- 53L	6039	29	26	24	35	19	28	34	32	21	35	28
FLIP 87- 64L	6254	20	31	30	38	19	37	36	37	18	28	28
FLIP 87- 65L	6255	21	33	31	36	22	24	27	28	23	31	28
FLIP 87- 66L	6256	20	26	25	39	18	28	30	24	20	31	26
FLIP 87- 67L	6257	18	33	33	33	20	31	36	32	23	39	28
FLIP 87- 68L	6258	29	36	29	46	20	33	27	26	19	29	27
FLIP 87- 69L	6259	17	28	23	38	17	26	32	25	17	30	25
FLIP 87- 70L	6260	19	26	31	37	17	28	27	19	15	25	24
FLIP 87- 71L	6261	24	33	35	38	18	29	25	25	20	30	26
FLIP 87- 72L	6262	24	31	31	38	20	26	25	25	21	27	26
FLIP 87- 73L	6263	23	36	30	32	21	30	34	30	20	27	27
FLIP 87- 74L	6264	26	29	30	45	21	26	36	28	18	29	27
FLIP 87- 75L	6265	37	23	29	39	21	31	23	25	19	24	25
FLIP 87- 76L	6266	27	28	31	38	17	33	28	29	20	34	27
Jord. Local	4354	29	34	29	42	22	30	26	33	23	33	28
Precoz	4605	21	31	26	33	21	31	29	27	20	26	26
Local Check		30	37	37	39	21	39	35	31	21	28	
Location Mean		24	30	30	40	20	30	31	29	20	29	
S.E. of Mean		2.37	2.55	5.38	1.17	0.87	1.28	2.19	1.10	0.84	0.39	
L.S.D. at 5% for:												
Checks		9.28	9.99	21.13	4.60	3.42	5.04	8.61	4.31	3.29	1.51	
T.E. in S.B.		16.08	17.31	37.00	7.96	5.92	8.73	14.92	7.46	5.70	2.62	
T.E. in D.B.		18.57	19.99	42.26	9.19	6.84	10.08	17.23	8.61	6.59	3.02	
Checks Vs T.E.		15.16	16.32	34.51	7.51	5.59	8.23	14.07	7.03	5.38	2.47	
C.V. %		17.04	14.66	31.37	5.11	7.43	7.32	12.46	6.65	7.21	2.50	

(1) Mymensingh, Jubeiha, Marow and Dhamar were excluded from the overall mean.
T.E. = Test entries, S.B. = Same block, D.B. = Different blocks.

Table 5.5.5. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LISN-E during 1986/87.

Selection	ILL	ALGERIA		AUSTRALIA		BANGLADESH		BRAZIL		BURMA		EGYPT		GREECE	
		Sidi Bel Abbes		Horsham		Mymensingh		Santa Maria		Aungban		Bahteem		Larissa	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 358	358	796	22	5759	2	-	-	5	31	0	48	25	39	583	12
ILL 784	784	546	31	5519	4	-	-	5	27	13	46	0	42	1183	4
EL-42	1712	0	45	2802	43	274	17	19	9	295	21	0	42	75	41
L 528(75)	1983	0	47	3402	34	213	21	19	8	447	15	247	19	50	45
L 1057	2022	0	46	3342	37	777	3	15	11	567	6	219	20	75	42
Pant. L 538	2500	0	48	2092	48	82	36	22	5	138	28	497	8	225	28
Pant. L 406	2501	1213	7	3689	20	425	9	0	35	91	34	90	32	292	23
Pant. L 639	2573	796	21	3479	29	657	5	31	3	55	38	302	16	133	35
L 1278	2580	1713	2	3539	25	385	11	0	35	359	18	117	28	67	44
L 1282	2581	713	25	3529	26	998	2	11	21	316	20	191	21	108	38
LL 1	2582	1046	8	3219	39	504	8	0	35	507	12	173	22	42	46
B 77	3493	380	34	3459	30	274	18	5	22	535	9	80	33	133	34
LG 46	3517	74	41	3602	22	202	22	15	16	53	39	469	9	275	25
LL 37	3601	157	39	3542	24	345	13	15	15	47	42	414	10	475	19
LL 57	3614	713	26	3369	36	220	20	0	35	49	41	117	30	367	21
LP 286	4377	630	28	2709	45	1073	1	5	25	159	26	80	36	183	31
162	4403	0	43	3052	41	386	10	15	19	387	17	636	2	550	14
Fam 370	5486	630	29	3709	18	328	15	5	24	43	43	25	38	408	20
FLIP 84- 78L	5748	324	35	5582	3	202	23	15	12	157	27	0	42	1775	2
FLIP 84-112L	5782	157	38	6212	1	0	40	15	17	63	37	302	15	1475	3
FLIP 86- 14L	6000	1463	3	3379	35	40	39	12	20	482	13	340	13	242	27
FLIP 86- 17L	6003	963	16	3499	27	-	-	4	34	461	14	506	6	342	22
FLIP 86- 21L	6007	241	36	3252	38	0	40	53	2	707	2	552	5	150	32
FLIP 86- 38L	6024	963	11	4039	16	-	-	5	32	7	47	80	34	283	24
FLIP 86- 39L	6025	963	14	3489	28	68	37	0	35	525	10	117	31	592	11
FLIP 86- 40L	6026	1046	9	3429	31	62	38	0	35	258	23	284	17	67	43
FLIP 86- 41L	6027	963	13	4869	6	-	34	5	30	124	29	0	42	783	9
FLIP 86- 42L	6028	713	24	5009	5	124	27	5	28	71	36	0	42	633	10
FLIP 86- 49L	6035	963	17	3859	17	-	-	20	7	273	22	506	7	242	26

Table 5.5.5. Cont'd. ...

Selection	ILL	ALGERIA Sidi Bel Abbes		AUSTRALIA Horsham		BANGLADESH Mymensingh		BRAZIL Santa Maria		BURMA Aungban		EGYPT Bahteem		GREECE Larissa	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 50L	6036	1713	1	3089	40	96	35	-	-	523	11	673	1	517	17
FLIP 86- 51L	6037	546	32	3419	33	148	24	17	10	204	25	0	42	533	15
FLIP 86- 53L	6039	1046	10	4609	9	-	-	0	35	31	44	173	23	992	6
FLIP 87- 64L	6254	796	20	3689	19	110	30	5	33	208	24	25	40	933	7
FLIP 87- 65L	6255	1296	6	2669	46	550	7	0	35	417	16	340	12	42	47
FLIP 87- 66L	6256	796	23	4209	15	353	12	0	35	638	4	145	26	92	39
FLIP 87- 67L	6257	963	12	2749	44	-	-	5	23	51	40	136	27	133	33
FLIP 87- 68L	6258	0	42	4302	13	-	-	21	6	82	35	330	14	575	13
FLIP 87- 69L	6259	963	15	4279	14	272	19	0	35	563	7	117	29	117	37
FLIP 87- 70L	6260	407	33	3542	23	776	4	29	4	557	8	608	3	525	16
FLIP 87- 71L	6261	241	37	3622	21	-	-	15	14	651	3	164	25	0	48
FLIP 87- 72L	6262	157	40	4662	8	146	25	15	13	30	45	8	41	1075	5
FLIP 87- 73L	6263	630	27	3429	32	-	-	5	26	101	32	0	42	133	36
FLIP 87- 74L	6264	546	30	2949	42	132	26	5	29	103	31	80	35	483	18
FLIP 87- 75L	6265	0	44	2612	47	336	14	15	18	351	19	247	18	225	29
FLIP 87- 76L	6266	1296	5	4459	11	-	-	0	35	95	33	367	11	92	40
Jord. Local	4354	806	19	4787	7	-	-	0	35	109	30	74	37	792	8
Precoz	4605	917	18	4423	12	311	16	62	1	755	1	556	4	200	30
Local Check		1333	4	4547	10	628	6	0	35	611	5	167	24	1883	1
Location Mean		**680**		**3889**		**348**		**11**		**300**		**220**		**441**	
S.E. of Mean		227.09		456.85		59.19		18.77		76.84		134.29		131.63	
L.S.D. at 5% for:															
Checks		891.38		1793.27		360.16		73.67		301.62		527.11		516.68	
T.E. in S.B.		1543.92		3106.03		623.81		127.60		522.43		912.98		894.92	
T.E. in D.B.		1782.76		3586.54		764.01		147.34		603.25		1054.22		1033.36	
Checks Vs T.E.		1455.84		2929		624		120.32		492.63		861		843.87	
C.V. %		56.64		20		38		392.72		44.32		105		45.77	
Test > L. Check		0		0		0		-		0		0		0	

Cont'd. ...

Table 5.5.5. Cont'd. ...

Selection	ILL	INDIA		IRAN				JORDAN				LEBANON		NEPAL	
		New Delhi		Ghazvin		Karaj		Jubeiha		Marow		Terbol		Khumaltar	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 358	358	-	-	281	8	970	23	-	-	0	44	1984	15	340	6
ILL 784	784	97	29	226	17	959	25	43	43	151	30	2373	3	0	40
EL-42	1712	397	18	52	40	578	45	1248	8	119	34	1317	29	227	9
L 528(75)	1983	727	3	19	46	1244	7	2448	1	139	31	540	46	37	33
L 1057	2022	527	9	0	48	1033	18	519	28	119	33	540	45	117	17
Pant. L 538	2500	927	1	41	41	1256	5	848	15	69	35	317	48	77	25
Pant. L 406	2501	427	16	111	32	1330	2	109	38	464	22	1310	31	623	3
Pant. L 639	2573	497	12	237	15	659	40	657	20	553	21	540	44	140	16
L 1278	2580	0	30	33	43	596	44	-	-	-	-	810	40	83	24
L 1282	2581	747	2	148	28	959	24	271	36	0	43	762	41	0	40
LL 1	2582	127	27	22	44	1096	13	-	-	-	-	1032	34	33	37
B 77	3493	457	14	170	24	848	34	57	40	191	28	873	36	0	40
LG 46	3517	517	10	19	45	778	37	1619	4	179	29	428	47	77	27
LL 37	3601	547	7	63	38	1289	3	2319	3	54	36	873	38	37	34
LL 57	3614	0	39	89	36	1207	8	909	13	-	-	1865	21	733	2
LP 286	4377	497	11	204	21	1070	16	357	33	396	24	817	39	1133	1
162	4403	637	5	41	42	267	47	705	18	9	38	651	43	-	-
Fam 370	5486	397	19	348	4	615	43	86	39	0	12	1851	22	0	40
FLIP 84- 78L	5748	267	23	241	14	633	42	976	11	559	20	2095	11	37	32
FLIP 84-112L	5782	-	45	107	33	1133	11	576	26	1529	4	1928	17	37	30
FLIP 86- 14L	6000	0	30	344	5	1207	9	52	42	824	12	2232	9	83	22
FLIP 86- 17L	6003	0	30	233	16	641	41	480	32	1094	10	2643	1	83	23
FLIP 86- 21L	6007	227	24	163	25	867	33	1391	6	424	23	1595	27	57	28
FLIP 86- 38L	6024	97	29	381	3	948	26	286	35	1606	3	2317	6	290	7
FLIP 86- 39L	6025	0	30	100	34	1085	14	-	-	-	-	1865	20	33	35
FLIP 86- 40L	6026	0	30	256	11	674	39	637	22	1944	2	1588	28	93	19
FLIP 86- 41L	6027	337	21	415	2	948	27	600	24	341	26	1984	16	0	40
FLIP 86- 42L	6028	347	20	270	9	970	22	314	34	0	40	2095	12	190	10
FLIP 86- 49L	6035	0	30	256	10	196	48	809	17	699	15	2032	14	-	-

Table 5.5.5. Cont'd. ...

Selection	ILL	INDIA		IRAN				JORDAN				LEBANON		NEPAL	
		New Delhi		Ghazvin		Karaj		Jubeiha		Marow		Terbol		Khumaltar	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 50L	6036	0	30	222	18	1252	6	923	12	1944	1	1921	18	83	21
FLIP 86- 51L	6037	287	22	248	13	1170	10	1014	10	231	27	2095	10	90	20
FLIP 86- 53L	6039	0	30	11	47	1085	15	1337	7	1114	8	2365	4	0	40
FLIP 87- 64L	6254	557	6	248	12	893	30	57	41	0	39	1873	19	190	11
FLIP 87- 65L	6255	0	30	122	30	1463	1	-	-	754	13	1254	32	183	12
FLIP 87- 66L	6256	0	30	100	35	930	28	195	37	6914	16	2365	5	583	4
FLIP 87- 67L	6257	497	13	204	20	893	31	857	14	1231	6	2262	7	0	40
FLIP 87- 68L	6258	427	15	85	37	289	46	576	27	739	14	1817	23	77	26
FLIP 87- 69L	6259	0	30	111	31	841	35	652	21	694	17	1699	26	33	36
FLIP 87- 70L	6260	-	-	152	27	1122	12	505	29	139	32	873	37	177	13
FLIP 87- 71L	6261	227	44	52	39	822	36	834	16	1219	7	706	42	257	8
FLIP 87- 72L	6262	687	4	207	19	989	20	491	31	379	25	1151	33	47	29
FLIP 87- 73L	6263	107	28	315	7	893	29	686	19	0	41	1706	25	27	39
FLIP 87- 74L	6264	147	26	204	22	748	38	2357	2	11	37	984	35	150	15
FLIP 87- 75L	6265	397	17	152	26	867	32	1234	9	594	18	1317	30	37	31
FLIP 87- 76L	6266	0	30	144	29	974	21	1437	5	1279	5	2032	13	373	5
Jord. Local	4354	-	-	330	6	1059	17	500	30	950	11	2600	2	33	38
Precoz	4605	217	25	178	23	996	19	609	23	582	19	2259	8	113	18
Local Check		530	8	437	1	1267	4	576	25	1107	9	1759	24	153	14
Location Mean		293		190		949		771		712		1621		156	
S.E. of Mean		178.87		78.48		117.09		239.83		497.55		319.65		35.28	
L.S.D. at 5% for:															
Checks		702.11		308.06		459.62		941.41		1953.02		1254.73		138.47	
T.E. in S.B.		1216.09		533.57		796.08		1630.67		3382.73		2173.25		239.84	
T.E. in D.B.		1404.22		616.11		919.24		1882.82		3906.03		2509.45		276.94	
Checks Vs T.E.		1146.72		503.13		750.67		1537.55		3189.75		2049.27		226.16	
C.V. %		335.27		71.65		21.37		61.93		141.53		34.16		48.74	
Test > L. Check		0		0		0		3		0		0		4	

Cont'd. ...

Table 5.5.5. Cont'd. ...

Selection	ILL	PAKISTAN								POLAND		SPAIN		SYRIA	
		Bahawalpur (ARS)		Faisalabad (UAF)		Faisalabad (AARI)		Quetta (ARI)		Pulawy		Madrid		Tel Hadya	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 358	358	290	25	12015	8	-	-	290	42	1562	32	1079	12	563	33
ILL 784	784	123	36	7895	29	-	-	207	46	1592	29	715	42	1182	8
EL-42	1712	0	46	8077	23	907	24	377	37	1702	24	662	45	727	18
L 528(75)	1983	327	23	10490	13	2074	9	401	31	1212	42	1046	14	385	41
L 1057	2022	0	48	12504	6	2074	8	388	34	1742	22	1067	13	716	21
Pant. L 538	2500	883	10	12917	3	2852	2	583	16	1432	37	1045	16	364	43
Pant. L 406	2501	938	9	-	-	2037	11	391	33	2396	2	817	37	417	40
Pant. L 639	2573	957	8	8095	22	2222	7	499	21	1112	45	815	39	425	39
L 1278	2580	1827	1	-	-	2648	3	387	35	1096	46	838	33	300	46
L 1282	2581	1512	21	10215	14	2278	6	500	20	1622	27	737	41	446	38
LL 1	2582	1049	5	-	-	1481	14	398	32	1406	38	683	43	161	48
B 77	3493	957	7	7775	30	2056	10	563	17	1402	39	750	40	360	44
LG 46	3517	883	12	12810	5	2352	5	595	15	1312	40	1036	18	577	30
LL 37	3601	883	11	13864	1	1796	13	384	36	1842	19	976	22	652	24
LL 57	3614	494	19	-	-	1370	16	602	12	1586	30	856	32	716	20
LP 286	4377	1179	4	8028	24	1167	18	411	30	1452	34	858	31	595	29
162	4403	1438	3	7997	26	3741	1	600	14	1722	23	1017	19	545	35
Fam 370	5486	623	14	8015	25	611	29	339	41	1652	26	413	48	649	25
FLIP 84- 78L	5748	105	40	12930	2	-	-	356	39	2262	4	1425	4	1154	10
FLIP 84-112L	5782	105	42	7917	27	-	-	348	40	2252	5	1103	9	1196	7
FLIP 86- 14L	6000	216	32	-	-	648	28	764	3	1076	47	835	34	716	19
FLIP 86- 17L	6003	161	35	-	-	481	33	690	6	1116	44	1208	7	706	22
FLIP 86- 21L	6007	0	47	12904	4	1407	15	614	11	1952	14	1863	2	556	34
FLIP 86- 38L	6024	123	37	7908	28	-	-	646	8	2222	6	873	28	1428	2
FLIP 86- 39L	6025	272	27	-	-	1093	19	442	28	2186	8	1480	3	1164	9
FLIP 86- 40L	6026	494	18	-	-	1037	21	61	48	2406	1	1045	15	257	47
FLIP 86- 41L	6027	179	34	4975	33	-	-	601	13	1932	16	917	25	1460	1
FLIP 86- 42L	6028	401	21	9655	19	-	-	482	22	2102	10	1080	11	1321	3
FLIP 86- 49L	6035	716	13	-	-	648	27	640	9	696	48	835	35	599	28

Table 5.5.5. Cont'd. ...

Selection	ILL	PAKISTAN								POLAND		SPAIN		SYRIA	
		Bahawalpur (ARS)		Faisalabad (UAF)		Faisalabad (AARI)		Quetta (ARI)		Pulawy		Madrid		Tel Hadya	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 50L	6036	216	33	-	-	-	-	776	2	1166	43	1038	17	919	13
FLIP 86- 51L	6037	235	30	11188	9	556	31	917	1	1282	41	1162	8	1268	5
FLIP 86- 53L	6039	494	17	-	-	-	-	275	44	2376	3	980	21	1250	6
FLIP 87- 64L	6254	68	43	9908	16	222	34	516	19	1752	20	870	29	1289	4
FLIP 87- 65L	6255	272	29	-	-	981	23	442	27	1436	36	651	47	311	45
FLIP 87- 66L	6256	383	22	-	-	815	26	683	7	2216	7	889	27	631	26
FLIP 87- 67L	6257	235	31	8121	21	-	-	461	25	1582	31	680	44	606	27
FLIP 87- 68L	6258	0	45	10597	12	-	-	288	43	2012	12	2564	1	513	37
FLIP 87- 69L	6259	494	20	-	-	870	25	358	38	1926	17	653	46	844	15
FLIP 87- 70L	6260	105	39	7490	31	1852	12	694	5	1602	28	892	26	385	42
FLIP 87- 71L	6261	105	41	12237	7	-	-	482	23	1862	18	920	24	834	16
FLIP 87- 72L	6262	549	16	10024	15	1019	22	516	18	1442	35	996	20	577	31
FLIP 87- 73L	6263	290	26	5668	32	500	32	709	4	1982	13	816	38	766	17
FLIP 87- 74L	6264	623	15	9761	18	556	30	205	47	1552	33	819	36	521	36
FLIP 87- 75L	6265	327	24	10770	11	1352	17	233	45	1742	21	944	23	908	14
FLIP 87- 76L	6266	272	28	-	-	-	-	460	26	1686	25	864	30	567	32
Jord. Local	4354	56	44	10836	10	-	-	477	24	2080	11	1090	10	968	11
Precoz	4605	111	38	8676	20	1056	20	631	10	1933	15	1213	6	676	23
Local Check		1037	6	9893	17	2556	4	421	29	2153	9	1393	5	943	12
Location Mean		**478**		**9762**		**1450**		**484**		**1744**		**1017**		**746**	
S.E. of Mean		188.68		1072.92		193.78		75.00		118.06		204.98		124.53	
L.S.D. at 5% for:															
Checks		740.60		4211.49		1179.06		294.39		463.40		804.59		488.80	
T.E. in S.B.		1282.76		7294.52		2042.18		509.90		802.63		1393.58		846.63	
T.E. in D.B.		1481.21		8422.99		2501.15		588.78		926.80		1609.17		977.61	
Checks Vs T.E.		12109.58		6878.38		2042.49		480.81		756.84		1314.08		798.34	
C.V. %		70.59		19.63		40.62		26.81		11.73		34.92		28.91	
Test > L. Check		0		0		0		1		0		0		0	

Cont'd. ...

Table 5.5.5. Cont'd. ...

Selection	ILL	TUNISIA						TURKEY		YEMEN A.R.		(1) Overall Mean	
		Beja		El Kef		Oued Meliz		Diyarbakir *		Dhamar			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 358	358	3578	3	733	20	2644	11	-	-	1354	21	1432	5
ILL 784	784	1778	25	333	36	2044	28	-	-	421	47	1244	15
EL-42	1712	0	48	817	19	2078	26	-	-	1439	16	803	47
L 528(75)	1983	0	42	517	30	2178	22	-	-	812	42	819	46
L 1057	2022	0	43	617	25	2478	16	-	-	1372	18	903	42
Pant. L 538	2500	0	45	867	15	2778	7	-	-	1265	24	858	45
Pant. L 406	2501	2061	18	550	29	2778	8	-	-	914	37	1248	14
Pant. L 639	2573	1028	34	133	44	1944	33	-	-	1541	14	952	40
L 1278	2580	1911	23	300	39	1978	30	-	-	1634	11	1145	21
L 1282	2581	878	35	333	37	2244	20	-	-	1367	19	1059	30
LL 1	2582	811	37	300	38	2178	24	-	-	847	41	977	37
B 77	3493	628	38	133	43	1144	45	-	-	1367	20	899	43
LG 46	3517	0	44	1417	4	2678	10	-	-	1612	12	958	39
LL 37	3601	311	41	717	22	2078	25	-	-	1065	29	999	35
LL 57	3614	2261	14	-	-	2978	4	-	-	714	43	1193	20
LP 286	4377	1378	31	183	42	2544	14	-	-	941	34	1000	34
162	4403	0	47	467	32	2578	12	-	-	1772	7	1014	32
Fam 370	5486	2628	9	583	27	2044	27	-	-	1087	28	1114	23
FLIP 84- 78L	5748	3411	4	1717	2	2478	15	-	-	1745	8	1567	2
FLIP 84-112L	5782	2611	10	817	18	3178	1	1367	6	2252	1	1621	1
FLIP 86- 14L	6000	811	36	50	45	1478	40	1000	11	1007	33	1083	28
FLIP 86- 17L	6003	1761	26	500	31	978	47	1600	2	927	35	1107	25
FLIP 86- 21L	6007	0	46	917	13	2878	5	-	-	1239	25	1098	27
FLIP 86- 38L	6024	1928	21	1283	7	2744	9	1300	7	1927	2	1369	8
FLIP 86- 39L	6025	2161	16	200	41	1878	37	-	-	861	40	1272	10
FLIP 86- 40L	6026	3961	1	550	28	2478	17	-	-	287	48	1222	16
FLIP 86- 41L	6027	2678	8	1983	1	3144	2	-	-	1501	15	1472	4
FLIP 86- 42L	6028	2428	11	833	17	1944	32	-	-	1834	5	1406	7
FLIP 86- 49L	6035	1611	28	-	-	878	48	1500	5	1034	32	1005	33

Table 5.5.5. Cont'd. ...

Selection	ILL	TUNISIA						TURKEY		YEMEN A.R.		(1) Overall Mean	
		Beja		El Kef		Oued Meliz		Diyarbakir *		Dhamar			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 50L	6036	1961	20	350	35	1278	41	1600	2	1901	4	1263	12
FLIP 86- 51L	6037	1778	24	433	33	1244	42	1600	2	714	44	1105	26
FLIP 86- 53L	6039	3711	2	850	16	2578	13	1200	8	1034	31	1533	3
FLIP 87- 64L	6254	2378	12	1033	10	1544	38	-	-	1061	30	1193	19
FLIP 87- 65L	6255	1611	27	250	40	1078	46	-	-	1301	23	972	38
FLIP 87- 66L	6256	2261	15	400	34	1878	36	-	-	874	39	1266	11
FLIP 87- 67L	6257	3078	5	683	24	1244	43	-	-	927	36	1067	29
FLIP 87- 68L	6258	1561	30	1367	6	2978	3	-	-	1585	13	1260	13
FLIP 87- 69L	6259	1111	33	50	46	1978	31	-	-	887	38	1122	22
FLIP 87- 70L	6260	511	40	1067	9	1978	29	-	-	1145	26	996	36
FLIP 87- 71L	6261	2011	19	617	26	2178	23	-	-	692	45	1019	31
FLIP 87- 72L	6262	2111	17	1617	3	2378	19	-	-	1665	9	1221	17
FLIP 87- 73L	6263	1228	32	883	14	2844	6	1133	9	1127	27	1110	24
FLIP 87- 74L	6264	1928	22	933	12	1944	34	-	-	621	46	940	41
FLIP 87- 75L	6265	611	39	717	23	1478	39	-	-	1372	17	882	44
FLIP 87- 76L	6266	2311	13	950	11	1178	44	933	12	1634	10	1219	18
Jord. Local	4354	2800	7	1200	8	2200	21	1667	1	1329	22	1415	6
Precoz	4605	1567	29	717	21	1900	35	1100	10	1831	6	1331	9
Local Check		2917	6	1383	5	2433	18	-	-	1902	3		
Location Mean		**1712**		**725**		**2126**		**1333**		**1294**			
S.E. of Mean		391.70		134.37		450.72		-		153.40			
L.S.D. at 5% for:													
Checks		1537.51		527.44		1769.19		-		602.15			
T.E. in S.B.		2663.05		913.56		3064.33		-		1042.95			
T.E. in D.B.		3075.02		1054.88		3538.39		-		1204.30			
Checks Vs T.E.		2511.12		861.44		2889.52		-		983.45			
C.V. %		39.63		31.03		36.72		-		20.54			
Test > L. Check		0		0		0		-		0			

(1) Mymensingh, Santa Maria, New Delhi, Ghazvin, Jubeiha, Marow, Khumaltar, Faisalabad, Faisalabad (AARI), El Kef and Diyarbakir were excluded from the overall mean., T.E. = Test entries, S.B. = Same block, D.B. = Different blocks., * = Location not analysed and thus mean values are unadjusted.

Table 5.5.6. The five heaviest seed yielding entries at the individual locations in the LISN-E during 1986/87.

	ALGERIA	AUSTRALIA	BANGLADESH	BRAZIL	BURMA	EGYPT	GREECE	INDIA	IRAN
Rank	Sidi Bel - Abbes	Horsham	Mymensingh	Santa Maria	Aungban	Bahteem	Larissa	New Delhi	Ghazvin
1	FLIP86- 50L]	FLIP84-112L	ILL 4377	Local Check	ILL 4605	FLIP86- 50L	Local Check	ILL 2500	Local Check
2	ILL 2580]	ILL 358	ILL 2581	FLIP86- 21L	FLIP86- 21L	ILL 4403	FLIP84- 78L	ILL 2581	FLIP86- 41L
3	FLIP86- 14L	FLIP84- 78L	ILL 2022	ILL 2573	FLIP87- 71L	FLIP87- 70L	FLIP84-112L	ILL 1983	FLIP86- 38L
4	Local Check	ILL 784	FLIP87- 70L	FLIP87- 70L	FLIP87- 66L	ILL 4605	ILL 784	FLIP87- 72L	ILL 5486
5	FLIP87- 76L	FLIP86- 42L	ILL 2573	ILL 2500	Local Check	FLIP86- 21L	FLIP87- 72L	ILL 4403	FLIP86- 14L
	FLIP87- 65L								

Cont'd 2/..

	IRAN	JORDAN		LEBANON	NEPAL	PAKISTAN			
Rank	Karaj	Jubeiha	Marow	Terbol	Khumaltar	Bahawalpur	Faisalabad (AARI)	Faisalabad (UAF)	Quetta (ARI)
1	FLIP87- 65L	ILL 1983	FLIP86- 50L]	FLIP86- 17L	ILL 4377	ILL 2580	ILL 4403	ILL 3601	FLIP86- 51L
2	ILL 2501	FLIP87- 74L	FLIP86- 40L]	ILL 4354	ILL 3614	ILL 2581	ILL 2500	FLIP84- 78L	FLIP86- 50L
3	ILL 3601	ILL 3601	FLIP86- 38L	ILL 784	ILL 2501	ILL 4403	ILL 2580	ILL 2500	FLIP86- 14L
4	Local Check	ILL 3517	FLIP84-112L	FLIP86- 53L]	FLIP87- 66L	ILL 4377	Local Check	FLIP86- 21L	FLIP87- 73L
5	ILL 2500	FLIP87- 76L	FLIP87- 76L	FLIP87- 66L]	FLIP87- 76L	ILL 2582	ILL 3517	ILL 3517	FLIP87- 70L

Cont'd 2/..

	POLAND	SPAIN	SYRIA	TUNISIA			TURKEY	YEMEN A.R.
Rank	Pulawy	Madrid	Tel Hadya	Beja	El Kef	Oued Meliz	Diyarbakir	Dhamar
1	FLIP86- 40L	FLIP87- 68L	FLIP86- 41L	FLIP86- 40L	FLIP86- 41L	FLIP84-112L	ILL 4354	FLIP84-112L
2	ILL 2501	FLIP86- 21L	FLIP86- 38L	FLIP86- 53L	FLIP84- 78L	FLIP86- 41L	FLIP86- 51L]	FLIP86- 38L
3	FLIP86- 53L	FLIP86- 39L	FLIP86- 42L	ILL 358	FLIP87- 72L	FLIP87- 68L	FLIP86- 50L]	Local Check
4	FLIP84- 78L	FLIP84- 78L	FLIP87- 64L	FLIP84- 78L	ILL 3517	ILL 3614	FLIP86- 17L]	FLIP86- 50L
5	FLIP84-112L	Local Check	FLIP86- 51L	FLIP87- 67L	Local Check	FLIP86- 21L	FLIP86- 49L	FLIP86- 42L

The brackets indicate entries having the same rank.

closely followed by FLIP 84-78L, FLIP 86-53L, FLIP 86-41L and ILL 358 with seed yields of 1567, 1533, 1472 and 1432 kg/ha, respectively. The ANOVA for augmented design revealed that at Jubeiha in Jordan, Khumaltar in Nepal, and Quetta in Pakistan, 3, 4 and 1 entries, respectively, outyielded the respective local check by a singificant margin. The list of top five high yielding lines at each location is given in Table 5.5.6. The entry FLIP 84-78L occurred most frequently among the top five heaviest yielders and was closely followed by FLIP 84-112L, FLIP 86-50L and FLIP 86-20L.

5.6. LENTIL INTERNATIONAL SCREENING NURSERY - TALL (LISN-T)

Material

The Lentil International Screening Nursery - Tall (LISN-T) specifically mean for mechanical harvesting comprised of 51 test entries including elite germplasm accessions received from other centers and selections made from the progenies developed through hybridization at ICARDA. In addition, there were three checks, two namely Syrian Local Small (ILL 4401) and Hurani-1 (ILL 2130) were supplied by ICARDA and the third check, the best local cultivar, was to be added by the cooperator.

Methods and Management

The nursery was grown in an augmented block design. The suggested plot size was a single row plot, 4 m long. The cooperators were urged to use the locally recommended agronomic practices for the management of the nursery.

Fifty six sets of nursery were distributed to cooperators in 25 countries and data were returned from 42 locations from 20 countries. The details of the agronomic practices supplied by the cooperators are given in Table 5.6.1.

Results and Discussion

The location mean for entries ranged from 53 to 212days for time to flowering (Table 5.6.2), 78 to 237 days for time to maturity (Table 5.6.3), and 18 to 51 cm for plant height (Table 5.6.4). The entries FLIP 86-12L, FLIP 86-16L, FLIP 86-18L, FLIP 86-19L, FLIP 86-38L and FLIP 86-51L took less time to flower and mature, and were among the earliest lines. With respect to plant height, ILL 813, ILL 4349 and ILL 711 were among the tallest (37-38 cm). At 11 locations some of the test entries were significantly taller than the respective local checks .

The adjusted seed yields based on the augmented design are given in Table 5.6.5. The yield levels at Mymensingh in Bangladesh; Bahteem in Egypt; New Delhi in India; Ankara, Haymana and Erzurum in Turkey were very low (ranging from 58 to 346 kg/ha). The highest mean yield was recorded at Horsham in Australia (4283 kg/ha) and was followed by Montpellier in France (4096 kg/ha), Temuco in Chile (2367 kg/ha), Badajoz in Spain (2315 kg/ha), Izra'a in Syria (2213 kg/ha) and Oued Meliz in Tunisia (2020 kg/ha). The LSD estimates revealed that at fourteen locations, some of the test entries, outyielded the local check by a significant margin. The five heaviest

Table 5.6.1. Agronomic data for different locations in the LISN-T during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri- gation	Insecticide/Fungicide/Herbicide	Local Check
ALGERIA	Khroub	07.01.87	23.06.87	17	45		-	Treflan	SYRIE - 229
ALGERIA	Guelma	12.12.86	28.06.87		70		-	Trifluraline	SYRIE - 229
ALGERIA	Setif	NA	NA		100		-	Treflan	LBCHILI - 487
ALGERIA	Sidi Bel Abbes	16.02.87	10.05.87	15	90		-	-	SYRIE - 229
AUSTRALIA	Horsham	24.07.87	22.12.87		150		-	Trifluralin, Cyanazine, Thiodan, Ripcord	Laird
BANGLADESH	Mymensingh	25.11.86	23.03.87	-			-	-	Bm 513
BULGARIA	Toshevo	06.04.87	12.07.87	40	80		-	Aphalon, Gesagard	Tadjikskaya 95
CHILE	Temuco	02.09.87	08.01.88		60		-	Trifluralin, Thiuram, Phoxim	Araucana - INIA
EGYPT	Bahteem	03.12.86	09.07.87	36	72		1	-	Giza - 370
ETHIOPIA	Akaki	18.07.87	16.11.87	-			-	-	NEL - 358
ETHIOPIA	Debre Zeit	14.07.87	07.10.87	-			-	-	NA
FRANCE	Montpellier	08.11.86	30.06.87		100		-	-	ILL 8
GREECE	Larissa	21.11.86	18.06.87		60		-	Endosulfan, Carbaryl	Dimitra
INDIA	New Delhi	27.11.86	28.04.87	20	40		1	Basudin, Metasystox	L - 4162
IRAN	Ghazvin	09.04.87	22.06.87	9	24		-	-	Kouhin
IRAN	Hamadan	12.04.87	25.07.87	-			4	-	NA
IRAN	Karaj -1	18.04.87	20.07.87	24	72		8	Treflan, Metasystox	Ghazvin Local
IRAN	Karaj -2	25.03.87	15.07.87	-			9	Diazinon	1 Ziba
JORDAN	Jubeiha	NA	NA	20	40		-	-	NA
JORDAN	Mushagar	17.12.86	02.06.87	20	60		-	-	Local
LEBANON	Terbol	18.11.86	07.06.87		50		-	Kerb, Bladex	Lebanese Local
PAKISTAN	Faisalabad (AARI)	17.11.86	NA	25	50		-	-	Masoor - 85
PAKISTAN	Faisalabad (NIAB)	13.11.86	30.04.87	20	60		1	-	Masoor - 85
PAKISTAN	Islamabad (NARC)	NA	NA	NA			-	-	NA
POLAND	Pulawy	16.04.87	20.07.87	30	80	120	-	Gesagard	Trebisowska (CZ)
PORTUGAL	Elvas	18.11.86	07.06.87		70	60	-	-	L - 175
SPAIN	Badajoz	24.11.86	09.05.87	-			-	Prometrine	NA
SPAIN	El Encin	26.11.86	16.06.87	24	72		-	Prometrine	ANGELA (LEC-42)
SYRIA	Gelline	09.12.86	18.05.87	20	20		-	-	Local
SYRIA	Heimo	20.11.86	17.05.87		50		-	-	Local
SYRIA	Idleb	03.12.86	26.05.87		60		-	-	Local
SYRIA	Izra'a	NA	31.05.87	12	38		-	-	NA
SYRIA	Tel Hadya	02.11.86	24.05.87		50		-	Kerb, Bladex, Fusilade, Suprcide	ILL 4400
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TUNISIA	Oued Meliz	NA	NA	NA			NA	NA	NA
TURKEY	Ankara (UAF)	23.10.86	16.06.87	22	60		-	-	Kislik Pul - 11
TURKEY	Ankara (Haymana)	08.04.87	22.07.87	10 kg DAP			-	-	Kislik Pul - 11
TURKEY	Diyabakir	19.11.86	03.06.87	40	60		-	-	Pirat 87
TURKEY	Erzurum	04.05.87	16.08.87	30	70		-	-	Kislik Pul - 11
TURKEY	Eskisehir	08.04.87	20.08.87	40	60		-	-	NA
TURKEY	Urfa	10.11.86	15.05.87	45	90		-	-	-

Table 5.6.2. Adjusted time to flowering (days) of entries at different locations in the LISN-T during 1986/87.

Selection	ILL	Origin	ALGERIA				AUSTRALIA	BANGLADESH	BULGARIA	CHILE	EGYPT
			Guelma	Khroub	Setif	Sidi Bel-Abbes	Horsham	Mymensingh *	Toshevo	Temuco	Bahteem
ILL 20	20	Jordan	113	98	134	108	96	37	60	79	81
ILL 465	465	Chile	132	107	142	117	101	NF	65	85	87
ILL 468	468	Chile	116	115	143	105	100	NF	65	85	94
ILL 813	813	Egypt	134	131	153	108	106	NF	67	87	83
ILL 1939	1939	Morocco	119	103	135	105	97	NF	61	75	94
Laird	4349	Canada	121	110	142	117	101	NF	69	85	87
Jord. Local	4354	Jordan	115	93	143	107	95	95	59	73	83
Chilean 78	4711	USA	121	101	130	111	98	NF	62	83	91
Fam 370	5486	Egypt	112	101	134	101	96	NF	56	75	68
74TA 550	5544	Syria	117	98	134	113	94	NF	60	77	101
78S 26002	5582	Jordan	118	96	142	111	98	NF	60	73	85
78S 26052	5604	Turkey	120	97	135	111	97	102	62	75	94
FLIP 84- 26L	5698	ICARDA	112	101	125	111	91	NF	60	73	83
FLIP 84- 42L	5713	ICARDA	118	102	151	108	96	NF	62	79	94
FLIP 84- 43L	5714	ICARDA	120	107	141	117	98	NF	60	81	89
FLIP 84- 51L	5722	ICARDA	112	102	133	105	90	80	57	73	62
FLIP 84- 58L	5728	ICARDA	113	98	136	105	90	NF	61	79	89
FLIP 84- 59L	5729	ICARDA	119	106	138	111	97	101	62	79	94
FLIP 84- 75L	5745	ICARDA	114	97	133	108	92	95	60	73	83
FLIP 84- 78L	5748	ICARDA	115	106	137	105	97	82	57	73	84
FLIP 84- 83L	5753	ICARDA	121	109	140	114	99	NF	64	79	91
FLIP 84-133L	5803	ICARDA	112	101	137	101	92	NF	56	71	72
FLIP 84-154L	5823	ICARDA	114	98	135	105	90	NF	60	73	84
FLIP 85- 35L	5873	ICARDA	113	95	131	105	90	102	60	73	84
FLIP 85- 38L	5876	ICARDA	114	98	139	108	99	93	63	77	87
82S 15 (4400)	5883	Jordan	116	96	134	105	97	NF	60	74	92
FLIP 86- 2L	5988	ICARDA	112	98	134	108	92	96	60	73	82
FLIP 86- 3L	5989	ICARDA	113	97	135	108	92	94	60	73	82
FLIP 86- 4L	5990	ICARDA	113	103	136	108	99	95	60	75	80
FLIP 86- 12L	5998	ICARDA	92	98	119	91	90	61	60	72	62
FLIP 86- 16L	6002	ICARDA	94	108	123	94	92	76	60	74	68
FLIP 86- 18L	6004	ICARDA	92	98	130	94	92	NF	60	73	63

Table 5.6.2. Cont'd. ...

Selection	ILL	Origin	ALGERIA				AUSTRALIA	BANGLADESH	BULGARIA	CHILE	EGYPT
			Guelma	Khroub	Setif	Sidi Bel-Abbes	Horsham	Mymensingh *	Toshevo	Temuco	Bahteem
FLIP 86- 19L	6005	ICARDA	122	98	118	97	91	64	61	73	70
FLIP 86- 24L	6010	ICARDA	122	110	141	114	99	NF	60	79	88
FLIP 86- 26L	6012	ICARDA	119	103	127	111	98	NF	62	77	84
FLIP 86- 28L	6014	ICARDA	112	98	132	105	97	NF	62	79	88
FLIP 86- 29L	6015	ICARDA	112	101	125	107	101	37	60	75	81
FLIP 86- 30L	6016	ICARDA	120	100	125	111	98	100	59	79	95
FLIP 86- 33L	6019	ICARDA	115	101	126	111	95	NF	58	73	86
FLIP 86- 38L	6024	ICARDA	106	96	119	99	91	94	58	73	69
FLIP 86- 51L	6037	ICARDA	94	101	125	91	90	74	60	72	84
FLIP 86- 56L	6042	ICARDA	119	98	136	105	97	NF	62	79	94
FLIP 86- 60L	6046	ICARDA	129	108	132	108	92	NF	58	73	84
FLIP 87- 45L	6235	ICARDA	116	98	137	108	99	NF	61	75	89
FLIP 87- 48L	6238	ICARDA	115	106	124	114	98	37	60	81	88
FLIP 87- 52L	6242	ICARDA	115	103	126	98	90	NF	62	74	83
FLIP 87- 59L	6249	ICARDA	113	100	127	104	98	98	61	77	84
FLIP 87- 60L	6250	ICARDA	124	111	137	104	99	NF	62	81	94
FLIP 87- 61L	6251	ICARDA	114	96	120	111	93	57	58	73	86
FLIP 87- 62L	6252	ICARDA	113	98	132	111	97	NF	58	74	101
FLIP 87- 63L	6253	ICARDA	119	96	126	114	98	NF	61	79	96
S.L.S.	4401	Syria	116	97	136	114	95	NF	60	76	92
Hurani-1	2130	Syria	117	98	133	107	98	NF	61	77	92
Local Check			-	104	141	108	105	NF	62	81	72
Location Mean			**115**	**101**	**134**	**107**	**96**	**79**	**61**	**77**	**85**
S.E. of Mean			0.62	1.71	3.57	1.97	0.84	-	0.19	0.90	1.35
L.S.D. at 5% for:											
Checks			3.79	6.71	14.02	7.74	3.29	-	0.76	3.54	5.29
Test entries in the same block			6.57	11.63	24.29	13.41	5.70	-	1.31	6.14	9.16
Test entries in different blocks			8.05	13.43	28.04	15.48	6.59	-	1.51	7.09	10.58
Checks Vs test entries			6.57	10.97	22.90	12.64	5.38	-	1.23	5.79	8.64
C.V. %			0.94	2.93	4.63	3.19	1.51	-	0.55	2.04	2.75

Cont'd. ...

Table 5.6.2. Cont'd. ...

Selection	ILL	ETHIOPIA		GREECE	INDIA	IRAN				JORDAN	
		Akaki	Debre Zeit*	Larissa	New Delhi	Ghazvin	Hamadan	Karaj-1	Karaj-2	Jubeiha	Mushagar
ILL 20	20	61	61	149	75	52	63	52	58	127	111
ILL 465	465	-	-	157	99	63	61	58	67	123	123
ILL 468	468	78	-	154	114	69	61	53	70	125	117
ILL 813	813	77	77	146	89	68	66	58	69	127	123
ILL 1939	1939	71	-	154	111	54	63	55	62	126	111
Laird	4349	74	80	157	97	63	63	53	67	126	117
Jord. Local	4354	60	62	148	84	53	63	50	57	124	111
Chilean 78	4711	59	72	157	97	60	61	52	62	128	113
Fam 370	5486	45	42	158	66	53	57	50	56	126	111
74TA 550	5544	72	-	153	109	56	60	54	60	122	111
78S 26002	5582	61	64	150	77	55	54	49	59	125	109
78S 26052	5604	71	-	154	106	55	63	56	60	123	111
FLIP 84- 26L	5698	53	64	148	77	54	55	50	52	124	111
FLIP 84- 42L	5713	71	-	151	95	55	63	57	61	126	111
FLIP 84- 43L	5714	72	-	152	97	61	60	55	61	126	117
FLIP 84- 51L	5722	46	46	151	96	52	53	49	58	125	113
FLIP 84- 58L	5728	70	-	150	109	60	62	60	63	126	113
FLIP 84- 59L	5729	73	-	159	109	61	61	57	64	125	113
FLIP 84- 75L	5745	56	59	149	81	54	57	53	51	124	109
FLIP 84- 78L	5748	46	46	154	99	52	55	50	58	125	111
FLIP 84- 83L	5753	82	-	157	99	62	61	57	65	126	117
FLIP 84-133L	5803	43	41	150	72	52	54	49	53	126	107
FLIP 84-154L	5823	59	57	150	91	52	52	50	57	124	109
FLIP 85- 35L	5873	58	58	150	96	52	52	50	57	123	109
FLIP 85- 38L	5876	64	60	157	74	53	60	52	58	128	109
82S 15 (4400)	5883	70	-	151	109	54	60	53	60	125	109
FLIP 86- 2L	5988	55	58	150	74	54	61	50	52	123	109
FLIP 86- 3L	5989	55	61	149	76	54	55	49	54	124	109
FLIP 86- 4L	5990	60	62	150	76	52	56	52	54	123	109
FLIP 86- 12L	5998	49	50	151	79	56	55	52	60	124	109
FLIP 86- 16L	6002	52	49	151	67	53	58	51	57	125	113
FLIP 86- 18L	6004	43	50	151	62	52	57	52	51	125	109

Table 5.6.2. Cont'd. ...

Selection	ILL	ETHIOPIA		GREECE	INDIA	IRAN				JORDAN	
		Akaki	Debre Zeit*	Larissa	New Delhi	Ghazvin	Hamadan	Karaj-1	Karaj-2	Jubeiha	Mushagar
FLIP 86- 19L	6005	41	49	151	72	52	59	52	57	125	111
FLIP 86- 24L	6010	71	70	158	81	53	63	53	60	124	117
FLIP 86- 26L	6012	75	-	152	97	56	63	55	62	126	113
FLIP 86- 28L	6014	70	77	154	106	62	59	51	61	125	111
FLIP 86- 29L	6015	64	61	148	78	52	55	50	62	125	107
FLIP 86- 30L	6016	69	70	157	92	56	59	52	60	127	111
FLIP 86- 33L	6019	58	65	149	77	52	54	50	54	125	109
FLIP 86- 38L	6024	48	55	148	69	52	54	49	54	125	107
FLIP 86- 51L	6037	48	49	153	77	53	55	50	58	128	111
FLIP 86- 56L	6042	70	72	158	111	59	61	55	63	126	113
FLIP 86- 60L	6046	60	61	149	76	52	56	49	54	128	111
FLIP 87- 45L	6235	81	-	149	-	54	63	56	57	125	111
FLIP 87- 48L	6238	67	65	151	86	54	64	53	61	124	109
FLIP 87- 52L	6242	56	61	150	99	53	59	51	63	125	109
FLIP 87- 59L	6249	69	-	151	77	55	61	57	60	127	109
FLIP 87- 60L	6250	78	-	158	89	62	57	55	63	124	113
FLIP 87- 61L	6251	64	62	149	84	53	54	52	54	125	107
FLIP 87- 62L	6252	63	72	151	109	54	52	50	57	122	111
FLIP 87- 63L	6253	79	-	152	95	55	58	54	57	125	113
S.L.S.	4401	73	-	151	87	60	61	56	60	126	112
Hurani-1	2130	76	-	152	100	60	60	55	60	125	112
Local Check		59	62	156	82	53	62	51	65	125	110
Location Mean		**63**	**60**	**152**	**89**	**56**	**59**	**53**	**59**	**125**	**112**
S.E. of Mean		1.18	-	0.94	7.09	2.22	1.15	0.69	0.19	0.75	0.77
L.S.D. at 5% for:											
Checks		4.63	-	3.70	27.82	8.71	4.50	2.72	0.76	2.93	3.02
T.E. in the same block		8.01	-	6.41	48.18	15.09	8.00	4.72	1.31	5.07	5.23
T.E. in different blocks		9.25	-	7.40	55.64	17.42	9.00	5.45	1.51	5.85	6.04
Checks Vs test entries		7.56	-	6.04	45.43	14.23	7.35	4.45	1.23	4.78	4.94
C.V. %		3.26	-	1.07	14.33	6.88	3.37	2.28	0.56	1.03	1.20

Cont'd. ...

Table 5.6.2. Cont'd. ...

Selection	ILL	LEBANON	PAKISTAN			POLAND	PORTUGAL	SPAIN		SYRIA	
		Terbol	Faisalabad (NIAB)	Faisalabad (AARI)	Islam-abad	Pulawy	Elvas	Badajoz	El Encin	Gelline	Heimo
ILL 20	20	137	120	103	116	57	121	121	150	115	146
ILL 465	465	143	127	117	144	61	134	-	155	124	149
ILL 468	468	137	123	121	139	61	133	-	153	117	148
ILL 813	813	145	135	117	129	60	133	-	151	122	149
ILL 1939	1939	137	119	115	128	58	126	130	150	117	146
Laird	4349	137	124	112	136	63	134	-	151	117	146
Jord. Local	4354	137	121	109	115	57	124	119	152	115	146
Chilean 78	4711	141	106	112	110	59	131	-	153	120	146
Fam 370	5486	131	82	99	95	54	112	121	149	116	139
74TA 550	5544	141	123	117	136	58	129	129	150	115	146
78S 26002	5582	137	117	111	116	57	127	127	151	117	144
78S 26052	5604	137	119	115	129	58	126	-	151	115	144
FLIP 84- 26L	5698	137	107	109	117	57	122	118	147	124	146
FLIP 84- 42L	5713	141	117	119	129	58	126	131	144	127	146
FLIP 84- 43L	5714	141	124	117	135	57	130	-	152	120	149
FLIP 84- 51L	5722	137	96	95	103	55	123	129	150	115	144
FLIP 84- 58L	5728	133	119	119	116	59	120	127	149	113	146
FLIP 84- 59L	5729	139	121	117	137	58	129	-	151	120	146
FLIP 84- 75L	5745	137	113	111	116	57	121	121	147	116	146
FLIP 84- 78L	5748	137	101	103	97	57	123	123	149	114	146
FLIP 84- 83L	5753	141	135	119	128	60	129	131	148	133	146
FLIP 84-133L	5803	135	82	93	101	54	121	123	151	115	146
FLIP 84-154L	5823	137	105	105	116	56	123	119	144	114	144
FLIP 85- 35L	5873	137	109	105	117	58	121	118	144	112	144
FLIP 85- 38L	5876	137	108	101	117	60	126	131	152	128	146
82S 15 (4400)	5883	135	124	119	136	58	126	128	149	117	144
FLIP 86- 2L	5988	135	117	101	116	57	123	122	148	118	146
FLIP 86- 3L	5989	135	114	101	116	57	123	122	153	118	146
FLIP 86- 4L	5990	135	104	101	114	58	123	122	146	118	146
FLIP 86- 12L	5998	129	82	92	95	58	108	116	143	109	136
FLIP 86- 16L	6002	129	82	89	96	57	108	119	152	112	136
FLIP 86- 18L	6004	131	81	89	88	58	109	119	150	112	136

Table 5.6.2. Cont'd. ...

Selection	ILL	LEBANON	PAKISTAN			POLAND	PORTUGAL	SPAIN		SYRIA	
		Terbol	Faisalabad (NIAB)	Faisalabad (AARI)	Islam-abad	Pulawy	Elvas	Badajoz	El Encin	Gelline	Heimo
FLIP 86- 19L	6005	131	80	89	99	58	109	114	145	112	139
FLIP 86- 24L	6010	143	108	109	128	57	130	-	148	123	147
FLIP 86- 26L	6012	143	104	127	139	58	130	-	150	122	146
FLIP 86- 28L	6014	137	117	109	126	58	129	128	148	118	144
FLIP 86- 29L	6015	135	102	101	117	57	121	116	148	116	139
FLIP 86- 30L	6016	139	106	112	117	56	130	126	152	123	141
FLIP 86- 33L	6019	137	106	107	116	55	124	126	150	121	146
FLIP 86- 38L	6024	133	98	95	120	55	113	117	144	112	136
FLIP 86- 51L	6037	131	82	93	95	58	108	116	143	109	136
FLIP 86- 56L	6042	141	117	115	126	59	129	129	149	118	146
FLIP 86- 60L	6046	135	99	109	114	56	123	121	145	116	141
FLIP 87- 45L	6235	135	123	119	135	57	126	126	150	124	141
FLIP 87- 48L	6238	137	117	109	126	57	130	128	151	123	146
FLIP 87- 52L	6242	133	105	103	117	58	120	119	148	113	144
FLIP 87- 59L	6249	137	106	109	117	58	122	126	150	113	141
FLIP 87- 60L	6250	141	122	119	135	59	130	132	150	121	146
FLIP 87- 61L	6251	137	122	109	126	55	124	127	152	119	146
FLIP 87- 62L	6252	139	123	115	128	58	130	-	149	118	144
FLIP 87- 63L	6253	139	124	123	136	58	130	127	149	127	146
S.L.S.	4401	137	123	118	127	58	128	127	150	121	146
Hurani-1	2130	138	119	116	127	58	129	129	153	121	146
Local Check		144	93	95	100	60	108	-	160	120	146
Location Mean		**137**	**110**	**109**	**119**	**58**	**123**	**124**	**150**	**118**	**144**
S.E. of Mean		0.67	0.45	1.02	0.51	0.33	0.58	0.94	1.02	0.25	0.19
L.S.D. at 5% for:											
Checks		2.62	1.77	4.00	2.00	1.31	2.27	5.74	4.00	8.83	0.76
T.E. in the same block		4.53	3.07	6.92	3.46	2.27	3.93	9.94	6.92	15.29	1.31
T.E. in different blocks		5.23	3.54	8.00	4.00	2.62	4.53	12.17	8.00	17.65	1.51
Checks Vs test entries		4.27	2.89	6.53	3.26	2.14	3.70	9.94	6.53	14.42	1.23
C.V. %		0.84	0.71	1.63	0.74	1.00	0.81	2.02	1.18	3.29	0.23

Cont'd. ...

Table 5.6.2. Cont'd. ...

Selection	ILL	SYRIA			TURKEY					(1) Overall Mean
		Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Diyarbakir	Erzurum	Urfa	
ILL 20	20	130	129	161	213	74	94	76	159	106
ILL 465	465	138	134	167	213	75	93	78	171	113
ILL 468	468	139	136	169	211	76	97	71	163	112
ILL 813	813	122	144	169	213	79	97	75	176	114
ILL 1939	1939	131	129	162	212	75	94	75	156	108
Laird	4349	143	133	164	213	80	90	79	171	112
Jord. Local	4354	130	131	159	211	74	90	73	160	106
Chilean 78	4711	136	129	166	209	77	93	77	168	109
Fam 370	5486	126	124	156	213	75	97	69	160	101
74TA 550	5544	134	126	165	211	75	94	75	154	109
78S 26002	5582	129	128	159	213	74	-	73	163	106
78S 26052	5604	136	131	162	213	75	94	75	158	108
FLIP 84- 26L	5698	129	124	159	211	72	96	73	158	104
FLIP 84- 42L	5713	132	127	165	211	75	94	72	163	109
FLIP 84- 43L	5714	134	130	164	213	74	90	78	163	110
FLIP 84- 51L	5722	134	128	162	211	76	91	75	167	103
FLIP 84- 58L	5728	136	128	161	211	76	91	76	158	107
FLIP 84- 59L	5729	134	126	165	211	76	91	75	157	110
FLIP 84- 75L	5745	129	128	160	211	74	94	69	160	105
FLIP 84- 78L	5748	132	124	162	209	76	94	76	163	105
FLIP 84- 83L	5753	132	130	166	212	76	91	72	163	111
FLIP 84-133L	5803	126	125	156	213	74	91	69	160	101
FLIP 84-154L	5823	131	125	160	212	75	91	71	153	104
FLIP 85- 35L	5873	131	123	160	211	75	94	75	153	104
FLIP 85- 38L	5876	130	127	163	213	74	94	70	162	107
82S 15 (4400)	5883	134	127	161	211	74	91	75	159	108
FLIP 86- 2L	5988	128	124	160	212	74	91	68	159	104
FLIP 86- 3L	5989	128	129	161	212	74	94	70	158	104
FLIP 86- 4L	5990	130	122	162	212	74	91	70	162	104
FLIP 86- 12L	5998	126	123	154	213	76	94	73	150	98
FLIP 86- 16L	6002	125	128	157	209	74	94	69	154	99
FLIP 86- 18L	6004	125	122	155	211	74	94	70	160	98

Table 5.6.2. Cont'd. ...

Selection	ILL	SYRIA			TURKEY					(1) Overall Mean
		Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Diyarbakir	Erzurum	Urfa	
FLIP 86- 19L	6005	130	125	154	213	74	90	78	159	101
FLIP 86- 24L	6010	135	128	168	209	75	94	69	162	109
FLIP 86- 26L	6012	134	128	166	211	75	96	77	166	109
FLIP 86- 28L	6014	133	124	164	213	76	94	75	158	107
FLIP 86- 29L	6015	127	127	160	211	74	93	73	163	104
FLIP 86- 30L	6016	133	128	163	209	74	90	77	163	107
FLIP 86- 33L	6019	126	125	159	210	72	96	73	161	105
FLIP 86- 38L	6024	125	123	163	-	71	90	73	153	100
FLIP 86- 51L	6037	128	123	155	209	77	91	74	163	100
FLIP 86- 56L	6042	132	131	165	211	75	97	75	163	109
FLIP 86- 60L	6046	127	122	160	210	73	91	68	157	104
FLIP 87- 45L	6235	129	124	161	211	74	91	73	160	107
FLIP 87- 48L	6238	134	128	161	212	74	96	75	163	108
FLIP 87- 52L	6242	129	126	162	213	76	94	76	156	104
FLIP 87- 59L	6249	130	125	163	213	75	90	77	163	106
FLIP 87- 60L	6250	133	125	166	213	74	0	70	162	110
FLIP 87- 61L	6251	130	128	160	213	74	90	72	159	105
FLIP 87- 62L	6252	134	128	162	212	76	94	75	158	107
FLIP 87- 63L	6253	133	128	164	211	75	93	73	160	109
S.L.S.	4401	131	129	162	211	74	94	72	161	108
Hurani-1	2130	133	130	163	212	74	96	74	162	108
Local Check		133	128	165	212	75	93	76	-	
Location Mean		**131**	**128**	**162**	**212**	**75**	**94**	**73**	**161**	
S.E. of Mean		0.96	0.81	0.56	0.56	0.56	0.91	1.31	1.55	
L.S.D. at 5% for:										
Checks		3.78	3.16	2.20	2.20	2.20	3.58	5.12	9.40	
T.E. in the same block		6.54	5.47	3.82	3.82	3.82	6.21	8.87	16.29	
T.E. in different blocks		7.55	6.32	4.41	4.41	4.41	7.17	10.25	19.95	
Checks Vs test entries		6.17	5.16	3.60	3.60	3.60	5.85	8.37	16.29	
C.V. %		1.27	1.09	0.60	0.47	1.30	1.75	3.09	1.67	

(1) Mymensing, Akaki, Debre Zeit, New Delhi, Badajoz, Ankara and Diyarbakir were excluded from the overall mean. T.E. = Test entries, * = Locations not analysed and thus mean values are unadjusted.
NF = Not flowered.

Table 5.6.3. Adjusted time to maturity (days) of entries at different locations in the LISN-T during 1986/87.

Selection	ILL	ALGERIA			AUSTRALIA	BANGLADESH	BULGARIA	CHILE	EGYPT	ETHIOPIA	GREECE	INDIA	IRAN
		Khroub	Setif	Sidi - Bel Abbes	Horsham	Mymensingh *	Toshevo	Temuco	Bahteem	Akaki	Larissa	New - Delhi	Ghazvin
ILL 20	20	163	187	152	151	96	93	123	131	124	208	136	78
ILL 465	465	168	186	155	145	NM	99	126	155	-	213	150	82
ILL 468	468	165	187	155	150	NM	99	129	163	124	206	166	82
ILL 813	813	167	186	156	153	NM	98	127	158	121	208	144	79
ILL 1939	1939	161	185	155	145	NM	92	125	148	119	206	156	77
Laird	4349	168	170	155	157	NM	100	129	150	-	213	143	83
Jord. Local	4354	163	186	151	142	NM	93	125	150	-	213	143	79
Chilean 78	4711	167	178	153	157	NM	97	125	155	-	213	148	81
Fam 370	5486	167	194	152	148	106	93	122	148	123	208	131	75
74TA 550	5544	154	176	155	140	NM	94	124	163	116	199	156	78
78S 26002	5582	161	185	151	137	NM	93	123	150	123	213	140	79
78S 26052	5604	165	186	155	145	NM	94	125	131	116	206	154	77
FLIP 84- 26L	5698	162	179	151	142	NM	93	125	145	120	213	138	77
FLIP 84- 42L	5713	163	184	152	148	NM	95	124	153	-	201	146	78
FLIP 84- 43L	5714	166	185	155	142	NM	93	125	155	122	213	146	80
FLIP 84- 51L	5722	164	185	152	145	112	96	127	131	106	206	151	77
FLIP 84- 58L	5728	163	182	152	145	NM	95	127	131	-	199	155	80
FLIP 84- 59L	5729	159	184	155	143	NM	95	124	148	119	206	156	79
FLIP 84- 75L	5745	165	186	152	151	NM	95	125	131	111	208	141	77
FLIP 84- 78L	5748	164	186	155	145	NM	95	127	158	116	206	154	78
FLIP 84- 83L	5753	163	184	156	153	NM	97	124	158	-	208	151	80
FLIP 84-133L	5803	167	191	152	148	NM	93	122	148	100	208	130	75
FLIP 84-154L	5823	159	175	152	145	NM	95	125	153	-	193	154	76
FLIP 85- 35L	5873	162	176	152	145	NM	95	125	145	116	206	152	77
FLIP 85- 38L	5876	165	187	149	151	NM	92	125	158	123	208	136	77
82S 15 (4400)	5883	158	179	152	145	NM	95	126	148	123	206	158	78
FLIP 86- 2L	5988	165	186	152	148	NM	94	127	153	122	208	135	78
FLIP 86- 3L	5989	162	183	152	148	NM	94	125	153	120	208	136	78
FLIP 86- 4L	5990	166	188	152	148	NM	95	125	153	121	201	136	78
FLIP 86- 12L	5998	162	179	149	140	114	94	127	131	108	206	138	79
FLIP 86- 16L	6002	166	182	149	143	110	93	125	131	98	208	135	77
FLIP 86- 18L	6004	167	185	152	148	NM	95	126	131	100	208	131	78

Table 5.6.3. Cont'd. ...

Selection	ILL	ALGERIA			AUSTRALIA	BANGLADESH	BULGARIA	CHILE	EGYPT	ETHIOPIA	GREECE	INDIA	IRAN
		Khroub	Setif	Sidi - Bel Abbes	Horsham	Mymensingh *	Toshevo	Temuco	Bahteem	Akaki	Larissa	New - Delhi	Ghazvin
FLIP 86- 19L	6005	167	178	148	137	105	93	124	123	98	213	134	79
FLIP 86- 24L	6010	163	182	152	148	NM	93	124	148	119	208	138	77
FLIP 86- 26L	6012	163	187	151	152	NM	95	128	155	-	206	146	80
FLIP 86- 28L	6014	158	179	152	145	NM	95	126	153	123	206	154	80
FLIP 86- 29L	6015	166	178	151	142	115	94	125	150	123	213	139	79
FLIP 86- 30L	6016	163	182	151	140	NM	95	123	150	116	213	143	79
FLIP 86- 33L	6019	162	179	151	140	NM	92	123	145	108	213	138	76
FLIP 86- 38L	6024	165	176	148	140	116	92	123	123	100	196	130	75
FLIP 86- 51L	6037	162	179	152	145	111	95	127	158	105	206	136	78
FLIP 86- 56L	6042	163	186	152	145	NM	98	127	158	-	206	158	80
FLIP 86- 60L	6046	167	179	152	148	NM	92	124	148	122	201	136	78
FLIP 87- 45L	6235	167	177	152	148	NM	93	125	131	-	201	141	78
FLIP 87- 48L	6238	165	186	151	142	NM	93	125	150	-	213	147	79
FLIP 87- 52L	6242	164	187	155	145	NM	93	127	131	124	206	143	79
FLIP 87- 59L	6249	164	182	151	140	NM	94	123	145	116	213	138	79
FLIP 87- 60L	6250	163	183	152	148	NM	95	127	153	-	201	145	80
FLIP 87- 61L	6251	163	178	151	142	118	92	123	150	119	206	140	81
FLIP 87- 62L	6252	161	179	155	145	NM	93	125	131	124	206	158	76
FLIP 87- 63L	6253	160	178	151	142	NM	94	123	150	-	196	148	79
S.L.S.	4401	160	179	152	142	NM	94	124	158	-	204	141	79
Hurani-1	2130	163	186	153	143	NM	93	124	150	-	209	150	79
Local Check		165	185	152	156	NM	94	129	133	116	204	141	79
Location Mean		**164**	**183**	**153**	**146**	**110**	**94**	**125**	**146**	**113**	**207**	**144**	**78**
S.E. of Mean		1.76	0.33	0.77	3.04	-	0.47	0.69	2.40	-	2.86	4.69	0.33
L.S.D. at 5% for:													
Checks		6.90	1.31	3.02	11.92	-	1.85	2.72	9.44	-	11.24	18.43	1.31
T.E. in S.B.		11.96	2.27	5.23	20.65	-	3.21	4.72	16.34	-	19.47	31.92	2.27
T.E. in D.B.		13.81	2.62	6.04	23.84	-	3.70	5.45	18.87	-	22.49	36.85	2.62
Checks Vs T.E.		11.27	2.14	4.94	19.47	-	3.02	4.45	15.41	-	18.36	30.10	2.14
C.V. %		1.86	0.32	0.87	3.61	-	0.87	0.96	2.85	-	2.40	5.64	0.74

Cont'd. ...

Table 5.6.3. Cont'd. ...

Selection	ILL	IRAN			JORDAN		LEBANON	PAKISTAN	POLAND	PORTUGAL	SPAIN	
		Hamadan	Karaj-1	Karaj-2	Jubeiha	Mushagar	Terbol	Faisala - bad (NIAB)	Pulawy	Elvas	Badajoz	El - Encin
ILL 20	20	98	86	91	170	151	179	160	92	175	185	188
ILL 465	465	99	91	98	170	149	183	161	92	185	181	193
ILL 468	468	105	90	98	170	151	182	156	99	189	183	191
ILL 813	813	105	88	113	172	151	185	162	93	188	179	186
ILL 1939	1939	105	91	90	172	142	178	156	91	184	175	188
Laird	4349	102	91	113	168	153	187	155	99	191	187	188
Jord. Local	4354	102	88	90	168	153	177	154	89	180	173	186
Chilean 78	4711	96	92	96	171	153	187	152	92	185	186	201
Fam 370	5486	90	85	94	171	151	171	144	92	175	186	181
74TA 550	5544	103	90	89	171	147	176	154	91	184	168	187
78S 26002	5582	94	79	91	170	149	175	153	89	177	174	188
78S 26052	5604	102	91	89	171	142	176	154	91	179	175	187
FLIP 84- 26L	5698	94	87	90	170	149	177	154	91	177	186	191
FLIP 84- 42L	5713	97	87	94	172	155	175	159	92	178	171	179
FLIP 84- 43L	5714	97	87	91	170	149	177	155	89	185	173	186
FLIP 84- 51L	5722	95	88	93	169	151	180	154	91	179	178	190
FLIP 84- 58L	5728	96	90	92	164	147	170	161	95	176	183	190
FLIP 84- 59L	5729	104	88	93	169	147	180	154	91	179	173	191
FLIP 84- 75L	5745	92	85	90	170	151	177	158	92	183	185	185
FLIP 84- 78L	5748	95	90	93	164	151	182	156	95	184	185	187
FLIP 84- 83L	5753	98	89	98	172	155	179	162	93	178	174	184
FLIP 84-133L	5803	89	86	92	171	151	175	144	92	175	184	185
FLIP 84-154L	5823	88	90	90	170	147	174	149	92	179	172	184
FLIP 85- 35L	5873	90	88	89	171	142	176	152	91	176	183	185
FLIP 85- 38L	5876	97	85	92	170	151	177	156	92	183	174	189
82S 15 (4400)	5883	101	83	91	169	147	176	154	91	176	178	191
FLIP 86- 2L	5988	98	83	90	172	146	177	159	92	183	185	183
FLIP 86- 3L	5989	90	84	90	172	146	177	163	92	183	186	191
FLIP 86- 4L	5990	90	84	90	172	146	177	158	92	178	185	180
FLIP 86- 12L	5998	96	84	91	169	142	176	140	96	179	163	184
FLIP 86- 16L	6002	99	79	91	162	146	171	147	93	178	164	187
FLIP 86- 18L	6004	91	82	89	164	146	177	148	96	175	177	186

Table 5.6.3. Cont'd. ...

Selection	ILL	IRAN			JORDAN		LEBANON	PAKISTAN	POLAND	PORTUGAL	SPAIN	
		Hamadan	Karaj-1	Karaj-2	Jubeiha	Mushagar	Terbol	Faisala - bad (NIAB)	Pulawy	Elvas	Badajoz	El - Encin
FLIP 86- 19L	6005	96	86	90	163	144	171	140	92	177	164	185
FLIP 86- 24L	6010	104	81	93	167	151	179	157	92	178	167	181
FLIP 86- 26L	6012	102	90	94	171	151	179	151	92	180	177	190
FLIP 86- 28L	6014	101	83	92	166	147	172	154	91	176	171	186
FLIP 86- 29L	6015	94	87	90	163	149	179	156	91	177	174	196
FLIP 86- 30L	6016	95	88	93	168	144	175	152	89	180	173	192
FLIP 86- 33L	6019	92	81	91	165	149	183	152	92	177	175	193
FLIP 86- 38L	6024	93	89	89	165	144	171	142	89	177	165	178
FLIP 86- 51L	6037	92	92	91	164	142	176	140	92	176	184	186
FLIP 86- 56L	6042	99	89	92	164	151	182	160	92	184	184	184
FLIP 86- 60L	6046	95	85	90	162	151	177	156	92	175	171	182
FLIP 87- 45L	6235	103	90	89	162	155	171	161	92	175	171	189
FLIP 87- 48L	6238	101	92	89	171	149	175	149	89	177	173	188
FLIP 87- 52L	6242	102	89	90	169	147	178	156	91	176	175	191
FLIP 87- 59L	6249	97	89	93	168	144	173	152	91	185	173	192
FLIP 87- 60L	6250	90	80	91	171	151	177	162	96	175	174	187
FLIP 87- 61L	6251	93	85	89	163	144	173	153	89	177	170	198
FLIP 87- 62L	6252	91	89	89	171	147	184	154	92	179	178	193
FLIP 87- 63L	6253	98	90	89	165	149	177	162	89	177	172	186
S.L.S.	4401	99	88	91	169	149	172	159	90	176	172	184
Hurani-1	2130	96	87	90	164	146	174	162	90	179	174	188
Local Check		100	86	97	166	147	185	146	93	177	186	202
Location Mean		**97**	**87**	**92**	**168**	**148**	**177**	**155**	**92**	**179**	**177**	**188**
S.E. of Mean		2.28	3.36	0.87	1.65	1.18	0.39	1.43	1.02	1.77	1.61	1.22
L.S.D. at 5% for:												
Checks		8.95	13.17	3.42	6.48	4.63	1.51	5.60	4.00	6.97	6.32	4.78
T.E. in S.B.		15.51	22.81	5.92	11.22	8.01	2.62	9.70	6.92	12.06	10.95	8.28
T.E. in D.B.		17.91	26.34	6.84	12.95	9.25	3.02	11.21	8.00	13.93	12.64	9.56
Checks Vs T.E.		14.62	21.51	5.59	10.58	7.56	2.47	9.15	6.53	11.38	10.32	7.80
C.V. %		4.06	6.66	1.63	1.70	1.38	0.38	1.60	1.93	1.72	1.58	1.12

Cont'd. ...

Table 5.6.3. Cont'd. ...

Selection	ILL	SYRIA					TURKEY					(1) Overall Mean
		Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Erzurum	Eskisehir	Urfa	
ILL 20	20	156	182	169	172	198	238	100	109	105	188	147
ILL 465	465	164	183	171	179	204	238	104	110	109	193	151
ILL 468	468	162	177	170	172	212	237	101	107	110	191	152
ILL 813	813	162	186	170	182	-	239	106	112	-	193	142
ILL 1939	1939	161	177	170	168	199	238	100	110	107	187	148
Laird	4349	162	183	175	158	-	237	108	112	-	194	141
Jord. Local	4354	163	177	170	171	195	238	97	108	109	188	147
Chilean 78	4711	165	183	172	177	202	234	107	111	109	193	152
Fam 370	5486	160	177	170	168	204	237	98	107	101	188	147
74TA 550	5544	160	177	170	168	200	236	100	110	102	186	147
78S 26002	5582	153	177	169	174	197	237	99	106	101	188	146
78S 26052	5604	159	172	170	168	200	237	100	107	106	186	147
FLIP 84- 26L	5698	160	174	166	171	198	237	103	107	104	188	147
FLIP 84- 42L	5713	156	175	169	172	199	235	100	108	107	188	147
FLIP 84- 43L	5714	161	179	167	173	199	237	99	108	104	188	148
FLIP 84- 51L	5722	158	177	170	172	203	237	101	107	102	194	148
FLIP 84- 58L	5728	161	177	170	169	197	236	101	110	103	187	147
FLIP 84- 59L	5729	161	177	167	166	203	236	101	109	104	189	148
FLIP 84- 75L	5745	155	182	170	171	197	236	100	109	103	184	147
FLIP 84- 78L	5748	161	179	170	168	204	234	101	110	107	191	150
FLIP 84- 83L	5753	161	182	171	175	203	237	104	111	108	188	150
FLIP 84-133L	5803	156	177	170	172	201	237	98	108	102	188	146
FLIP 84-154L	5823	144	174	170	176	201	238	100	107	105	186	146
FLIP 85- 35L	5873	144	177	171	166	201	237	101	107	106	186	146
FLIP 85- 38L	5876	158	182	170	172	199	238	103	109	103	188	148
82S 15 (4400)	5883	155	174	168	166	197	236	101	108	102	186	147
FLIP 86- 2L	5988	159	182	168	170	197	236	100	109	102	187	148
FLIP 86- 3L	5989	161	182	170	176	197	238	99	108	104	184	148
FLIP 86- 4L	5990	160	182	170	175	199	237	101	110	103	188	148
FLIP 86- 12L	5998	161	175	170	171	197	237	100	107	103	186	145
FLIP 86- 16L	6002	149	175	168	169	197	233	96	108	101	184	144
FLIP 86- 18L	6004	153	182	167	171	195	235	99	105	104	184	145

Table 5.6.3. Cont'd. ...

Selection	ILL	SYRIA					TURKEY					(1) Overall Mean
		Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Erzurum	Eskisehir	Urfa	
FLIP 86- 19L	6005	151	172	167	168	194	237	100	106	105	188	143
FLIP 86- 24L	6010	160	182	170	170	202	234	96	106	100	188	147
FLIP 86- 26L	6012	161	177	172	169	201	235	103	109	102	193	149
FLIP 86- 28L	6014	155	172	170	167	200	237	99	107	102	186	146
FLIP 86- 29L	6015	160	179	167	171	199	235	100	108	103	188	147
FLIP 86- 30L	6016	160	177	169	168	201	234	98	107	103	193	147
FLIP 86- 33L	6019	159	183	167	175	195	235	97	106	103	188	146
FLIP 86- 38L	6024	150	172	167	168	195	-	94	106	103	182	142
FLIP 86- 51L	6037	144	172	169	168	197	235	100	107	105	186	145
FLIP 86- 56L	6042	161	174	164	171	200	235	103	111	103	189	149
FLIP 86- 60L	6046	154	175	167	172	195	234	100	106	99	188	145
FLIP 87- 45L	6235	156	182	167	174	195	235	99	109	101	188	146
FLIP 87- 48L	6238	161	172	168	172	197	236	99	106	103	188	147
FLIP 87- 52L	6242	161	177	170	168	201	239	100	112	107	187	147
FLIP 87- 59L	6249	154	174	170	167	199	238	101	108	108	188	147
FLIP 87- 60L	6250	158	182	170	170	200	238	99	105	104	188	147
FLIP 87- 61L	6251	155	177	166	169	197	234	94	107	102	188	145
FLIP 87- 62L	6252	160	177	170	172	201	237	99	107	102	187	147
FLIP 87- 63L	6253	159	179	167	170	199	238	99	108	103	188	146
S.L.S.	4401	153	174	168	168	198	236	99	108	104	187	146
Hurani-1	2130	157	177	169	171	198	236	102	108	102	189	147
Local Check		157	178	170	177	203	237	103	111	103	-	
Location Mean		**157**	**178**	**169**	**171**	**190**	**237**	**101**	**108**	**104**	**188**	
S.E. of Mean		3.99	1.07	0.77	1.26	0.82	0.77	0.88	0.61	1.13	1.18	
L.S.D. at 5% for:												
Checks		15.67	4.21	3.02	4.95	3.21	3.02	3.46	2.39	4.44	7.17	
T.E. in S.B.		27.13	7.29	5.23	8.58	5.55	5.23	6.00	4.14	7.69	12.42	
T.E. in D.B.		31.33	8.41	6.04	9.91	6.41	6.04	6.92	4.78	8.87	15.21	
Checks Vs T.E.		25.58	6.87	4.94	8.09	5.23	4.94	5.65	3.90	7.25	12.42	
C.V. %		4.39	1.05	0.79	1.28	0.75	0.58	1.52	0.98	1.95	1.09	

(1) Mymensingh, Akaki, Ankara and Eskisehir were excluded from the overall mean.
T.E. = Test entries, S.B. = Same block, D.B. = Different blocks., NM = Not matured.
* = Location not analysed and thus mean values are unadjusted.

Table 5.6.4. Adjusted plant height (cm) of entries at different locations in the LISN-T during 1986/87.

Selection	ILL	ALGERIA				AUSTRALIA	BANGLADESH	BULGARIA	CHILE	GREECE	IRAN	
		Guelma	Khroub	Setif	Sidi Bel-Abbes	Horsham	Mymensingh *	Toshevo	Temuco	Larissa	Ghazvin	Hamadan
ILL 20	20	48	33	21	27	36	25	24	35	30	16	23
ILL 465	465	56	39	25	28	35	-	34	35	40	21	28
ILL 468	468	43	35	24	30	39	-	32	40	35	15	33
ILL 813	813	52	35	27	37	41	-	42	45	40	17	26
ILL 1939	1939	42	28	19	35	35	-	26	40	30	18	26
Laird	4349	52	46	21	33	47	-	44	40	35	20	38
Jord. Local	4354	60	35	25	26	30	-	25	35	35	18	23
Chilean 78	4711	48	38	25	28	43	-	39	35	35	23	24
Fam 370	5486	62	25	18	32	36	30	27	30	35	17	22
74TA 550	5544	39	35	20	30	27	-	23	35	30	15	17
78S 26002	5582	58	33	22	33	34	-	27	35	40	18	21
78S 26052	5604	44	30	19	25	34	-	27	40	35	17	26
FLIP 84- 26L	5698	53	27	29	24	28	-	25	30	30	18	28
FLIP 84- 42L	5713	48	30	22	30	34	-	30	40	35	26	24
FLIP 84- 43L	5714	68	33	23	28	32	-	25	25	35	17	21
FLIP 84- 51L	5722	66	38	23	30	37	33	26	40	35	15	26
FLIP 84- 58L	5728	44	33	23	30	31	-	24	30	35	19	23
FLIP 84- 59L	5729	40	38	28	28	31	-	28	38	35	16	24
FLIP 84- 75L	5745	44	33	25	27	33	-	28	35	35	17	23
FLIP 84- 78L	5748	49	38	21	35	35	-	32	43	35	16	30
FLIP 84- 83L	5753	51	35	19	32	36	-	30	40	35	19	29
FLIP 84-133L	5803	54	25	20	32	32	-	27	38	35	15	26
FLIP 84-154L	5823	52	25	23	28	29	-	25	35	30	14	17
FLIP 85- 35L	5873	46	25	18	25	30	-	27	40	30	18	23
FLIP 85- 38L	5876	49	35	24	27	31	-	24	35	30	19	22
82S 15 (4400)	5883	54	39	25	35	33	-	29	45	30	17	23
FLIP 86- 2L	5988	44	33	22	32	35	-	26	35	35	20	24
FLIP 86- 3L	5989	49	30	20	32	33	-	26	40	30	21	22
FLIP 86- 4L	5990	58	30	25	32	36	-	26	40	30	18	25
FLIP 86- 12L	5998	42	38	17	30	32	31	31	45	30	18	27
FLIP 86- 16L	6002	66	33	23	37	36	29	30	38	35	21	26
FLIP 86- 18L	6004	52	30	24	30	36	-	30	30	30	19	25

Table 5.6.4. Cont'd. ...

Selection	ILL	ALGERIA				AUSTRALIA	BANGLADESH	BULGARIA	CHILE	GREECE	IRAN	
		Guelma	Khroub	Setif	Sidi Bel-Abbes	Horsham	Mymensingh *	Toshevo	Temuco	Larissa	Ghazvin	Hamadan
FLIP 86- 19L	6005	66	35	26	28	36	31	38	40	30	18	23
FLIP 86- 24L	6010	51	33	24	32	37	–	28	35	35	20	24
FLIP 86- 26L	6012	44	30	21	26	35	–	29	30	35	21	26
FLIP 86- 28L	6014	42	33	25	30	27	–	25	35	30	16	21
FLIP 86- 29L	6015	61	33	23	33	30	30	31	35	30	20	26
FLIP 86- 30L	6016	66	35	25	24	35	–	28	38	35	17	27
FLIP 86- 33L	6019	58	38	25	24	30	–	23	35	30	15	24
FLIP 86- 38L	6024	47	23	19	28	30	31	23	35	25	15	20
FLIP 86- 51L	6037	43	33	27	35	37	41	34	40	30	20	31
FLIP 86- 56L	6042	56	30	19	28	29	–	24	35	30	17	24
FLIP 86- 60L	6046	65	30	29	32	31	–	24	35	30	16	22
FLIP 87- 45L	6235	58	33	28	37	33	–	31	33	35	22	27
FLIP 87- 48L	6238	52	30	23	28	32	–	30	37	30	19	27
FLIP 87- 52L	6242	56	30	24	30	34	–	32	42	30	17	22
FLIP 87- 59L	6249	62	35	23	28	32	–	28	40	35	21	31
FLIP 87- 60L	6250	62	35	27	30	37	–	27	40	35	17	22
FLIP 87- 61L	6251	64	33	12	26	28	–	25	35	30	13	16
FLIP 87- 62L	6252	56	30	20	30	29	–	23	35	25	14	27
FLIP 87- 63L	6253	52	38	26	24	32	–	29	35	30	19	28
S.L.S.	4401	56	31	24	30	32	–	26	34	30	18	22
Hurani-1	2130	53	30	24	30	35	–	25	32	33	17	22
Local Check		–	29	23	30	41	–	35	38	37	18	22
Location Mean		**53**	**32**	**23**	**30**	**34**	**31**	**29**	**37**	**33**	**18**	**24**
S.E. of Mean		0.62	4.41	2.94	1.67	3.26	–	0.96	2.61	1.67	1.75	1.63
L.S.D. at 5% for:												
Checks		3.79	17.31	11.54	6.54	12.79	–	3.78	10.26	6.54	6.86	6.39
T.E. in S.B.		6.57	29.98	19.99	11.33	22.15	–	6.54	17.77	11.33	11.88	11.06
T.E. in D.B.		8.05	34.62	23.09	13.08	25.57	–	7.55	20.52	13.08	13.72	12.78
Checks Vs T.E.		6.57	28.27	18.85	10.69	20.88	–	6.17	16.76	10.69	11.21	10.43
C.V. %		2.04	23.69	22.18	9.67	16.64	–	5.79	12.39	8.82	16.91	11.57

Cont'd. ...

Table 5.6.4. Cont'd. ...

Selection	ILL	IRAN		JORDAN		LEBANON	PAKISTAN		POLAND	PORTUGAL	SPAIN	
		Karaj-1	Karaj-2	Jubeiha	Mushagar	Terbol	Faisal-abad	Faisalabad (NIAB) (AARI)	Pulawy	Elvas	Bada-joz	El Encin
-	20	22	23	28	35	30	50	28	25	30	31	24
-	465	21	29	45	41	34	48	40	28	46	36	34
-	468	22	27	38	34	40	63	30	34	31	41	32
-	813	20	35	38	41	43	49	61	34	52	44	32
-	1939	22	27	47	37	35	57	37	31	36	35	32
Laird	4349	24	33	48	41	40	63	45	35	53	43	31
Jord. Local	4354	26	28	44	32	37	52	37	23	43	38	31
Chilean 78	4711	22	28	44	39	40	71	43	30	51	48	40
Fam 370	5486	22	30	38	32	33	55	37	30	32	37	26
74TA 550	5544	17	19	29	31	25	50	37	26	39	41	33
78S 26002	5582	23	24	42	38	40	53	40	25	38	43	35
78S 26052	5604	23	19	33	36	38	69	48	31	36	40	36
FLIP 84- 26L	5698	23	24	35	36	34	55	31	25	31	41	31
FLIP 84- 42L	5713	23	24	30	28	33	44	39	30	37	39	26
FLIP 84- 43L	5714	23	25	37	28	37	52	33	24	46	32	28
FLIP 84- 51L	5722	21	23	41	37	40	50	51	24	41	44	34
FLIP 84- 58L	5728	20	26	34	31	35	39	38	30	24	38	37
FLIP 84- 59L	5729	20	20	31	33	38	59	45	30	39	39	38
FLIP 84- 75L	5745	24	22	36	38	33	45	30	27	32	40	28
FLIP 84- 78L	5748	24	28	41	39	38	63	46	31	29	48	38
FLIP 84- 83L	5753	22	27	28	37	33	45	32	29	40	37	25
FLIP 84-133L	5803	23	24	37	31	36	50	45	26	40	43	31
FLIP 84-154L	5823	28	17	44	33	30	49	34	22	49	35	29
FLIP 85- 35L	5873	27	17	31	35	35	53	47	22	24	47	31
FLIP 85- 38L	5876	23	23	36	33	30	60	33	23	30	36	30
82S 15 (4400)	5883	22	23	40	37	35	52	53	27	34	44	30
FLIP 86- 2L	5988	23	23	34	34	36	52	38	26	40	31	30
FLIP 86- 3L	5989	25	23	35	32	30	54	42	27	40	42	27
FLIP 86- 4L	5990	23	24	42	26	33	44	37	27	35	39	27
FLIP 86- 12L	5998	25	27	38	27	42	46	47	38	29	46	40
FLIP 86- 16L	6002	25	31	43	28	28	57	42	24	30	46	28
FLIP 86- 18L	6004	23	26	41	33	36	41	32	24	32	30	26

Table 5.6.4. Cont'd. ...

Selection	ILL	IRAN		JORDAN		LEBANON	PAKISTAN		POLAND	PORTUGAL	SPAIN	
		Karaj-1	Karaj-2	Jubeiha	Mushagar	Terbol	Faisal-abad	Faisalabad (NIAB) (AARI)	Pulawy	Elvas	Bada-joz	El Encin
FLIP 86- 19L	6005	25	27	39	38	34	46	31	27	43	39	41
FLIP 86- 24L	6010	21	25	38	38	38	51	45	25	32	34	30
FLIP 86- 26L	6012	21	23	37	35	37	44	31	29	31	37	31
FLIP 86- 28L	6014	19	20	43	29	35	50	38	26	26	37	31
FLIP 86- 29L	6015	27	26	38	35	37	51	35	28	36	35	39
FLIP 86- 30L	6016	23	24	39	38	34	53	38	27	36	39	29
FLIP 86- 33L	6019	23	22	31	38	37	55	33	27	36	40	29
FLIP 86- 38L	6024	23	16	39	34	27	48	35	22	33	34	35
FLIP 86- 51L	6037	28	27	41	37	35	49	33	31	34	42	33
FLIP 86- 56L	6042	21	20	31	29	32	40	41	36	26	45	33
FLIP 86- 60L	6046	26	23	28	38	33	41	35	22	27	37	28
FLIP 87- 45L	6235	21	24	33	35	30	47	36	32	37	40	33
FLIP 87- 48L	6238	24	25	42	42	37	48	48	24	41	37	27
FLIP 87- 52L	6242	23	20	41	28	30	53	38	27	36	38	29
FLIP 87- 59L	6249	20	23	47	32	34	59	36	30	41	31	33
FLIP 87- 60L	6250	22	27	33	34	30	42	38	29	42	42	31
FLIP 87- 61L	6251	21	21	32	37	32	55	33	23	31	38	44
FLIP 87- 62L	6252	24	19	31	30	28	58	38	26	36	37	28
FLIP 87- 63L	6253	22	21	37	35	34	47	41	27	36	33	33
S.L.S.	4401	20	20	31	35	33	43	29	27	34	37	32
Hurani-1	2130	20	24	36	32	34	48	38	28	36	41	32
Local Check		21	26	40	39	38	49	39	34	30	35	33
Location Mean		**22**	**24**	**37**	**34**	**35**	**51**	**38**	**28**	**36**	**39**	**32**
S.E. of Mean		0.61	0.65	1.45	1.94	1.94	0.84	3.00	1.63	2.22	2.30	1.74
L.S.D. at 5% for:												
Checks		2.39	2.56	5.68	7.61	7.61	3.29	11.76	6.41	8.73	9.02	6.84
T.E. in S.B.		4.14	4.44	9.84	13.18	13.18	5.70	20.38	11.10	15.12	15.62	11.85
T.E. in D.B.		4.78	5.12	11.36	15.22	15.22	6.59	23.53	12.82	17.46	18.04	13.68
Checks Vs T.E.		3.90	4.18	9.27	12.43	12.43	5.38	19.21	10.47	14.23	14.73	11.17
C.V. %		4.69	4.72	6.80	9.81	9.70	2.86	13.64	10.06	10.77	10.26	9.50

Cont'd. ...

Table 5.6.4. Cont'd. ...

Selection	ILL	SYRIA					TURKEY					(1) Overall Mean
		Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Erzurum	Eskisehir	Urfa	
ILL 20	20	45	40	28	31	30	19	34	15	22	29	29
ILL 465	465	43	45	43	28	29	27	30	21	24	36	35
ILL 468	468	49	43	39	53	34	25	26	16	27	31	35
ILL 813	813	54	45	38	33	28	29	34	22	29	34	38
ILL 1939	1939	41	39	36	45	32	20	27	19	27	29	33
Laird	4349	45	50	43	28	37	25	35	23	25	37	38
Jord. Local	4354	45	34	40	31	31	20	24	22	22	32	33
Chilean 78	4711	45	38	40	39	38	24	30	18	26	32	37
Fam 370	5486	44	38	35	41	29	20	23	16	23	27	32
74TA 550	5544	46	36	32	38	30	20	24	18	18	31	30
78S 26002	5582	34	40	38	37	32	21	27	21	21	32	33
78S 26052	5604	47	38	36	43	25	20	26	18	26	28	33
FLIP 84- 26L	5698	38	34	30	35	30	23	25	18	22	31	31
FLIP 84- 42L	5713	45	40	28	31	32	27	27	20	24	29	32
FLIP 84- 43L	5714	45	38	33	28	33	22	26	21	20	28	31
FLIP 84- 51L	5722	47	41	36	43	35	26	27	19	21	34	35
FLIP 84- 58L	5728	50	36	32	28	31	24	31	22	26	28	31
FLIP 84- 59L	5729	46	33	36	38	29	21	26	20	24	31	33
FLIP 84- 75L	5745	48	35	35	33	29	21	25	20	24	31	31
FLIP 84- 78L	5748	43	44	39	35	36	27	29	20	26	31	35
FLIP 84- 83L	5753	49	40	31	31	31	26	26	20	22	30	32
FLIP 84-133L	5803	43	42	35	34	25	20	26	18	22	27	32
FLIP 84-154L	5823	41	37	34	43	29	20	23	17	19	27	31
FLIP 85- 35L	5873	45	39	34	42	33	22	27	18	21	28	31
FLIP 85- 38L	5876	49	42	31	25	31	21	24	17	21	29	31
82S 15 (4400)	5883	43	37	39	44	28	23	30	20	23	31	34
FLIP 86- 2L	5988	38	38	31	42	29	23	25	19	21	29	31
FLIP 86- 3L	5989	48	34	33	34	30	23	21	18	20	29	32
FLIP 86- 4L	5990	39	35	31	32	30	20	24	19	20	26	31
FLIP 86- 12L	5998	48	36	31	37	30	22	31	20	28	31	34
FLIP 86- 16L	6002	44	40	38	46	28	19	29	19	24	31	34
FLIP 86- 18L	6004	45	38	24	33	28	20	27	20	27	29	31

Table 5.6.4. Cont'd. ...

Selection	ILL	SYRIA					TURKEY					(1) Overall Mean
		Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Ankara	Haymana	Erzurum	Eskisehir	Urfa	
FLIP 86- 19L	6005	45	42	33	31	30	27	32	21	26	33	34
FLIP 86- 24L	6010	44	35	31	42	28	19	26	17	21	29	32
FLIP 86- 26L	6012	33	40	38	36	30	22	23	17	20	31	31
FLIP 86- 28L	6014	49	33	32	35	26	22	26	18	21	29	30
FLIP 86- 29L	6015	47	45	33	33	38	18	29	22	22	30	34
FLIP 86- 30L	6016	48	42	38	36	27	22	24	18	18	30	33
FLIP 86- 33L	6019	33	36	30	37	31	24	27	16	20	30	31
FLIP 86- 38L	6024	36	41	32	36	27	-	20	15	18	29	29
FLIP 86- 51L	6037	61	46	44	41	39	27	29	21	30	34	35
FLIP 86- 56L	6042	47	39	36	30	31	20	28	20	22	29	31
FLIP 86- 60L	6046	42	35	28	35	31	21	24	17	19	28	30
FLIP 87- 45L	6235	58	35	33	34	28	21	24	19	25	29	33
FLIP 87- 48L	6238	43	40	33	31	30	22	27	21	22	29	33
FLIP 87- 52L	6242	41	44	32	37	29	22	27	21	26	29	32
FLIP 87- 59L	6249	31	38	40	37	30	20	23	19	21	31	33
FLIP 87- 60L	6250	44	35	34	44	26	19	24	18	20	29	33
FLIP 87- 61L	6251	32	42	31	34	24	18	19	18	19	27	30
FLIP 87- 62L	6252	40	36	29	38	25	19	25	17	17	27	30
FLIP 87- 63L	6253	41	36	33	31	28	24	23	19	24	31	31
S.L.S.	4401	43	41	36	28	31	22	24	19	19	30	31
Hurani-1	2130	48	41	31	31	31	24	27	20	21	28	32
Local Check		50	42	36	34	31	25	30	20	24	-	
Location Mean		**44**	**40**	**34**	**36**	**30**	**23**	**26**	**19**	**22**	**30**	
S.E. of Mean		1.92	2.48	1.22	1.62	1.31	0.86	1.07	0.62	0.81	0.82	
L.S.D. at 5% for:												
Checks		7.52	9.73	4.78	6.34	5.12	3.36	4.21	2.45	3.16	4.97	
T.E. in S.B.		13.02	16.86	8.28	10.99	8.87	5.81	7.29	4.24	5.47	8.61	
T.E. in D.B.		15.03	19.47	9.56	12.69	10.25	6.71	8.41	4.90	6.32	10.54	
Checks Vs T.E.		12.28	15.90	7.80	10.36	8.37	5.48	6.87	4.00	5.16	8.61	
C.V. %		7.46	10.86	6.15	7.87	7.53	7.28	7.04	5.66	6.21	4.78	

(1) Mymensingh, Ankara were excluded from the overall mean.
T.E. = Test entries, S.B. = Same block, D.B. = Different blocks.

Table 5.6.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LISN-T during 1986/87.

Selection	ILL	ALGERIA						AUSTRALIA		BANGLADESH		BULGARIA		CHILE		EGYPT	
		Khroub		Setif		Sidi Bel-Abbes		Horsham		Mymensingh *		Toshevo		Temuco		Bahteem	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 20	20	1447	14	1406	35	491	47	3421	47	-	-	2348	9	2644	24	6	39
ILL 465	465	1520	9	1606	27	1046	17	4311	26	-	-	1726	41	1919	36	0	48
ILL 468	468	937	27	1439	34	1296	8	3368	49	-	-	2059	22	2586	27	11	26
ILL 813	813	135	46	1156	46	824	32	3911	41	-	-	2081	20	3577	5	6	38
ILL 1939	1939	-	-	1289	40	1546	4	4578	17	-	-	2126	18	3540	7	11	25
Laird	4349	-	-	1506	29	796	37	4901	11	-	-	1526	45	2628	25	0	43
Jord. Local	4354	676	40	3406	1	1630	3	4391	23	-	-	1726	40	1832	38	0	44
Chilean 78	4711	864	29	2956	6	-	-	4811	14	-	-	1726	38	2789	19	0	54
Fam 370	5486	385	44	1406	36	907	27	3291	50	81	5	1615	44	1101	50	6	40
74TA 550	5544	1437	15	1139	50	130	51	3848	42	-	-	1993	24	1114	49	67	18
78S 26002	5582	2114	3	3106	4	1463	6	5441	4	-	-	1726	39	2667	22	6	42
78S 26052	5604	781	34	1389	37	-	-	4348	25	-	-	2259	16	3638	4	11	29
FLIP 84- 26L	5698	770	36	2806	8	1046	18	4171	28	-	-	1926	28	2541	29	67	15
FLIP 84- 42L	5713	728	37	1456	32	907	28	4671	16	-	-	2281	13	2942	16	33	21
FLIP 84- 43L	5714	-	-	3356	3	1213	11	4511	18	-	-	2059	21	154	54	0	46
FLIP 84- 51L	5722	906	28	2339	15	630	42	5298	7	48	6	2326	11	2839	18	11	31
FLIP 84- 58L	5728	-	-	1139	51	713	38	5398	5	-	-	2059	23	4108	2	11	27
FLIP 84- 59L	5729	2531	2	1489	30	880	29	3608	45	-	-	1993	25	1534	45	11	32
FLIP 84- 75L	5745	1197	22	1456	31	907	26	5391	6	-	-	1815	33	3123	12	33	22
FLIP 84- 78L	5748	-	-	2339	14	963	23	4158	30	-	-	1793	35	4038	3	11	24
FLIP 84- 83L	5753	1572	7	1156	45	657	39	4041	35	-	-	948	54	2602	26	72	14
FLIP 84-133L	5803	728	38	356	54	991	20	4021	37	-	-	1881	29	1932	35	6	36
FLIP 84-154L	5823	1031	25	889	53	463	48	4408	22	-	-	1526	46	3276	9	94	13
FLIP 85- 35L	5873	687	39	1439	33	796	35	4738	15	-	-	1993	26	3567	6	39	20
FLIP 85- 38L	5876	1478	11	2356	13	-	-	4821	13	-	-	1415	50	2417	32	172	8
82S 15 (4400)	5883	3062	1	2589	11	630	41	4428	20	-	-	2659	4	4384	1	11	30
FLIP 86- 2L	5988	1385	18	1056	52	1241	10	5251	8	-	-	1881	30	2924	17	6	35
FLIP 86- 3L	5989	1041	24	1256	41	1157	14	5451	3	-	-	2281	14	3006	15	117	12
FLIP 86- 4L	5990	791	33	1156	47	1157	12	4301	27	-	-	1681	42	3011	14	144	10
FLIP 86- 12L	5998	2000	4	1389	38	463	50	2288	54	19	9	2526	7	2709	20	622	2
FLIP 86- 16L	6002	1353	19	1706	23	1741	2	4041	36	117	3	2348	8	1881	37	561	3
FLIP 86- 18L	6004	135	47	1206	44	574	45	3451	46	-	-	2348	10	893	52	394	4

Table 5.6.5. Cont'd. ...

Selection	ILL	ALGERIA						AUSTRALIA		BANGLADESH		BULGARIA		CHILE		EGYPT	
		Khroub		Setif		Sidi Bel-Abbes		Horsham		Mymensingh *		Toshevo		Temuco		Bahteem	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 19L	6005	364	45	2706	10	1296	9	4421	21	27	8	2859	2	2580	28	844	1
FLIP 86- 24L	6010	1916	5	1606	28	1157	13	3991	38	-	-	2748	3	1731	41	61	19
FLIP 86- 26L	6012	1301	20	1756	21	963	24	5651	2	-	-	1793	34	2529	30	0	50
FLIP 86- 28L	6014	1500	10	1239	42	463	49	3288	51	-	-	1859	31	1803	39	67	16
FLIP 86- 29L	6015	801	32	1656	25	1046	16	4371	24	113	4	1926	27	2191	33	0	52
FLIP 86- 30L	6016	1301	21	1906	19	880	31	5681	1	-	-	2259	15	1273	48	0	53
FLIP 86- 33L	6019	1020	26	2906	7	1130	15	4161	29	-	-	1459	48	2447	31	178	7
FLIP 86- 38L	6024	520	43	2306	16	1880	1	3921	40	196	2	1259	52	3213	10	233	5
FLIP 86- 51L	6037	-	-	1339	39	796	34	3118	53	40	7	3193	1	1687	42	150	9
FLIP 86- 56L	6042	-	-	1139	48	630	43	4108	33	-	-	2526	6	2119	34	67	17
FLIP 86- 60L	6046	1541	8	3006	5	657	40	4141	31	-	-	1748	37	3066	13	117	11
FLIP 87- 45L	6235	1103	23	2756	9	991	21	4071	34	-	-	2281	12	1031	51	6	37
FLIP 87- 48L	6238	832	31	3406	2	1463	7	4931	10	-	-	2593	5	2689	21	0	45
FLIP 87- 52L	6242	593	41	1139	49	880	30	3398	48	-	-	1793	36	3504	8	28	23
FLIP 87- 59L	6249	770	35	2006	18	963	25	5091	9	-	-	1393	51	772	53	0	47
FLIP 87- 60L	6250	1416	16	1656	26	824	33	3171	52	-	-	1815	32	3132	11	6	34
FLIP 87- 61L	6251	1457	13	1756	22	630	44	3931	39	-	-	1126	53	1411	47	0	49
FLIP 87- 62L	6252	1875	6	1239	43	963	22	3668	44	-	-	2193	17	1618	44	11	28
FLIP 87- 63L	6253	832	30	2356	12	796	36	4481	19	-	-	1459	49	1642	43	0	51
S.L.S.	4401	1468	12	2200	17	528	46	4830	12	-	-	1667	43	1791	40	6	33
Hurani-1	2130	531	42	1700	24	1028	19	4110	32	-	-	1489	47	1454	46	-	-
Local Check		1406	17	1867	20	1500	5	3823	43	552	1	2089	19	2649	23	194	6
Location Mean		**1154**		**1832**		**955**		**4283**		**132**		**1944**		**2367**		**86**	
S.E. of Mean		135.50		629.89		135.61		157.28		-		195.42		164.58		17.12	
L.S.D. at 5% for:																	
Checks		531.87		2472.48		532.30		617.37		-		767.08		646.00		67.21	
T.E. in S.B.		921.23		4282.46		921.98		1069.31		-		1328.62		1118.91		116.42	
T.E. in D.B.		1063.75		4944.96		1064.61		1234.73		-		1534.16		1292.00		134.43	
Checks Vs T.E.		868.68		4038.15		869.38		1008.31		-		1252.82		1055.07		109.78	
C.V. %		23.16		59.56		26.92		6.36		-		17.41		12.04		38.00	
Test > L. Check		2		0		0		11		-		0		3		4	

Cont'd. ...

Table 5.6.5. Cont'd. ...

Selection	ILL	ETHIOPIA		FRANCE		GREECE		INDIA		IRAN							
		Akaki *		Montpellier		Larissa		New Delhi		Ghazvin		Hamadan		Karaj-1		Karaj-2	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 20	20	1230	18	4815	14	450	45	119	26	0	47	1126	5	1060	28	498	42
ILL 465	465	-	-	4523	17	1517	8	0	51	290	33	326	49	394	52	644	36
ILL 468	468	-	-	5298	6	1833	4	0	54	2401	1	815	19	1312	14	1698	2
ILL 813	813	1330	15	3246	43	1400	10	189	18	1842	2	593	33	1027	29	843	21
ILL 1939	1939	-	-	2793	48	1033	26	124	25	690	4	881	12	1179	20	1636	4
Laird	4349	-	-	4239	25	267	49	0	50	235	37	726	24	205	54	150	52
Jord. Local	4354	-	-	3626	36	567	43	0	49	412	23	659	28	905	34	1566	7
Chilean 78	4711	610	29	3110	44	1267	16	0	53	279	34	326	48	1216	19	612	37
Fam 370	5486	-	-	4022	30	200	51	659	2	0	52	859	15	738	43	334	49
74TA 550	5544	-	-	2321	52	1283	14	164	21	568	12	681	26	357	53	728	29
78S 26002	5582	-	-	4275	24	1367	12	116	28	368	29	726	23	1494	6	1580	6
78S 26052	5604	-	-	3868	34	1083	20	324	8	657	6	748	22	790	40	749	27
FLIP 84- 26L	5698	940	23	5295	7	467	44	66	42	635	7	859	16	1238	18	714	31
FLIP 84- 42L	5713	-	-	5076	11	1600	5	79	35	0	50	459	42	572	49	587	39
FLIP 84- 43L	5714	-	-	4239	26	1067	21	66	40	468	17	459	40	1127	23	838	22
FLIP 84- 51L	5722	2800	1	6308	2	1533	7	134	24	657	5	815	20	1112	25	1904	1
FLIP 84- 58L	5728	-	-	5339	5	1283	15	79	37	257	35	748	21	779	41	1464	8
FLIP 84- 59L	5729	-	-	5247	9	2283	1	74	38	390	26	1081	6	946	30	702	32
FLIP 84- 75L	5745	1600	10	4433	23	750	36	359	5	0	44	459	44	1116	24	657	34
FLIP 84- 78L	5748	-	-	3767	35	1883	3	324	9	535	15	1148	4	579	48	1417	10
FLIP 84- 83L	5753	-	-	3307	39	1050	23	64	44	0	53	193	52	727	44	594	38
FLIP 84-133L	5803	1480	11	3292	40	1350	13	1059	1	0	49	659	29	1694	2	0	54
FLIP 84-154L	5823	1770	5	4981	12	783	32	254	13	412	24	1281	2	801	39	849	20
FLIP 85- 35L	5873	1910	3	4457	20	983	27	194	16	590	10	1081	7	1446	8	481	44
FLIP 85- 38L	5876	1300	16	2828	47	1050	25	239	14	120	41	859	13	838	38	383	47
82S 15 (4400)	5883	1130	19	5265	8	1233	17	94	32	612	8	948	10	912	32	1192	11
FLIP 86- 2L	5988	-	-	3278	41	600	42	359	6	0	45	726	25	1549	4	781	26
FLIP 86- 3L	5989	1380	13	3427	37	600	41	259	12	53	43	593	30	1427	9	831	24
FLIP 86- 4L	5990	1640	9	3252	42	700	39	339	7	0	46	326	50	1472	7	998	14
FLIP 86- 12L	5998	1040	21	4434	22	733	38	114	29	357	31	1415	1	646	47	741	28
FLIP 86- 16L	6002	1300	17	4145	28	250	50	209	15	0	48	459	43	1405	10	482	43
FLIP 86- 18L	6004	730	27	1845	53	150	52	109	30	0	51	1193	3	1138	22	165	51

Table 5.6.5. Cont'd. ...

Selection	ILL	ETHIOPIA		FRANCE		GREECE		INDIA		IRAN							
		Akaki *		Montpellier		Larissa		New Delhi		Ghazvin		Hamadan		Karaj-1		Karaj-2	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 19L	6005	620	28	3320	38	0	54	166	19	468	19	459	41	527	50	545	41
FLIP 86- 24L	6010	1690	7	3985	31	750	35	309	10	175	39	526	35	2283	1	835	23
FLIP 86- 26L	6012	540	30	3979	33	1417	9	0	52	423	21	926	11	1072	27	644	35
FLIP 86- 28L	6014	-	-	4130	29	1183	19	194	17	346	32	815	18	1523	5	904	17
FLIP 86- 29L	6015	-	-	5673	3	967	29	86	34	557	13	519	37	1560	3	1460	9
FLIP 86- 30L	6016	930	25	2340	51	1567	6	0	48	368	28	59	53	1327	13	936	16
FLIP 86- 33L	6019	750	26	4445	21	317	48	66	41	468	18	193	51	1083	26	802	25
FLIP 86- 38L	6024	1380	14	5376	4	17	53	116	27	368	27	59	54	883	35	73	53
FLIP 86- 51L	6037	1800	4	2367	50	783	33	94	31	357	30	415	45	1246	17	724	30
FLIP 86- 56L	6042	-	-	4505	18	1383	11	79	36	401	25	481	38	1312	15	949	15
FLIP 86- 60L	6046	1680	8	2852	46	450	46	309	11	64	42	593	32	1305	16	466	45
FLIP 87- 45L	6235	-	-	1491	54	750	34	64	43	131	40	593	31	927	31	689	33
FLIP 87- 48L	6238	-	-	4495	19	417	47	46	45	568	11	526	36	494	51	453	46
FLIP 87- 52L	6242	1730	6	3985	32	733	37	524	3	435	20	1015	8	1335	12	1618	5
FLIP 87- 59L	6249	1410	12	5186	10	1067	22	166	20	501	16	659	27	849	36	562	40
FLIP 87- 60L	6250	940	24	4801	15	1200	18	159	22	0	54	393	47	1372	11	870	19
FLIP 87- 61L	6251	-	-	4739	16	617	40	6	46	412	22	393	46	683	45	366	48
FLIP 87- 62L	6252	-	-	4937	13	883	30	74	39	590	9	948	9	1179	21	1645	3
FLIP 87- 63L	6253	1000	22	4206	27	967	28	86	33	535	14	859	14	838	37	309	50
S.L.S.	4401	1100	20	2786	49	1050	24	5	47	189	38	533	34	652	46	1040	13
Hurani-1	2130	-	-	3073	45	833	31	135	23	237	36	467	39	767	42	904	18
Local Check		2443	2	6999	1	2117	2	443	4	1189	3	844	17	907	33	1146	12
Location Mean		**1340**		**4096**		**1001**		**172**		**419**		**670**		**1016**		**848**	
S.E. of Mean		-		491.94		137.44		64.30		292.65		55.93		127.33		116.80	
L.S.D. at 5% for:																	
Checks		-		1930.99		539.48		252.39		1148.72		219.52		499.79		458.46	
T.E. in S.B.		-		3344.58		934.40		437.15		1989.64		380.22		865.65		794.07	
T.E. in D.B.		-		3861.98		1078.95		504.78		2297.44		439.04		999.57		916.91	
Checks Vs T.E.		-		3153.77		881.09		412.21		1876.13		358.53		816.27		748.77	
C.V. %		-		20.80		23.79		75.16		131.53		14.46		21.70		23.85	
Test > L. Check		-		0		0		1		0		2		1		1	

Cont'd. ...

Table 5.6.5. Cont'd. ...

Selection	ILL	JORDAN				LEBANON		PAKISTAN				POLAND		PORTUGAL		SPAIN	
		Jubeiha		Mushagar		Terbol		Faisalabad (NIAB)		Faisalabad (AARI) *		Pulawy		Elvas		Badajoz	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 20	20	1240	5	2123	13	2074	20	311	34	-	-	1406	24	976	40	2063	34
ILL 465	465	459	28	663	48	1000	51	0	53	-	-	1156	44	1812	17	2304	25
ILL 468	468	206	46	1193	40	1926	23	135	47	-	-	2249	1	1795	18	1789	42
ILL 813	813	78	50	1143	42	741	54	188	43	-	-	1676	10	1193	33	2130	31
ILL 1939	1939	378	40	653	49	1593	39	386	24	-	-	1079	49	820	45	1800	41
Laird	4349	421	36	533	51	1000	52	0	54	-	-	1236	37	1987	13	2081	33
Jord. Local	4354	1021	10	1923	19	2667	4	277	36	889	8	1406	25	2695	2	2637	15
Chilean 78	4711	430	35	743	47	1111	49	151	44	-	-	1856	7	1545	22	2881	11
Fam 370	5486	1068	9	1683	28	1407	43	527	14	778	10	1226	38	943	41	2119	32
74TA 550	5544	68	51	593	50	1481	41	286	35	-	-	1289	35	937	42	1978	39
78S 26002	5582	983	13	1853	24	2333	9	372	26	-	-	1056	50	2154	9	4026	1
78S 26052	5604	282	42	1903	20	2148	18	564	13	-	-	1109	48	1479	24	1411	51
FLIP 84- 26L	5698	468	25	2493	5	2333	10	354	31	611	13	1296	33	1470	25	2659	13
FLIP 84- 42L	5713	0	54	3903	1	2241	13	221	40	-	-	1766	8	2643	4	3241	4
FLIP 84- 43L	5714	421	38	1983	15	2333	8	60	50	-	-	1596	17	2279	7	3148	6
FLIP 84- 51L	5722	1016	11	2653	4	2093	19	349	32	-	-	1029	52	2254	8	1967	40
FLIP 84- 58L	5728	273	43	1903	21	1815	29	416	23	-	-	2059	3	1354	28	1700	45
FLIP 84- 59L	5729	178	48	1533	31	2926	2	371	27	611	11	2179	2	2120	10	2278	27
FLIP 84- 75L	5745	944	14	1483	35	2296	11	430	22	556	14	1596	16	2026	12	2019	36
FLIP 84- 78L	5748	749	16	453	53	1481	40	524	15	-	-	1439	21	2037	11	1989	38
FLIP 84- 83L	5753	0	53	1083	44	1296	46	115	49	-	-	1416	23	1968	14	1741	44
FLIP 84-133L	5803	430	32	1553	30	1741	33	1019	5	-	-	1396	28	2809	1	2341	23
FLIP 84-154L	5823	492	23	1053	45	1148	48	1057	3	944	7	1199	40	1195	32	922	54
FLIP 85- 35L	5873	197	47	1953	18	1926	24	590	12	-	-	799	54	520	49	1633	47
FLIP 85- 38L	5876	744	17	2343	10	1630	37	497	17	-	-	1346	31	1201	30	2130	30
82S 15 (4400)	5883	282	41	1173	41	2926	1	231	39	611	12	1319	32	820	44	1633	46
FLIP 86- 2L	5988	1192	6	1443	37	2407	7	232	38	300	16	1176	42	1684	20	1541	49
FLIP 86- 3L	5989	1354	2	1953	17	1963	21	617	10	-	-	1886	5	1201	31	3130	7
FLIP 86- 4L	5990	1316	4	2313	11	1741	32	455	21	-	-	1126	45	1726	19	2430	21
FLIP 86- 12L	5998	159	49	2743	3	2259	12	886	6	-	-	1919	4	0	51	2289	26
FLIP 86- 16L	6002	1516	1	2483	6	2185	16	777	7	-	-	1616	15	1484	23	2619	16
FLIP 86- 18L	6004	1154	7	883	46	1407	44	519	16	356	15	1356	30	1084	37	1530	50

Table 5.6.5. Cont'd. ...

Selection	ILL	JORDAN				LEBANON		PAKISTAN				POLAND		PORTUGAL		SPAIN	
		Jubeiha		Mushagar		Terbol		Faisalabad (NIAB)		Faisalabad (AARI) *		Pulawy		Elvas		Badajoz	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 19L	6005	649	20	1773	25	2889	3	258	37	1111	5	1616	14	1845	15	2559	18
FLIP 86- 24L	6010	1325	3	2223	12	1630	38	607	11	1389	2	946	53	1368	27	2041	35
FLIP 86- 26L	6012	459	27	1503	33	1778	30	42	52	-	-	1266	36	1012	39	2370	22
FLIP 86- 28L	6014	211	45	213	54	1704	34	358	30	1056	6	1199	39	1554	21	1778	43
FLIP 86- 29L	6015	440	31	1863	23	2444	6	618	9	1333	3	1646	11	1112	35	2570	17
FLIP 86- 30L	6016	421	39	1503	34	2222	14	367	28	-	-	1406	26	1245	29	3237	5
FLIP 86- 33L	6019	421	37	523	52	778	53	701	8	-	-	1376	29	1404	26	2970	9
FLIP 86- 38L	6024	449	29	1733	27	1889	26	379	25	1167	4	1186	41	-	-	3737	3
FLIP 86- 51L	6037	549	22	1103	43	2204	15	456	20	833	9	1399	27	712	48	1222	52
FLIP 86- 56L	6042	701	19	1303	39	1759	31	140	46	-	-	1289	34	487	50	2178	29
FLIP 86- 60L	6046	1078	8	1663	29	1852	27	361	29	-	-	1116	46	2326	6	2552	19
FLIP 87- 45L	6235	1011	12	3153	2	1296	47	191	42	-	-	1876	6	-	-	3796	2
FLIP 87- 48L	6238	459	26	2403	9	2667	5	149	45	-	-	1636	12	1820	16	3059	8
FLIP 87- 52L	6242	559	21	2453	8	2148	17	1190	2	-	-	1489	20	-	-	1167	53
FLIP 87- 59L	6249	430	34	1733	26	1944	22	1023	4	-	-	1626	13	729	47	2937	10
FLIP 87- 60L	6250	11	52	2473	7	1019	50	458	19	-	-	1576	18	2643	3	2774	12
FLIP 87- 61L	6251	430	33	1463	36	1889	25	58	51	-	-	1166	43	779	46	2015	37
FLIP 87- 62L	6252	254	44	2103	14	1815	28	491	18	-	-	1419	22	1045	38	1622	48
FLIP 87- 63L	6253	440	30	1413	38	1667	35	131	48	-	-	1696	9	2470	5	2481	20
S.L.S.	4401	485	24	1530	32	1444	42	202	41	-	-	1047	51	1128	34	2319	24
Hurani-1	2130	728	18	1897	22	1630	36	315	33	-	-	1113	47	839	43	2259	28
Local Check		857	15	1963	16	1370	45	1704	1	2926	1	1517	19	1094	36	2644	14
Location Mean		**601**		**1686**		**796**		**459**		**967**		**1407**		**1487**		**2315**	
S.E. of Mean		218.06		350.78		411.60		29.62		-		108.41		185.26		351.75	
L.S.D. at 5% for:																	
Checks		855.96		1376.89		1615.62		116.25		-		425.56		727.18		1380.73	
T.E. in S.B.		1482.58		2384.85		2798.33		201.36		-		737.08		1259.51		2391.49	
T.E. in D.B.		1711.91		2753.78		3231.24		232.51		-		851.11		1454.36		2761.46	
Checks Vs T.E.		1397.98		2248.80		2638.69		189.87		-		695.03		1187.66		2255.06	
C.V. %		63.09		36.03		39.40		11.19		-		13.38		24.24		26.32	
Test > L. Check		0		0		0		0		-		1		6		0	

Cont'd. ...

Table 5.6.5. Cont'd. ...

Selection	ILL	SPAIN		SYRIA										TUNISIA			
		EL Encin		Gelline		Heimo		Idleb		Izra'a		Tel Hadya		Beja		El Kef	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 20	20	565	49	2767	5	1432	44	1085	27	2237	24	889	23	406	49	1361	9
ILL 465	465	1419	11	700	52	2182	18	186	53	1237	48	263	52	1472	26	694	42
ILL 468	468	1450	7	833	50	896	50	685	44	793	50	896	22	3222	1	1444	7
ILL 813	813	389	52	567	53	742	53	379	51	704	53	366	51	556	44	761	37
ILL 1939	1939	1081	25	1683	28	1666	30	1686	7	1659	39	875	25	2622	8	294	54
Laird	4349	1046	27	300	54	882	51	18	54	504	54	455	46	2472	13	294	53
Jord. Local	4354	690	48	1900	21	2832	3	986	29	2637	16	850	28	622	40	1444	6
Chilean 78	4711	860	39	800	51	882	52	218	52	1637	40	103	53	2472	12	644	44
Fam 370	5486	518	50	1517	32	1102	49	1159	23	2904	11	388	49	1706	22	361	51
74TA 550	5544	350	54	1483	33	1116	48	1169	22	1593	42	875	26	1022	34	744	38
78S 26002	5582	1147	18	2800	4	3522	1	1726	5	4837	1	957	15	142	54	894	22
78S 26052	5604	1460	6	1583	29	1136	47	704	43	1859	35	832	29	2422	14	744	39
FLIP 84- 26L	5698	1433	9	2650	6	2312	16	907	32	2770	13	594	40	2722	6	844	32
FLIP 84- 42L	5713	700	47	2817	3	2662	9	1801	2	2037	30	-	-	556	45	811	34
FLIP 84- 43L	5714	978	31	1750	26	2682	8	856	35	2437	18	1010	9	1872	19	794	35
FLIP 84- 51L	5722	1335	13	2133	16	2106	19	834	37	2326	21	1174	5	1822	20	1194	15
FLIP 84- 58L	5728	1437	8	1533	31	2716	7	1685	8	2193	29	1217	3	2722	4	1244	12
FLIP 84- 59L	5729	1485	4	2033	18	1876	22	1053	28	2393	20	928	17	3172	2	1444	8
FLIP 84- 75L	5745	1270	14	2617	8	1782	26	1252	17	2304	22	857	27	456	47	561	46
FLIP 84- 78L	5748	970	32	1383	37	1486	42	731	41	1993	31	555	43	2722	5	1794	4
FLIP 84- 83L	5753	788	43	1767	25	1632	32	1087	26	1504	44	964	13	406	48	861	27
FLIP 84-133L	5803	1670	1	1867	22	1762	27	1188	21	2704	14	494	44	1656	23	461	48
FLIP 84-154L	5823	1176	17	1933	20	1616	33	1335	15	1859	34	1142	8	1522	24	1244	13
FLIP 85- 35L	5873	1083	24	2433	11	1266	46	914	31	2259	23	1547	1	2522	10	1344	10
FLIP 85- 38L	5876	957	33	1267	41	2202	17	1598	11	1370	47	900	21	356	50	1561	5
82S 15 (4400)	5883	1116	20	2633	7	1556	36	1215	20	2193	28	1174	6	2522	11	1894	3
FLIP 86- 2L	5988	892	37	2817	2	2542	11	1673	9	3370	4	911	18	756	38	811	33
FLIP 86- 3L	5989	357	53	2367	12	1562	35	1620	10	3237	6	1188	4	2806	3	1011	20
FLIP 86- 4L	5990	711	46	2167	15	1822	23	1779	3	2904	12	932	16	1256	30	911	21
FLIP 86- 12L	5998	999	30	1233	43	1276	45	853	36	793	52	715	35	572	42	894	25
FLIP 86- 16L	6002	916	35	2467	10	1502	40	1260	16	2970	10	473	45	1256	31	461	47
FLIP 86- 18L	6004	1104	21	1467	34	1472	43	857	34	1704	38	740	33	256	53	1161	16

Table 5.6.5. Cont'd. ...

Selection	ILL	SPAIN		SYRIA										TUNISIA			
		EL Encin		Gelline		Heimo		Idleb		Izra'a		Tel Hadya		Beja		El Kef	
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 19L	6005	1615	2	1750	27	2092	20	946	30	2237	27	562	42	572	43	294	52
FLIP 86- 24L	6010	1123	19	2117	17	1572	34	707	42	3237	7	964	14	1756	21	2761	2
FLIP 86- 26L	6012	1421	10	1550	30	2352	15	1766	4	3237	8	978	11	1172	32	844	31
FLIP 86- 28L	6014	943	34	1383	36	1646	31	1154	24	1859	33	800	31	1522	25	894	23
FLIP 86- 29L	6015	714	45	1200	44	2082	21	636	45	1837	36	445	47	772	37	694	41
FLIP 86- 30L	6016	1103	22	2000	19	1812	24	1726	6	1904	32	615	39	472	46	844	30
FLIP 86- 33L	6019	809	42	1100	46	1792	25	756	40	1570	43	381	50	622	39	1144	17
FLIP 86- 38L	6024	1009	29	1350	39	2372	14	804	39	2237	26	904	20	822	36	394	50
FLIP 86- 51L	6037	1041	28	1283	40	1486	41	586	48	1726	37	1003	10	1422	28	594	45
FLIP 86- 56L	6042	913	36	1383	38	-	-	897	33	793	51	1270	2	2372	15	1144	18
FLIP 86- 60L	6046	1260	15	2567	9	2612	10	1853	1	4037	3	1156	7	1406	29	861	28
FLIP 87- 45L	6235	888	38	1767	24	3152	2	1539	12	4237	2	889	24	2656	7	3061	1
FLIP 87- 48L	6238	443	51	2200	13	2812	4	486	49	3037	9	765	32	1122	33	1044	19
FLIP 87- 52L	6242	837	40	1083	47	1686	29	1147	25	1193	49	694	36	1022	35	1244	14
FLIP 87- 59L	6249	1052	26	1000	48	2762	6	606	46	2237	25	423	48	2122	17	394	49
FLIP 87- 60L	6250	730	44	2167	14	1522	38	1422	14	2637	15	580	41	286	52	711	40
FLIP 87- 61L	6251	1216	16	1250	42	1712	28	426	50	1437	45	637	38	322	51	644	43
FLIP 87- 62L	6252	1099	23	1783	23	1526	37	596	47	1593	41	736	34	2322	16	894	24
FLIP 87- 63L	6253	1476	5	900	49	2412	12	825	38	2504	17	637	37	1472	27	844	29
S.L.S.	4401	837	41	1133	45	1507	39	1538	13	1422	46	964	12	600	41	867	26
Hurani-1	2130	1580	3	1400	35	2393	13	1221	19	3267	5	907	19	1983	18	783	36
Local Check		1356	12	2817	1	2807	5	1241	18	2422	19	808	30	2583	9	1283	11
Location Mean		**1056**		**1736**		**1893**		**1090**		**2213**		**800**		**1513**		**985**	
S.E. of Mean		149.97		386.94		431.93		234.41		369.07		87.18		497.03		148.45	
L.S.D. at 5% for:																	
Checks		588.68		1518.84		1695.42		920.11		1448.70		342.19		1950.67		582.70	
T.E. in S.B.		1019.62		2630.71		2936.55		1593.67		2509.23		592.69		3379.17		1009.27	
T.E. in D.B.		1177.35		3037.68		3390.84		1840.22		2897.41		684.38		3901.93		1165.40	
Checks Vs T.E.		961.45		2480.63		2769.03		1502.76		2366.08		558.88		3186.40		951.69	
C.V. %		24.60		38.61		39.52		37.26		28.88		19.00		56.89		26.10	
Test > L. Check		0		0		0		0		1		1		0		2	

Cont'd. ...

Table 5.6.5. Cont'd. ...

Selection	ILL	TUNISIA		TURKEY										Overall Mean (1)	
		Oued Meliz		Ankara		Haymana		Diyarbakir *		Erzurum		Urfa			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 20	20	3000	5	-	-	340	12	-	-	369	24	1913	7	1641	18
ILL 465	465	1467	45	130	5	278	21	-	-	124	46	400	52	1221	49
ILL 468	468	1133	51	134	4	632	4	1583	14	0	51	1367	30	1579	26
ILL 813	813	1700	36	-	-	1215	1	-	-	0	53	753	50	1233	48
ILL 1939	1939	1533	41	-	-	69	45	-	-	227	39	1380	28	1487	36
Laird	4349	967	53	-	46	403	11	-	-	124	45	360	53	1116	53
Jord. Local	4354	2267	22	0	30	90	41	-	-	791	1	1253	37	1652	17
Chilean 78	4711	1167	50	2	28	340	15	-	-	124	47	1640	15	1435	41
Fam 370	5486	1700	37	-	-	153	34	-	-	0	52	647	51	1290	45
74TA 550	5544	1733	35	0	35	0	54	-	-	280	34	1913	8	1178	51
78S 26002	5582	2667	13	5	25	278	20	-	-	364	25	1507	22	1975	1
78S 26052	5604	3133	2	-	-	69	44	1250	20	227	40	1353	32	1594	24
FLIP 84- 26L	5698	0	54	7	23	278	22	-	-	751	3	1507	21	1739	9
FLIP 84- 42L	5713	2700	12	-	-	965	2	1667	9	116	48	1687	12	1808	6
FLIP 84- 43L	5714	2067	27	12	21	153	36	1792	7	511	13	1147	41	1597	23
FLIP 84- 51L	5722	2833	6	0	32	444	7	1500	17	400	21	2300	3	1968	2
FLIP 84- 58L	5728	2233	23	29	14	569	5	1542	15	400	20	1687	13	1848	4
FLIP 84- 59L	5729	2533	14	4	26	7	49	-	-	493	15	1220	39	1767	8
FLIP 84- 75L	5745	3100	3	27	17	340	13	-	-	502	14	1993	4	1694	13
FLIP 84- 78L	5748	2233	24	1	29	257	23	-	-	320	28	1353	31	1661	16
FLIP 84- 83L	5753	1400	46	156	3	403	9	1000	23	116	49	1673	14	1211	50
FLIP 84-133L	5803	2000	28	-	-	153	33	-	-	209	41	1967	6	1502	34
FLIP 84-154L	5823	2733	8	0	34	69	46	-	-	187	43	980	47	1508	32
FLIP 85- 35L	5873	2733	10	-	-	7	51	1458	18	293	33	1553	18	1697	12
FLIP 85- 38L	5876	2400	21	59	7	340	14	2250	1	622	7	1220	38	1494	35
82S 15 (4400)	5883	2733	11	3	27	7	50	1167	22	707	4	2300	2	1940	3
FLIP 86- 2L	5988	2400	20	41	12	215	26	-	-	689	5	993	46	1626	21
FLIP 86- 3L	5989	2000	29	47	10	403	10	1625	10	556	11	1860	9	1840	5
FLIP 86- 4L	5990	2800	7	-	-	215	28	1250	19	369	23	1540	19	1637	19
FLIP 86- 12L	5998	2733	9	0	31	7	52	1583	13	227	38	1513	20	1478	37
FLIP 86- 16L	6002	2100	26	-	-	215	27	-	-	236	37	1100	42	1636	20
FLIP 86- 18L	6004	1300	47	-	-	278	17	2000	4	262	35	1073	45	1148	52

Table 5.6.5. Cont'd. ...

Selection	ILL	TUNISIA		TURKEY										Overall Mean (1)	
		Oued Meliz		Ankara		Haymana		Diyarbakir *		Erzurum		Urfa			
		Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 86- 19L	6005	1267	48	42	11	153	35	-	-	591	10	1280	36	1515	31
FLIP 86- 24L	6010	1500	43	-	-	215	29	-	-	316	29	1087	44	1682	14
FLIP 86- 26L	6012	1267	49	396	2	465	6	-	-	391	22	2613	1	1676	15
FLIP 86- 28L	6014	1633	39	36	13	69	48	-	-	307	31	1420	27	1336	44
FLIP 86- 29L	6015	2167	25	-	-	153	37	2208	2	751	2	1280	35	1604	22
FLIP 86- 30L	6016	1467	44	-	-	278	19	1208	21	351	26	1987	5	1545	27
FLIP 86- 33L	6019	1767	33	28	16	215	31	1542	16	431	17	1373	29	1375	42
FLIP 86- 38L	6024	1967	30	-	-	90	40	150	24	0	54	840	49	1440	40
FLIP 86- 51L	6037	1133	52	7	22	69	43	1833	5	160	44	1607	16	1257	46
FLIP 86- 56L	6042	2433	17	91	6	444	8	-	-	320	27	1487	23	1523	29
FLIP 86- 60L	6046	2400	19	22	20	278	18	-	-	302	32	1713	10	1717	11
FLIP 87- 45L	6235	3000	4	-	-	215	25	-	-	116	50	1713	11	1804	7
FLIP 87- 48L	6238	2467	15	0	33	215	30	1792	6	604	8	1440	26	1737	10
FLIP 87- 52L	6242	1933	31	-	-	69	47	1708	8	240	36	1327	34	1505	33
FLIP 87- 59L	6249	1767	34	26	18	90	39	-	-	458	16	867	48	1515	30
FLIP 87- 60L	6250	3200	1	59	8	278	16	-	-	316	30	1087	43	1582	25
FLIP 87- 61L	6251	1667	38	-	-	90	42	-	-	604	9	1173	40	1235	47
FLIP 87- 62L	6252	2433	18	5	24	7	53	1583	12	200	42	1340	33	1531	28
FLIP 87- 63L	6253	1767	32	23	19	215	32	1625	11	404	19	1480	24	1473	39
S.L.S.	4401	1600	40	29	15	104	38	-	-	538	12	1449	25	1347	43
Hurani-1	2130	1533	42	50	9	229	24	-	-	631	6	1578	17	1478	38
Local Check		2467	16	550	1	688	3	2021	3	404	18	-	-		
Location Mean		**2020**		**58**		**264**		**1556**		**346**		**1421**			
S.E. of Mean		314.47		12.97		56.42		-		71.73		100.71			
L.S.D. at 5% for:															
Checks		1234.36		50.93		221.45		-		281.57		612.79			
T.E. in S.B.		2137.98		88.21		383.57		-		487.70		1061.38			
T.E. in D.B.		2468.72		101.85		442.90		-		563.15		1299.91			
Checks Vs T.E.		2016.01		83.17		361.68		-		459.88		1061.54			
C.V. %		26.96		40.33		37.08		-		35.93		12.22			
Test > L. Check		0		0		1		-		0		-			

(1) Khroub, Sidi Bel Abbes, Mymensingh, Bahteem, Akaki, New Delhi, Ghazvin, Elvas, Heimo, Ankara, Erzurum, Diyarbakir were excluded from the overall mean. T.E. = Test entries, S.B. = Same block, D.B. = Different blocks.
* = Locations not analysed and thus the mean values are unadjusted.

Table 5.6.6. The five heaviest seed yielding entries at the individual locations in the LISN-T during 1986/87.

Rank	ALGERIA			AUSTRALIA	BANGLADESH	BULGARIA	CHILE	EGYPT	ETHIOPIA	FRANCE
	Khroub	Setif	Sidi Bel-Abbes	Horsham	Mymensingh	Toshevo	Temuco	Bahteem	Akaki	Montpellier
1	ILL 5883	ILL 4354]	FLIP86- 38L	FLIP86- 30L	Local Check	FLIP86- 51L	ILL 5883	FLIP86- 19L	FLIP84- 51L	Local Check
2	FLIP84- 59L	FLIP87- 48L]	FLIP86- 16L	FLIP86- 26L	FLIP86- 38L	FLIP86- 19L	FLIP84- 58L	FLIP86- 12L	LoaL Check	FLIP84- 51L
3	78S 26002	FLIP84- 43L	ILL 4354	FLIP86- 3L	FLIP86- 16L	FLIP86- 24L	FLIP84- 78L	FLIP86- 16L	FLIP85- 35L	FLIP86- 29L
4	FLIP86- 12L	78S 26002	ILL 1939	78S 26002	FLIP86- 29L	ILL 5583	78S 26002	FLIP86- 18L	FLIP86- 51L	FLIP86- 38L
5	FLIP86- 24L	FLIP86- 60L	LocaL Check	FLIP84- 58L	ILL 5486	FLIP87- 48L	ILL 813	FLIP86- 38L	FLIP84-154L	FLIP84- 58L

Cont'd 2/..

Rank	GREECE	INDIA	IRAN				JORDAN		LEBANON	PAKISTAN
	Larissa	New Delhi	Ghazvin	Hamadan	Karaj-1	Karaj-2	Jubeiha	Mushagar	Terbol	Faisalabad (NIAB)
1	FLIP84- 59L	FLIP84-133L	ILL 468	FLIP86- 12L	FLIP86- 24L	FLIP84- 51L	FLIP86- 16L	FLIP84- 42L	ILL 5883]	Local Check
2	Local Check	ILL 5486	ILL 813	FLIP84-154L	FLIP84-133L	ILL 468	FLIP86- 3L	FLIP87- 45L	FLIP84- 59L]	FLIP87- 52L
3	FLIP84- 78L	FLIP87- 52L	Local Check	FLIP86- 18L	FLIP86- 29L	FLIP87- 62L	FLIP86- 24L	FLIP86- 12L	FLIP86- 19L	FLIP84-154L
4	ILL 468	Local Check	ILL 1939	FLIP84- 78L	FLIP86- 2L	ILL 1939	FLIP86- 4L	FLIP84- 51L	ILL 4354]	FLIP87- 59L
5	FLIP84- 42L	FLIP84- 75L	FLIP84- 51L	ILL 20	FLIP86- 28L	FLIP87- 52L	ILL 20	FLIP84- 26L	FLIP87- 48L]	FLIP84-133L

Cont'd 2/..

Rank	PAKISTAN	POLAND	PORTUGAL	SPAIN		SYRIA			
	Faisalabad (AARI)	Pulawy	Elvas	Badajoz	El Encin	Gelline	Homo	Idleb	Izra'a
1	Local Check	ILL 468	FLIP84-133L	78S 26002	FLIP84-133L	Local Check	78S 26002	FLIP86- 60L	78S 26002
2	FLIP86- 24L	FLIP84- 59L	ILL 4354	FLIP87- 45L	FLIP86- 19L	FLIP86- 2L]	FLIP87- 45L	FLIP84- 42L	FLIP87- 45L
3	FLIP86- 29L	FLIP84- 58L	FLIP87- 60L	FLIP86- 38L	ILL 2130	FLIP84- 42L]	ILL 4354	FLIP86- 4L	FLIP86- 60L
4	FLIP86- 38L	FLIP86- 12L	FLIP84- 42L	FLIP84- 42L	FLIP84- 59L	78S 26002	FLIP87- 48L	FLIP86- 26L	FLIP86- 2L
5	FLIP86- 19L	FLIP86- 3L	FLIP87- 63L	FLIP86- 30L	FLIP87- 63L	ILL 20	Local Check	78S 26002] FLIP86- 30L]	ILL 2130

Cont'd 2/..

Rank	SYRIA	TUNISIA			TURKEY				
	Tel Hadya	Beja	El Kef	Oued Meliz	Ankara (UAF)	Ankara (Haymana)	Diyarbakir	Erzurum	Urfa
1	FLIP85- 35L	ILL 468	FLIP87- 45L	FLIP87- 60L	Local Check	ILL 813	FLIP85- 38L	ILL 4354	FLIP86- 26L
2	FLIP86- 56L	FLIP84- 59L	FLIP86- 24L	ILL 4605	FLIP86- 26L	FLIP84- 42L	FLIP86- 29L	FLIP86- 29L	ILL 5883
3	FLIP84- 58L	FLIP86- 3L	ILL 5883	FLIP84- 75L	FLIP84- 83L	Local Check	Local Check	FLIP84- 26L	FLIP84- 51L
4	FLIP86- 3L	FLIP84- 58L	FLIP84- 78L	FLIP87- 45L	ILL 468	ILL 468	FLIP86- 18L	ILL 5883	FLIP84- 75L
5	FLIP84- 51L] ILL 5883]	FLIP84- 78L] FLIP84- 26L]	FLIP85- 38L	ILL 20	ILL 465	FLIP84- 58L	FLIP86- 51L	FLIP86- 2L	FLIP86- 30L

Tho brackets indicate entries having the same rank.

yielding entries at individual locations are given in Table 5.6.6. The frequency of occurence of lines among the top five was highest for 78S 26002 (ILL 5582) and was followed by ILL 468, FLIP 84-42L, FLIP 84-51L, FLIP 84-58L and 82S 15 (ILL 5883).

5.7. LENTIL INTERNATIONAL F_3 TRIAL (LIF_3T)

Material

The material for the Lentil International F_3 Trial comprised of 30 F_3 populations (test entries) and two checks. The test entries and one check were supplied and a local check was to be added by the cooperator. These F_3 populations originated from single crosses and were expected to release a wide genetic base upon which the selection can be practiced by the cooperators under their local environmental conditions.

Methods and Management

The randomized complete block design with two replications was suggested. The suggested plot size was four rows 4 m long, spaced 25 cm apart, accommodating 640 seeds/plot.

Seventeen sets of LIF_3T were sent to cooperators in 13 countries and the results were received for 14 sets from 11 countries. The agronomic data pertaining to different locations are presented in Table 5.7.1.

Results and Discussion

The mean time to flowering (Table 5.7.2) ranged from 57 days at Karaj in Iran to 158 days at Tel Hadya in Syria. The mean time taken to flower for each population revealed that the populations X85S 78 was the earliest (flowering in 92 days) and was followed by X85S 72, X85S 82, and X85S 96 flowering in 93 days. The location means and entry means for time to maturity ranged from 93 to 197 days and from 147 to 155 days, respectively (Table 5.7.3).

The location mean for plant height (Table 5.7.4) ranged from 27 cm at Karaj in Iran and Haymana in Turkey to 47 cm at Chillan in Chile and the population X85S 242 was the tallest.

The seed yield and rank of entries at different locations are given in Table 5.7.5. The highest mean yield was recorded at Beja in Tunisia (1666 kg/ha) and was followed by Surbata in Colombia (1290 kg/ha) and Tel Hadya in Syria (1289 kg/ha). Two, nine, five and one entries at Marow (Jordan), Marchouch (Morocco), Tel Hadya (Syria) and Ankara (Turkey) exceeded the respective local check by a significant margin. On the basis of average seed yield over locations the population X85S 177 ranked number 1 and was followed by X85S 221, X85S 139, and X85S 108 with seed yields of 1256, 1222, 1166 and 1163 kg/ha, respectively. The five heaviest seed yielding entries are given in Table 5.7.6. The populations X85S 177, X85S 139, and X85S 108 occured most frequently among the top five heavy yielders and were more adaptable.

Table 5.7.1. Agronomic data for different locations in the LIF3T during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri- gation	Insecticide/Fungicide/Herbicide	Local Check
ALGERIA	Sidi Bel Abbes	16.02.87	10.05.87	15	90		-	-	SYRIE - 229
CHILE	Chillan	10.06.87	28.11.87		90		-	-	Araucana - INIA
COLOMBIA	Surbata	23.04.87	01.09.87	13	26	6	-	Afalon	Comun
EGYPT	Sids	03.12.86	NA	NA			-	-	-
JORDAN	Marow	18.12.86		20	40		-	-	NA
MOROCCO	Marchouch	29.11.86	13.05.87	14	28	14	-	-	L - 24
PAKISTAN	Islamabad	09.11.86	NA						Precoz
IRAN	Karaj	25.03.87	15.07.87	-			9	Diazinon	1 Ziba
SYRIA	Tel Hadya	02.11.86	24.05.87		50		-	Kerb, Bladex, Fusilade, Supracide	ILL 4401
TUNISIA	Beja	NA	NA	NA			NA	NA	NA
TUNISIA	El Kef	NA	NA	NA			NA	NA	NA
TURKEY	Haymana	08.04.87	22.07.87	46	32		-	-	Pul - 11
TURKEY	Diyarbakir	21.11.86	03.06.87	40	60		-	-	Firat - 87
TURKEY	Urfa	10.11.86	15.05.87	45	90		-	-	-

NA = Not available.

Table 5.7.2. Time to flowering (days) of entries at different locations in the LIP3T during 1986/87.

Cross No./X85S	Female Parent	ILL	Origin	Male Parent	ILL	origin	ALGERIA Sidi Bel-Abbes	CHILE Chillan	COLOMBIA Surbata
9	74TA 19(28)	5507	Syria	FLIP 84- 29L	5700	ICARDA	132	119	80
64	FLIP 86- 17L	6003	ICARDA	FLIP 84- 29L	5700	ICARDA	117	110	75
65	FLIP 86- 17L	6003	ICARDA	FLIP 84- 75L	5745	ICARDA	117	110	70
68	FLIP 86- 17L	6003	ICARDA	FLIP 84- 83L	5753	ICARDA	117	110	85
70	FLIP 86- 18L	6004	ICARDA	FLIP 84- 26L	5698	ICARDA	119	110	85
71	FLIP 86- 18L	6004	ICARDA	FLIP 84- 29L	5700	ICARDA	119	110	70
72	FLIP 86- 18L	6004	ICARDA	FLIP 84- 75L	5745	ICARDA	117	110	70
75	FLIP 86- 18L	6004	ICARDA	FLIP 84- 83L	5753	ICARDA	117	110	75
77	FLIP 86- 19L	6005	ICARDA	FLIP 84- 26L	5698	ICARDA	117	110	70
78	FLIP 86- 19L	6005	ICARDA	FLIP 84- 29L	5700	ICARDA	117	110	70
79	FLIP 86- 19L	6005	ICARDA	FLIP 84- 75L	5745	ICARDA	117	110	70
82	FLIP 86- 19L	6005	ICARDA	FLIP 84- 83L	5753	ICARDA	117	110	70
96	Jord. Loc.	4354	Jordan	FLIP 86- 19L	6005	ICARDA	119	110	70
98	Jord. Loc.	4354	Jordan	FLIP 84- 83L	5753	ICARDA	126	117	80
101	S.L.L.	4400	Syria	FLIP 86- 19L	6005	ICARDA	117	110	70
108	FLIP 84- 73L	5743	ICARDA	78S 26013(16)	5588	Jordan	129	117	85
139	76TA 66088(223)	5572	Iran	78S 26052(112)	5604	Turkey	129	116	80
154	78S 26013(16)	5588	Jordan	78S 26052(112)	5604	Turkey	136	119	85
157	78S 26013(16)	5588	Jordan	FLIP 84- 43L	5714	ICARDA	129	113	80
159	78S 26013(16)	5588	Jordan	FLIP 84- 56L	5726	ICARDA	126	117	90
164	-	1868	Syria	-	975	Chile	126	118	80
177	-	1939	Morocco	FLIP 84- 56L	5726	ICARDA	133	119	85
186	Leb. Loc.	4399	Lebanon	FLIP 84- 56L	5726	ICARDA	139	122	85
208	FLIP 84- 67L	5737	ICARDA	78S 26052(112)	5604	Turkey	126	120	80
209	FLIP 84- 67L	5737	ICARDA	-	975	Chile	129	117	80
212	FLIP 84- 67L	5737	ICARDA	FLIP 84- 51L	5722	ICARDA	126	112	70
221	FLIP 85- 41L	5879	ICARDA	FLIP 84- 51L	5722	ICARDA	126	117	70
233	FLIP 84- 49L	5720	ICARDA	81S 15 (4400)	5883	Jordan	117	110	70
242	82S 1	5885	Jordan	FLIP 84- 49L	5720	ICARDA	117	110	70
244	82S 1	5885	Jordan	81S 15 (4400)	5883	Jordan	133	117	80
ILL4400	S.L.L.	4400	Syria				136	117	90
Local Check							132	127	80
Location Mean							**124**	**114**	**77**
S.E. of Mean							0.01	0.74	
L.S.D at 5%							0.03	2.14	
C.V. %							0.01	0.92	
Error d.f.							31	31	
Significance							*	*	

Cont'd. ...

Table 5.7.2. Cont'd. ...

Cross No./ X85S	EGYPT	IRAN	JORDAN	MOROCCO	PAKISTAN	SYRIA	TURKEY		Overall Mean
	Sids	Karaj	Marow	Marchouch	Islamabad	Tel Hadya	Haymana	Diyarbakir	
9	82	55	130	114	118	161	74	94	105
64	67	58	92	108	88	162	75	96	95
65	63	54	103	108	88	150	73	95	94
68	64	55	91	108	87	162	73	95	95
70	64	52	91	100	87	162	75	95	94
71	66	56	92	108	89	149	74	97	94
72	62	57	92	100	88	156	75	95	93
75	67	54	92	106	87	156	74	94	94
77	90	60	91	108	88	162	75	96	97
78	64	56	91	100	88	149	73	96	92
79	63	57	92	108	88	162	75	95	94
82	67	55	91	108	88	150	74	96	93
96	65	59	92	100	87	149	75	96	93
98	85	53	122	108	115	159	73	94	103
101	64	57	103	106	89	150	74	95	94
108	85	59	120	121	121	162	75	94	106
139	82	56	120	107	118	161	73	94	103
154	90	56	129	120	135	163	74	96	109
157	72	55	127	120	116	162	73	96	104
159	85	55	129	121	117	162	73	93	106
164	85	55	128	118	117	160	75	96	105
177	85	60	130	120	128	162	74	97	108
186	98	62	128	123	137	150	74	98	110
208	85	55	126	114	123	164	73	96	105
209	85	53	129	121	117	162	74	95	106
212	75	58	125	108	107	162	74	97	101
221	72	59	130	114	108	161	74	94	102
233	68	58	101	108	92	162	74	96	96
242	68	57	92	108	93	149	74	98	94
244	82	56	126	120	127	155	74	94	106
ILL4400 (S.L.L.)	94	62	128	120	118	165	75	96	109
Local Check	63	63	127	123	100	162	75	94	
Location Mean	**75**	**57**	**111**	**112**	**104**	**158**	**74**	**95**	
S.E. of Mean		1.42	3.49	0.01	1.58	1.78	0.79	0.84	
L.S.D. at 5%		4.09	10.08	0.03	4.56	5.13	-	2.41	
C.V. %		3.54	4.45	0.01	2.14	1.59	1.52	1.24	
Error d.f.		31	31	31	31	31	31	31	
Significance		*	*	*	*	*	NS	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 5.7.3. Time to maturity (days) of entries at different locations in the LIF3T during 1986/87.

Cross No./ X85S	ALGERIA	CHILE	COLOMBIA	IRAN	JORDAN	MOROCCO	SYRIA	TURKEY	Overall Mean
	Sidi Bel-Abbes	Chillan	Surbata	Karaj	Marow	Marchouch	Tel Hadya	Haymana	
9	152	169	165	94	175	162	196	102	152
64	152	176	140	95	174	160	196	101	149
65	152	176	140	93	175	160	196	101	149
68	152	176	165	91	174	160	196	100	152
70	152	174	140	93	174	158	198	99	148
71	152	169	140	93	174	160	197	101	148
72	152	176	140	93	172	156	198	102	148
75	152	176	140	94	176	158	197	102	149
77	152	173	165	93	173	160	196	102	152
78	152	176	140	93	175	156	198	101	149
79	152	176	165	95	176	160	198	101	153
82	152	176	165	93	174	160	198	102	152
96	152	176	140	94	176	156	200	99	149
98	150	169	140	93	172	160	196	100	147
101	152	173	140	95	175	158	198	101	149
108	152	173	165	94	173	164	197	99	152
139	152	174	140	92	175	158	196	97	148
154	152	169	140	92	176	164	196	97	148
157	152	173	140	92	175	164	199	100	149
159	150	169	140	92	175	164	196	98	148
164	152	173	140	93	175	162	196	97	148
177	152	173	140	94	175	164	196	99	149
186	155	176	165	95	175	168	201	103	155
208	152	169	140	93	175	162	198	97	148
209	150	173	140	91	174	164	198	99	148
212	152	176	140	93	173	160	198	99	149
221	152	173	165	95	176	162	199	101	153
233	152	176	140	95	175	160	198	100	149
242	152	176	165	94	176	160	196	98	152
244	152	169	140	91	176	164	195	99	148
ILL4400 (S.L.L.)	152	176	165	97	176	164	200	103	154
Local Check	150	176	165	96	176	166	197	103	
Location Mean	**152**	**173**	**149**	**93**	**175**	**161**	**197**	**100**	
S.E. of Mean	0.01	2.29		0.95	1.39	0.01	1.01	1.22	
L.S.D. at 5%	0.03	-		2.74	-	0.03	2.91	3.52	
C.V. %	0.01	1.87		1.44	1.13	0.01	0.72	1.73	
Error d.f.	31	31		31	31	31	31	31	
Significance	*	NS		*	NS	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 5.7.4. Plant height (cm) of entries at different locations in the LIF3T during 1986/87.

Cross No./ X85S	ALGERIA	CHILE	COLOMBIA	IRAN	JORDAN	MOROCCO	SYRIA	TURKEY		Overall Mean
	Sidi Bel-Abbes	Chillan	Surbata	Karaj	Marow	Marchouch	Tel Hadya	Haymana	Diyarbakir	
9	33	50	42	23	39	39	35	26	31	35
64	30	49	42	27	41	36	37	28	32	36
65	33	50	42	27	36	40	36	28	34	36
68	35	53	36	26	45	44	37	29	34	38
70	33	45	40	25	43	40	39	28	31	36
71	28	50	39	30	39	45	36	29	34	36
72	28	48	46	29	42	48	36	28	36	38
75	30	47	36	29	45	44	36	27	33	36
77	30	54	37	30	42	41	38	28	34	37
78	35	53	45	29	39	40	35	29	33	37
79	35	52	40	28	46	45	36	30	36	38
82	35	48	50	27	35	43	39	29	37	38
96	31	45	40	31	42	50	37	28	36	38
98	33	39	36	24	41	36	31	27	30	33
101	28	50	45	27	44	50	35	27	32	38
108	28	45	34	26	38	43	34	28	29	34
139	28	41	34	25	37	34	35	26	29	32
154	30	43	36	25	39	46	35	26	30	34
157	33	43	39	26	38	40	36	27	31	35
159	32	44	36	25	40	38	33	27	29	34
164	28	43	39	23	41	36	33	25	27	33
177	33	44	36	27	41	38	35	28	28	34
186	30	49	39	30	42	44	35	29	34	37
208	28	39	35	25	47	39	33	27	30	33
209	27	35	36	20	38	30	32	24	29	30
212	30	39	44	23	41	33	33	26	31	33
221	30	44	43	26	37	33	34	27	30	34
233	33	58	43	31	38	38	36	29	35	38
242	30	64	44	29	36	43	37	30	36	39
244	28	45	38	29	42	38	35	26	33	35
ILL4400 (S.L.L.)	30	43	33	29	37	35	35	26	32	33
Local Check	30	55	44	26	40	36	33	27	39	
Location Mean	**31**	**47**	**40**	**27**	**40**	**40**	**35**	**27**	**32**	
S.E. of Mean	2.04	4.07		1.92	3.20	3.82	1.40	0.79	1.54	
L.S.D. at 5%	–	11.74		5.53	–	–	4.04	2.27	4.43	
C.V. %	9.48	12.26		10.18	11.28	13.52	5.67	4.10	6.77	
Error d.f.	31	31		31	31	31	31	31	31	
Significance	NS	*		*	NS	NS	*	*	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 5.7.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LIF3T during 1986/87.

Cross No./ X85S	ALGERIA		CHILE		COLOMBIA		EGYPT		IRAN		JORDAN		MOROCCO	
	Sidi Bel Abbes		Chillan		Surbata		Sids		Karaj		Marow		Marchouch	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
9	563	12	1186	18	1875	3	-	-	810	13	736	15	1044	24
64	448	24	1121	22	1691	6	-	-	350	32	581	23	1525	2
65	542	15	1103	23	695	30	-	-	523	29	764	13	1081	22
68	750	9	1351	9	1161	21	333	4	640	24	662	19	1344	10
70	479	20	1020	27	898	27	-	-	727	19	616	22	1081	23
71	479	19	1140	19	1222	17	-	-	567	26	446	30	844	28
72	469	21	901	30	875	28	-	-	573	25	457	29	1450	6
75	469	22	1048	25	969	25	-	-	750	17	515	25	1394	8
77	901	2	1213	15	1266	16	-	-	540	28	538	24	1225	13
78	552	13	1103	24	1589	8	-	-	680	21	902	10	1544	1
79	656	11	1222	14	1400	14	333	4	850	11	698	17	1494	3
82	833	6	1195	17	1697	5	-	-	1080	3	424	31	1388	9
96	406	26	1020	26	1766	4	-	-	833	12	650	20	1475	4
98	396	27	1278	12	953	26	-	-	783	14	1508	3	1306	11
101	542	14	1140	20	1898	2	467	2	667	23	415	32	1088	21
108	677	10	1296	11	1394	15	-	-	1023	4	869	11	1206	15
139	344	29	1250	13	1188	20	-	-	903	8	1788	2	1219	14
154	979	1	1553	3	1086	22	-	-	400	30	1836	1	1181	17
157	438	25	1388	8	661	31	-	-	713	20	919	9	1194	16
159	344	30	1131	21	988	24	-	-	763	15	1293	4	1394	7
164	240	32	983	28	1206	18	-	-	750	16	983	6	1025	26
177	875	5	1700	1	1197	19	-	-	850	10	1179	5	1469	5
186	802	7	1342	10	1516	9	-	-	1200	1	491	27	681	32
208	490	17	928	29	1456	12	-	-	917	7	748	14	706	31
209	323	31	625	32	628	32	333	4	360	31	667	18	819	30
212	490	18	772	31	1661	7	400	3	1000	6	464	28	1106	20
221	781	8	1443	5	2059	1	-	-	1140	2	829	12	838	29
233	385	28	1388	7	1494	10	-	-	673	22	514	26	1138	18
242	458	23	1480	4	1423	13	-	-	730	18	645	21	1244	12
244	521	16	1434	6	1056	23	-	-	557	27	955	8	963	27
ILL 4400	896	3	1204	16	831	29	-	-	1017	5	715	16	1125	19
Local Check	885	4	1563	2	1478	11	1000	1	883	9	960	7	1031	25
Location Mean	**575**		**1204**		**1290**		**478**		**758**		**805**		**1176**	
S.E. of Mean	163.13		140.58						191.49		216.25		112.13	
L.S.D. at 5%	-		405.50						-		623.75		323.43	
C.V. %	40.10		16.52						35.73		37.99		13.49	
Error d.f.	31		31						31		31		31	
Significance	NS		*						NS		*		*	
Ent. > L. Check	-		0						-		2		9	

Cont'd. ...

Table 5.7.5. Cont'd. ...

Cross No./ X85S	PAKISTAN		SYRIA		TUNISIA				TURKEY				Overall Mean (1)	
	Islamabad		Tel Hadya		Beja		El Kef		Haymana		Diyarbakir			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
9	-	-	1440	9	1438	22	850	15	594	5	1458	3	1090	8
64	413	8	1118	22	1825	10	838	16	492	11	1000	24	999	17
65	413	9	1223	18	1200	30	763	22	375	22	1375	6	877	28
68	464	4	1297	14	1338	28	925	9	453	14	1813	2	1067	11
70	388	10	1148	20	1288	29	900	11	406	19	1104	17	879	27
71	363	12	1127	21	1763	12	563	31	398	20	938	29	862	29
72	675	2	1113	23	1488	20	775	18	469	12	1458	4	912	25
75	463	6	1283	15	1350	27	913	10	508	9	1354	7	959	22
77	381	11	1317	13	1188	31	750	25	461	13	1167	16	960	21
78	-	-	1182	19	1925	8	725	26	414	18	1333	9	1086	9
79	464	5	1385	11	1363	25	888	12	555	6	1000	25	1046	14
82	501	3	1228	17	2075	7	600	30	516	8	1208	15	1113	6
96	225	16	758	32	1425	23	1025	3	305	26	1063	20	975	20
98	-	-	1850	2	1563	16	638	28	414	17	1313	10	1091	7
101	338	14	1038	28	2263	4	1000	4	547	7	1083	19	1062	12
108	-	-	1472	7	2275	2	950	6	609	4	1021	22	1163	4
139	-	-	1733	4	2263	3	875	13	281	29	979	27	1166	3
154	-	-	1902	1	1350	26	863	14	203	31	1250	13	1146	5
157	-	-	1522	6	1588	15	1038	2	445	15	1083	18	999	18
159	-	-	1455	8	2138	5	950	8	297	27	1021	21	1070	10
164	-	-	1100	24	1675	13	750	24	164	32	979	26	896	26
177	-	-	1670	5	2538	1	763	21	344	23	1229	14	1256	1
186	694	1	965	31	1388	24	775	19	422	16	1292	11	988	19
208	-	-	993	29	1475	21	475	32	203	30	813	32	837	30
209	-	-	1083	25	1498	19	638	29	289	28	1354	8	753	31
212	425	7	1070	26	1613	14	800	17	633	3	1396	5	1000	16
221	263	15	1407	10	2100	6	638	27	922	1	1292	12	1222	2
233	-	-	1063	27	1563	17	763	20	398	21	958	28	940	23
242	339	13	967	30	1150	32	950	7	320	25	896	31	933	24
244	-	-	1750	3	1788	11	1250	1	328	24	1021	23	1056	13
ILL 4400	-	-	1325	12	1900	9	750	23	797	2	938	30	1045	15
Local Check	-	-	1273	16	1513	18	988	5	500	10	1813	1		
Location Mean	**425**		**1289**		**1666**		**824**		**439**		**1187**			
S.E. of Mean	138.49		91.76		408.75		195.85		104.62		217.86			
L.S.D. at 5%	-		264.68		1179.02		-		301.76		-			
C.V. %	46.03		10.07		34.71		33.62		33.67		25.95			
Error d.f.	15		31		31		31		31		31			
Significance	NS		*		NS		NS		*		NS			
Ent. > L. Check	-		5		-		-		1		-			

(1) Sids and Islamabad were excluded from the overall mean.
* = Significant at $P \leq 0.05$, NS = not significant.

Table 5.7.6. The five heaviest seed yielding entries at the individual locations in the LIF3T during 1986/87.

Rank	ALGERIA Sidi Bel-Abbes	CHILE Chillan	COLOMBIA Surbata	EGYPT Sids	IRAN Karaj	JORDAN Marow	MOROCCO Marchouch
	Cross No.	Cross No.	Cross No.	Cross No.	Cross No.	Cross No.	Cross No.
1	X85S 154	X85S 177	X85S 221	Local Check	X85S 186	X85S 154	X85S 78
2	X85S 77	Local Check	X85S 101	X85S 101	X85S 221	X85S 139	X85S 64
3	ILL 4400	X85S 154	X85S 9	X85S 212	X85S 82	X85S 98	X85S 79
4	Local Check	X85S 242	X85S 96	X85S 209	X85S 108	X85S 159	X85S 96
5	X85S 177	X85S 221	X85S 82	X85S 68 X85S 79	ILL 4400	X85S 177	X85S 177

Cont'd 2/..

Rank	PAKISTAN Islamabad	SYRIA Tel Hadya	TUNISIA Beja	TUNISIA El Kef	TURKEY Haymana	TURKEY Diyarbakir
	Cross No.	Cross No.	Cross No.	Cross No.	Cross No.	Cross No.
1	X85S 186	X85S 154	X85S 177	X85S 244	X85S 221	Local Check
2	X85S 72	X85S 98	X85S 108	X85S 157	ILL 4400	X85S 68
3	X85S 82	X85S 244	X85S 139	X85S 96	X85S 212	X85S 9
4	X85S 68	X85S 139	X85S 101	X85S 101	X85S 108	X85S 72
5	X85S 79	X85S 177	X85S 159	Local Check	X85S 9	X85S 212

The brackets indicate entries having the same rank.

5.8. LENTIL INTERNATIONAL F_3 TRIAL - EARLY (LIF_3T-E)

Material

The material for the Lentil International F_3 Trial-Early comprised of 30 F_3 populations and two checks. Thirty F_3 populations and one check was supplied and the local check was to be added by the cooperator. These populations were derived from the divergent crosses and were expected to release a wide genetic base upon which the selection can be practiced by the cooperators under their local enviornmental conditions.

Methods and Management

The randomized complete block design with 2 replications was suggested. The suggested plot size was 4 rows, each 4 m long accommodating 640 seeds per plot. The between row spacing was suggested to be 25 cm.

Twenty sets of trial were distributed to cooperators in 10 countries. However, the results were received back for 11 sets. The agronomic data received from the cooperators are presented in Table 5.8.1.

Results and Discussion

The data on time to flowering (Table 5.8.2) revealed that the populations flowered earliest at Culiacan in Mexico in 67 days and latest at Tel Hadya in Syria 159 days. The range in time to flowering for entries varied from 75 days for X85S 302 to 102 days for X85S 292. The crosses which flowered earlier were not necessarily earlier in maturity (Table 5.8.3). At almost all the locations some of the populations were earlier in flowering than the respective local check. The plant height data (Table 5.8.4) showed that the expression of plant height was least at Tel Hadya in Syria (29 cm) and maximum at Brasilia in Brazil (52 cm). The populations X85S 303, X85S 310, and X85S 307 were tallest with height of 51-52 cm.

The seed yields and rank of different entries are given in Table 5.8.5. The seed yield at Culiacan (Mexico) was highest (1457 kg/ha) and was followed by Sakha (1411 kg/ha) in Egypt, Brasilia in Brazil (1407 kg/ha) and Faisalabad UAF in Pakistan (1394 kg/ha), however, the yields were very low at Mymensingh in Bangladesh (307 kg/ha) and New Delhi in India (385 kg/ha). The LSD estimates revealed that at Culiacan in Mexico, and AARI Faisalabad in Pakistan 31 and 2 entries, respectively, exceeded the respective local check by a significant margin. The five heaviest yielding entries at different locations are given in Table 5.8.6.

Table 5.8.1. Agronomic data for different locations in the LIF3T-E during 1986/87.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N	P	K	Irri-gation	Insecticide/Fungicide/Herbicide	Local Check
BANGLADESH	Joydebpur	19.11.86	27.03.87	-			-	-	L - 5
BANGLADESH	Mymensingh	25.11.86	15.04.87	-			-	-	Bm 513
BRAZIL	Brasilia	06.05.87	28.09.87	56	120		18	Linuram, Tiuram, Iprodione	Precoz
EGYPT	Sakha	02.12.86	16.05.87	37	75		-	Gesagard	Giza - 370
INDIA	New Delhi	27.11.86	20.04.87	20	40		1	Metasystox	L - 4162
MEXICO	Culiacan	09.12.86	17.05.87	-			3	-	Sol Guanajuato
SYRIA	Tel Hadya	02.11.86	21.05.87		50		-	Kerb, Bladex, Fusilade, Supracide	ILL 4401
PAKISTAN	Bahawalpur (ARS)	10.11.86	05.04.87	25	62		-	-	Malka Masoor
PAKISTAN	Faisalabad (AARI)	17.11.86	NA	25	50		-	-	Masoor - 85
PAKISTAN	Faisalabad (UAF)	03.11.86	22.04.87	1 bag DAP			-	-	NA
PAKISTAN	Islamabad (NARC)	09.11.86	-	-			-	-	-

NA = Not available.

Table 5.8.2. Time to flowering (days) of entries at different locations in the LIF3T-E during 1986/87.

Cross No./ X85S	Female Parent	ILL	Origin	Male Parent	ILL	Origin	BANGLADESH	
							Joydebpur	Mymensingh
165	-	1868	Syria	81S 38084(4401)	5673	Syria	56	90
273	Pant L-639	2573	India	162	4403	Pakistan	91	74
276	Lens 830	2578	India	L 1278	2580	India	84	66
277	Lens 830	2578	India	L 1282	2581	India	74	66
278	Lens 830	2578	India	LL 1	2582	India	88	66
279	Lens 830	2578	India	162	4403	Pakistan	72	64
281	LG 112	3527	India	FLIP 84- 62L	5732	ICARDA	88	85
282	LG 112	3527	India	L 1278	2580	India	91	75
283	LG 112	3527	India	L 1282	2581	India	94	76
284	LG 112	3527	India	LL 1	2582	India	87	76
285	LG 112	3527	India	162	4403	Pakistan	93	75
286	LG 112	3527	India	FLIP 85- 41L	5879	ICARDA	91	81
287	LG 120	3531	India	FLIP 84- 62L	5732	ICARDA	93	82
290	LG 120	3531	India	LL 1	2582	India	91	75
291	LG 120	3531	India	162	4403	Pakistan	92	68
292	LG 120	3531	India	FLIP 85- 41L	5879	ICARDA	99	90
295	18-12	4407	Pakistan	L 1282	2581	India	89	74
296	18-12	4407	Pakistan	FLIP 84- 62L	5732	ICARDA	93	81
297	18-12	4407	Pakistan	162	4403	Pakistan	93	73
298	18-12	4407	Pakistan	FLIP 85- 41L	5879	ICARDA	95	82
299	Procoz	4605	Argentina	FLIP 84- 62L	5732	ICARDA	51	64
300	Procoz	4605	Argentina	L 1278	2580	India	47	49
301	Procoz	4605	Argentina	L 1282	2581	India	47	45
302	Procoz	4605	Argentina	12	4402	Pakistan	47	49
303	Procoz	4605	Argentina	162	4403	Pakistan	47	46
305	Fam 370	5486	Egypt	76TA 66005(1)	5562	Jordan	66	80
306	Fam 370	5486	Egypt	L 1278	2580	India	66	67
307	Fam 370	5486	Egypt	L 1282	2581	India	70	73
308	Fam 370	5486	Egypt	LL 1	2582	India	72	75
310	Fam 370	5486	Egypt	FLIP 85- 41L	5879	ICARDA	70	75
-	Procoz	4605	Argentina				61	60
Local Check							56	56
Location Mean							**76**	**70**
S.E. of Mean							2.52	4.22
L.S.D. at 5%							7.26	12.18
C.V. %							4.66	8.49
Error d.f.							31	31
Significance							*	*

Cont'd. ...

Table 5.8.2. Cont'd. ...

Cross No./ X85S	EGYPT	INDIA	MEXICO	PAKISTAN		SYRIA	Overall Mean
	Sakha	New Delhi	Culiacan	Faisalabad	Islamabad	Tel Hadya	
165	95	87	68	101	119	157	96
273	87	79	73	93	113	158	96
276	70	86	71	90	107	158	91
277	63	74	70	89	106	159	87
278	64	78	71	87	107	158	90
279	63	75	65	90	104	159	86
281	90	82	75	98	117	161	99
282	85	82	76	96	112	158	97
283	87	79	75	87	110	157	95
284	83	79	77	92	110	159	95
285	87	80	77	93	113	159	97
286	88	84	77	96	117	161	99
287	83	83	71	96	114	160	97
290	80	78	68	89	117	159	94
291	84	76	72	88	109	157	93
292	87	83	76	110	116	160	102
295	80	79	73	90	110	158	94
296	87	80	74	95	114	161	98
297	84	80	77	94	113	158	96
298	73	83	80	100	102	161	97
299	74	66	51	87	84	163	80
300	57	65	54	90	83	162	76
301	57	75	49	90	83	161	76
302	57	65	49	87	83	162	75
303	55	65	63	90	83	160	76
305	69	75	58	89	98	161	87
306	79	77	59	92	106	160	88
307	69	78	64	91	102	160	88
308	69	82	65	92	104	160	90
310	62	74	64	87	102	161	87
Precoz	64	68	59	81	100	158	81
Local Check	65	79	56	98	91	162	
Location Mean	**75**	**77**	**67**	**92**	**104**	**159**	
S.E. of Mean	2.68	2.84	3.89	1.34	1.76	0.63	
L.S.D. at 5%	7.73	8.18	11.22	3.88	5.07	1.81	
C.V. %	5.08	5.20	8.18	2.07	2.38	0.56	
Error d.f.	31	31	31	31	31	31	
Significance	*	*	*	*	*	*	

* = Significant at $P \leq 0.05$.

Table 5.8.3. Time to maturity (days) of entries at different locations in the LIF3T-E during 1986/87.

Cross No. X85S	BANGLADEH		EGYPT	INDIA	MEXICO	SYRIA	Overall Mean
	Joudebpur	Mymensingh	Sakha	New Delhi	Culiacan	Tel Hadya	
165	99	118	145	144	128	195	138
273	121	108	145	136	126	196	138
276	127	110	145	132	131	198	140
277	122	113	138	133	127	197	138
278	120	105	145	134	126	196	138
279	122	112	148	134	130	196	140
281	135	120	145	138	133	198	145
282	121	109	145	137	126	196	139
283	120	111	145	139	124	195	139
284	122	112	138	139	125	198	139
285	120	112	145	137	124	195	139
286	149	119	145	139	131	198	147
287	160	117	145	140	131	196	148
290	120	113	145	137	124	195	139
291	121	108	145	136	124	195	138
292	170	122	145	142	131	196	151
295	122	118	145	137	126	196	140
296	121	118	139	138	131	199	141
297	122	111	145	138	126	196	139
298	194	120	150	139	133	198	155
299	207	118	155	123	132	202	156
300	221	115	150	122	132	202	157
301	122	116	145	123	132	200	139
302	244	119	155	125	132	201	162
303	261	122	145	125	132	201	164
305	279	114	150	136	132	196	168
306	121	118	150	138	131	198	142
307	298	117	150	138	132	197	172
308	122	118	148	139	132	198	143
310	328	116	155	136	135	200	178
Precoz	100	106	132	126	116	195	129
Local Check	100	106	145	139	132	197	
Location Mean	**157**	**114**	**146**	**135**	**129**	**197**	
S.E. of Mean	0.27	2.66	2.49	1.28	0.83	0.87	
L.S.D. at 5%	0.77	7.67	7.18	3.69	2.38	2.51	
C.V. %	0.24	3.29	2.41	1.34	0.91	0.62	
Error d.f.	31	31	31	31	31	31	
Significance	*	*	*	*	*	*	

* = Significant at $P \leq 0.05$.

Table 5.8.4. Plant height (cm) of entries at different locations in the LIF3T-E during 1986/87.

Cross No./ X8SS	BANGLADESH		BRAZIL	MEXICO	PAKISTAN	SYRIA	Overall Mean
	Joydebpur	Mymensingh	Brasilia	Culiacan	Faisalabad	Tel Hadya	
165	21	29	44	39	35	28	32
273	34	44	48	49	47	25	41
276	35	41	50	50	46	32	42
277	32	37	53	49	48	31	42
278	36	43	58	51	49	29	44
279	33	38	49	54	52	29	42
281	37	52	48	55	52	31	46
282	37	44	53	50	43	27	42
283	33	40	57	50	46	25	42
284	37	43	53	50	47	29	43
285	35	42	49	50	47	24	41
286	41	38	48	50	44	32	42
287	44	41	56	52	46	26	44
290	34	37	49	55	44	25	40
291	36	43	46	50	43	25	40
292	47	44	60	50	45	30	46
295	37	46	54	47	53	29	44
296	39	44	58	55	56	30	47
297	38	41	53	52	51	28	44
298	53	41	54	51	43	32	45
299	56	41	53	51	46	35	47
300	60	47	52	53	51	27	48
301	39	38	57	53	44	31	44
302	66	44	52	53	43	30	48
303	70	54	51	53	54	32	52
305	75	35	52	57	43	31	49
306	36	48	60	52	46	33	46
307	80	39	56	57	47	27	51
308	38	40	51	61	48	31	45
310	88	39	55	51	46	35	52
Precoz	31	34	45	43	34	28	36
Local Check	28	32	49	53	49	29	
Location Mean	**44**	**41**	**52**	**51**	**46**	**29**	
S.E. of Mean	1.39	4.11	3.93	2.76	4.33	1.77	
L.S.D. at 5%	4.01	-	-	7.96	-	5.10	
C.V. %	4.47	14.10	10.70	7.62	13.23	8.63	
Error d.f.	31	31	31	31	31	31	
Significance	*	NS	NS	*	NS	*	

* = Significant at $P \leq 0.05$, NS = not significant.

Table 5.8.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LIF3T-E during 1986/87.

Cross No./ X85S	BANGLADESH				BRAZIL		EGYPT		INDIA		MEXICO	
	Joydebpur		Mymensingh		Brasilia		Sakha		New Delhi		Culiacan	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
165	976	10	2	32	518	32	1688	7	75	31	931	31
273	576	28	231	20	1178	21	896	27	500	10	1868	4
276	645	26	357	12	1205	18	979	24	394	17	1617	12
277	763	19	439	7	2246	4	1167	21	294	23	1800	5
278	712	22	583	3	1826	7	1625	8	341	21	1780	7
279	775	17	578	4	1454	13	1167	20	531	7	1698	9
281	694	23	273	15	1281	16	833	30	269	24	1359	21
282	761	20	416	8	1714	8	1521	10	500	12	1624	11
283	588	27	631	2	2255	3	1125	23	531	8	2133	1
284	874	14	509	6	1624	11	854	29	438	15	1923	3
285	387	32	323	14	1633	10	1167	22	563	3	1957	2
286	772	18	184	24	834	26	1229	18	200	27	1365	20
287	828	15	195	23	1188	20	854	28	225	25	1114	28
290	404	31	267	16	989	24	1250	16	500	11	1433	19
291	470	29	391	9	1680	9	1229	17	563	4	1787	6
292	888	13	61	30	548	31	917	26	69	32	965	30
295	946	12	264	17	1965	6	1479	11	344	20	1467	16
296	975	11	232	19	1429	14	1333	14	381	19	1236	23
297	666	24	382	10	1583	12	1208	19	544	5	1685	10
298	1020	9	573	5	699	28	1938	6	206	26	1080	29
299	1092	8	149	29	646	30	1458	12	194	28	1135	27
300	1168	7	164	28	1203	19	792	31	388	18	1583	14
301	665	25	228	21	1251	17	1313	15	531	6	1467	17
302	1292	6	224	22	1099	22	1396	13	294	22	1175	25
303	1382	5	165	27	978	25	708	32	125	30	1345	22
305	1477	4	26	31	715	27	2458	2	688	1	1236	24
306	713	21	238	18	1306	15	1521	9	450	14	1522	15
307	1578	2	174	26	990	23	2208	5	575	2	1732	8
308	412	30	336	13	2095	5	2229	4	413	16	1596	13
310	1742	1	378	11	669	29	3229	1	500	13	1433	18
Precoz	789	16	177	25	3275	1	937	25	163	29	1143	26
Local Check	1535	3	689	1	2941	2	2438	3	531	9	435	32
Location Mean	**893**		**307**		**1407**		**1411**		**385**		**1457**	
S.E. of mean	77.91		140.62		299.83		333.65		95.30		147.76	
L.S.D. at 5%	224.73		-		864.84		962.38		274.88		426.21	
C.V. %	12.34		64.69		30.14		33.45		35.02		14.34	
Error d.f.	31		31		31		31		31		31	
Significance	*		NS		*		*		*		*	
Ent. > L. Check	0		-		0		0		0		31	

Cont'd. ...

Table 5.8.5. Cont'd. ...

Cross No./ X85S	PAKISTAN						SYRIA		Overall Mean	
	Faisalabad (UAF)		Faisalabad (AARI)		Islamabad (NARC)		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R
165	1700	5	833	24	313	31	1608	1	864	27
273	1667	10	1847	6	1521	3	682	27	1096	13
276	1333	19	1222	15	896	21	1177	9	982	20
277	2100	2	1431	13	1250	7	1208	7	1270	4
278	1400	15	1750	9	1354	6	590	31	1196	7
279	2886	1	1667	10	1229	9	882	20	1287	2
281	1700	7	833	23	396	27	1175	10	881	24
282	1200	21	1514	12	1521	2	1078	13	1185	9
283	1533	11	1917	5	1604	1	662	28	1298	1
284	1800	4	2333	1	1250	8	1118	11	1272	3
285	1667	9	2167	2	1188	10	963	15	1201	6
286	1467	14	944	22	875	22	945	17	882	23
287	1067	25	694	30	1104	13	708	26	798	29
290	1700	8	1792	7	937	19	635	30	991	18
291	1500	13	2014	4	1042	14	793	23	1147	11
292	667	32	417	32	208	32	1260	6	600	31
295	1367	16	1611	11	1188	11	1318	4	1195	8
296	1150	23	1194	16	1146	12	797	22	987	19
297	1700	6	2014	3	1417	5	872	21	1207	5
298	1000	27	750	27	938	18	1087	12	929	21
299	833	29	792	25	354	29	887	19	754	30
300	767	30	972	21	667	24	390	32	809	28
301	1200	22	750	28	1042	15	777	24	922	22
302	1133	24	778	26	688	23	657	29	873	25
303	1833	3	1056	20	354	28	763	25	871	26
305	967	28	1056	19	458	26	1285	5	1037	16
306	1033	26	1056	18	1438	4	983	14	1026	17
307	1333	18	1083	17	979	16	952	16	1161	10
308	767	31	750	29	938	17	1372	3	1091	14
310	1353	17	611	31	313	30	1187	8	1141	12
Precoz	1300	20	1333	14	583	25	945	18	1065	15
Local Check	1500	12	1764	8	917	20	1472	2		
Location Mean	**1394**		**1280**		**941**		**976**			
S.E. of Mean	422.36		126.10		351.31		117.69			
L.S.D. at 5%	-		363.74		-		339.47			
C.V. %	42.84		13.94		52.81		17.06			
Error d.f.	31		31		31		31			
Significance	NS		*		NS		*			
Ent. > L. Check	-		2		-		0			

* = Significant at P $\leq$ 0.05, NS = not significant.

Table 5.8.6. The five heaviest seed yielding entries at the individual locations in the LIF3T-E during 1986/87.

Rank	BANGLADESH		BRAZIL	EGYPT	INDIA
	Joydebpur	Mymensingh	Brasilia	Sakha	New Delhi
	Cross No.	Cross No.	Cross No.	Cross No.	Cross No.
1	X85S 310	Local Check	ILL 4605	X85S 310	X85S 305
2	X85S 307	X85S 283	Local Check	X85S 305	X85S 307
3	Local Check	X85S 278	X85S 283	Local Check	X85S 285]
4	X85S 305	X85S 279	X85S 277	X85S 308	X85S 291]
5	X85S 303	X85S 298	X85S 308	X85S 307	X85S 297

Cont'd 2/..

Rank	MEXICO	PAKISTAN			SYRIA
	Culiacan	Faisalabad-1 (UAF)	Faisalabad-2 (AARI)	Islamabad	Tel Hadya
	Cross No.	Cross No.	Cross No.	Cross No.	Cross No.
1	X85S 283	X85S 279	X85S 284	X85S 283	X85S 165
2	X85S 285	X85S 277	X85S 285	X85S 282]	Local Check
3	X85S 284	X85S 303	X85S 297]	X85S 273]	X85S 308
4	X85S 273	X85S 284	X85S 291]	X85S 306	X85S 295
5	X85S 277	X85S 165] X85S 297]	X85S 283	X85S 297	X85S 305

The brackets indicate entries having the same rank.

6. INTERNATIONAL AGRONOMY TRIALS

6.1. INTERNATIONAL FERTILITY-CUM-INOCULATION TRIALS (FIT)

Introduction

The FIT was planned to study the response of faba bean, lentil and chickpea to the application of fertilizer nutrients under different agro-ecological conditions in the region. The objectives of this trial have been to investigate:

(i) whether there is need for application of phosphate and potash,
(ii) whether the naturalized Rhizobia present in the soil were effective or there was a need for artificial inoculation,
(iii) whether the symbiotic nitrogen fixation was adequate in meeting the nitrogen need of the crop,
(iv) whether the symbiotic nitrogen fixation as reflected in terms of crop performance can be improved with starter nitrogen dressing,
(v) whether the symbiotic nitrogen fixation is affected by the application of phosphorus and/or potassium.

Material and Methods

The basic set of fertility treatments was the same for all the three crops. These consisted of : (i) farm fertility, (ii) farm fertility + nitrogen at 100 kg/ha, (iii) farm fertility + phosphate at 80 kg/ha + potash at 60 kg/ha, (iv) farm fertility + potash at 60 kg/ha + phosphate at 80 kg/ha + nitrogen at 100 kg/ha.

The trial was designed as a randomized complete block with four replications. The cooperators could reduce the replications to three if land was limiting. The suggested plot size was 13.5 m^2 (2.7m x 5.0m). The net plot for harvesting was suggested to be comprised of the central rows leaving one row at either side of the plot and 0.5 m at either end of row as borders.

6.1.1. CHICKPEA INTERNATIONAL FERTILITY-CUM-INOCULATION TRIAL (CFIT)

Results and Discussion

Eighteen trials were sent to cooperators in 8 countries and three of the cooperators reported the results.

Afghanistan: The trial was conducted at Kabul. The ANOVA for seed yield was significant and the farm fertility (control treatment, T1) gave the highest yield. (Table 6.1.1.).

Italy: The trial was conducted at Tarquinia. The ANOVA for seed yield and nodule weight didn't reaveal any significant differences among treatments means. These results exhibited that local rhizobia was sufficient to fulfil the need of nitrogen required for the crop.

Table 6.1.1. Seed yield (Y=kg/ha), rank (R) and nodule weight (N/W=g/plot) on different fertilizer-cum-inoculation treatments in CFIT at different locations during 1986/87.

Treatment	Symbol	AFGHANISATN		ITALY			PAKISTAN			Overall Mean	
		Kabul		Tarquinia			Chakwal				
		Y	R	Y	R	N/W	Y	R	N/W		
Farm fertility	T1	2591	1	3942	4	1.56	509	4	0.21	2347	3
Farm fertility + Nitrogen at 100 kg/ha	T2	2112	3	4225	3	1.31	742	1	0.24	2360	2
Farm fertility + Phosphate at 80 kg/ha + Potash at 60 kg/ha	T3	2229	2	4283	2	1.99	696	2	0.29	2403	1
Farm fertility + Potash at 60 kg/ha + Phosphate at 80 kg/ha + Nitrogen at 100 kg/ha	T4	1729	4	4542	1	1.51	651	3	0.23	2307	4
Location Mean		**2165**		**4248**		**1.59**	**649**		**0.24**		
S.E. of mean		103.34		253.96		0.16	64.93		0.02		
L.S.D. at 5%		330.58		-		-	-		-		
C.V. %		9.55		11.96		20.50	20.00		20.04		
Error d.f.		9		9		9	9		9		
Significance		*		NS		NS	NS		NS		

* = Significant at $P \leq 0.05$, NS = Not significnat.

Pakistan: The trial was conducted at Chakwal. The ANOVA for seed yield and nodule weight didn't reaveal any significant differences among treatment means. These results exhibited that local rhizobia was sufficient to fulfil the need of nitrogen required for the crop.

6.1.2. FABA BEAN INTERNATIONAL FERTILITY-CUM-INOCULATION TRIAL (FBFIT)

Results and Discussion

Fifteen trials were sent to different cooperators in six countries but the results were received from only two locations, Tarquinia in Italy and Dhamar in Yemen Arab Republic. The ANOVA for seed yield, and nodule weight revealed non significant differences among treatment means (Table 6.1.2). Thus the local rhizobia was sufficient to fulfil the need of nitrogen requirement by the crop

6.1.3. LENTIL INTERNATIONAL FERTILITY-CUM-INOCULATION TRIAL (LFIT)

Results and Discussion

Twenty two trials were sent to cooperators in 11 countries and the results were received from 3 locations and are presented in Table 6.1.3.

The ANOVA revealed that only at two locations, namely Mymensingh in Bangladesh and Dhamar in Yemen Arab Republic two treatments, namely, T3 (Farm Fertility + Phosphate at 80 kg/ha + Potash at 60 kg/ha) and T4 (T3 + nitrogen at 100 kg/ha) gave significantly higher yield than the control treatment T1 (Farm Fertility). But both of these treatments were not significantly different from each other. This indicated that application of potash and phosphorus increased the seed yield but there was no response to nitrogen application.

6.2. INTERNATIONAL WEED CONTROL TRIALS (WCT)

Introduction

The trial aimed at finding out the magnitude of yield loss that occurs in faba bean, lentil and chickpea crops due to the presence of weeds. It also aimed at assessing the relative merit of some selected weed control treatments under the different agro-ecological conditions in three crops.

Material and Methods

The basic treatments inovlved weedy check, weed free by repeated hand weeding, hand weeding twice (30-40, 70-80 days after emergence) and herbicide application treatments. The details of these treatments are given in the appropriate tables.

The trials were designed as randomized complete blocks with four replications. The plot size was 18.0 m^2 (3.6 m x 5.0 m) for the three crops. At harvest time the two outside rows and 0.5 m at either end of the

Table 6.1.2. Seed yield (Y=kg/ha), rank (R) and nodule weight (N/W=g/plot) on different fertilizer-cum-inoculation treatments in FBFIT at different locations during 1986/87.

Treatment	Symbol	IYALY			YEMEN A.R.			Overall Mean	
		Tarquinia			Dhamar				
		Y	R	N/W	Y	R	N/W	Y	R
Farm fertility	T1	1230	4	0.12	475	4	1.91	853	3
Farm fertility + Nitrogen at 100 kg/ha	T2	1326	3	0.06	733	1	1.36	1030	1
Farm fertility + Phosphate at 80 kg/ha + Potash at 60 kg/ha	T3	1452	1	0.15	488	3	2.28	970	2
Farm fertility + Potash at 60 kg/ha + Phosphate at 80 kg/ha + Nitrogen at 100 kg/ha	T4	1396	2	0.07	544	2	2.00	970	2
Location Mean		**1351**		**0.10**	**560**		**1.89**		
S.E. of mean		179.55		0.06	102.66		0.69		
L.S.D. at 5%		-		-	-		-		
C.V. %		26.58		126.04	36.67		73.02		
Error d.f.		9		9	9		9		
Significance		NS		NS	NS		NS		

NS = Not significant.

Table 6.1.3. Seed yield (Y=kg/ha), rank (R) and nodule weight (N/W=g/plot) on different fertilizer-cum-inoculation treatments in LFIT at different locations during 1986/87.

Treatment	Symbol	ALGERIA		BANGLADESH			YEMEN A.R.		Overall Mean	
		Sidi Bel Abbes		Mymensingh			Dhamar			
		Y	R	Y	R	N/W	Y	R	Y	R
Farm fertility	T1	1535	3	393	4	0.021	901	3	943	4
Farm fertility + Nitrogen at 100 kg/ha	T2	1965	2	420	3	0.017	704	4	1030	3
Farm fertility + Phosphate at 80 kg/ha + Potash at 60 kg/ha	T3	2410	1	596	1	0.025	1399	2	1468	1
Farm fertility + Potash at 60 kg/ha + Phosphate at 80 kg/ha + Nitrogen at 100 kg/ha	T4	1391	4	563	2	0.018	1465	1	1140	2
Location Mean		**1825**		**493**		**0.020**	**1117**			
S.E. of mean		324.39		31.83		0.01	152.07			
L.S.D. at 5%		-		101.83		-	486.47			
C.V. %		35.55		12.92		46.92	27.22			
Error d.f.		9		9		9	9			
Significance		NS		*		NS	*			

* = Signifiant at $P \leq 0.05$, NS = Not significant.

central rows were discarded. Thus the seed yields described in this report are based on the central rows of 4 m length.

6.2.1. CHICKPEA INTERNATIONAL WEED CONTROL TRIAL (CWCT)

Results and Discussion

Twenty eight trials were distributed to cooperators in 13 countries and the results were received from 10 locations in 8 countries. Except at Bahteem in Egypt and Tarquinia in Italy at all other locations the ANOVA for seed yield revealed the non-significant differences among treatment means (Table 6.2.1).

Six weedicide treatments each at Bahteem (Egypt), and Tarquinia (Italy) gave significantly superior yield over respective weedy check.

The seed yield across locations for the weedy check and weed free check revealed that weeds cause a heavy loss (37.9 percent) in seed yield in chickpea. Further, the treatment T6 (Pre-emergence application of Igran at 3.0 kg a.i./ha) or T11 [Treatment T6 above + 0.5 kg a.i./ha of pronamide (Kerb)] is most effective in giving highest increase in seed yield over the weedy check.

6.2.2. FABA BEAN INTERNATIONAL WEED CONTROL TRIAL (FBWCT)

Results and Discussion

Thirteen trials were supplied to cooperators in 9 countries and the results were received for 4 trials from 4 countries and are presented in Table 6.2.2. The trial at Santa Catalina in Ecuador could'nt be included as the treatments were not similar. The comparison of weedy check (treatment T_1) with weed free check (treatment T_2) showed that weeds caused heavy losses in seed yield at almost all the locations. On an average across the locations the yield loss was 32 %.

The ANOVA for yield data revealed that the mean squares due to treatments were significant at Tarquinia in Italy, Douyet in Morocco and Dhamar in Yemen Arab Republic. The LSD estimates revealed that seven weedicide treatments at Tarquinia in Italy amd four at Dhamar in Yemen Arab Republic gave significantly higher yield as compared to the weedy check. Treatment T12 (Pre-emergence application of Cyanazine at 0.5 kg a.i./ha + 0.5 kg a.i./ha of Pronamide) at Tarquinia in Italy, and treatment T9 (Pre-emergence application of Chlorobromuron at 2.5 kg a.i./ha + 0.5 kg a.i./ha of Pronamide), and treatment T5 (Pre-emergence application of Methabenzthiazuron at 3.0 kg a.i./ha) at Dhamar in Yemen Arab Republic were the most effective treatments in increasing seed yield.

Table 6.2.1. Seed yield (Y=kg/ha) and rank (R), weed weight (W/W=g/plot) and phytotoxicity score (S) on different weed control treatments in CWCT at different locations during 1986/87.

Treatments	Symbol	AFGHANISTAN						
		Bulkh				Kabul		
		Y	R	W/W	S	Y	R	W/W
Weedy check	T1	820	1	807	1	912	10	183
Weedy free by repeated hand weeding	T2	784	2	321	1	1531	1	83
Hand weeding twice (30-40 & 70-80 DAE)	T3	674	6	306	1	1525	2	181
Pre-emergence application of chlorobromuron (Maloran) at 2.5 kg a.i./ha	T4	440	11	470	4	1410	4	479
Pre-emergence application of methabenzthiazuron (Tribunil) at 3.0 kg a.i./ha	T5	711	3	604	3	898	11	479
Pre-emergence application of terbutryne (Igran) at 3.0 kg a.i./ha	T6	501	10	690	3	1188	6	594
Pre-emergence application of cyanazine (Bladex) at 0.5 kg a.i./ha	T7	691	5	858	3	1029	8	181
Pre-emergence application of cyanazine (Bladex) at 1.0 kg a.i./ha.	T8	710	4	539	4	1483	3	500
Same as T4 above + 0.5 kg a.i./ha of Pronamide (Kerb)	T9	435	12	383	5	555	12	152
Same as T5 above + pronamide as in T9	T10	547	9	666	4	1226	5	458
Same as T6 above + pronamide as in T9	T11	550	8	521	4	966	9	169
Same as T7 above + pronamide as in T9	T12	662	7	379	3	1145	7	438
Location Mean		**627**		**545**		**1156**		**325**
S.E. of Mean		125.09		103.52		212.48		147.34
L.S.D. at 5%		-		297.89		-		423.98
C.V. %		39.89		37.96		36.77		90.72
Error d.f.		33		33		33		33
Significance		NS		*		NS		*

Cont'd. ...

Table 6.2.1. Cont'd. ...

Symbol	ALGERIA		EGYPT			ITALY			PAKISTAN				PORTUGAL			
	Khroub		Bahteem			Tarquinia			Chakwal				Oeiras			
	Y	R	Y	R	W/W	Y	R	W/W	Y	R	W/W	S	Y	R	W/W	S
T1	968	11	63	12	398	734	12	1249	26	1	1333	4	107	12	9964	1
T2	1273	7	830	1	0	1734	2	0	25	3	0	4	188	9	7356	1
T3	1389	3	792	2	0	1606	3	190	26	2	175	4	412	1	7535	1
T4	1282	5	462	5	9	830	11	316	19	12	1919	4	210	8	8309	1
T5	1141	9	229	8	98	909	10	2028	23	9	733	5	115	11	7431	1
T6	1568	1	580	3	0	1119	8	67	21	11	1438	4	272	6	7091	1
T7	961	12	83	11	112	1444	4	757	25	4	1215	4	316	3	8483	2
T8	1338	4	111	10	44	1085	9	1167	23	8	1333	4	135	10	8344	2
T9	1541	2	243	7	107	1264	6	410	25	6	1639	4	232	7	9612	1
T10	1276	6	132	9	92	1420	5	769	23	10	1356	4	284	4	8673	1
T11	986	10	478	4	0	1780	1	312	25	5	1111	5	274	5	7551	1
T12	1158	8	333	6	233	1142	7	524	24	7	1599	5	377	2	8573	3
Location Mean	**1240**		**361**		**91**	**1256**		**649**	**24**		**1154**		**343**		**8243**	
S.E. of mean	161.18		36.01		67.28	130.37		287.73	2.24		241.52		102.63		1087.08	
L.S.D. at 5%	-		103.61		193.61	375.15		827.99	-		694.99		-		-	
C.V. %	25.99		19.93		147.6	20.77		88.66	18.94		41.85		84.32		26.38	
Error d.f.	33		33		33	33		33	33		33		33		33	
Significance	NS		*		*	*		*	NS		*		NS		NS	

Cont'd. ...

Table 6.2.1. Cont'd. ...

Symbol	TURKEY							IRAN				Overall Mean	
	Diyarbakir				Eskisehir			Karaj					
	Y	R	W/W	S	Y	R	W/W	Y	R	W/W	S	Y	R
T1	711	12	202	1	1075	2	1345	981	12	3278	2	640	12
T2	1044	1	208	1	1075	1	0	1821	1	1528	1	1031	1
T3	1000	3	182	1	932	9	76	1600	2	1514	1	996	2
T4	789	10	130	3	892	12	896	1228	8	4959	1	756	10
T5	924	4	286	1	999	6	1324	1014	11	2875	1	696	11
T6	727	11	273	3	1021	4	590	1396	4	2361	2	839	3
T7	841	6	208	1	926	11	1134	1251	6	3556	2	757	9
T8	831	7	111	1	992	7	1049	1237	7	3639	1	795	5
T9	831	8	124	2	1016	5	701	1478	3	2611	2	762	8
T10	883	5	234	2	930	10	845	1161	9	2973	2	788	6
T11	794	9	183	3	1042	3	587	1354	5	3361	2	825	4
T12	1026	2	208	1	934	8	1413	1081	10	3723	1	788	6
Location Mean	**867**		**196**		**986**		**830**	**1300**		**3032**			
S.E. of mean	128.51		55.11		109.55		130.14	196.46		468.70			
L.S.D. at 5%	-		-		-		374.50	-		1348.74			
C.V. %	29.65		56.28		22.22		31.36	30.22		30.92			
Error d.f.	33		33		33		33	33		33			
Significance	NS		NS		NS		*	NS		*			

* = Significant at $P \leq 0.05$, NS = Not significant.

Table 6.2.2. Seed yield (Y=kg/ha) and rank (R), weed weight (W/W=g/plot) and phytotoxicity score (S) on different weed control treatments in FBWCT at different locations during 1986/87.

Treatment	Symbol	ITALY			MOROCCO			YEMEN A.R.			ECUADOR	Overall Mean	
		Tarquinia			Douyet			Dhamar			Santa-Catalina		
		Y	R	W/W	Y	R	S	Y	R	W/W	S	Y	R
Weedy check	T1	1315	11	152	1271	3	1	128	11	509	4	905	11
Weedy free by repeated hand weeding	T2	2620	1	0	1104	7	1	274	8	77	2	1333	1
Hand weeding twice (30-40 & 70-80 DAE)	T3	2142	3	13	1396	1	1	276	7	65	3	1271	3
Pre-emergence application of chlorobromuron (Maloran) at 2.5 kg a.i./ha	T4	1795	8	80	875	12	4	313	5	67	4	994	10
Pre-emergence application of methabenzthiazuron (Tribunil) at 3.0 kg a.i./ha	T5	994	12	206	1083	9	4	400	2	186	3	826	12
Pre-emergence application of terbutryne (Igran) at 3.0 kg a.i./ha	T6	1947	7	25	1125	5	5	334	4	206	3	1135	5
Pre-emergence application of cyanazine (Bladex) at 0.5 kg a.i./ha	T7	1404	10	94	1375	2	7	251	9	671	4	1010	9
Pre-emergence application of cyanazine (Bladex) at 1.0 kg a.i./ha	T8	2131	4	35	1104	6	4	125	12	764	3	1120	6
Same as T4 above + 0.5 kg a.i./ha of Pronamide (Kerb)	T9	1697	9	75	1000	11	5	420	1	15	3	1039	8
Same as T5 above + pronamide as in T9	T10	2052	5	104	1000	10	4	290	6	243	3	1114	7
Same as T6 above + pronamide as in T9	T11	2037	6	28	1083	8	5	339	3	340	3	1153	4
Same as T7 above + pronamide as in T9	T12	2502	2	73	1229	4	3	198	10	324	2	1310	2
Location Mean		**1886**		**74**	**1137**			**279**		**289**			
S.E. of Mean		122.94		49.07	107.67			65.73		73.98			
L.S.D. at 5%		353.77		-	309.83			189.15		212.89			
C.V. %		13.03		133.01	18.94			47.09		51.21			
Error d.f.		33		33	33			33		33			
Significance		*		NS	*			*		*			

* = Significant at $P \leq 0.05$, NS = Not significant.

6.2.3. LENTIL INTERNATIONAL WEED CONTROL TRIAL (LWCT)

Results and Discussion

Twenty five sets of trials were distributed to cooperators in 11 countries and the results were received for 8 sets and are discused as under:

The comparison of weedy check (Treatment T1) and weed free check (Treatment T2) across locations showed that weeds caused heavy losses (22 percent) in seed yield at various locations (Table 6.2.3). The ANOVA revealed that the differences between treatment means were significant at Bahteem in Egypt, Faisalabad in Pakistan, Dhamar in Yemen Arab Republic and Debre Zeit in Ethiopia.

Among the locations showing significant treatment differences, three weedicide treatments namely T10 (Pre-emergence application of methabenzthiazuron (Tribunil) at 3.0 kg a.i./ha + 0.5 kg a.i./ha of pronamide (Kerb)), T9 (Pre-emergence application of chlorobromuron (Maloran) at 2.5 kg a.i./ha + 0.5 kg a.i./ha of pronamide (Kerb)), and T5 at Bahteem in Egypt, and three namely T5 (Pre-emergence application of methabenzthiazuron (Tribunil) at 3.0 kg a.i./ha), T8 (Pre-emergence application of cyanazine (Bladex) at 1.0 kg a.i./ha) and T4 (Pre-emergence application of chlorobromuron (Maloran) at 2.5 kg a.i./ha) at Debre Zeit in Ethiopia gave significantly superior yields when compared with weedy check (Table 6.2.3). At Faisalabad in Pakistan and Dhamar in Yemen Arab Republic, however, none of the weedicide treatments gave superior yield as compared to weedy check.

6.3. FABA BEAN INTERNATIONAL OROBANCHE CHEMICAL CONTROL TRIAL (FBOCCT)

Introduction

The main objective of the Faba Bean International Orobanche Chemical Control Trial was to know the extent of loss caused by and the possibility of controlling Orobanche spp in faba bean using glyphosate herbicide. The trial is expected to give the information on the appropriate rate of chemical and the stage of crop grown at which it should be applied to get the best control.

Material and Methods

The treatments included:

T_1 Control - No application of glyphosate
T_2 At the beginning of flowering, apply glyphosate at 0.08 kg ai/ha once
T_3 Starting at the beginning of flowering apply glyphosate at 0.08 kg ai/ha twice at 15 days interval
T_4 Starting at the beginning of flowering apply glyphosate at 0.08 kg ai/ha thrice at 15 days interval
T_5 At 15 days after flowering began, apply glyphosate at 0.08 kg ai/ha once
T_6 Starting 15 days after flowering began, apply glyphosate at 0.08 kg

Table 6.2.3. Seed yield (Y=kg/ha) and rank (R), weed weight (W/W=g/plot) and phytotoxicity score (S) on different weed control treatments in LWCT at different locations during 1986/87.

Treatment	Symbol	EGYPT			MOROCCO		PAKISTAN		
		Bahteem			Douyet		Sarai Nawrang		
		Y	R	W/W	Y	R	Y	R	W/W
Weedy check	T1	753	11	350	1592	1	943	9	515
Weedy free by repeated hand weeding	T2	1479	1	0	1443	6	1152	2	0
Hand weeding twice (30-40 & 70-80 DAE)	T3	1302	5	0	1399	9	1280	1	243
Pre-emergence application of chlorobromuron (Maloran) at 2.5 kg a.i./ha	T4	1132	6	11	1458	5	858	11	608
Pre-emergence application of methabenzthiazuron (Tribunil) at 3.0 kg a.i./ha	T5	1330	4	0	1473	4	1035	5	413
Pre-emergence application of terbutryne (Igran) at 3.0 kg a.i./ha	T6	733	12	0	1399	8	907	10	448
Pre-emergence application of cyanazine (Bladex) at 0.5 kg a.i./ha	T7	854	10	96	1354	12	1012	6	675
Pre-emergence application of cyanazine (Bladex) at 1.0 kg a.i./ha	T8	993	7	8	1503	3	1085	3	582
Same as T4 above + 0.5 kg a.i./ha of Pronamide (Kerb)	T9	1417	3	13	1384	11	1008	7	403
Same as T5 above + pronamide as in T9	T10	1465	2	1	1527	2	975	8	600
Same as T6 above + pronamide as in T9	T11	872	9	38	1414	7	1073	4	503
Same as T7 above + pronamide as in T9	T12	888	8	63	1399	10	827	12	447
Location Mean		**1101**		**48**	**1445**		**1013**		**453**
S.E. of Mean		132.07		14.76	78.19		110.16		88.40
L.S.D. at 5%		380.04		42.48	-		-		254.39
C.V. %		23.98		60.98	10.82		21.75		39.01
Error d.f.		33		33	33		33		33
Significance		*		*	NS		NS		*

Cont'd. ...

Table 6.2.3. Cont'd. ...

Treatment	PAKISTAN		TURKEY							YEMEN A.R.			ETHIOPIA			Overall Mean	
	Faisalabad		Diyarbakir				Eskisehir			Dhamar			Debre Zeit				
	Y	R	Y	R	W/W	S	Y	R	W/W	Y	R	W/W	Y	R	W/W	Y	R
T1	458	3	953	10	89	0	926	5	667	627	8	566	44	12	3104	787	7
T2	632	2	1159	1	0	0	1028	1	0	1021	1	0	156	2	26	1009	1
T3	806	1	1008	6	23	0	972	3	0	738	5	111	211	1	69	965	2
T4	31	9	1039	4	38	1	870	11	653	391	12	110	117	5	2431	737	12
T5	63	7	1044	3	29	1	972	4	278	545	10	146	126	3	1340	824	4
T6	451	4	1021	5	76	1	1019	2	354	551	9	195	101	7	2361	773	8
T7	26	10	927	11	81	1	917	8	625	821	2	320	98	9	3431	751	10
T8	25	11	1109	2	46	1	833	12	444	796	3	321	122	4	2215	808	5
T9	25	12	990	8	0	1	926	7	208	501	11	116	102	6	3076	794	6
T10	143	6	987	9	16	1	880	9	236	640	7	110	100	8	1854	840	3
T11	229	5	852	12	22	1	926	6	375	670	6	83	70	11	2701	763	9
T12	63	8	1008	7	81	1	880	10	403	765	4	237	88	10	2778	740	11
Location Mean	**246**		**1008**		**42**		**929**		**354**	**672**		**193**	**111**		**2116**		
S.E. of Mean	83		77.08		20.38		51.55		88.95	85.87		45.47	25.15		351.77		
L.S.D. at 5%	239		-		58.63		-		255.96	247.11		130.83	72.36		1012.26		
C.V. %	67		15.29		98.06		9.61		50.31	25.55		47.12	45.20		33.26		
Error d.f.	33		33		33		22		33	33		33	33		33		
Significance	*		NS		*		NS		*	*		*	*		*		

* = Significant at P $\leq$ 0.05, NS = Not Significant at P $\leq$ 0.05.

ai/ha twice at 15 days interval

T_7 Starting 15 days after flowering began, apply glyphosate at 0.08 kg ai/ha thrice at 15 days interval

T_8 At the beginning of flowering, apply glyphosate at 0.12 kg ai/ha once

T_9 Starting at the beginning of flowering, apply glyphosate at 0.12 kg ai/ha twice at 15 days interval

T_{10} Starting at the beginning of flowering, apply glyphosate at 0.12 kg ai/ha thrice at 15 days interval

The trial was designed as randomized complete block with four replications. The suggested plot size was 8 rows, 5 m long spaced 45 cm apart (=18.0 m^2). At harvesting, net area harvested was suggested to be 6 rows 4 m long spaced 45 cm apart (=10.8 m^2).

Results and Discussion

Seven sets of trial were sent to cooperators in five countries but results were received back from three locations. At Tarquinia in Italy the local check was completely destroyed by frost and no data was recorded.

At Elvas in Portugal, the ANOVA for seed yield revealed significance of differences among treatment means (Table 6.3.1). None of the treatments gave higher yield than the untreated control. The application of glyphosate at 15 days after flowering began (once, twice or thrice at 15 days interval) proved to be less phytotoxic as compared to the one at the begining of flowering.

At Cordoba in Spain the ANOVA for seed yield revealed significant differences among treatment means. In general, the applications at the begining of flowering reduced the seed yield and at 15 days after flowering or later increased the seed yield but the statistical superiority of any glyphosate treatment over control could not be established.

Table 6.3.1. Seed yield (Y=kg/ha) and rank (R), phytotoxicity score (S), No. of orobanche shoots per plant (NOS) and weight of orobanche shoots per plot (WOS) for different treatments in FBOCCT at different locations during 1986/87.

Treatment	Symbol	PORTUGAL (Elvas)					SPAIN (Cordoba)	
		Y	R	NOS	WOS	S	Y	R
Control-No application of glyphosate	T1	4417	1	10	2675	1	4278	5
At the beginning of flowering, apply glyphosate at 0.08 kg/ha once	T2	4056	5	2	925	3.5	4297	4
Starting at the beginning of flowering apply glyphosate at 0.08 kg/a.i./ha twice at 15 days interval	T3	3750	6	1	135	4	3356	7
Starting at the beginning of flowering apply glyphosate at 0.05 kg a.i./ha thrice at 15 days interval	T4	3486	8	.20	55	4	3365	6
At 15 days after flowering began, apply glyphosate at 0.08 kg a.i./ha once	T5	4326	2	.20	70	2	4519	2
Starting 15 days after flowering began, apply glyphosate at 0.08 kg a.i./ha twice at 15 days interval	T6	4146	4	.20	40	2	4688	1
Starting 15 days after flowering began, apply glyphosate at 0.08 kg a.i./ha thrice at 15 days interval	T7	4292	3	0	0	2	4340	3
At the beginning of flowering, apply glyphosate at 0.12 kg a.i./ha once	T8	3524	7	.30	30	4	3143	8
Starting at the beginning of flowering, apply glyphosate at 0.12 kg a.i./ha twice at 15 days interval	T9	2549	9	0	0	4	2260	10
Starting at the beginning of flowering, apply glyphosate at 0.12 kg a.i./ha thrice at 15 days interval	T10	1896	10	0	0	5	2349	9
Location Mean		**3644**		**2**	**561**		**3659**	
S.E. of Mean		196.38		2.36	466.70		183.97	
L.S.D. at 5%		569.88		7.00	1386.68		533.88	
C.V. %		10.78		234.60	166.25		10.06	
Error d.f.		27		18	18		27	
Significance		*		*	*		*	

* = Significant at $P \leq 0.05$.

7. ACKNOWLEDGEMENTS

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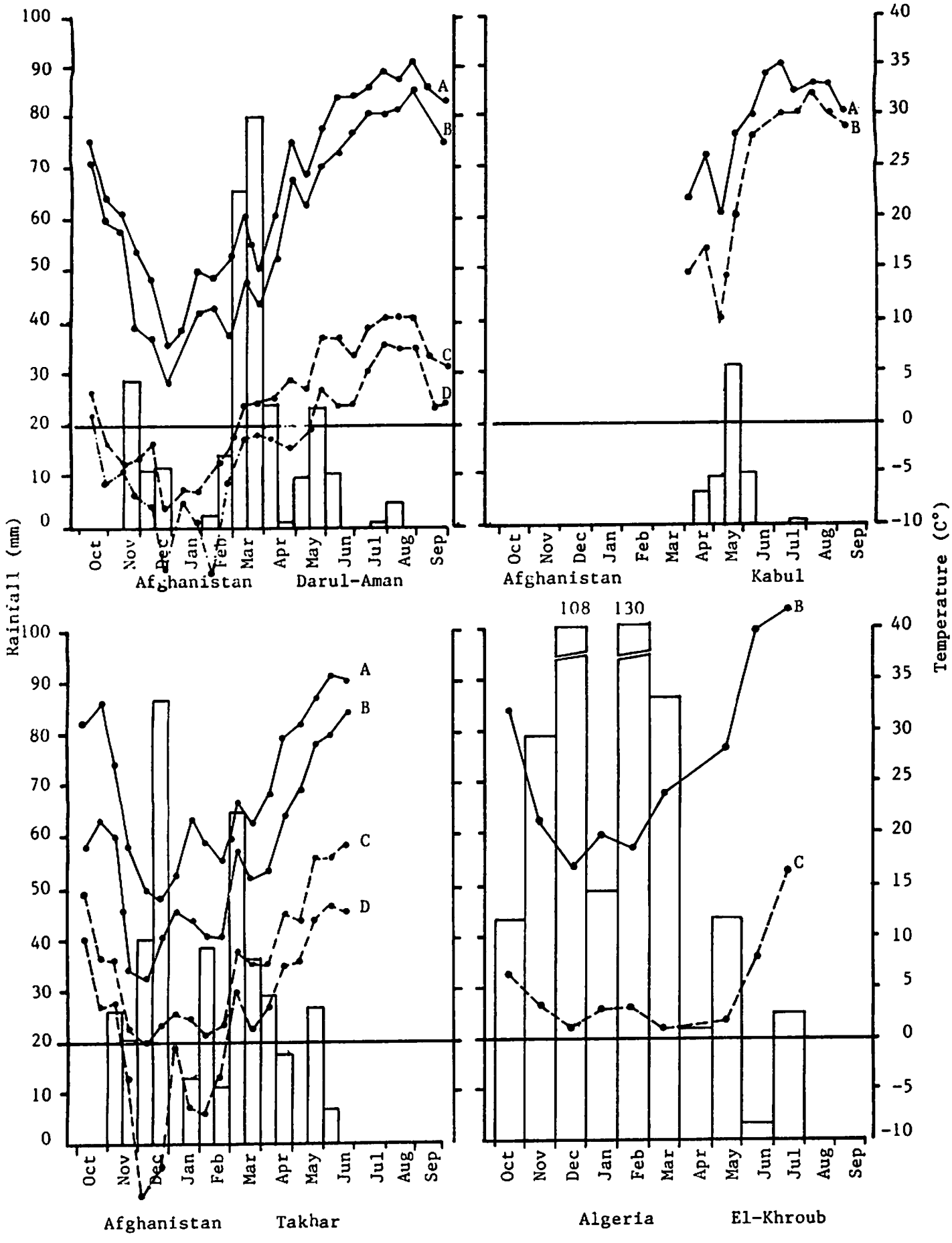
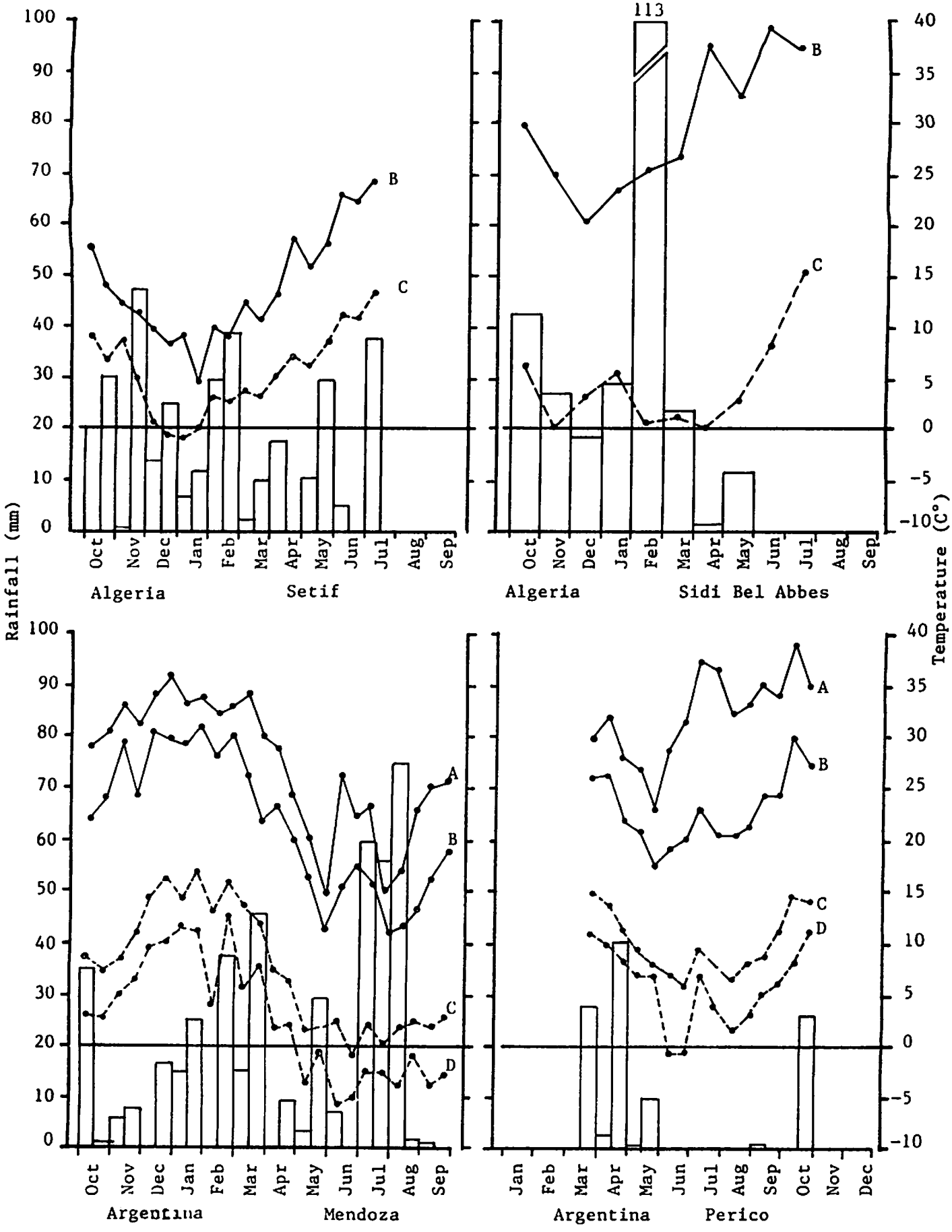
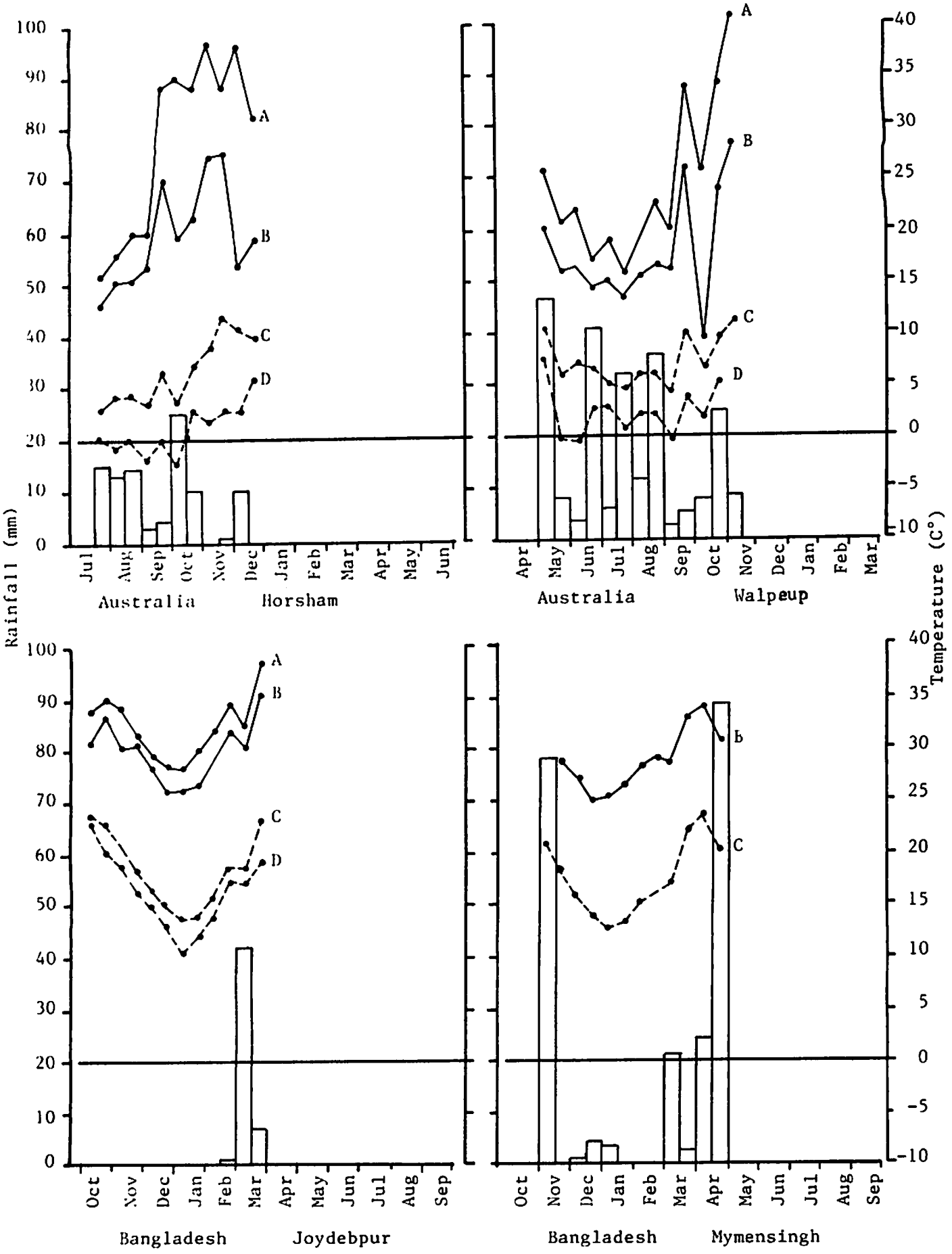
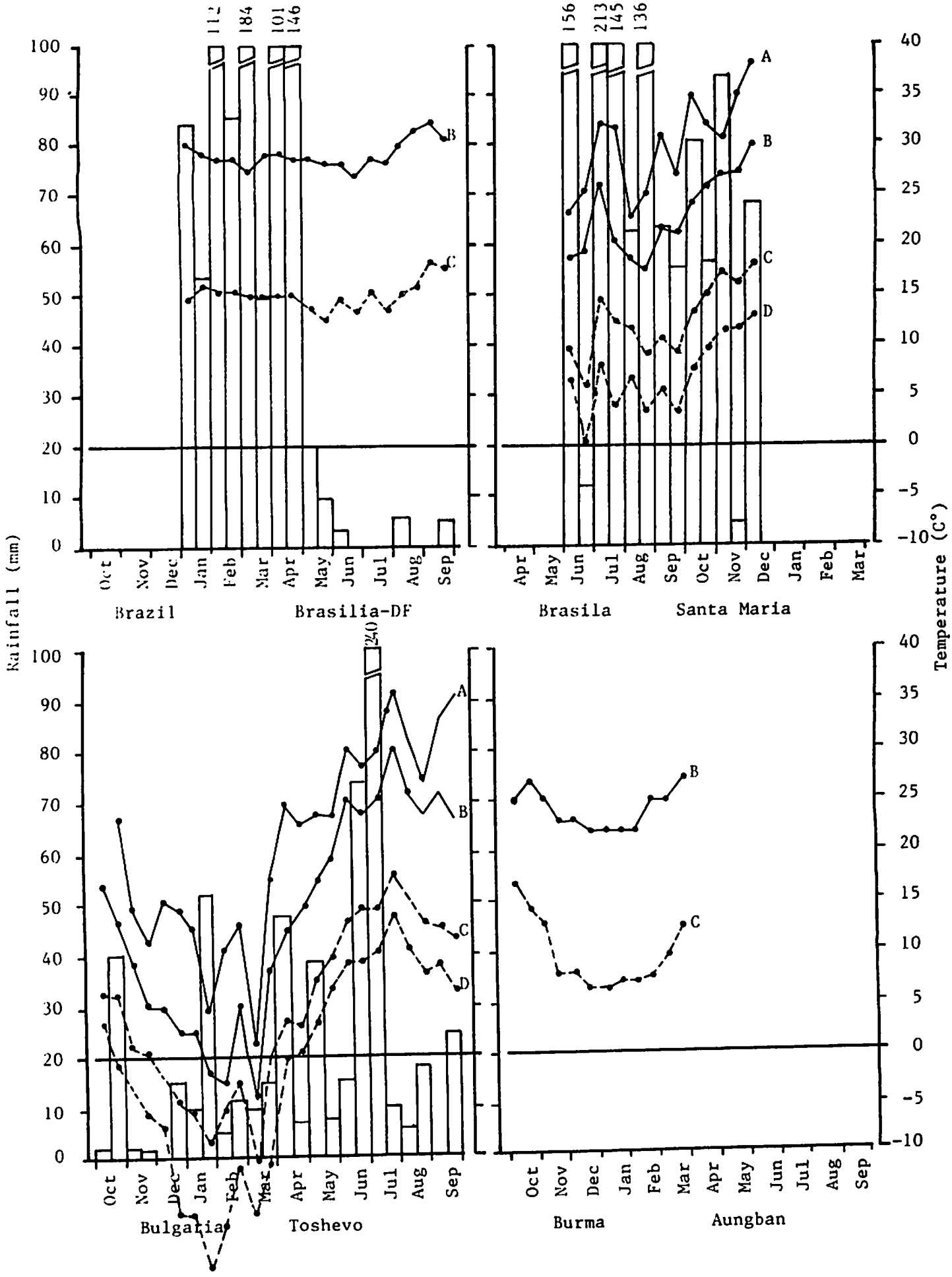
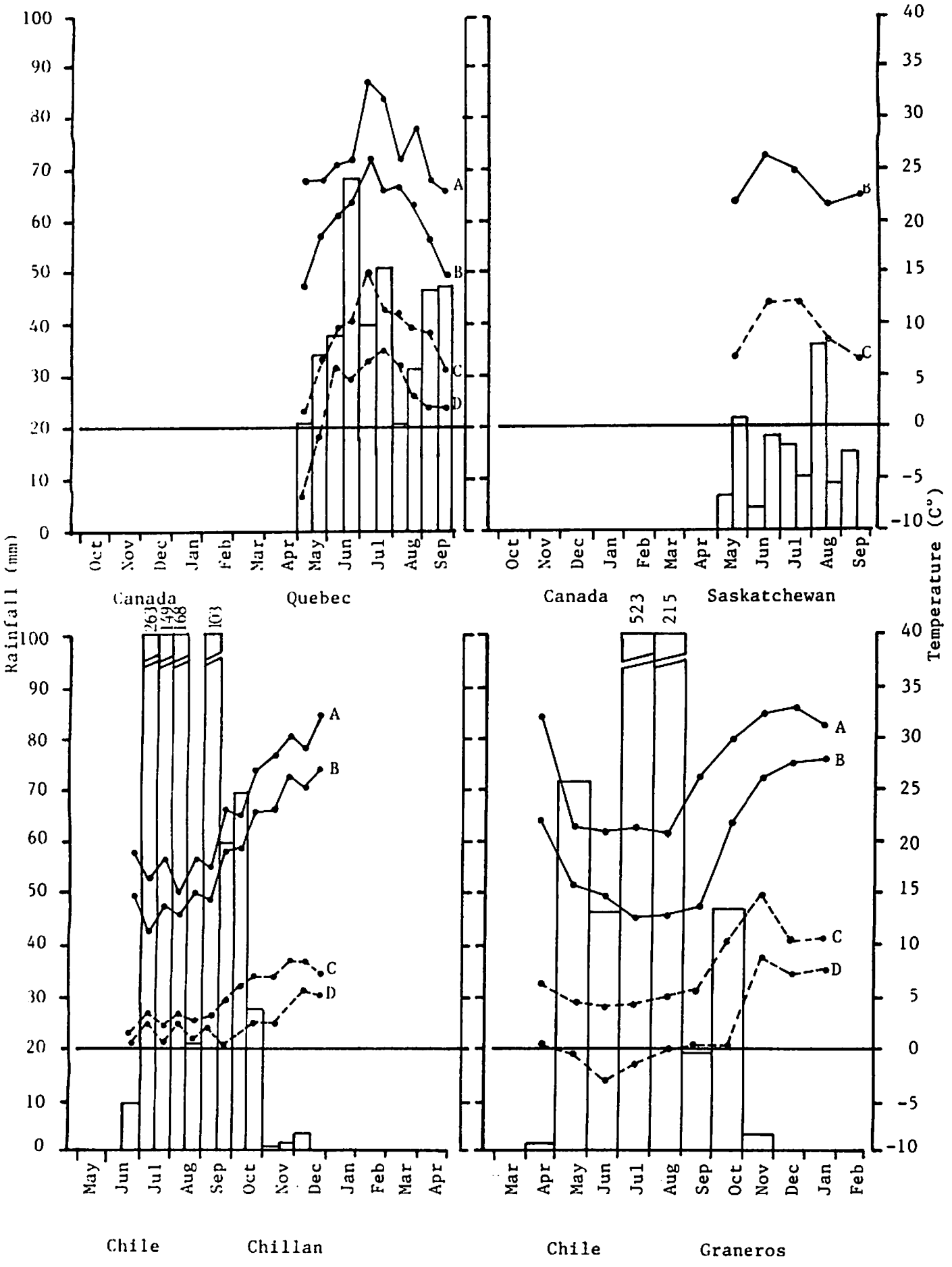


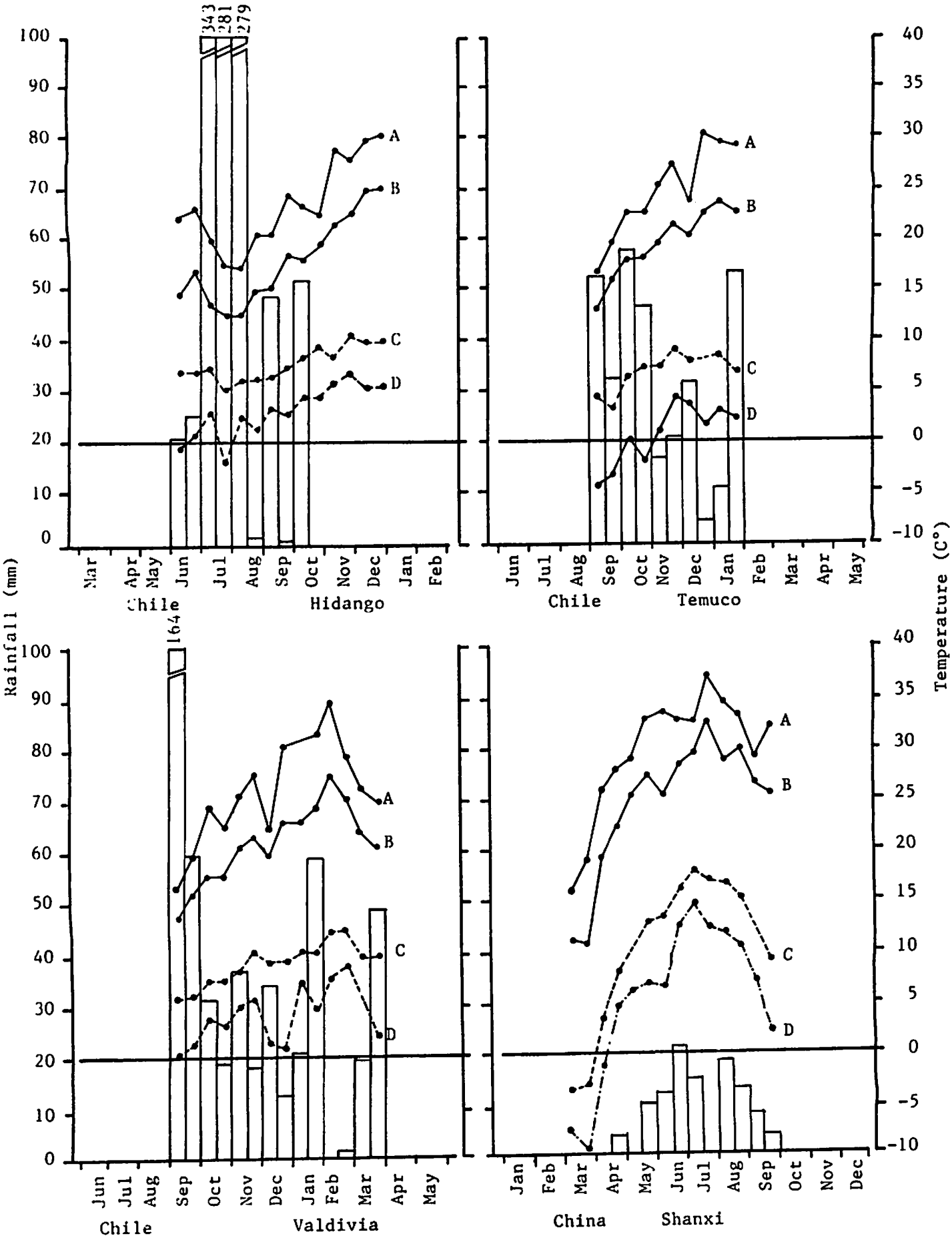
Appendix: Maximum absolute (A), Maximum mean (B), Minimum mean (C), Minimum Absolute (D) and Average (E) Monthly/fortnightly temperatures at various sites during 1986/87.

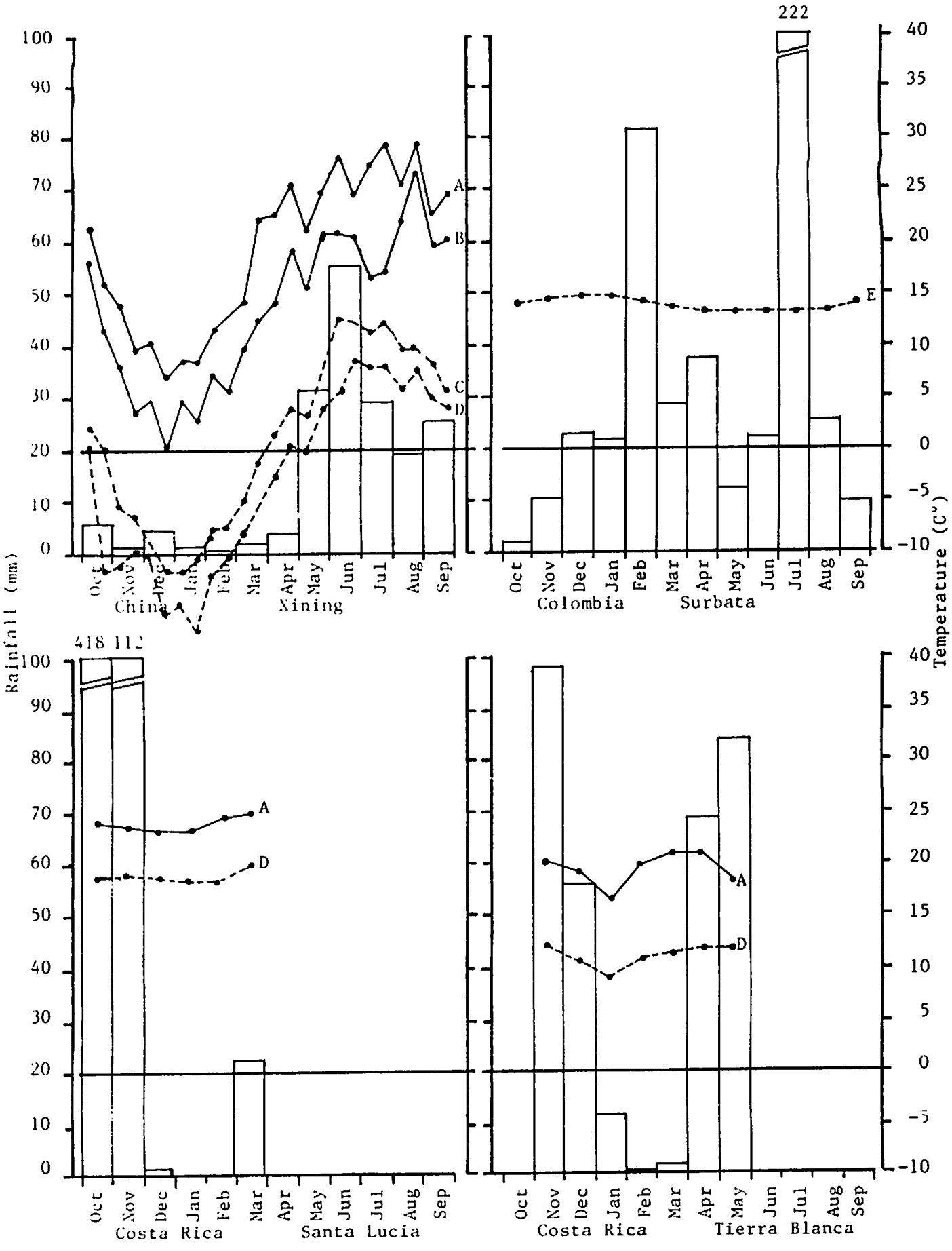

Rainfall (mm)
Temperature (C°)
Algeria
Setif
Algeria
Sidi Bel Abbes
Argentina
Mendoza
Argentina
Perico
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
113
A
B
C
D

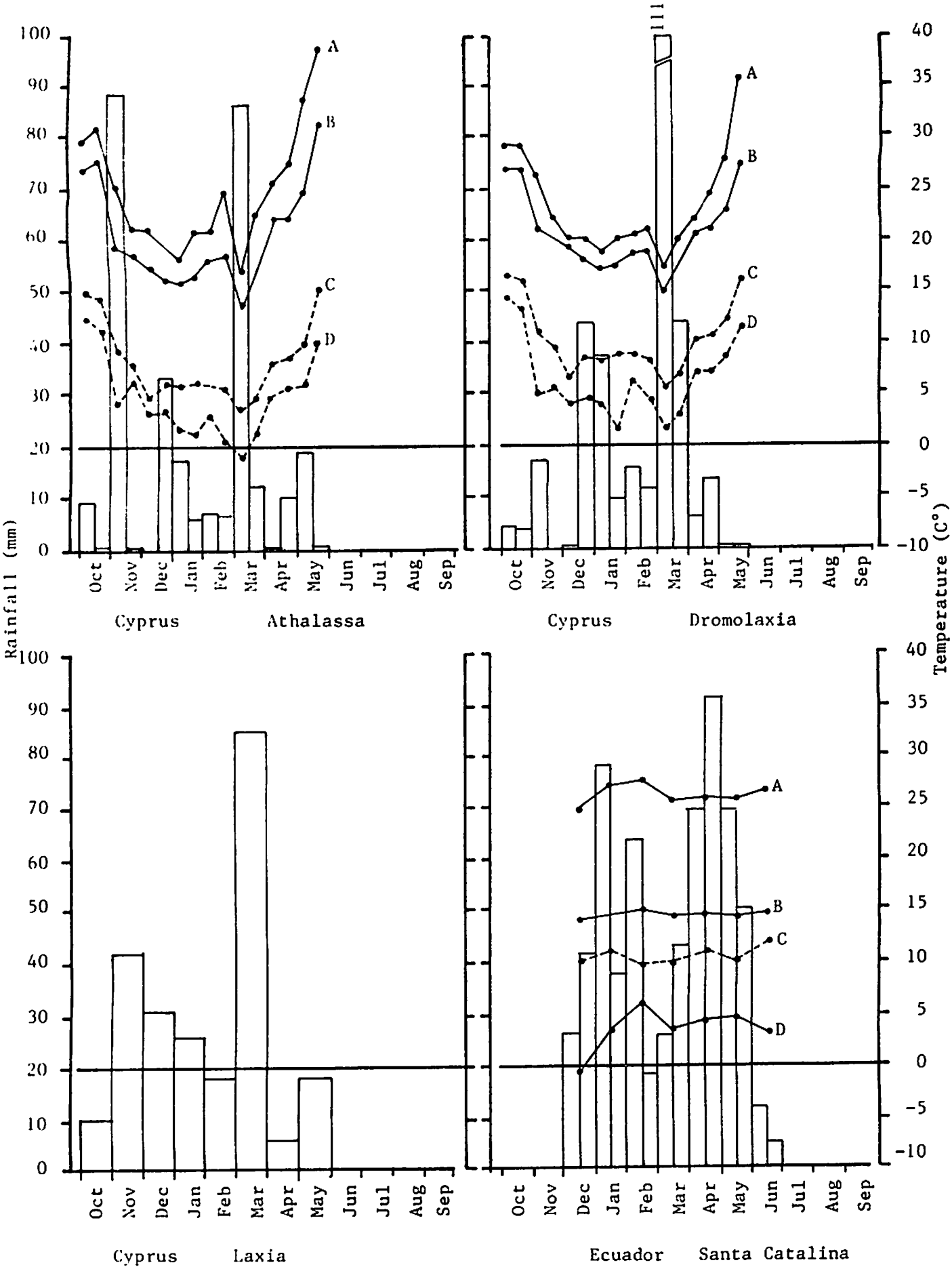

Rainfall (mm)
Temperature (C°)
A
B
C
D
Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Australia Horsham
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
Australia Walpeup
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Bangladesh Joydebpur
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Bangladesh Mymensingh

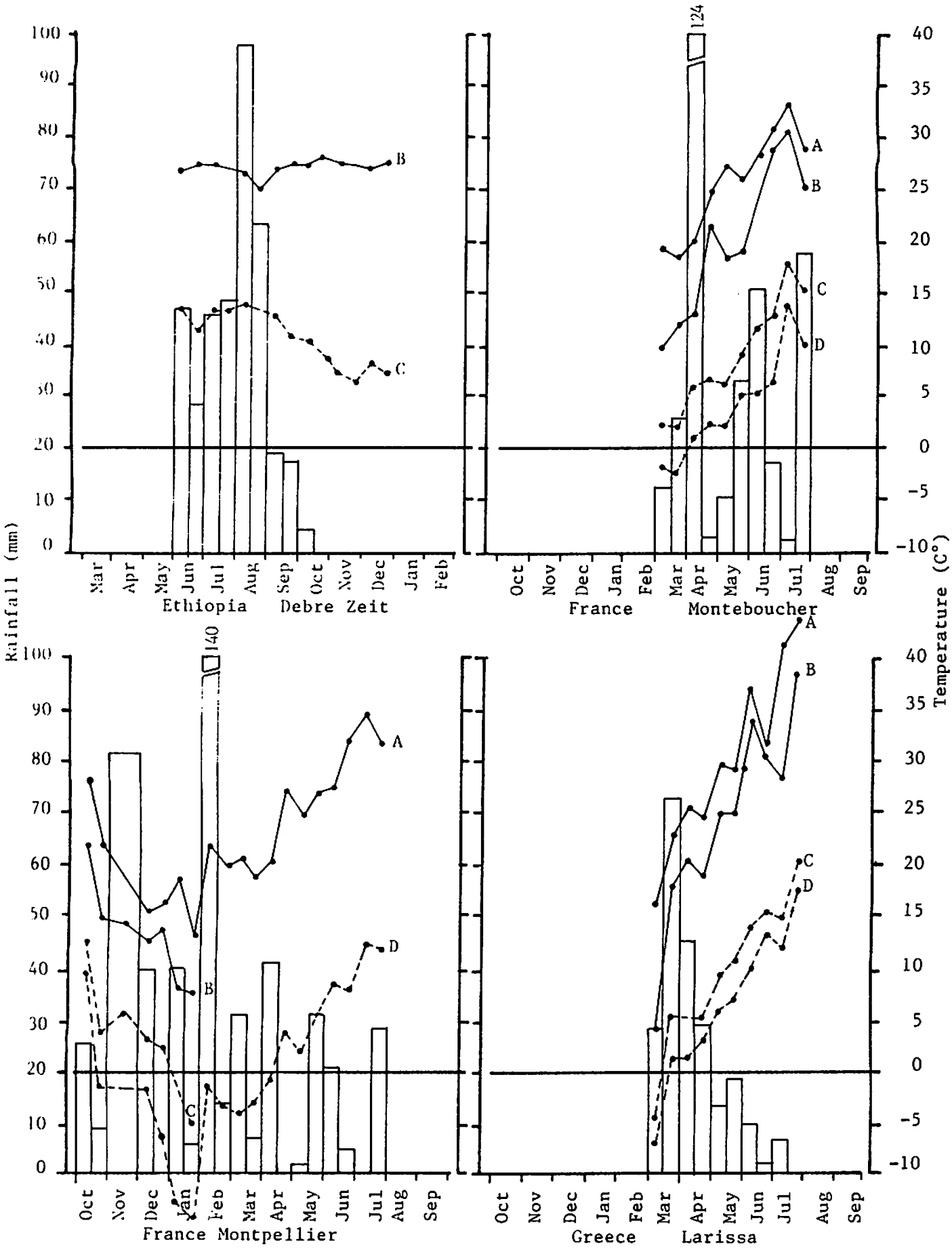

Rainfall (mm)
Temperature (C°)
Brazil
Brasilia-DF
Brasila
Santa Maria
Bulgaria
Toshevo
Burma
Aungban
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
A
B
C
D

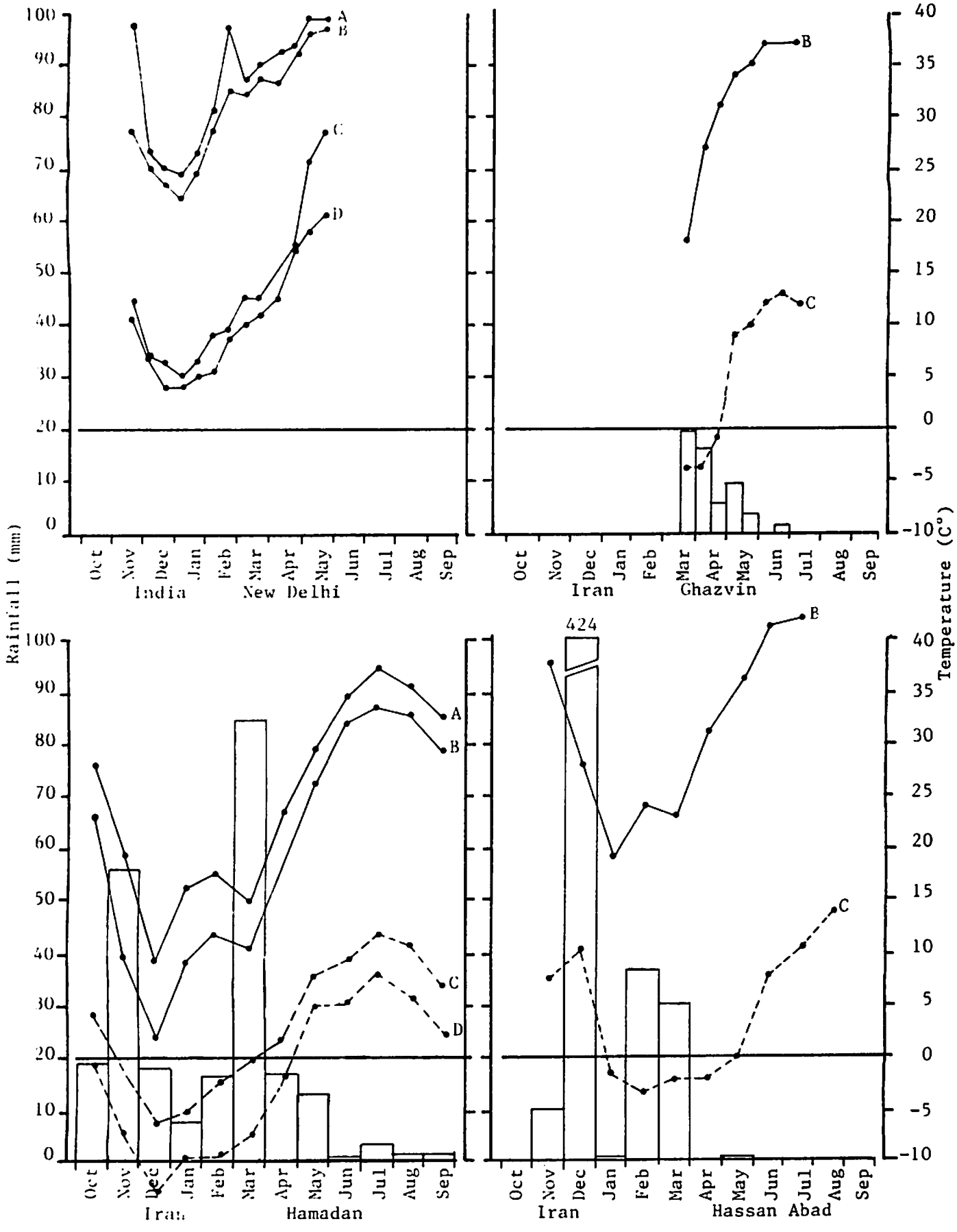

Rainfall (mm)
Temperature (C°)
Canada
Quebec
Canada
Saskatchewan
Chile
Chillan
Chile
Graneros
A
B
C
D
263
149
168
103
523
215
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

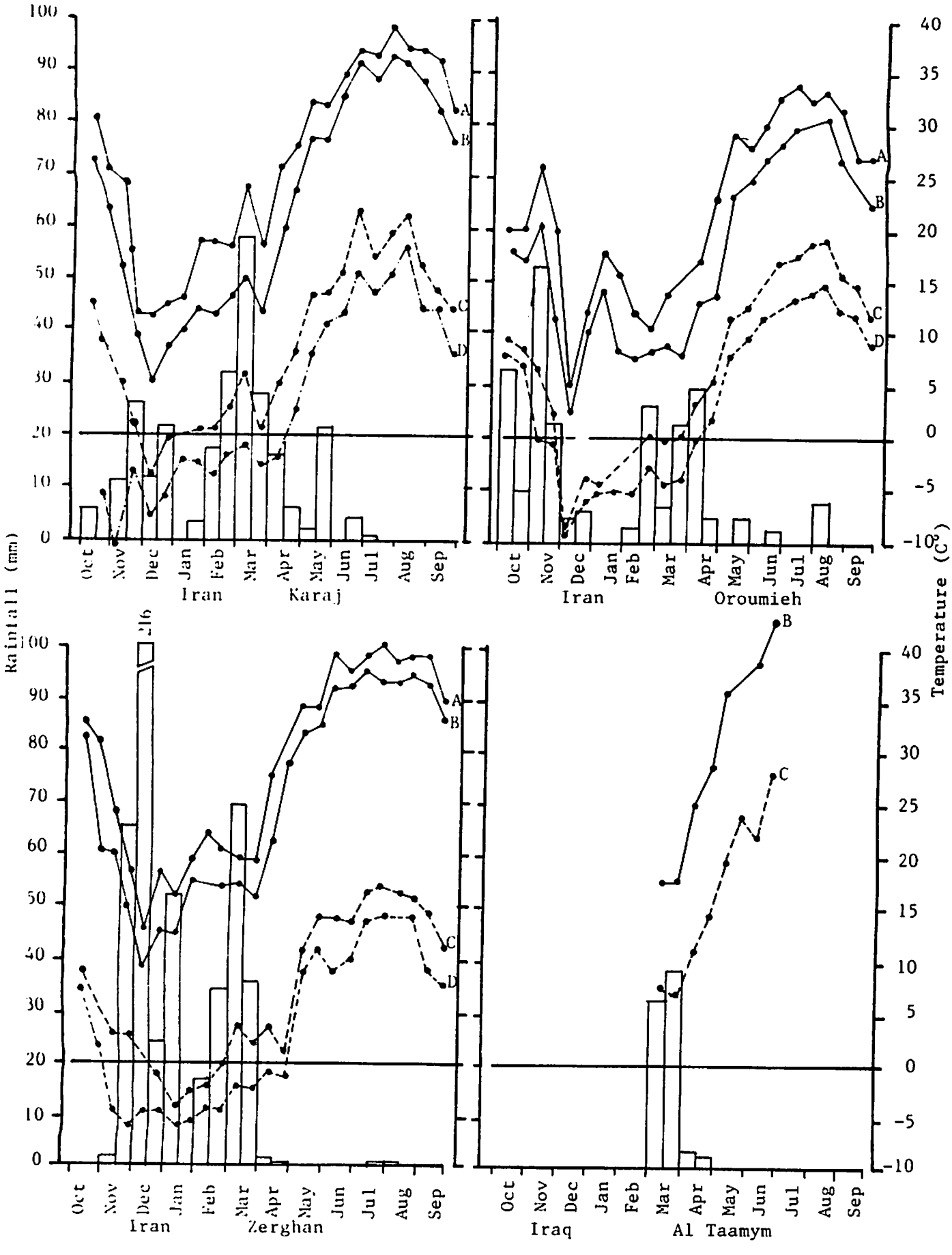

Rainfall (mm)
Temperature (C°)
343
281
279
164
A
B
C
D
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Chile
Hidango
Temuco
Valdivia
China
Shanxi

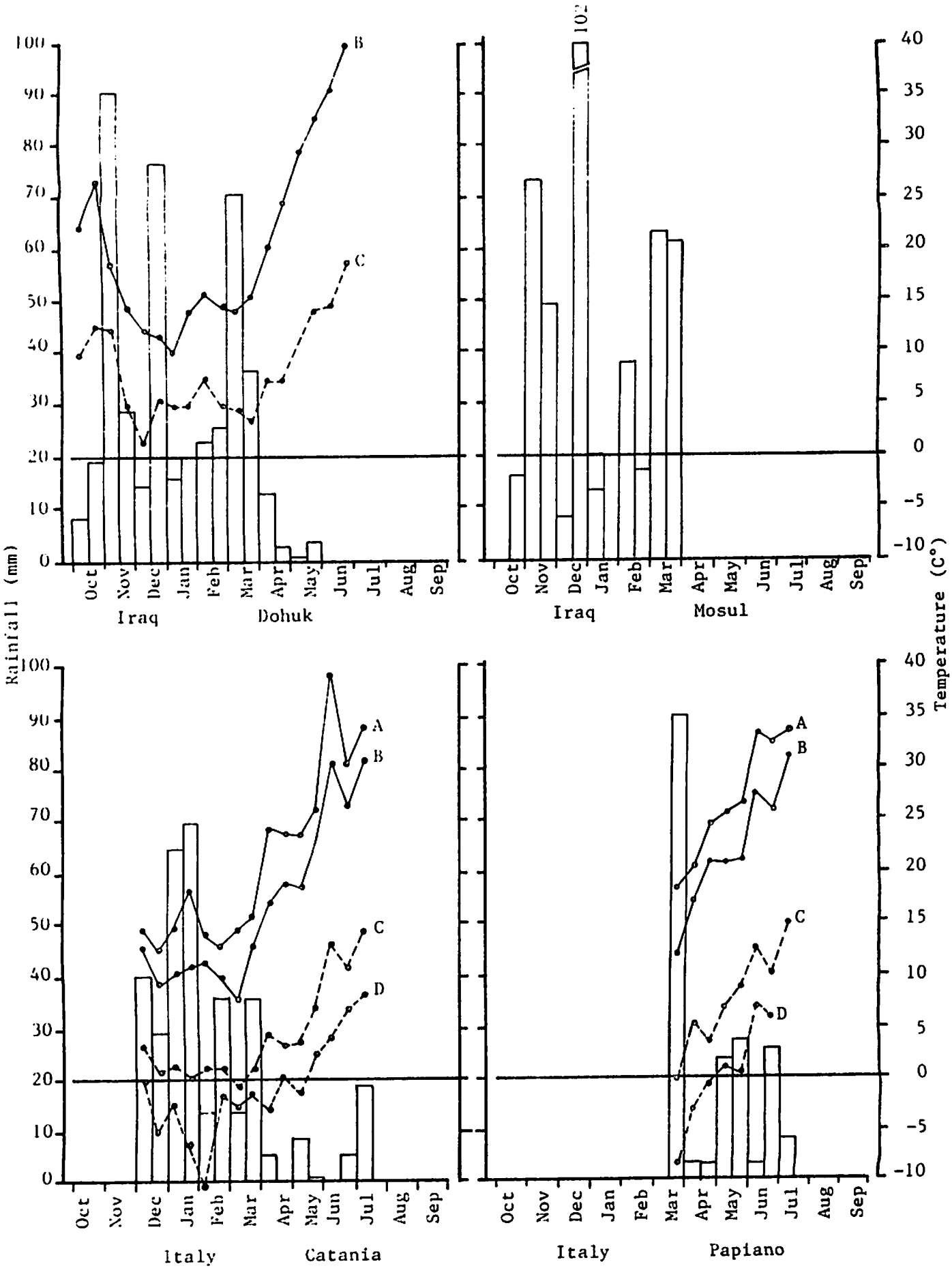

Rainfall (mm)
Temperature (C°)
China
Xining
Colombia
Surbata
Costa Rica
Santa Lucia
Costa Rica
Tierra Blanca
222
418
112
A
B
C
D
E
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

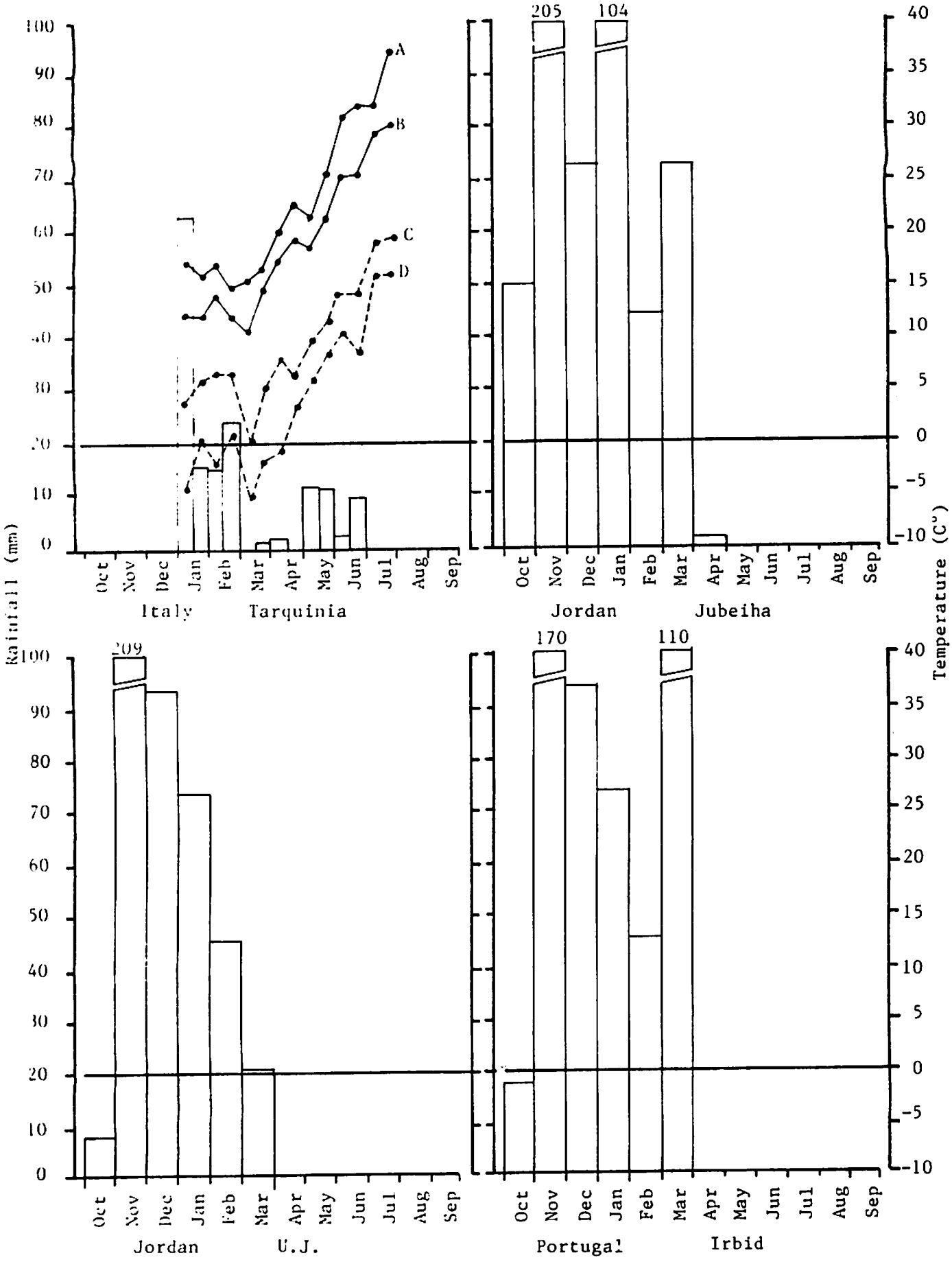

Rainfall (mm)
Temperature (C°)
100
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
-5
-10
111
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Cyprus Athalassa
Cyprus Dromolaxia
Cyprus Laxia
Ecuador Santa Catalina

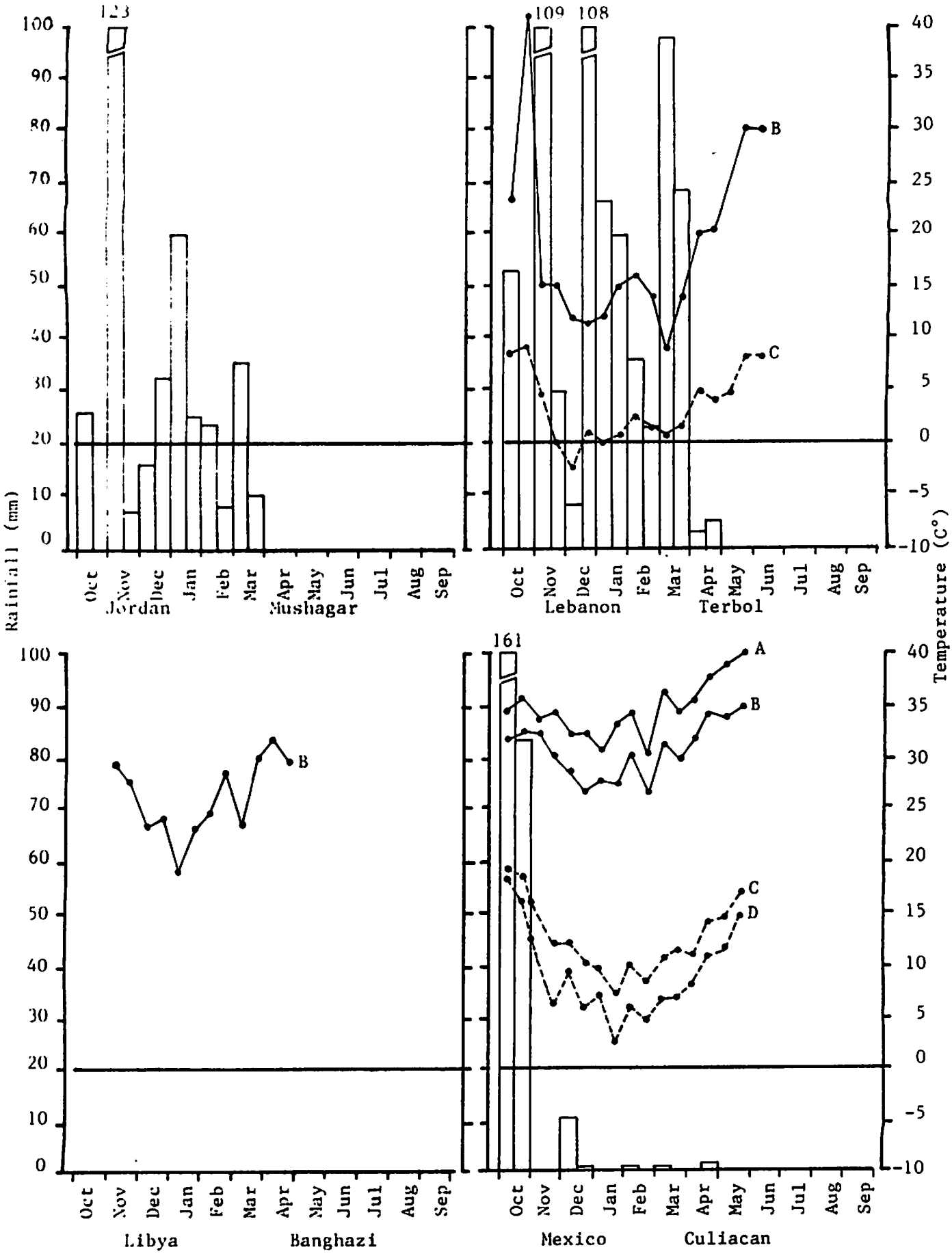

Rainfall (mm)
Temperature (C°)
Ethiopia Debre Zeit
France Montebouchet
France Montpellier
Greece Larissa
A
B
C
D
124
140
Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

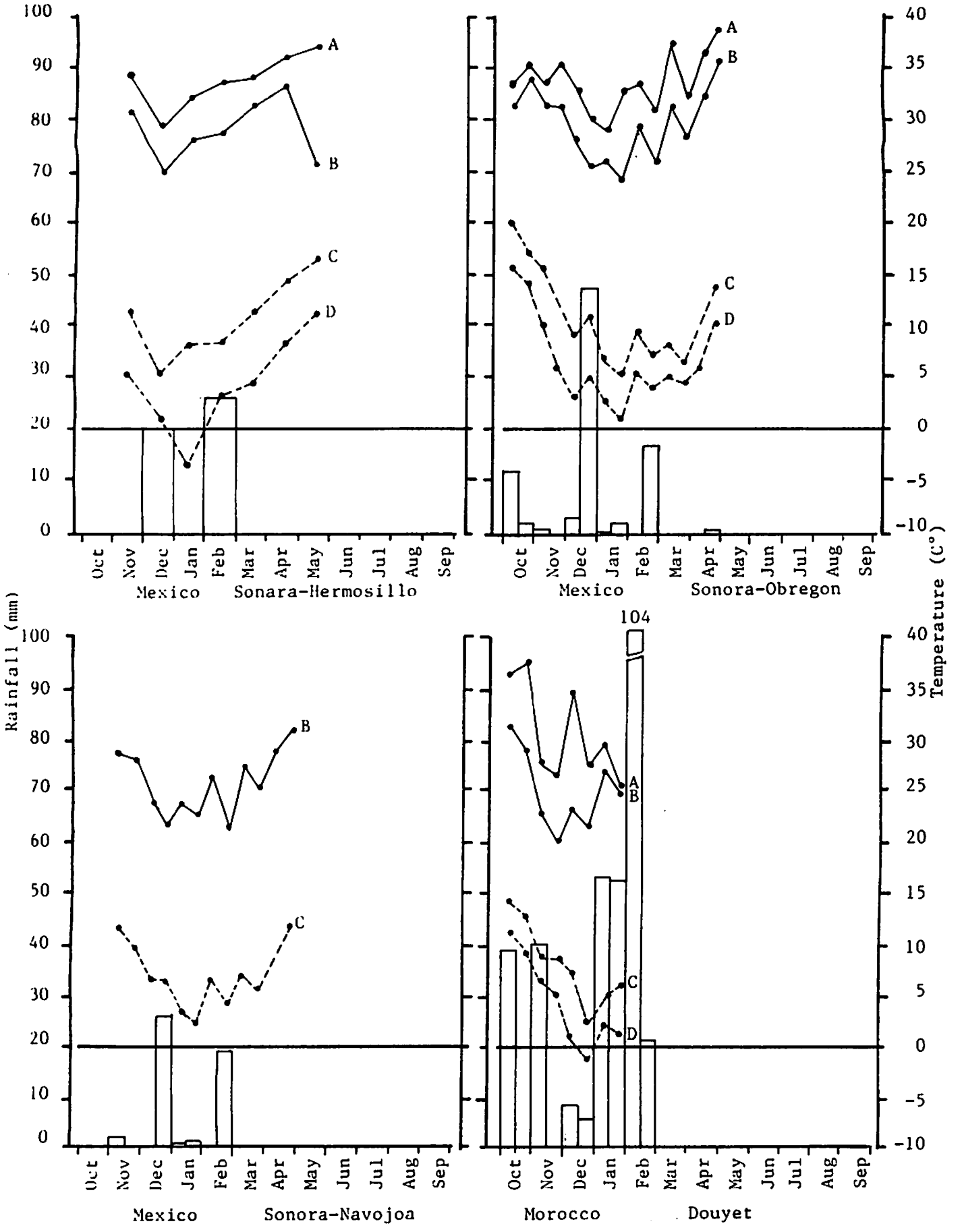

Rainfall (mm)
Temperature (C°)
India
New Delhi
Iran
Ghazvin
Iran
Hamadan
Iran
Hassan Abad
424
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

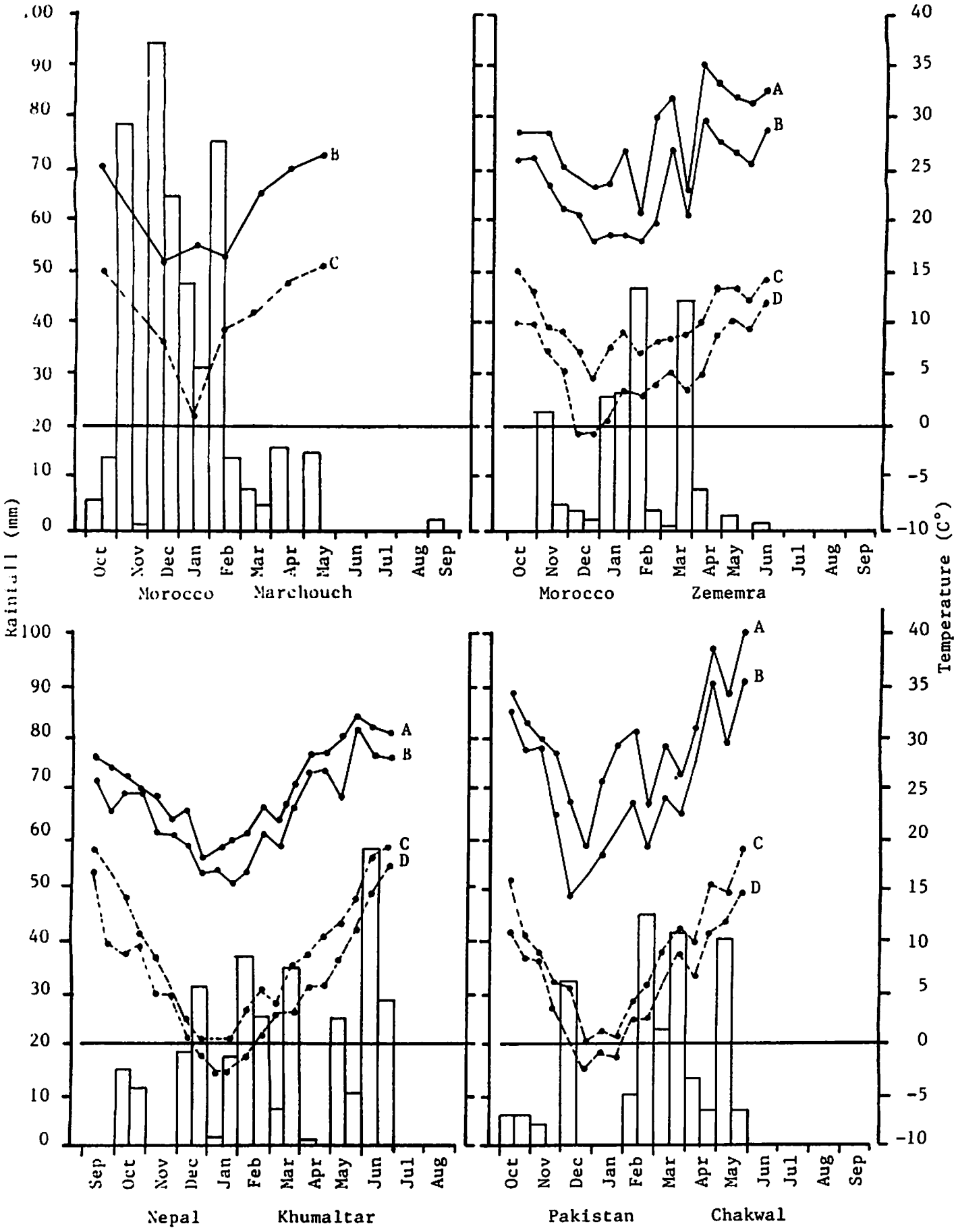

Rainfall (mm)
Temperature (C°)
Iran
Karaj
Iran
Oroumieh
Iran
Zerghan
Iraq
Al Taamym
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
A
B
C
D
216

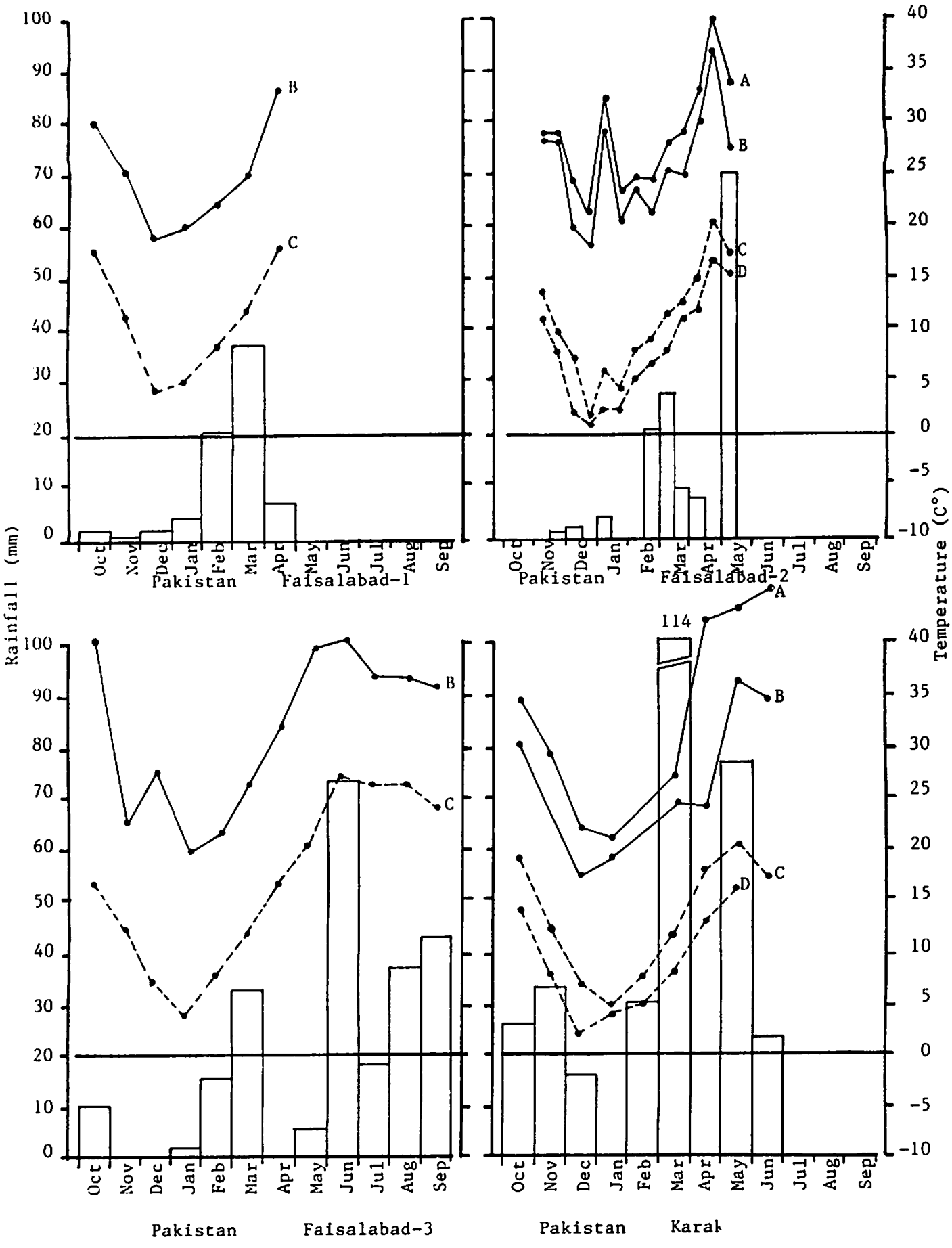

Rainfall (mm)
Temperature (C°)
Iraq
Dohuk
Iraq
Mosul
Italy
Catania
Italy
Papiano
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

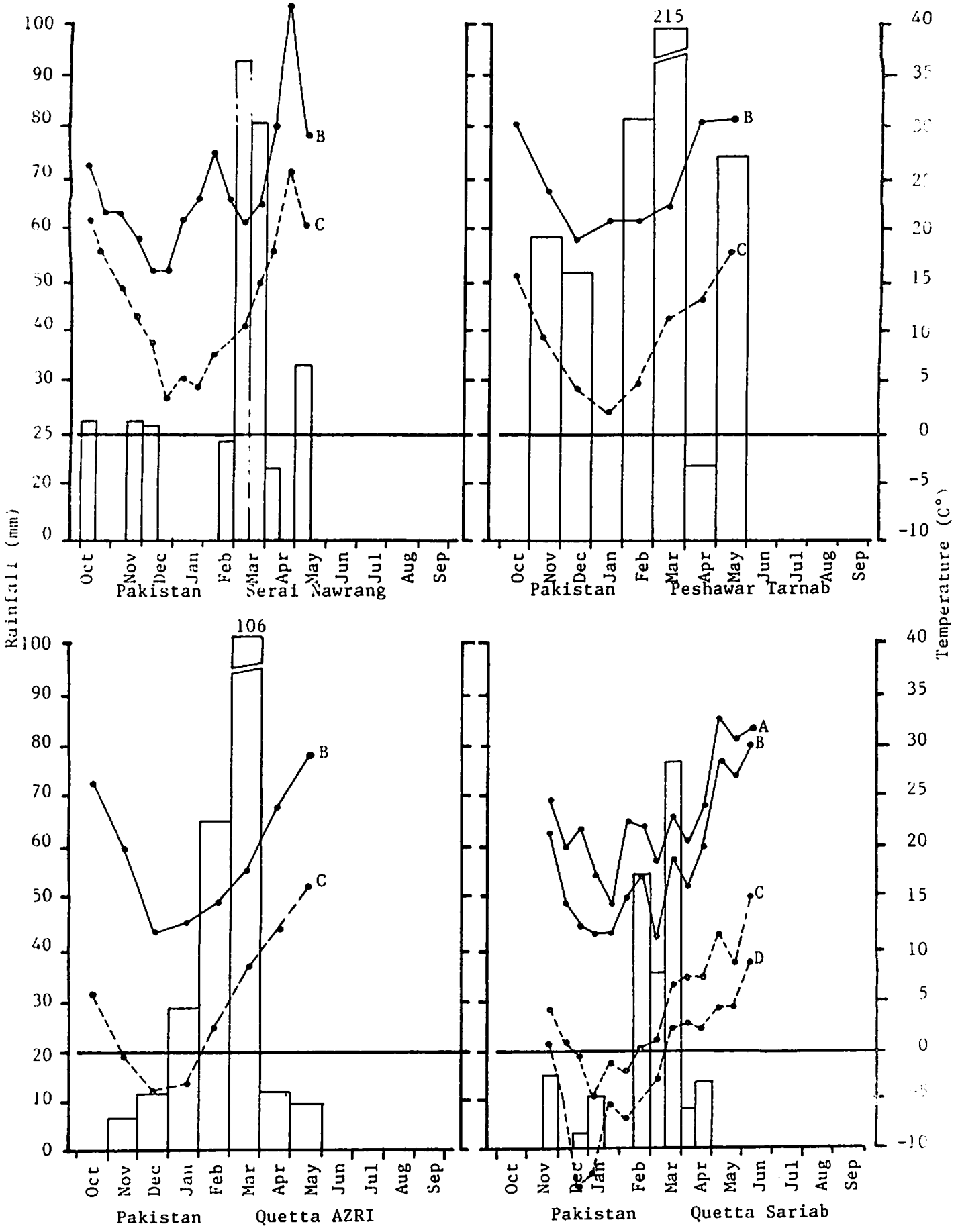

Rainfall (mm)
Temperature (C°)
A
B
C
D
205
104
209
170
110
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Italy
Tarquinia
Jordan
Jubeiha
Jordan
U.J.
Portugal
Irbid

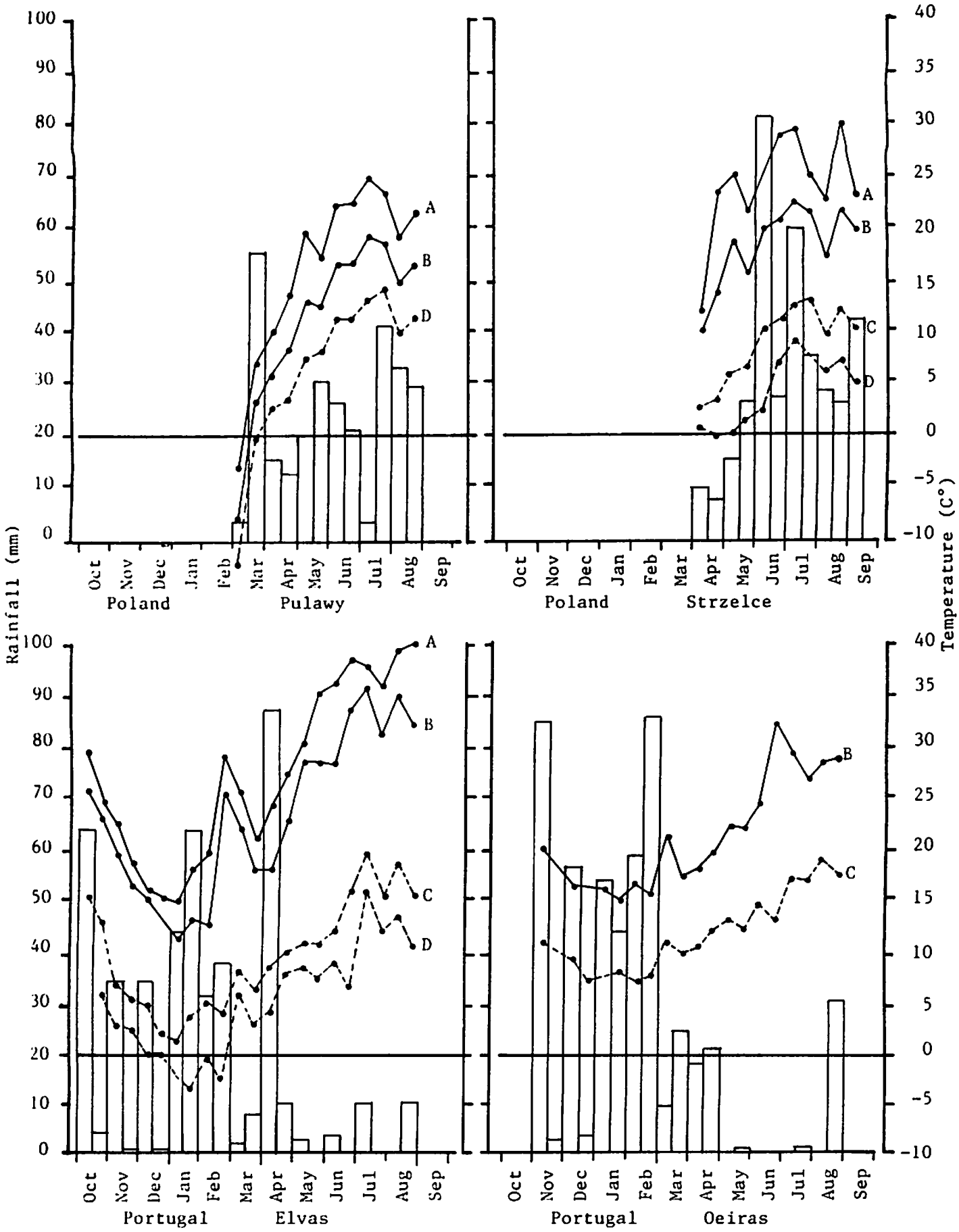

123
109
108
Rainfall (mm)
Temperature (C°)
Jordan
Mushagar
Lebanon
Terbol
Libya
Banghazi
Mexico
Culiacan
161
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

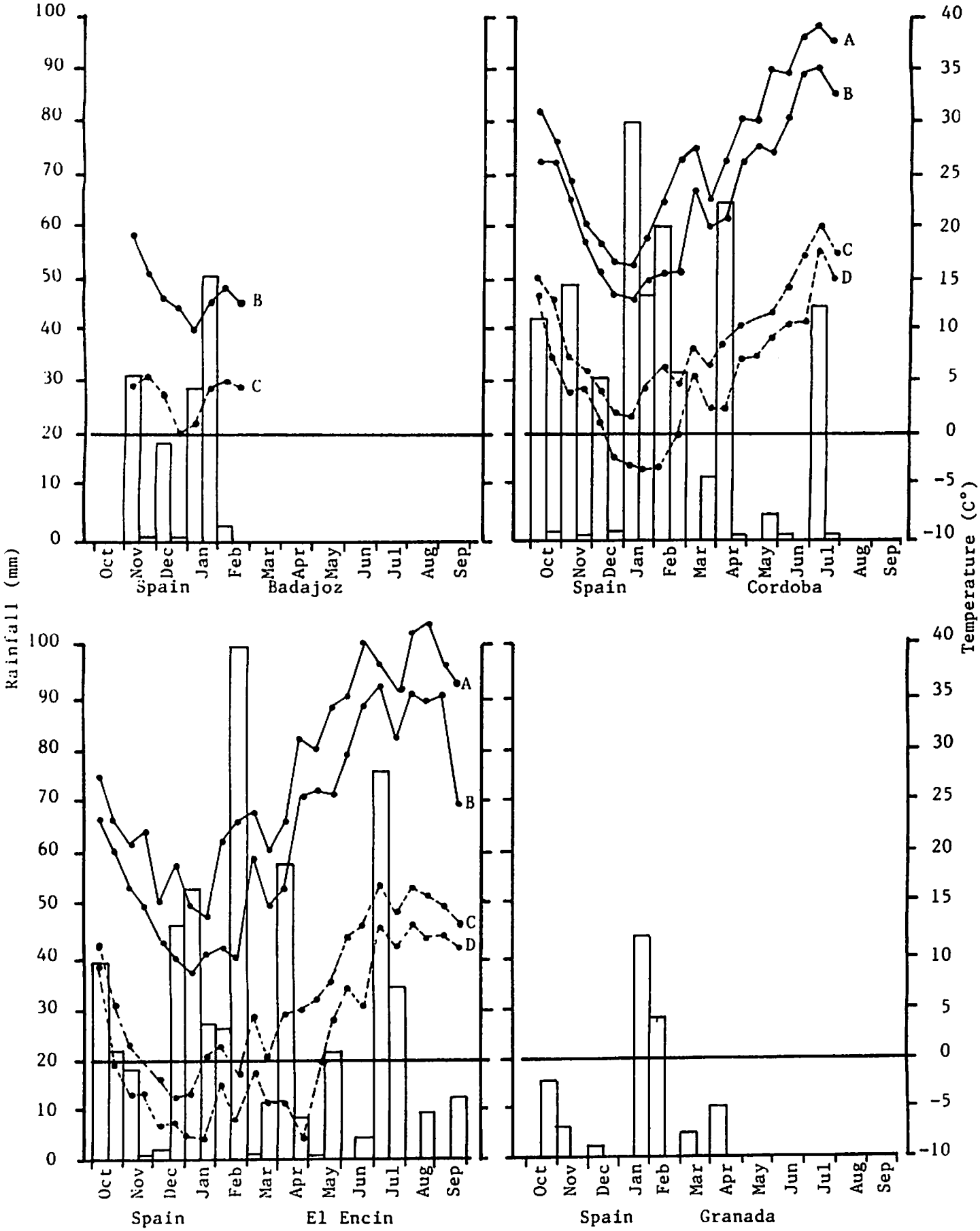

Rainfall (mm)
Temperature (C°)
A
B
C
D
104
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Mexico
Sonara-Hermosillo
Mexico
Sonora-Obregon
Mexico
Sonora-Navojoa
Morocco
Douyet

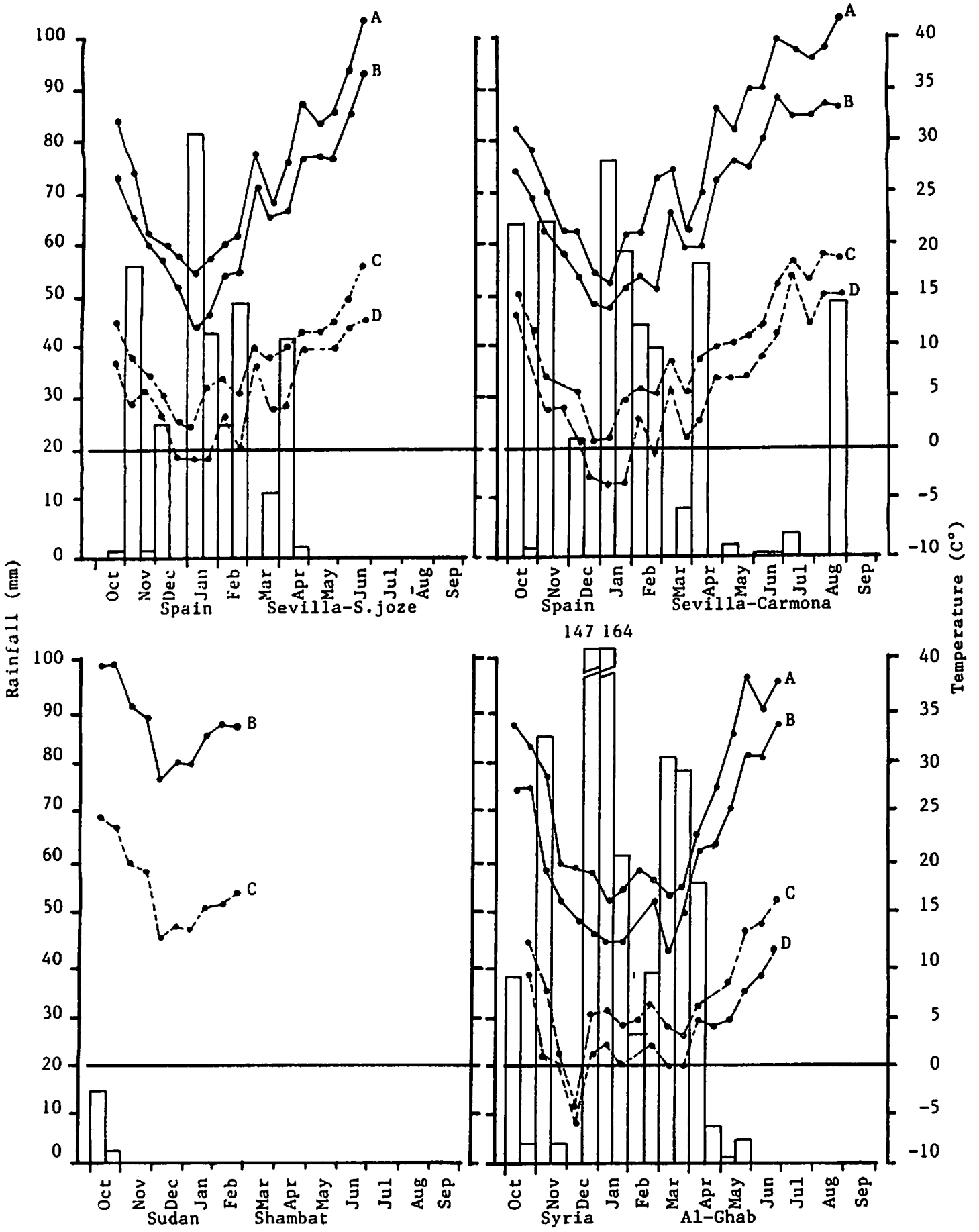

Rainfall (mm)
Temperature (C°)
Morocco Marchouch
Morocco Zememra
Nepal Khumaltar
Pakistan Chakwal
A
B
C
D
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug

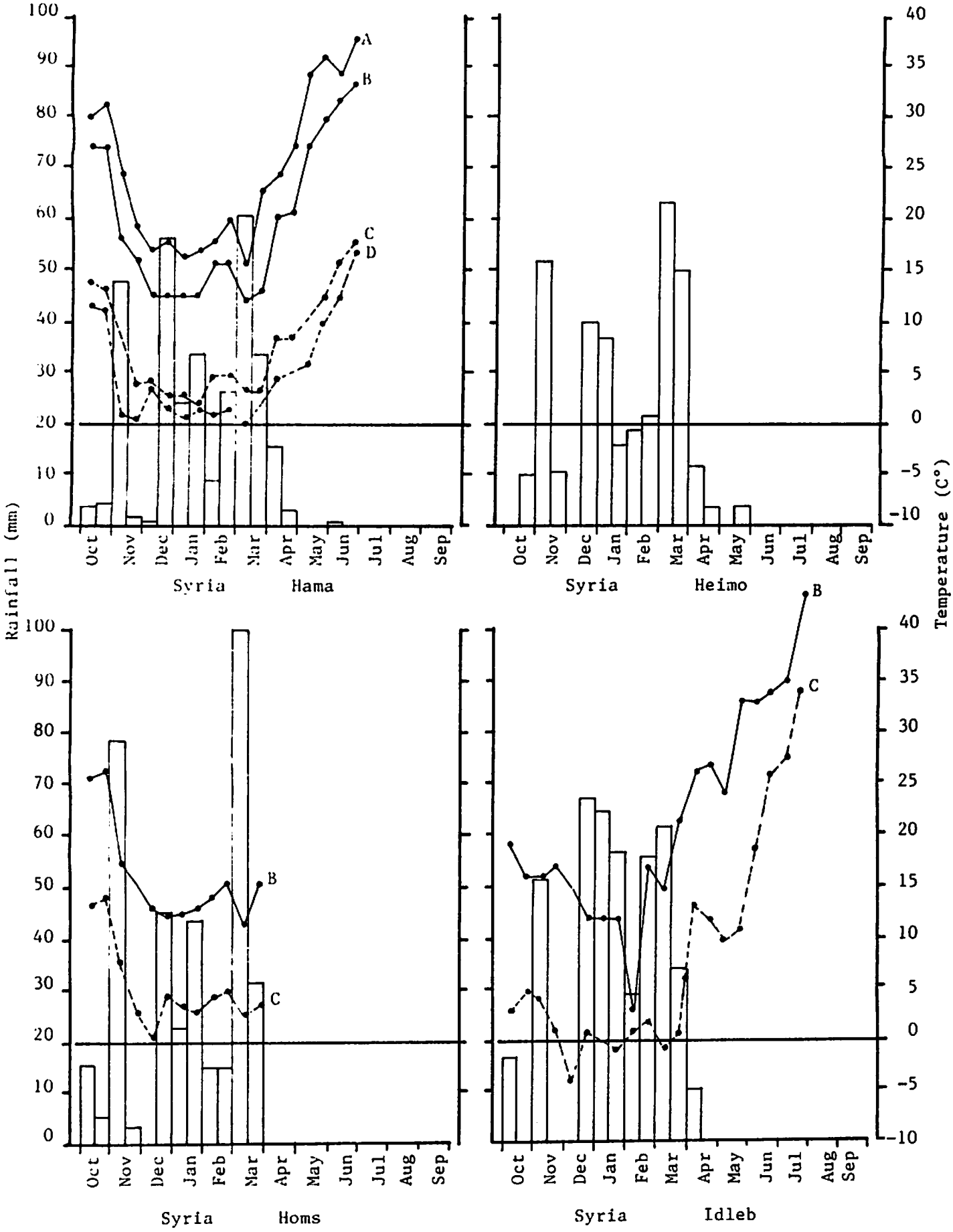

Rainfall (mm)
Temperature (C°)
A
B
C
D
114
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Pakistan Faisalabad-1
Pakistan Faisalabad-2
Pakistan Faisalabad-3
Pakistan Karak

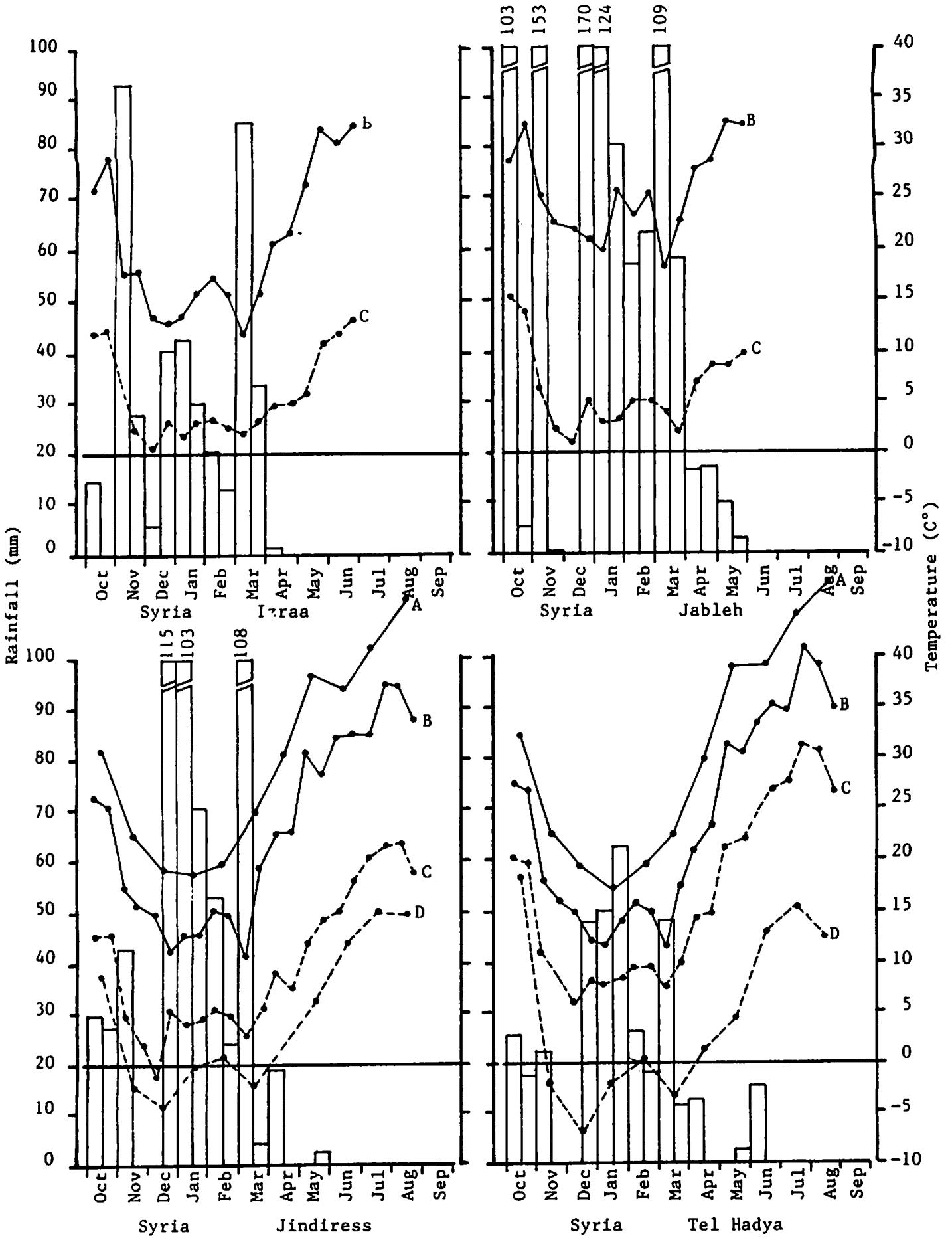

Rainfall (mm)
Temperature (C°)
Pakistan Serai Nawrang
Pakistan Peshawar Tarnab
Pakistan Quetta AZRI
Pakistan Quetta Sariab
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
215
106
A
B
C
D

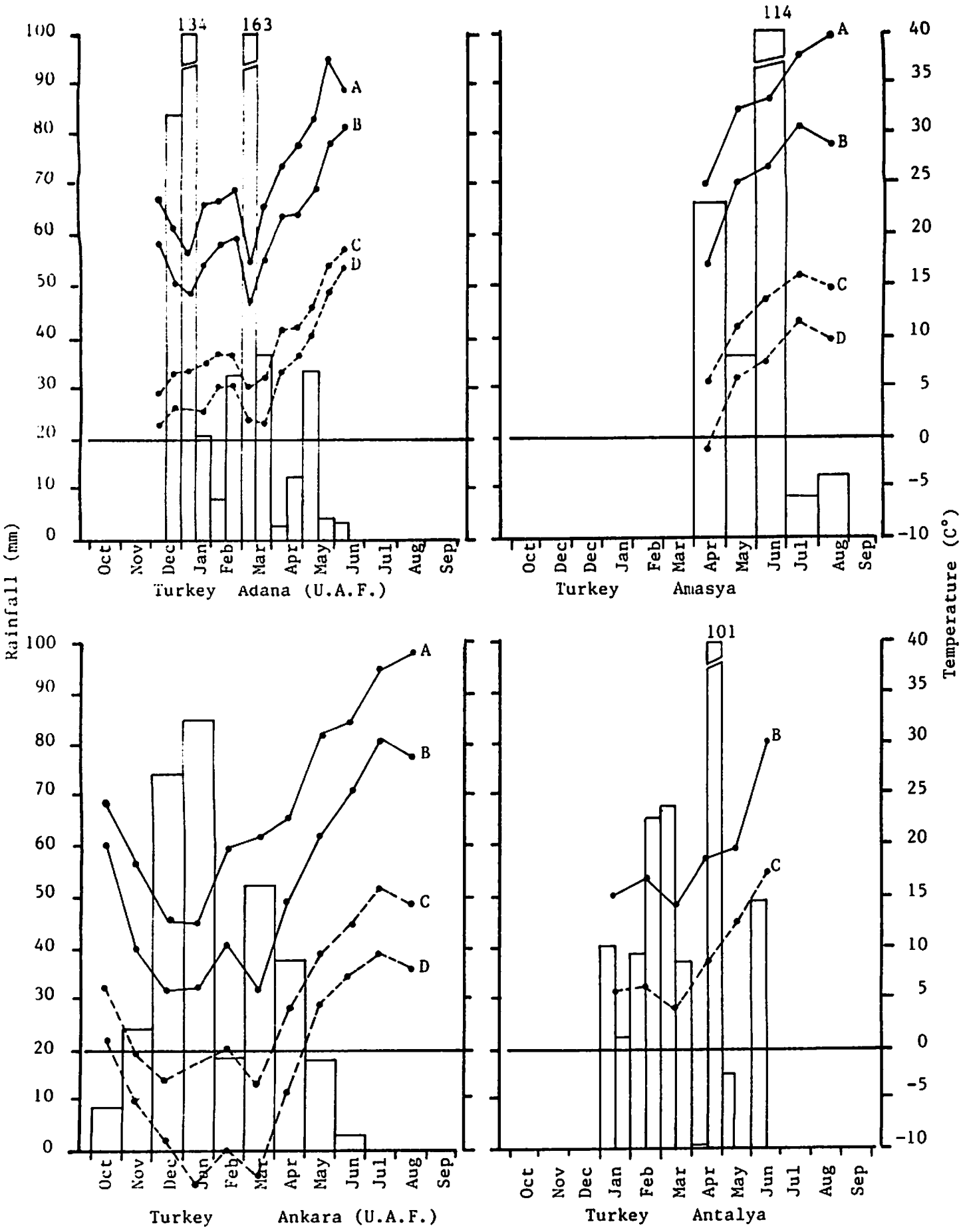

Rainfall (mm)
Temperature (C°)
Poland
Pulawy
Poland
Strzelce
Portugal
Elvas
Portugal
Oeiras
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

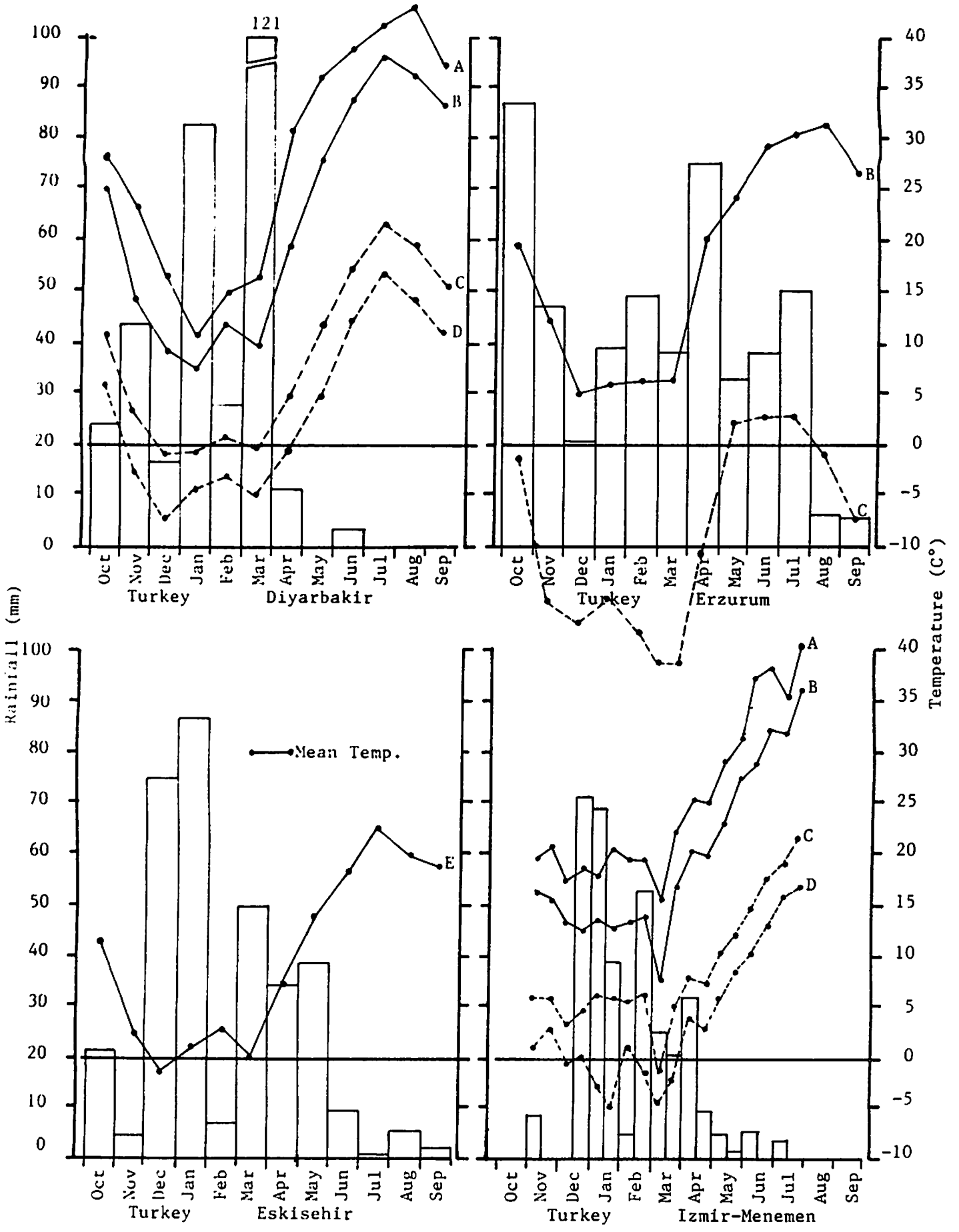

Rainfall (mm)
Temperature (C°)
Spain
Badajoz
Spain
Cordoba
Spain
El Encin
Spain
Granada
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep

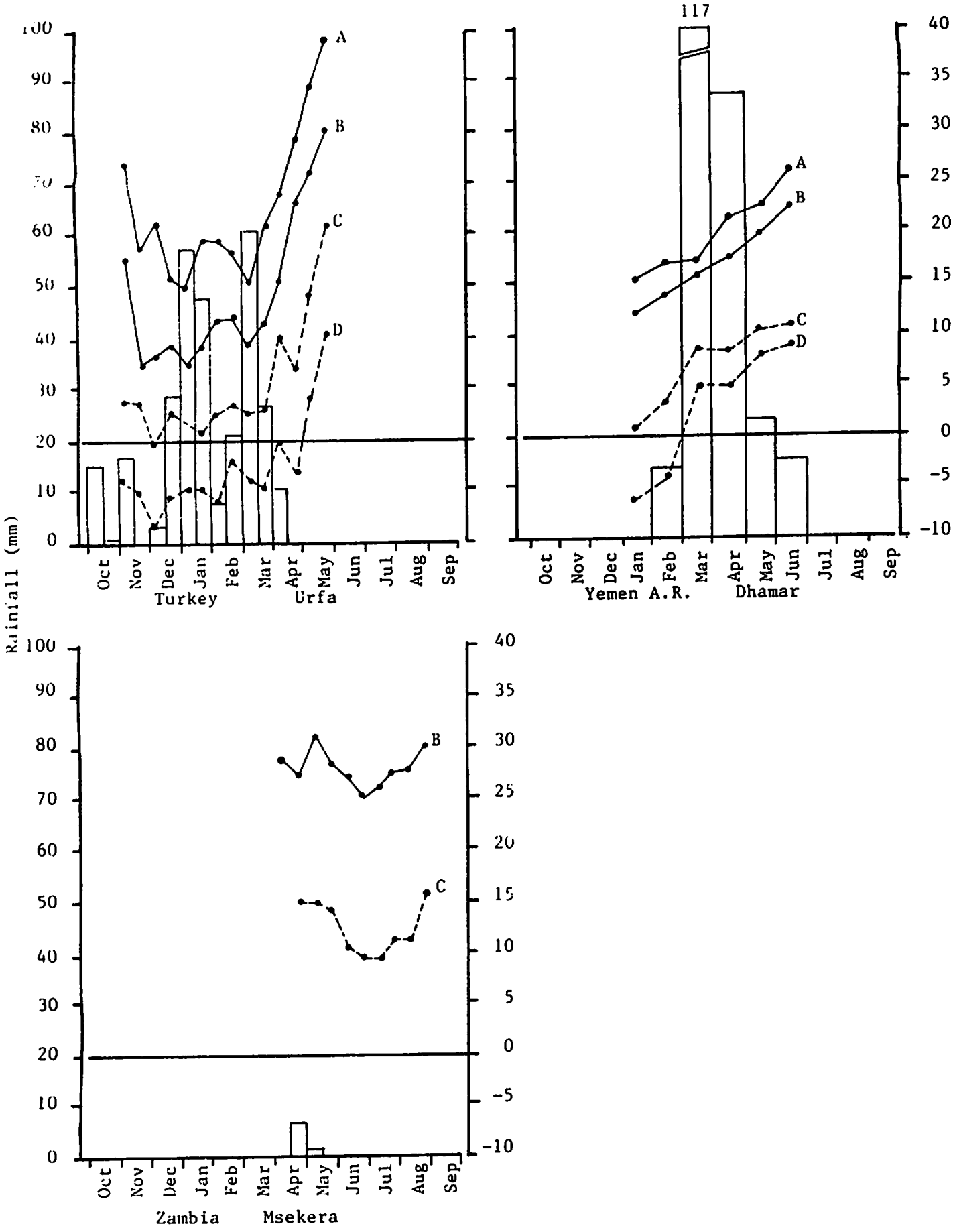

Rainfall (mm)
Temperature (C°)
100
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
-5
-10
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Spain
Sevilla-S.joze
Spain
Sevilla-Carmona
147 164
Sudan
Shambat
Syria
Al-Ghab


Rainfall (mm)
Temperature (C°)
A
B
C
D
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Syria Hama
Syria Heimo
Syria Homs
Syria Idleb


Rainfall (mm)
Temperature (C°)
Syria
Jableh
Syria
Jindiress
Syria
Tel Hadya
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
A
B
C
D


Rainfall (mm)
Temperature (C°)
134
163
114
101
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Turkey Adana (U.A.F.)
Turkey Amasya
Turkey Ankara (U.A.F.)
Turkey Antalya


Rainfall (mm)
Temperature (C°)
Mean Temp.
121
A
B
C
D
E
Turkey Diyarbakir
Turkey Erzurum
Turkey Eskisehir
Turkey Izmir-Menemen
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep


Rainfall (mm)
100
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
-5
-10
A
B
C
D
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Turkey
Urfa
117
Yemen A.R.
Dhamar
Zambia
Msekera

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