

INTERNATIONAL NURSERY REPORT NO. 16

LEGUME NURSERIES

1991-92



INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH IN THE DRY AREAS

About ICARDA

Established in 1977, the International Center for Agricultural Research in the Dry Areas (ICARDA) is governed by an independent Board of Trustees. Based at Aleppo, Syria, it is one of 16 centers supported by the Consultative Group on International Agricultural Research (CGIAR), which is an international group of representatives of donor agencies, eminent agricultural scientists, and institutional administrators from developed and developing countries who guide and support its work.

The CGIAR seeks to enhance and sustain food production and, at the same time, improve socioeconomic conditions of people, through strengthening national research systems in developing countries.

ICARDA's mission is to meet the challenge posed by a harsh, stressful, and variable environment in which the productivity of winter rainfed agricultural systems must be increased to higher sustainable levels; in which soil degradation must be arrested and possibly reversed, and in which the quality of the environment needs to be assured. ICARDA meets this challenge through research, training, and dissemination of information in a mature partnership with the national agricultural research and development systems.

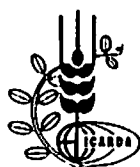
The Center has a world responsibility for the improvement of barley, lentil, and faba bean, and a regional responsibility in West Asia and North Africa for the improvement of wheat, chickpea, forage and pasture—with emphasis on rangeland improvement and small ruminant management and nutrition—and of the farming systems associated with these crops.

Much of ICARDA's research is carried out on a 948-hectare farm at its headquarters at Tel Hadya, about 35 km southwest of Aleppo. ICARDA also manages other sites where it tests material under a variety of agroecological conditions in Syria and Lebanon. However, the full scope of ICARDA's activities can be appreciated only when account is taken of the cooperative research carried out with many countries in West Asia and North Africa.

The results of research are transferred through ICARDA's cooperation with national and regional research institutions, with universities and ministries of agriculture, and through the technical assistance and training that the Center provides. A range of training programs is offered extending from residential courses for groups to advanced research opportunities for individuals. These efforts are supported by seminars, publications, and specialized information services.

International Nursery Report No. 16

Legume Nurseries 1991/92



Germplasm Program

International Center for Agricultural Research in the Dry Areas

(ICARDA)

P.O. Box 5466, Aleppo, Syria

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PREFACE

A number of trials and nurseries were supplied by the Legume Improvement Program to cooperating scientists within and outside the ICARDA region for the 1991/92 growing season. Many of these were also grown at ICARDA sites in Syria and Lebanon. This report summarizes 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 October 1, 1995 have been included.

The report has been prepared by Dr. R.S. Malhotra, International Trials Scientist (Legumes) of the Germplasm Program. The assistance of Ms. Suhaila Arslan, Mr. Mohammed Jasem and Mr. Samir Hajjar in computerization of data is sincerely acknowledged.

Our thanks are due to all the donors of ICARDA for making this cooperative research effort possible. We are grateful to the cooperators from different national programs for conducting the experiments and returning the data books.

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 Legumes namely faba bean, lentil, kabuli chickpea, peas and forage legumes is coordinated 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 of genetic material 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.

2. INTERNATIONAL TRIALS AND NURSERIES FOR THE 1991/92 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 help in targeting crossing for different countries.

As in the past there were separate large-seeded and small seeded trials of lentil. The large seeded yield trials comprised entries with a minimum seed size 4.5 g/100 seeds. To satisfy the need of cooperators in southern latitudes in South Asia and Africa a Lentil International Yield Trial - Early was distributed.

As in the past there were two chickpea trials for southern latitudes, CIYT-SL1 (Southerly Latitude-1) for the subtropical regions and CIYT-SL2 (Southerly Latitude-2) having extra early and another trial, CIYT-LA (Latin American) having extra large seed (greater than 45 g/100 seeds) for the Latin American countries. For the Mediterranean region, the two trials, namely CIYT-SP and CIYT-W-MR, continued. The seed size in these trials was upgraded and is in the range of 35 to 45g/100 seeds and many entries have tall stature. Most of the entries included in the yield trials possess resistance to Ascochyta blight and cold except those included in CIYT-LA and CIYT-SL2. A trial on peas with improved cultivars from different parts of world was supplied to cooperators to observe their adaptation under their local

conditions.

Two new trials on forage legumes, International Lathyrus Adaptation Trial (ILAT) and International Vetch Adaptation Trial (IVAT), which were added last season were also supplied to a large number of cooperators this season.

Breeders desiring to enter lines into an IYT were requested to send to ICARDA, by early October approximately 4 kg of chickpea or peas and/or 2 kg of lentil or forage legumes.

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_3/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, Lentil International Screening Nurseries were divided into large and small seeded types. There was also a screening nursery of early lentil lines (LISN-E) 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 (LISN-T) which can be harvested with a cutter-bar. Two Chickpea International Screening Nurseries, southerly latitudes -1 (CISN-SL1) for subtropical countries and southerly latitudes -2 (CISN-SL2) for more southerly latitudes with short season were supplied. Another nursery of extra large seed size for Latin America (CISN-LA), which was initiated last year, was also available. Based on winter (W) and spring (S) seasons, the Chickpea International Screening Nursery (CISN) for the Mediterranean Region was divided into two, CISN-W and CISN-SP.

In view of the reduction in the emphasis on faba bean research, at ICARDA headquarters, the faba bean nurseries were dropped this season.

Cooperators who wished to enter material into an ISN were requested to send to ICARDA for each entry approximately 1000 seeds of lentil and chickpea for increase and inclusion in the next year's nursery.

2.1.3. INTERNATIONAL F_3/F_4 NURSERIES (IF_3/F_4N)

Genotypes tested in the IYTs and in the ISNs tend to be relatively advanced breeding material that are approaching homozygosity, so nullifying any chances for re-selection in superior performing genotypes. In contrast, the F_4 bulk nurseries comprise early generation segregating material, thus permitting breeders in the national programs to practice their own selection in the populations best adapted to the local environment.

The F_4 nurseries in chickpeas were split into two nurseries, Chickpea International F_4 Nursery - Mediterranean Region (CIF_4N -MR) and Chickpea

International F₄ Nursery - Southern Latitudes (CIF₄N-SL). Similarly in lentils, four F₄ nurseries, namely F₃ Nursery Large Seed (LIF₃N-I), F₃ Nursery Small Seed (LIF₃N-S), F₃ Nursery Tall Type (LIF₃N-T) and F₃ Nursery Cold Tolerance (LIF₃N-CT) were available this year.

2.1.4. INTERNATIONAL STRESS NURSERIES

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, four nurseries in chickpea (Ascochyta blight, Fusarium wilt, leaf-miner and cold tolerance) and four nurseries in lentil (Ascochyta blight, Fusarium wilt, Rust and cold tolerance) have been developed and were supplied. 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 tolerance nurseries were requested to send to ICARDA, by early October approximately 1000 seeds for each entry of chickpea and lentil, and 1500 seeds per entry of faba bean for increase and inclusion in the next year's nursery.

2.2. DISTRIBUTION

The list of the trials and nurseries distributed from ICARDA to the different countries; list of legume scientists in the national programs and at ICARDA cooperating in international testing program; and details of latitude, longitude, and altitude and rainfall data of the locations at which the trials were conducted are given in appendices I, II, III and IV, respectively. Weather conditions during the cropping season for the locations reporting data are given in Figures as Appendix V. In total, 1017 sets of trials were distributed to the cooperators in 52 countries. Data were returned for 443 trials and nurseries, representing 42.8% of the total distributed nurseries.

2.3. DESIGN, ANALYSIS AND MANAGEMENT

2.3.1. DESIGN AND ANALYSIS

The design used for the individual trials and nurseries are given in the crop reports.

The data on seed yield, time to flowering, time to maturity, plant height and 100-seed weight have been analyzed statistically, and the term 'significant' has been used to denote a probability level (P) equal or less than 0.05. The co-efficient of variation (CV) given in 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 the performance of a genotype 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 significantly greater than the local check.

2.3.2. MANAGEMENT

For all the trials it was emphasized 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 yield trial or screening 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), vigor 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). For stress nurseries, the data on reaction to stress was requested.

In addition, cooperators were requested to send information on the altitude, 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

Seventeen chickpea international trials and nurseries were available to the cooperators in 1991/92 season. These included yield trials, screening nurseries, segregating populations, stress nurseries including disease, insect-pest, and cold tolerance nurseries. The results obtained for these 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 material for 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 (ILC 482 long term check) originated from Turkey. These entries 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 three replications. The suggested plot size was 4 rows, each 4 m long. Fifty sets were sent to cooperators in 20 countries. The results were, however, received for 24 trials from 10 countries. 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 33 to 134 days for time to flowering (Table 3.1.2), 82 to 201 days for time to maturity (Table 3.1.3), and 24 to 51 cm for plant height (Table 3.1.4). The overall mean for the entries for 100-seed weight varied from 26 to 39 g and the entries FLIP 86-13C, FLIP 88-7C, and FLIP 88-11C had the largest seed size (Table 3.1.5). The location means for 100-seed weight varied from 27 g for Al Gassim in Saudi Arabia to 39g for Marageh in Iran and Hymana in Turkey.

The highest mean seed yield (Table 3.1.6) was obtained at Al Ghab in Syria (2517 kg/ha) and was followed by Qinghai in China (2237 kg/ha), Jindiress in Syria (2155 kg/ha), Terbol in Lebanon (1995 kg/ha). The seed yields at Rabia (Mosul) in Iraq and Mashad and Karaj in Iran were very poor (<420 kg/ha). On an average over locations ILC 482 gave the highest seed yield (1347 kg/ha) and was closely followed by FLIP 89-127C, FLIP 88-68C, FLIP 88-8C and FLIP 88-70C with seed yields of 1339, 1297, 1282 and 1281 kg/ha, respectively.

The ANOVA for seed yield revealed that the local check was excelled by 1,1,7,1 and 1 entries by a significant margin at Qinghai in China, Marageh in Iran, Al Gassim in Saudi Arabia, Cordoba in Spain, and Tel Hadya in Syria.

The five heaviest seed yielders at each location are given in Table 3.1.7. The entries ILC 482, FLIP 88-8C, FLIP 88-68C, and FLIP 89-127C

Table 3.1.1. Agronomic details for CIYT-SP-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Khroub	22.12.91	02.08.92	17	45	-	-	Igran + Kerb	ILC 3279
Bulgaria	Toshevo	01.04.92	19.08.92	-	60	-	-	Galant E150	Stepnoy-1
China	Qinghai	06.04.92	— .09.92	31	35	-	-	-	Hesong
Iran	Hamadan	22.04.92	26.08.92	25	75	-	4	Metasystox, Diazinon	-
Iran	Karaj	14.04.92	03.08.92	24	72	-	4	Treflan	Jam
Iran	Maragheh	16.04.92	29.07.92	10	60	-	-	Actellic	TectoJam
Iran	Mashhad	01.04.92	27.07.92	24	72	-	8	Sevin, Metasystox	Jam
Iraq	Mosul (Rabia)	02.03.92	25.06.92	-	100	-	-	-	Dohoki
Lebanon	Terbol	14.04.92	04.08.92	-	50	-	-	-	Lebanese Local
Saudi Arabia	Al Gassim	20.11.91	06.06.92	50	100	-	39	-	Onairi Camer
Spain	Cordoba	11.03.92	21.07.92	-	-	-	-	-	Pschero
Syria	Al Ghab	18.03.92	— .06.92	NA	NA	NA	NA	NA	NA
Syria	Gelline	— .03.92	08.07.92	NA	NA	NA	NA	NA	NA
Syria	Heimo	06.04.92	15.07.92	-	50	-	-	-	Syrian Local
Syria	Izra'a	14.03.92	18.07.92	-	50	-	-	-	-
Syria	Idleb	26.03.92	-	-	60	-	-	-	-
Syria	Jindiress	03.03.92	01.07.92	-	50	-	-	-	ILC 1929
Syria	Tel Hadya-ICARDA	03.03.92	02.07.92	-	50	-	-	Kerb + Igran	Syrian Local
Turkey	Adana	20.12.91	10.07.92	30	50	-	-	-	Local Chickpea
Turkey	Antalya	08.04.92	08.12.92	50	30	-	-	-	-
Turkey	Altinova	11.03.92	03.08.92	30	60	-	-	Igran	Canitez
Turkey	Eskisehir	14.04.92	02.08.92	30	70	-	-	-	-
Turkey	Haymana	NA	NA	NA	NA	NA	NA	NA	Akcin91
Turkey	Izmir	02.03.92	27.07.92	30	60	-	-	Metasystox, Igran + Fusilade	Canitez

NA = Not available

Table 3.1.2. Time to flowering (days) of entries at different locations in the CIYT-SP during 1991/92.

Entry Name	Pedigree	Origin	ALGERIA	BULGARIA	CHINA	IRAN
			Khroub	Toshevo	Qinghai	Karaj
FLIP 85- 13C	X 83 TH 19/FLIP 82-65CXFLIP 82-69C	ICARDA/ICRISAT	135	71	75	62
FLIP 85- 75C	X 83 TH 19/FLIP 82-65CXFLIP 82-69C	ICARDA/ICRISAT	138	69	76	62
FLIP 86- 13C	X 83 TH 56/ILC3346XILC 604	ICARDA/ICRISAT	140	69	73	63
FLIP 86- 41C	X 83 TH 23/FLIP 82-69CXFLIP 82-72C	ICARDA/ICRISAT	132	67	72	60
FLIP 86- 60C	X 83 TH 22/FLIP 81-65CXFLIP 82-81C	ICARDA/ICRISAT	143	69	74	63
FLIP 86-109C	X 83 TH 121/FLIP 82-69CXFLIP 82-92C	ICARDA/ICRISAT	135	65	74	62
FLIP 87- 58C	X 85 TH 264/ILC3777XFLIP 83-46C	ICARDA/ICRISAT	124	58	64	56
FLIP 87- 95C	X 83 TH 22/FLIP 81-65CXFLIP 82-81C	ICARDA/ICRISAT	136	71	74	62
FLIP 88- 7C	X 84 TH 26/FLIP 82-225CXILC3651	ICARDA/ICRISAT	136	75	72	62
FLIP 88- 8C	X 85 TH 240/ILC3397XFLIP 82-93C	ICARDA/ICRISAT	136	69	73	60
FLIP 88- 11C	X 85 TH 51/(FLIP81-293CXILC165)XILC482	ICARDA/ICRISAT	145	69	72	63
FLIP 88- 24C	X 85 TH 214/ILC2375XFLIP 83-13C	ICARDA/ICRISAT	130	69	67	57
FLIP 88- 68C	X 85 TH 262/ILC3777XFLIP 83-13C	ICARDA/ICRISAT	128	66	67	57
FLIP 88- 70C	X 85 TH 262/ILC3777XFLIP 83-13C	ICARDA/ICRISAT	125	63	66	56
FLIP 89- 24C	X 87 TH 271/ILC 136XFLIP 84-18C	ICARDA/ICRISAT	147	62	69	63
FLIP 89- 32C	X 86 TH 34/ILC1919XFLIP 82-150C	ICARDA/ICRISAT	130	63	69	57
FLIP 89- 42C	X 86 TH 303/(ILC171XFLIP82-127C)XILC171	ICARDA/ICRISAT	144	69	74	61
FLIP 89- 80C	X 87 TH 177/ICC14194XFLIP 84- 78C	ICARDA/ICRISAT	130	63	69	57
FLIP 89- 85C	X 87 TH 186/ICC14198XFLIP 82-150C	ICARDA/ICRISAT	124	61	65	56
FLIP 89-118C	X 85 TH 262/ILC3777XFLIP 83-13C	ICARDA/ICRISAT	130	69	70	59
FLIP 89-127C	X 87 TH 4/ILC 482XFLIP 84-79C	ICARDA/ICRISAT	121	65	68	57
FLIP 82-150C	X 79 TH 101/ILC 523XILC 183	ICARDA/ICRISAT	142	69	71	63
IIC 482	(Improved check)					
Local check	(Long term check)	Turkey	127	63	69	57
	-	-	147	71	72	62
Location Mean			134	67	71	60
S.E. of Mean				0.86	0.70	0.92
L.S.D. at 5%				2.44	2.00	2.61
C.V. %				2.22	1.72	2.65
Error d.f.				46	46	46
Significance				*	*	*

Cont'd. ...

Table 3.1.2. Cont'd. ...

Entry Name	IRAN			IRAQ	LEBANON	SAUDI ARABIA	SPAIN	SYRIA
	Maragheh	Mashhad	Hamadan	Rabai (Mosul)	Terbol	Al Gassim	Cordoba	Al Ghab
FLIP 85- 13C	69	56	32	91	58	106	62	67
FLIP 85- 75C	70	58	31	90	60	106	62	68
FLIP 86- 13C	68	60	31	92	64	106	62	70
FLIP 86- 41C	68	55	31	92	60	102	59	69
FLIP 86- 60C	69	55	31	98	57	106	60	65
FLIP 86-109C	70	58	35	99	64	107	61	69
FLIP 87- 58C	62	49	33	90	43	96	63	45
FLIP 87- 95C	70	56	32	87	58	106	60	67
FLIP 88- 7C	67	56	34	90	59	104	63	69
FLIP 88- 8C	68	56	32	91	60	106	63	68
FLIP 88- 11C	69	54	33	92	63	105	63	69
FLIP 88- 24C	59	49	33	91	54	84	59	51
FLIP 88- 68C	62	47	34	92	49	93	59	48
FLIP 88- 70C	61	49	34	91	46	84	59	47
FLIP 89- 24C	60	54	33	94	55	92	59	69
FLIP 89- 32C	60	54	34	92	54	87	59	68
FLIP 89- 42C	69	58	34	98	58	96	57	69
FLIP 89- 80C	61	51	33	94	52	88	59	48
FLIP 89- 85C	58	49	34	96	48	83	59	45
FLIP 89-118C	63	47	33	98	52	105	57	51
FLIP 89-127C	63	51	33	86	52	83	57	51
FLIP 82-150C	66	54	32	96	59	105	62	68
ILC 482	66	51	34	90	53	96	58	65
Local check	68	55	32	78	54	96	60	59
Location Mean	65	53	33	92	55	98	60	61
S.E. of Mean	0.89	1.15	0.94	1.33	1.10	1.14	1.85	1.28
L.S.D. at 5%	2.54	3.26	-	3.79	3.13	3.24	5.26	3.64
C.V. %	2.37	3.72	4.95	2.51	3.44	2.02	5.32	3.63
Error d.f.	46	46	46	46	46	46	46	46
Significance	*	*	NS	*	*	*	NS	*

Cont'd. ...

Table 3.1.2. Cont'd. ...

Entry Name	SYRIA						TURKEY		(1) Overall Mean
	Gelline	Idleb	Heimo	Izra'a	Jindiress	Tel Hadya	Antalya	Haymana	
FLIP 85- 13C	73	61	66	73	73	71	46	62	67
FLIP 85- 75C	72	62	53	73	72	71	46	64	67
FLIP 86- 13C	71	64	52	73	69	68	46	62	66
FLIP 86- 41C	71	62	54	73	71	68	47	62	65
FLIP 86- 60C	71	61	51	73	71	70	46	62	66
FLIP 86-109C	72	62	52	74	72	71	46	64	67
FLIP 87- 58C	57	50	46	66	55	55	46	56	57
FLIP 87- 95C	69	62	52	72	70	69	46	62	66
FLIP 88- 7C	71	61	51	73	71	68	46	61	66
FLIP 88- 8C	73	63	50	72	71	68	46	61	66
FLIP 88- 11C	72	62	54	75	72	70	46	63	67
FLIP 88- 24C	61	53	53	70	60	59	46	56	60
FLIP 88- 68C	58	50	49	67	59	58	46	61	59
FLIP 88- 70C	57	50	50	66	58	58	46	56	58
FLIP 89- 24C	69	62	50	71	65	60	47	58	63
FLIP 89- 32C	69	62	52	71	66	61	47	59	62
FLIP 89- 42C	72	58	56	73	71	69	46	63	66
FLIP 89- 80C	61	55	48	69	59	61	46	58	60
FLIP 89- 85C	60	54	45	64	55	56	46	55	57
FLIP 89-118C	59	50	44	67	58	58	47	59	60
FLIP 89-127C	60	56	48	69	62	61	47	57	59
FLIP 82-150C	72	62	53	71	69	68	46	61	66
ILC 482	60	58	51	70	65	64	46	58	62
Local check	62	58	52	68	60	58	46	61	
Location Mean	66	58	51	71	66	64	46	60	
S.E. of Mean	0.67	1.69	2.81	0.91	0.46	0.58	0.35	0.76	
L.S.D. at 5%	2.47	4.04	8.00	2.59	1.32	1.64	1.01	2.16	
C.V. %	2.27	4.12	9.47	2.24	1.22	1.56	1.33	2.19	
Error d.f.	46	23	46	46	46	46	46	46	
Significance	*	*	*	*	*	*	NS	*	

(1) Khroub was excluded from the overall mean since it is planted in winter, * = 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 1991/92.

	ALGERIA	BULGARIA	CHINA	IRAN				IRAQ	LEBANON	SAUDI ARABIA
Entry Name	Khroub	Toshevo	Qinghai	Karaj	Maragheh	Mashhad	Hamadan	Mosul	Terbol	Al Gassim
FLIP 85- 13C	200	131	157	106	99	97	87	137	101	158
FLIP 85- 75C	203	131	158	105	98	97	90	142	99	159
FLIP 86- 13C	205	133	157	104	97	97	86	144	107	161
FLIP 86- 41C	200	131	162	105	98	97	88	151	101	159
FLIP 86- 60C	200	132	159	107	98	97	90	164	102	159
FLIP 86-109C	202	131	159	105	99	97	87	158	105	159
FLIP 87- 58C	198	131	154	97	95	97	89	146	87	156
FLIP 87- 95C	200	132	162	105	99	96	91	140	105	159
FLIP 88- 7C	200	132	158	101	97	97	87	142	106	158
FLIP 88- 8C	203	131	161	100	97	97	91	140	103	161
FLIP 88- 11C	202	131	158	106	98	97	90	138	98	157
FLIP 88- 24C	203	131	159	103	96	97	87	151	109	160
FLIP 88- 68C	203	131	159	103	87	96	84	148	91	159
FLIP 88- 70C	198	131	158	103	95	97	86	145	90	156
FLIP 89- 24C	203	133	162	105	96	97	86	152	97	160
FLIP 89- 32C	200	131	157	100	96	97	90	147	92	157
FLIP 89- 42C	203	133	159	105	97	96	86	155	99	159
FLIP 89- 80C	202	131	160	103	97	97	87	151	96	159
FLIP 89- 85C	198	132	154	102	95	97	87	151	88	156
FLIP 89-118C	207	131	160	104	97	97	88	160	93	156
FLIP 89-127C	200	131	156	101	95	97	91	144	93	158
FLIP 82-150C	200	132	162	105	97	96	86	151	103	160
ILC 482	200	131	160	100	95	96	89	142	93	160
Local check	201	131	155	101	96	97	87	132	95	155
Location Mean	201	131	159	103	96	97	88	147	98	158
S.E. of Mean		0.31	1.95	1.25	1.89	0.53	1.79	2.23	1.60	0.77
L.S.D. at 5%		0.87	5.56	3.57	-	-	-	6.36	4.55	2.18
C.V. %		0.41	2.13	2.10	3.39	0.94	3.53	2.63	2.82	0.84
Error d.f.		46	46	46	46	46	46	46	46	46
Significance		*	NS	*	NS	NS	NS	*	*	*

Cont'd. ...

Table 3.1.3. Cont'd. ...

Entry Name	SPAIN		SYRIA						TURKEY	(1) Overall
	Cordoba	Al Ghab	Gelline	Heimo	Idleb	Izra'a	Jindiress	Tel Hadya	Antalya	Mean
FLIP 85- 13C	108	102	112	85	92	122	111	109	89	111
FLIP 85- 75C	104	103	111	87	91	122	110	109	94	112
FLIP 86- 13C	104	104	116	94	97	127	110	108	93	113
FLIP 86- 41C	111	103	108	81	93	122	109	109	91	112
FLIP 86- 60C	111	102	112	81	92	120	111	110	93	113
FLIP 86-109C	110	104	112	85	94	125	111	110	93	114
FLIP 87- 58C	96	100	104	73	90	124	105	103	93	108
FLIP 87- 95C	111	102	111	85	93	121	111	110	91	112
FLIP 88- 7C	111	101	110	85	95	123	111	109	91	112
FLIP 88- 8C	111	103	112	87	95	126	109	107	93	112
FLIP 88- 11C	105	103	113	84	95	123	110	108	94	112
FLIP 88- 24C	110	102	108	86	91	125	108	106	92	112
FLIP 88- 68C	104	101	104	76	91	120	106	106	94	109
FLIP 88- 70C	102	100	104	77	92	123	106	105	93	109
FLIP 89- 24C	111	102	104	80	95	124	106	107	96	112
FLIP 89- 32C	111	100	105	83	93	120	107	107	94	110
FLIP 89- 42C	113	102	109	81	96	126	107	108	94	113
FLIP 89- 80C	108	101	104	86	93	122	110	108	94	112
FLIP 89- 85C	102	100	107	75	90	125	105	103	94	109
FLIP 89-118C	105	103	104	84	94	130	108	108	93	112
FLIP 89-127C	108	100	103	77	93	121	105	105	94	110
FLIP 82-150C	111	103	114	85	94	126	109	107	93	113
ILC 482	108	100	105	80	90	126	108	107	94	110
Local check	105	101	103	79	90	124	106	105	95	
Location Mean	108	102	108	82	93	124	108	107	93	
S.E. of Mean	2.39	0.45	1.61	2.66	1.97	0.95	0.82	0.57	0.12	
L.S.D. at 5%	6.81	1.27	4.59	7.57	-	2.70	2.33	1.62	0.34	
C.V. %	3.86	0.76	2.59	5.60	3.67	1.33	1.31	0.92	0.22	
Error d.f.	46	46	46	46	46	46	46	46	46	
Significance	*	*	*	*	NS	*	*	*	*	

(1) Khroub was excluded from the overall mean since it is planted in winter, * = 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 1991/92.

	ALGERIA	BULGARIA	CHINA	IRAN		JORDAN	
Entry Name	Khroub	Toshevo	Quinghai	Karaj	Maragheh	Mashhad	Raba'a
FLIP 85- 13C	78	63	74	52	37	40	26
FLIP 85- 75C	75	66	78	43	36	38	32
FLIP 86- 13C	73	72	80	40	39	43	30
FLIP 86- 41C	70	59	74	39	36	33	21
FLIP 86- 60C	75	64	83	47	39	40	28
FLIP 86-109C	72	63	79	42	37	38	25
FLIP 87- 58C	52	55	57	28	34	30	25
FLIP 87- 95C	75	63	79	46	37	32	26
FLIP 88- 7C	75	71	71	45	34	37	28
FLIP 88- 8C	60	63	73	36	30	32	32
FLIP 88- 11C	75	53	79	39	35	35	25
FLIP 88- 24C	62	50	68	32	33	30	29
FLIP 88- 68C	62	53	72	44	36	32	20
FLIP 88- 70C	45	61	75	31	29	30	21
FLIP 89- 24C	80	68	81	52	34	35	25
FLIP 89- 32C	75	62	68	40	33	35	19
FLIP 89- 42C	75	70	82	41	38	43	24
FLIP 89- 80C	72	57	72	47	32	33	28
FLIP 89- 85C	52	55	70	40	28	30	29
FLIP 89-118C	68	65	72	44	40	38	23
FLIP 89-127C	55	57	63	27	30	28	21
FLIP 82-150C	55	56	86	39	29	30	24
ILC 482	48	51	68	32	30	30	29
Local check	85	69	68	33	33	32	24
Location Mean	67	61	74	40	34	34	26
S.E. of Mean		3.88	5.47	3.38	2.33	1.68	2.16
L.S.D. at 5%		11.05	-	9.61	5.56	4.78	6.14
C.V. %		11.03	12.84	14.61	9.72	8.47	14.62
Error d.f.		46	46	46	23	46	46
Significance		*	NS	*	*	*	*

Cont'd. ...

Table 3.1.4. Cont'd. ...

Entry Name	LEBANON	SAUDI ARABIA	SPAIN	SYRIA			
	Terbol	Al Gassim	Cordoba	Al Ghab	Gelline	Heimo	Idleb
FLIP 85- 13C	46	34	50	58	42	36	35
FLIP 85- 75C	49	37	48	55	42	39	32
FLIP 86- 13C	50	39	54	58	35	42	34
FLIP 86- 41C	43	30	44	50	30	27	32
FLIP 86- 60C	48	37	61	62	32	40	32
FLIP 86-109C	49	37	48	60	38	39	31
FLIP 87- 58C	38	40	44	45	29	33	38
FLIP 87- 95C	50	34	59	60	37	37	30
FLIP 88- 7C	43	39	58	55	35	36	38
FLIP 88- 8C	43	34	49	50	32	31	40
FLIP 88- 11C	54	36	48	52	35	38	40
FLIP 88- 24C	43	31	51	47	29	30	36
FLIP 88- 68C	43	29	43	52	30	36	33
FLIP 88- 70C	42	31	47	48	27	36	33
FLIP 89- 24C	45	34	50	55	30	31	36
FLIP 89- 32C	46	35	49	50	31	33	31
FLIP 89- 42C	47	34	60	57	28	35	35
FLIP 89- 80C	48	40	48	48	29	30	38
FLIP 89- 85C	35	32	40	40	32	25	38
FLIP 89-118C	44	31	48	48	30	36	40
FLIP 89-127C	39	34	48	43	24	26	38
FLIP 82-150C	43	37	43	48	33	31	33
ILC 482	39	33	42	47	28	26	39
Local check	38	33	46	37	25	28	33
Location Mean	44	35	49	51	32	33	35
S.E. of Mean	2.3	1.74	3.42	2.01	2.43	0.61	0.93
L.S.D. at 5%	6.55	4.94	9.72	5.72	6.91	1.74	2.66
C.V. %	8.96	8.69	12.04	6.81	13.28	3.17	4.60
Error d.f.	46	46	46	46	46	46	46
Significance	*	*	*	*	*	*	*

Cont'd. ...

Table 3.1.4. Cont'd. ...

Entry Name	SYRIA			TURKEY				(1) Overall Mean
	Izra'a	Jindiress	Tel Hadya	Antalya	Haymana	Izmir	Unknown	
FLIP 85- 13C	46	39	35	46	24	51	49	44
FLIP 85- 75C	45	40	36	47	30	46	52	45
FLIP 86- 13C	42	38	35	47	27	47	52	42
FLIP 86- 41C	36	35	30	42	23	45	45	39
FLIP 86- 60C	43	41	40	47	28	54	47	46
FLIP 86-109C	43	42	38	43	25	49	51	44
FLIP 87- 58C	35	29	28	45	21	40	34	36
FLIP 87- 95C	44	44	35	45	28	53	49	44
FLIP 88- 7C	44	43	37	44	28	50	47	44
FLIP 88- 8C	37	34	34	45	22	47	42	40
FLIP 88- 11C	42	34	36	48	28	48	45	43
FLIP 88- 24C	28	32	27	45	22	36	33	37
FLIP 88- 68C	35	31	29	46	22	46	41	39
FLIP 88- 70C	32	31	32	46	21	46	43	38
FLIP 89- 24C	40	33	31	45	22	43	47	42
FLIP 89- 32C	37	33	30	48	22	39	41	39
FLIP 89- 42C	45	35	34	45	28	47	46	44
FLIP 89- 80C	38	34	32	43	26	44	42	40
FLIP 89- 85C	28	26	24	46	15	33	30	35
FLIP 89-118C	43	31	33	44	26	44	42	41
FLIP 89-127C	32	27	27	47	21	40	37	35
FLIP 82-150C	30	31	33	45	20	42	44	39
ILC 482	34	29	29	45	23	40	37	37
Local check	26	25	26	46	21	45	41	
Location Mean	38	34	32	45	24	45	43	
S.E. of Mean	0.07	1.31	1.08	1.87	1.91	2.33	3.02	
L.S.D. at 5%	0.19	3.74	3.08	-	5.45	6.64	8.59	
C.V. %	0.31	6.69	5.83	7.13	13.89	9.01	12.12	
Error d.f.	46	46	46	46	46	46	46	
Significance	*	*	*	NS	*	*	*	

(1) Khroub was excluded from the overall mean since it is planted in winter,

* = 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 1991/92.

Entry Name	BULGARIA	CHINA	IRAN				LEBANON	SAUDI ARABIA
	Toshevo	Qinghai	Karaj	Maragheh	Mashhad	Hamadan	Terbol	Al Gassim
FLIP 85- 13C	37	34	33	42	30	24	40	29
FLIP 85- 75C	38	38	34	35	31	30	42	27
FLIP 86- 13C	45	37	37	42	36	30	45	27
FLIP 86- 41C	34	28	32	35	28	29	36	27
FLIP 86- 60C	36	35	30	43	31	30	41	29
FLIP 86-109C	36	30	30	45	30	30	40	28
FLIP 87- 58C	36	31	31	38	32	30	38	25
FLIP 87- 95C	38	33	32	46	30	31	42	29
FLIP 88- 7C	41	38	35	41	33	29	41	31
FLIP 88- 8C	33	30	32	36	30	28	38	27
FLIP 88- 11C	39	36	32	36	32	30	43	29
FLIP 88- 24C	37	29	27	39	26	28	37	28
FLIP 88- 68C	39	30	30	40	27	27	37	29
FLIP 88- 70C	32	28	25	35	27	31	34	30
FLIP 89- 24C	40	36	32	43	32	32	41	31
FLIP 89- 32C	32	29	24	33	22	25	30	26
FLIP 89- 42C	36	30	28	42	28	28	34	31
FLIP 89- 80C	37	33	37	45	28	29	39	25
FLIP 89- 85C	26	25	25	38	23	28	26	26
FLIP 89-118C	39	32	33	39	31	33	40	26
FLIP 89-127C	32	24	23	40	22	31	30	25
FLIP 82-150C	31	24	19	35	22	32	26	22
ILC 482	29	25	24	36	22	27	29	23
Local check	25	20	25	38	23	30	30	25
Location Mean	35	31	29	39	28	29	37	27
S.E. of Mean	0.67	2.09	0.03		1.61	1.18	0.65	1.71
L.S.D. at 5%	1.92	5.94	0.10		4.57	3.36	1.86	4.87
C.V. %	3.31	11.83	0.20		9.88	6.96	3.09	10.89
Error d.f.	46	46	46		46	46	46	46
Significance	*	*	*		*	*	*	*

Cont'd. ...

Table 3.1.5. Cont'd. ...

Entry Name	SYRIA				TURKEY			Overall Mean
	Al Ghab	Heimo	Jindiress	Tel Hadya	Al Tinora	Antalya	Haymana	
FLIP 85- 13C	38	35	40	39	38	33	40	35
FLIP 85- 75C	41	38	41	39	38	34	42	37
FLIP 86- 13C	42	41	39	40	39	37	45	39
FLIP 86- 41C	36	33	34	36	36	31	37	33
FLIP 86- 60C	36	40	39	41	39	34	43	36
FLIP 86-109C	38	39	39	38	37	33	43	36
FLIP 87- 58C	32	34	36	40	36	33	38	34
FLIP 87- 95C	39	39	41	40	37	36	45	37
FLIP 88- 7C	42	38	41	40	41	36	46	38
FLIP 88- 8C	34	38	36	37	34	32	39	34
FLIP 88- 11C	40	38	42	43	40	37	47	38
FLIP 88- 24C	33	36	33	36	31	32	34	32
FLIP 88- 68C	34	34	36	43	34	34	39	34
FLIP 88- 70C	32	35	33	39	31	31	36	32
FLIP 89- 24C	34	38	36	41	35	36	39	36
FLIP 89- 32C	28	29	28	34	29	28	32	29
FLIP 89- 42C	30	30	32	34	31	30	37	32
FLIP 89- 80C	35	37	39	38	38	34	38	35
FLIP 89- 85C	25	25	29	28	26	26	31	27
FLIP 89-118C	37	39	40	45	34	34	45	36
FLIP 89-127C	31	32	30	36	30	30	32	30
FLIP 82-150C	27	25	24	26	25	25	31	26
IIC 482	28	29	27	31	26	27	30	28
Local check	28	29	37	39	43	32	42	
Location Mean	34	35	36	38	35	32	39	
S.E. of Mean	1.17	0.77	0.82	1.20	1.05	0.85		
L.S.D. at 5%	3.33	2.19	2.33	3.42	2.99	2.43		
C.V. %	5.93	3.85	3.99	5.54	5.27	4.58		
Error d.f.	46	46	46	46	46	46		
Significance	*	*	*	*	*	*		

* = 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 1991/92.

Entry Name	ALGERIA		BULGARIA		CHINA		IRAN								IRAQ	
	Khroub		Toshevo		Qinghai		Karaj		Maragheh		Mashhad		Hamadan		Rabia(Mosul)	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85- 13C	2270	2	993	15	3882	1	371	13	1211	9	357	14	328	20	220	6
FLIP 85- 75C	1858	13	997	14	2725	5	257	17	779	24	333	17	422	16	199	9
FLIP 86- 13C	1810	16	1083	8	2233	11	229	21	1118	17	619	3	469	13	341	2
FLIP 86- 41C	1550	24	1123	6	1696	20	552	7	1158	12	548	4	567	9	106	24
FLIP 86- 60C	1952	9	1020	13	2140	16	210	23	1032	20	333	16	290	23	184	13
FLIP 86-109C	1693	21	957	18	2147	15	248	18	831	23	262	22	462	14	117	23
FLIP 87- 58C	2212	4	1393	1	2687	6	781	1	999	21	357	13	290	22	158	17
FLIP 87- 95C	1935	11	613	23	3102	2	219	22	933	22	214	23	485	11	188	11
FLIP 88- 7C	1838	14	747	20	2549	8	495	9	1270	6	381	12	184	24	147	20
FLIP 88- 8C	1665	22	967	16	2809	3	752	2	1301	5	500	8	388	19	166	15
FLIP 88- 11C	1738	17	560	24	2199	14	181	24	1139	14	643	1	482	12	137	22
FLIP 88- 24C	2018	7	957	17	1687	21	448	12	1351	3	524	6	413	17	151	19
FLIP 88- 68C	1940	10	1263	4	2631	7	552	8	1403	1	286	20	993	2	198	10
FLIP 88- 70C	2433	1	1083	9	1757	18	457	11	1236	7	405	10	389	18	163	16
FLIP 89- 24C	1997	8	1120	7	2071	17	267	16	1233	8	286	21	866	5	233	5
FLIP 89- 32C	1823	15	1310	2	2207	13	638	4	1090	19	500	7	942	4	167	14
FLIP 89- 42C	2118	6	1067	10	1606	22	276	15	1128	15	619	2	326	21	156	18
FLIP 89- 80C	1575	23	1193	5	2805	4	333	14	1152	13	214	24	547	10	253	3
FLIP 89- 85C	2215	3	730	21	1169	23	733	3	1125	16	524	5	993	3	185	12
FLIP 89-118C	1707	20	640	22	2232	12	248	19	1380	2	452	9	581	8	141	21
FLIP 89-127C	2155	5	1063	11	2365	9	571	5	1189	11	286	19	861	6	205	7
FLIP 82-150C	1710	19	900	19	970	24	233	20	1190	10	405	11	586	7	204	8
ILC 482	1922	12	1267	3	1724	19	467	10	1337	4	310	18	442	15	238	4
Local check	1717	18	1060	12	2295	10	571	6	1098	18	357	15	1087	1	545	1
Location Mean	1910		1004		2237		420		1153		405		558		200	
S.E. of Mean	192.67		124.50		376.14		90.71		103.73		113.09		210.68		31.36	
L.S.D. at 5%	-		354.40		1070.70		258.19		295.26		-		-		89.27	
C.V. %	17.47		21.47		29.12		37.37		15.58		48.39		65.40		27.15	
Error d.f.	46		46		46		46		46		46		46		46	
Significance	NS		*		*		*		*		NS		NS		*	
Entry > L. Check	-		0		1		0		1		-		-		0	

Cont'd. ...

Table 3.1.6. Cont'd. ...

Entry Name	LEBANON		SAUDI ARABIA		SPAIN		SYRIA									
	Terbol		Al Gassim		Cordoba		Al Ghab		Gelline		Heimo		Idleb		Izra'a	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 85- 13C	2154	6	577	21	852	23	1983	22	1089	7	916	19	1533	18	1313	20
FLIP 85- 75C	2051	12	547	22	1165	16	2674	9	986	13	873	21	1681	15	1319	19
FLIP 86- 13C	1578	23	500	23	1018	20	2225	17	1265	1	462	24	2048	7	1381	17
FLIP 86- 41C	2000	13	957	8	1737	3	2708	8	891	17	859	22	2371	3	1143	24
FLIP 86- 60C	1936	15	857	13	1252	13	1966	23	1143	4	966	17	1381	21	1470	12
FLIP 86-109C	1700	21	614	19	1399	10	2462	15	884	18	979	16	2097	6	1490	11
FLIP 87- 58C	2225	4	832	15	1013	21	2537	13	837	22	1114	9	2141	5	1156	22
FLIP 87- 95C	2151	8	843	14	1886	2	2102	18	1068	8	1005	14	1383	20	1422	14
FLIP 88- 7C	1761	20	737	16	1189	15	2606	10	1156	3	1045	11	1970	9	1299	21
FLIP 88- 8C	1912	16	1042	7	1067	19	2088	20	1238	2	829	23	2611	2	1694	5
FLIP 88- 11C	2490	1	611	20	1079	18	1946	24	925	16	1184	7	1417	19	1401	16
FLIP 88- 24C	1855	18	928	9	1514	6	3156	3	953	14	922	18	1203	24	1592	7
FLIP 88- 68C	2122	9	925	10	1487	8	2231	16	796	23	1217	5	1949	10	1428	13
FLIP 88- 70C	2105	10	1558	2	1502	7	2980	5	844	19	1105	10	1783	12	1149	23
FLIP 89- 24C	2153	7	666	17	1210	14	2598	11	986	12	1207	6	1611	16	1612	6
FLIP 89- 32C	1816	19	1257	5	1083	17	2099	19	1013	10	874	20	1321	23	1374	18
FLIP 89- 42C	1632	22	1200	6	1342	11	2755	7	1109	5	1018	12	2029	8	1701	4
FLIP 89- 80C	1559	24	870	11	970	22	2047	21	837	21	998	15	1378	22	1415	15
FLIP 89- 85C	1870	17	2058	1	1405	9	2782	6	837	20	1144	8	1691	14	1585	8
FLIP 89-118C	2199	5	638	18	1342	12	2483	14	1013	9	1323	1	1567	17	1578	9
FLIP 89-127C	2086	11	1312	4	1896	1	3163	2	700	24	1296	3	1915	11	1558	10
FLIP 82-150C	1965	14	1528	3	1708	4	3170	1	986	11	1011	13	2284	4	1776	2
ILC 482	2294	2	870	12	1623	5	2565	12	1102	6	1220	4	1766	13	1959	1
Local check	2275	3	327	24	501	24	3075	4	939	15	1298	2	2661	1	1761	3
Location Mean	1995		927		1302		2517		983		1036		1825		1482	
S.E. of Mean	177.64		236.66		231.42		274.23		117.45		110.60		313.54		182.53	
L.S.D. at 5%	505.66		673.66		658.75		780.60		-		314.83		-		-	
C.V. %	15.42		44.20		30.79		18.87		20.69		18.49		29.76		21.33	
Error d.f.	46		46		46		46		46		46		46		46	
Significance	*		*		*		*		NS		*		NS		NS	
Entry > L. Check	0		7		1		0		-		-		-		-	

Cont'd. ...

Table 3.1.6. Cont'd. ...

Entry Name	SYRIA				TURKEY										(1) Overall Mean	
	Jindiress		Tel Hadya		Altinova		Antalya		Eskisehir		Haymana		Izmir		Y	R
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R		
FLIP 85- 13C	1992	18	766	22	957	3	1004	21	1594	6	1020	11	636	15	1170	16
FLIP 85- 75C	2139	14	659	24	475	20	1358	5	1214	21	1000	12	531	18	1108	18
FLIP 86- 13C	1933	21	899	18	691	12	1333	6	1000	23	1197	6	543	16	1098	20
FLIP 86- 41C	2214	10	1046	16	556	18	1333	7	1240	20	993	13	512	20	1196	11
FLIP 86- 60C	2008	16	767	21	593	16	1313	8	1307	15	912	15	735	9	1083	22
FLIP 86-109C	1989	19	836	20	599	15	1092	15	1250	19	993	14	519	19	1088	21
FLIP 87- 58C	1771	23	1488	3	654	13	1233	10	1589	7	1034	10	1099	3	1245	6
FLIP 87- 95C	2237	8	710	23	364	24	975	22	1443	11	789	21	691	12	1128	17
FLIP 88- 7C	2358	5	1001	17	617	14	963	23	1557	8	1238	5	901	4	1190	12
FLIP 88- 8C	2237	9	1307	11	370	23	1013	19	1885	1	1170	7	864	5	1282	4
FLIP 88- 11C	2146	13	1173	12	537	19	833	24	1492	10	544	23	500	21	1074	23
FLIP 88- 24C	2566	2	1389	8	920	4	1088	16	1729	2	884	16	457	22	1213	8
FLIP 88- 68C	2384	3	1484	4	864	5	1275	9	1604	5	803	19	642	14	1297	3
FLIP 88- 70C	2287	6	1791	1	957	2	1167	14	1646	3	1048	9	772	7	1281	5
FLIP 89- 24C	2076	15	1163	14	593	17	1521	2	1542	9	844	17	691	11	1207	9
FLIP 89- 32C	2002	17	1088	15	840	6	1392	4	1427	12	830	18	685	13	1180	15
FLIP 89- 42C	1948	20	880	19	735	9	1025	18	1297	16	1320	4	1340	1	1205	10
FLIP 89- 80C	1925	22	1165	13	426	21	1208	12	1255	18	1061	8	710	10	1106	19
FLIP 89- 85C	2262	7	1478	5	1006	1	1421	3	1276	17	476	24	389	24	1234	7
FLIP 89-118C	2749	1	1307	10	414	22	1213	11	1396	13	680	22	543	17	1187	13
FLIP 89-127C	2197	11	1489	2	790	7	1008	20	1370	14	1361	3	772	8	1339	2
FLIP 82-150C	1766	24	1417	6	698	11	1083	17	958	24	803	20	432	23	1185	14
IIC 482	2171	12	1347	9	728	10	1646	1	1609	4	1741	1	1216	2	1347	1
Local check	2360	4	1392	7	790	8	1188	13	1188	22	1449	2	846	6		
Location Mean	2155		1168		674		1195		1411		1008		709			
S.E. of Mean	145.68		93.84		160.51		205.75		175.62		209.23		233.81			
L.S.D. at 5%	414.68		267.11		-		-		-		595.59		-			
C.V. %	11.71		13.91		41.26		29.82		21.56		35.96		57.09			
Error d.f.	46		46		46		46		46		46		46			
Significance	*		*		NS		NS		NS		*		NS			
Entry > L. Check	0		1		-		-		-		0		-			

(1) Khroub was excluded from the overall mean since it is planted in winter, * = 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 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Khroub	FLIP 88-70C	FLIP 85-13C	FLIP 89-85C	FLIP 87-58C	FLIP 89-127C
Bulgaria	Toshevo	FLIP 87-58C	FLIP 89-32C	ILC 482	FLIP 88-68C	FLIP 89-80C
China	Qinghai	FLIP 85-13C	FLIP 87-95C	FLIP 88-8C	FLIP 89-80C	FLIP 85-75C
Iran	Karaj	FLIP 87-58C	FLIP 88-8C	FLIP 89-85C	FLIP 89-32C	FLIP 89-127C
Iran	Maragheh	FLIP 88-68C	FLIP 89-118C	FLIP 88-24C	ILC 482	FLIP 88-8C
Iran	Mashhad	FLIP 88-11C	1FLIP 87-58C	FLIP 86-13C	FLIP 86-41C	FLIP 89-85C
Iraq	Hamadan	Local check	FLIP 88-68C	FLIP 89-85C	FLIP 89-32C	FLIP 89-24C
Iraq	Mosul	Local check	FLIP 86-13C	FLIP 89-80C	ILC 482	FLIP 89-24C
Lebanon	Terbol	FLIP 88-11C	ILC 482	Local check	FLIP 87-58C	FLIP 89-118C
Saudi Arabia	Al Gassim	FLIP 89-85C	FLIP 88-70C	FLIP 82-150C	FLIP 89-127C	FLIP 89-32C
Spain	Córdoba	FLIP 89-127C	FLIP 87-95C	FLIP 86-41C	FLIP 82-150C	ILC 482
Syria	Al Ghab	FLIP 82-150C	FLIP 89-127C	FLIP 88-24C	Local check	FLIP 88-70C
Syria	Gelline	FLIP 86-13C	FLIP 88-8C	FLIP 88-7C	FLIP 86-60C	FLIP 89-42C
Syria	Heimo	FLIP 89-118C	Local check	FLIP 89-127C	ILC 482	FLIP 88-68C
Syria	Idleb	Local check	FLIP 88-8C	FLIP 86-41C	FLIP 82-150C	FLIP 87-58C
Syria	Izra'a	ILC 482	FLIP 82-150C	Local check	FLIP 89-42C	FLIP 88-8C
Syria	Jindiress	FLIP 89-118C	FLIP 88-24C	FLIP 88-68C	Local check	FLIP 88-7C
Syria	Tel Hadya	FLIP 88-70C	FLIP 89-127C	FLIP 87-58C	FLIP 88-68C	FLIP 89-85C
Turkey	Altinova	FLIP 89-85C	FLIP 88-70C	FLIP 85-13C	FLIP 88-24C	FLIP 88-68C
Turkey	Antalya	ILC 482	FLIP 89-24C	FLIP 89-85C	FLIP 89-32C	FLIP 85-75C
Turkey	Eskisehir	FLIP 88-8C	FLIP 88-24C	FLIP 88-70C	ILC 482	FLIP 88-68C
Turkey	Haymana	ILC 482	Local check	FLIP 89-127C	FLIP 89-42C	FLIP 88-7C
Turkey	Izmir	FLIP 89-42C	ILC 482	FLIP 87-58C	FLIP 88-7C	FLIP 88-8C

occurred most frequently among the top five and seemed more adaptable than others.

On the basis of average seed yield of common entries over two years (1990/91 and 1991/92), FLIP 88-68C ranked number 1 and was followed by FLIP 88-70C, FLIP 88-24C, FLIP 88-8C and ILC 482 with respective seed yields of 1343, 1318, 1314, 1268, and 1263 kg/ha (Table 3.1.8).

Table 3.1.8. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-SP conducted during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
FLIP 85- 13C	1058	8	1170	7	1114	7
FLIP 85- 75C	962	10	1108	8	1035	10
FLIP 86- 13C	893	11	1098	10	995	11
FLIP 86- 41C	1301	4	1196	6	1248	6
FLIP 86- 60C	1009	9	1083	12	1046	9
FLIP 86-109C	829	12	1088	11	958	12
FLIP 87- 95C	1090	7	1128	8	1109	8
FLIP 88- 8C	1254	5	1282	3	1268	4
FLIP 88- 24C	1416	1	1213	5	1314	3
FLIP 88- 68C	1390	2	1297	2	1343	1
FLIP 88- 70C	1356	3	1281	4	1318	2
ILC 482	1180	6	1347	1	1263	5

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 21 test entries and three checks, two checks were provided 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 three replications. The suggested plot size was four rows, each 4 m long with an inter row spacing of 35 cm. Sixty seven sets of trial were distributed to cooperators in 18 countries. Results were returned for 35 sets covering 13 countries. The agronomic practices employed at different locations are given 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 Tables 3.2.2, 3.2.3, 3.2.4

Table 3.2.1. Agronomic details for CIYT-W-MR-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Beni Slimane	11.12.91	19.07.92	-	100	-	-	-	ILC 3279
Algeria	Khroub	22.12.91	02.08.92	17	45	-	-	Igran + Kerb	ILC 3279
Algeria	Oued Smar	22.12.91	06.07.92	-	-	-	-	Igran	Rabat 9
Algeria	Setif	04.11.91	20.07.92	-	100	-	-	Trifluraline	ILC 3279
Algeria	Tiaret	24.12.91	06.17.92	-	-	-	-	Igran	ILC 3279
Cyprus	Athalassa	04.12.91	30.06.92	21	48	-	-	Terbutrine	Cyprus Local
Italy	Papiano	11.12.91	22.07.92	-	80	-	-	Thiabendazole, Linuron	Unknown
Italy	Tolentino	03.03.92	29.07.92	45	115	-	-	-	Sultano
Iran	Gorgan	03.11.91	29.06.92	-	-	-	1	Muvacron, Dursban	Kooroush
Iran	Kaermanshah	30.03.92	-	20	100	-	-	Sevin	Mohali Bakhtaran
Iran	Zarghan	25.03.92	18.07.92	27	69	-	9	Ekatin	Kooroush
Iraq	Mosul (Rabia)	NA	NA	NA	NA	NA	NA	NA	NA
Jordan	Rabba	29.01.92	— .06.92	-	-	-	-	-	Jubeiha 2
Lebanon	Terbol	21.12.91	15.07.92	-	50	-	-	Kerb + Igran	Lebanese Local
Libya	El Safsaf	23.11.91	20.07.92	-	-	-	-	-	ILC 484
Morocco	Marchouch	03.12.91	16.06.92	20	56	-	-	-	Pch 46
Morocco	Jema'a Shain	04.12.91	18.05.92	20	50	-	-	Kerb + Igran	Pch 46
Portugal	Elvas	04.11.91	23.06.92	-	-	-	-	Trifluraline	Chk 510
Spain	Badajoz	14.12.91	09.06.92	-	-	-	-	Dimethoate, Terbutrine	Castlio
								Propizamide	
Spain	Cordoba	21.11.91	13.07.92	-	-	-	-	-	Fardon
Spain	Tomejil	12.11.91	15.07.92	-	-	-	-	Rogor	-
Syria	Gelline	24.12.91	08.07.92	20	50	-	-	-	Ghab 3
Syria	Hama	15.12.91	21.06.92	-	50	-	-	-	Ghab 3
Syria	Al Ghab	15.12.91	-	-	-	-	-	-	Ghab 3
Syria	Heimo	27.11.91	23.06.92	-	50	-	-	-	Ghab 3
Syria	Homs	28.11.91	22.06.92	-	50	-	-	-	Ghab 3
Syria	Idleb	23.12.91	-	-	60	-	-	-	Ghab 3
Syria	Izra'a	22.12.91	03.07.92	-	50	-	-	-	Ghab 3
Syria	Jindiress	03.02.92	21.06.92	-	50	-	-	Kerb + Igran	Ghab 2
Syria	Tel Hadya-ICARDA	26.11.91	15.06.92	-	50	-	-	Kerb + Igran	Ghab 2
Turkey	Adana	20.12.91	10.07.92	30	50	-	-	-	Local Chickpea
Turkey	Altinova	06.12.91	03.08.92	30	60	-	-	Igran	Canitez 87
Turkey	Amasya	07.04.92	14.08.92	50	-	-	-	-	Canitez 87
Turkey	Diyarbakir	25.12.91	29.07.92	30	60	-	-	Kerb + Fortrol	Yerli Nohut
Turkey	Izmir	09.01.92	25.07.92	30	60	-	-	Metasystox, Igran + Fusilade	Canitez 87

NA = Not available

Table 3.2.2. Time to flowering (days) of entries at different locations in the CIYT-W-MR during 1991/92.

			ALGERIA				
Entry Name	Pedigree	Origin	Beni Slimane Khroub		Oued Smar	Setif	
FLIP 84- 15C	X 81 TH 199/ILC 202(WH)XILC3355	ICARDA/ICRISAT	146	140	125	193	
FLIP 85- 5C	X 81 TH 199/ILC 202(WH)XILC3355	ICARDA/ICRISAT	151	140	126	203	
FLIP 85- 18C	X 83 TH 23/FLIP 82-69CXFLIP 82-72C	ICARDA/ICRISAT	155	144	129	201	
FLIP 85- 42C	X 82 TH 66/ILC2593XILC3279	ICARDA/ICRISAT	154	145	126	202	
FLIP 85- 44C	X 82 TH 77/ILC3346XILC 464	ICARDA/ICRISAT	149	141	131	201	
FLIP 85- 93C	X 83 TH 23/FLIP 82-69CXFLIP 82-72C	ICARDA/ICRISAT	138	140	138	192	
FLIP 86- 2C	X 81 TH 179/ILC 112XILC 191	ICARDA/ICRISAT	149	143	127	203	
FLIP 86- 6C	X 81 TH 203/ILC3279(WH)XILC3355	ICARDA/ICRISAT	144	130	126	198	
FLIP 86- 42C	X 83 TH 80/ILC2593XFLIP 81-59C	ICARDA/ICRISAT	137	129	126	196	
FLIP 86- 50C	X 83 TH 23/FLIP 82-69CXFLIP 82-72C	ICARDA/ICRISAT	151	147	126	198	
FLIP 87- 96C	X 83 TH 124/FLIP 82-64CXILC 72	ICARDA/ICRISAT	154	140	140	196	
FLIP 88- 82C	X 84 TH 68/ILC 484XFLIP 82-80C	ICARDA/ICRISAT	146	132	132	196	
FLIP 88- 85C	X 85 TH 143/ILC 629XFLIP 82-144C	ICARDA/ICRISAT	140	137	127	196	
FLIP 89- 26C	X 84 TH 185/ICCL81169XILC3279	ICARDA/ICRISAT	140	139	143	197	
FLIP 89- 29C	X 84 TH 73/ILC 482XFLIP 82-73C	ICARDA/ICRISAT	137	127	125	196	
FLIP 89- 38C	X 86 TH 279/(ILC1919XFLIP 82-191C)X FLIP 84-18C	ICARDA/ICRISAT	137	130	129	197	
FLIP 89- 44C	X 87 TH 31/FLIP 83-7CXFLIP 84-92C	ICARDA/ICRISAT	149	142	138	196	
FLIP 89- 62C	X 84 TH 15/FLIP 82-100CXILC 200	ICARDA/ICRISAT	137	132	124	197	
FLIP 89- 63C	X 86 TH 34/ILC1919XFLIP 82-150C	ICARDA/ICRISAT	137	127	125	198	
FLIP 89- 78C	X 87 TH 67/FLIP 82-87CXFLIP 85-46C	ICARDA/ICRISAT	149	135	127	203	
FLIP 89- 96C	X 86 TH 112/FLIP 82-64CXFLIP 81-293C	ICARDA/ICRISAT	151	141	-	199	
FLIP 82-150C	X 79 TH 101/ILC 523XILC 183	ICARDA/ICRISAT	149	147	127	196	
ILC 482	(Improved check)	Turkey	137	129	131	187	
Local check	(Long term check)		151	145	140	201	
Location Mean			145	138	130	198	
S.E. of Mean			2.60		5.65	0.80	
L.S.D. at 5%			7.41		-	2.29	
C.V. %			3.11		7.52	0.71	
Error d.f.			46		44	46	
Significance			*		NS	*	

Cont'd. ...

Table 3.2.2. Cont'd. ...

	ALGERIA	CYPRUS	IRAN		ITALY		JORDAN	LEBANON	LIBYA	
Entry Name	Tiaret	Athalassa	Gorgan	Kaermanshah	Zarghan	Papiano	Tolentino	Rabba	Terbol	El Safsaf
FLIP 84- 15C	134	123	144	47	54	146	79	50	138	160
FLIP 85- 5C	135	126	157	42	55	152	81	50	145	161
FLIP 85- 18C	135	128	151	49	54	152	86	52	145	159
FLIP 85- 42C	136	129	156	49	57	152	86	50	144	161
FLIP 85- 44C	140	129	162	45	56	152	88	53	155	162
FLIP 85- 93C	134	121	153	45	53	147	83	50	139	158
FLIP 86- 2C	136	128	153	49	55	152	85	50	150	162
FLIP 86- 6C	140	126	149	49	55	146	80	50	140	158
FLIP 86- 42C	133	123	138	40	54	148	77	50	135	158
FLIP 86- 50C	133	124	149	45	52	151	85	50	136	160
FLIP 87- 96C	133	125	149	43	52	151	80	50	148	160
FLIP 88- 82C	134	120	157	45	54	147	76	50	140	158
FLIP 88- 85C	135	121	148	42	54	145	75	50	135	158
FLIP 89- 26C	133	122	147	42	54	145	77	50	138	160
FLIP 89- 29C	134	120	141	45	55	143	79	50	135	157
FLIP 89- 38C	135	117	133	45	53	140	73	50	135	154
FLIP 89- 44C	133	123	151	43	53	147	81	50	135	159
FLIP 89- 62C	133	120	147	42	57	138	76	50	142	159
FLIP 89- 63C	128	115	133	44	54	138	72	50	133	154
FLIP 89- 78C	134	123	160	45	54	143	80	50	146	157
FLIP 89- 96C	136	126	163	46	53	146	82	50	143	160
FLIP 82-150C	135	122	153	48	56	148	80	50	145	159
ILC 482	131	120	140	45	56	147	75	50	136	157
Local check	134	121	160	41	56	150	85	50	150	155
Location Mean	130	123	150	45	54	147	80	50	141	159
S.E. of Mean		0.62	2.26	0.32	0.72	1.42	0.49	0.49	2.19	0.96
L.S.D. at 5%		1.47	6.43	0.90	2.04	4.04	1.40	1.40	6.24	2.72
C.V. %		0.71	2.61	1.22	2.28	1.67	1.07	1.70	2.69	1.05
Error d.f.		23	46	46	46	46	46	46	46	46
Significance		*	*	*	*	*	*	*	*	*

Cont'd. ...

Table 3.2.2. Cont'd. ...

Entry Name	MOROCCO		PORTUGAL	SPAIN			SYRIA		
	Jema'a	Shain Marchouch	Elvas	Badajoz	Cordoba	Tomejil	Al Ghab	Gelline	Hama
FLIP 84- 15C	94	116	140	121	112	120	132	121	130
FLIP 85- 5C	96	121	144	112	114	117	133	122	132
FLIP 85- 18C	101	116	141	123	114	120	133	123	133
FLIP 85- 42C	87	121	143	121	115	121	134	121	134
FLIP 85- 44C	106	121	144	124	117	121	135	123	137
FLIP 85- 93C	98	102	141	123	114	121	132	120	128
FLIP 86- 2C	87	121	142	123	115	119	135	122	133
FLIP 86- 6C	100	116	139	122	112	115	132	121	131
FLIP 86- 42C	98	116	139	120	109	119	131	120	129
FLIP 86- 50C	87	112	141	123	112	118	132	120	128
FLIP 87- 96C	100	121	140	121	113	114	132	122	133
FLIP 88- 82C	96	121	140	121	114	117	132	121	131
FLIP 88- 85C	96	121	139	121	112	114	132	122	128
FLIP 89- 26C	102	121	139	121	112	113	134	121	130
FLIP 89- 29C	87	116	139	119	109	113	130	118	128
FLIP 89- 38C	87	102	135	108	110	111	131	119	126
FLIP 89- 44C	87	121	140	122	112	113	131	120	130
FLIP 89- 62C	90	116	140	118	107	114	131	119	130
FLIP 89- 63C	101	121	135	113	109	116	130	116	125
FLIP 89- 78C	87	116	141	111	116	119	133	121	131
FLIP 89- 96C	98	121	139	111	117	115	134	122	130
FLIP 82-150C	96	102	140	120	115	117	132	123	131
ILC 482	94	116	137	120	107	111	131	118	128
Local check	96	116	140	125	115	121	132	123	131
Location Mean	95	116	140	119	113	117	132	121	130
S.E. of Mean	0.97	0.07	1	1.40	1.24	0.00	0.39	0.84	0.65
L.S.D. at 5%	2.76	0.20	3	3.98	3.52	0.00	1.10	2.39	1.84
C.V. %	1.77	0.11	1	2.03	1.90	0.00	0.51	1.21	0.86
Error d.f.	46	46	46	46	46	46	46	46	46
Significance	*	*	0	*	*	*	*	*	*

Cont'd. ...

Table 3.2.2. Cont'd. ...

Entry Name	SYRIA						TURKEY			(1) Overall Mean
	Heimo	Homs	Idleb	Izra'a	Jindiress	Tel Hadya	Amasya	Diyarbakir	Izmir	
FLIP 84- 15C	156	147	127	130	141	150	62	150	113	133
FLIP 85- 5C	156	149	129	133	144	151	68	154	115	135
FLIP 85- 18C	157	150	129	131	145	152	68	155	113	136
FLIP 85- 42C	154	151	129	132	144	151	65	153	113	136
FLIP 85- 44C	154	151	131	138	146	153	71	159	113	138
FLIP 85- 93C	154	146	126	127	140	149	68	152	110	132
FLIP 86- 2C	153	149	132	130	144	152	67	155	110	135
FLIP 86- 6C	153	148	126	128	140	151	62	155	117	133
FLIP 86- 42C	153	145	124	128	139	148	64	147	112	131
FLIP 86- 50C	153	145	126	128	139	148	69	150	112	133
FLIP 87- 96C	153	148	129	130	141	149	61	154	110	134
FLIP 88- 82C	153	148	127	132	143	150	59	153	114	133
FLIP 88- 85C	153	145	125	127	140	147	61	150	113	132
FLIP 89- 26C	156	146	127	130	142	150	62	150	114	133
FLIP 89- 29C	152	144	124	126	138	147	64	149	112	129
FLIP 89- 38C	155	143	124	126	135	144	65	148	112	128
FLIP 89- 44C	153	146	126	129	141	151	67	151	110	132
FLIP 89- 62C	153	145	125	127	139	150	62	149	114	131
FLIP 89- 63C	154	141	121	125	134	142	61	146	110	128
FLIP 89- 78C	156	149	127	129	140	151	64	153	113	133
FLIP 89- 96C	156	149	129	128	142	152	63	156	113	135
FLIP 82-150C	154	148	127	131	144	151	69	153	112	134
ILC 482	152	144	127	126	139	150	65	147	115	130
Local check	154	148	126	131	146	154	62	149	112	
Location Mean	154	147	127	129	141	150	65	152	112	
S.E. of Mean	0.79	0.52	0.44	1.15	0.62	0.52	1.41	0.76	1.59	
L.S.D. at 5%	2.26	1.47	1.26	3.28	1.77	1.47	4.02	2.15	-	
C.V. %	0.89	0.61	0.61	1.54	0.76	0.60	3.79	0.86	2.00	
Error d.f.	46	46	46	46	46	46	46	46	23	
Significance	*	*	*	*	*	*	*	*	NS	

(1) Oued Smar had missing values; and Kaermanshah, Zarghan, Tolentino and Amasya were planted in spring and were excluded from the overall mean. * = 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 1991/92.

Entry Name	ALGERIA					IRAN			ITALY	JORDAN	LEBANON
	Beni Slimane	Khroub	Oued Smar	Setif	Tiaret	Gorgan	Kaermanshah	Zarghan	Papiano	Rabba	Terbol
FLIP 84- 15C	208	203	177	259	194	219	96	99	220	84	186
FLIP 85- 5C	211	205	176	258	195	228	94	107	226	84	194
FLIP 85- 18C	214	202	183	247	195	225	98	101	227	84	193
FLIP 85- 42C	212	205	181	258	196	227	98	104	228	84	193
FLIP 85- 44C	209	208	186	253	200	230	97	107	227	84	198
FLIP 85- 93C	201	201	180	258	194	226	96	97	219	84	189
FLIP 86- 2C	209	206	181	258	196	225	98	103	228	84	196
FLIP 86- 6C	207	202	178	258	200	223	98	104	221	84	191
FLIP 86- 42C	201	203	-	247	193	212	92	98	213	84	183
FLIP 86- 50C	211	204	181	249	193	223	97	102	215	83	189
FLIP 87- 96C	212	202	185	257	193	223	94	94	218	83	189
FLIP 88- 82C	208	208	177	248	194	226	97	98	223	83	188
FLIP 88- 85C	201	208	179	258	195	221	94	103	220	84	188
FLIP 89- 26C	204	206	176	253	193	221	94	96	226	84	188
FLIP 89- 29C	202	200	175	258	194	215	96	94	216	84	188
FLIP 89- 38C	202	201	184	258	195	211	97	95	217	84	184
FLIP 89- 44C	211	202	179	258	193	225	94	97	224	83	188
FLIP 89- 62C	201	201	179	249	193	221	94	97	211	84	187
FLIP 89- 63C	201	201	176	258	188	211	95	95	213	84	183
FLIP 89- 78C	209	202	177	258	194	229	96	98	218	83	189
FLIP 89- 96C	210	203	-	253	196	224	96	98	226	84	191
FLIP 82-150C	209	200	180	253	195	226	98	102	226	84	191
ILC 482	201	198	177	251	191	218	96	98	216	84	186
Local check	212	200	185	248	194	229	93	98	221	84	190
Location Mean	207	203	180	254	194	222	96	99	221	84	189
S.E. of Mean	1.79		1.01	0.83		1.90	0.31	2.06	0.13	1.22	1.56
L.S.D. at 5%	5.10		2.89	2.35		5.41	0.87	5.88	0.37	3.47	4.43
C.V. %	1.50		0.98	0.56		1.48	0.55	3.60	0.27	0.96	1.43
Error d.f.	46		42	46		46	46	46	46	46	46
Significance	*		*	*		*	*	*	*	*	*

Cont'd. ...

Table 3.2.3. Cont'd. ...

Entry Name	MOROCCO			PORTUGAL	SPAIN			SYRIA		
	Jema'a	Shain	Marchouch	Elvas	Badajoz	Cordoba	Tomejil	Al Ghab	Gelline	Hama
FLIP 84- 15C	137	187	201	170	157	159	192	173	180	192
FLIP 85- 5C	167	191	202	168	158	156	193	172	181	193
FLIP 85- 18C	173	187	199	171	159	160	192	173	181	194
FLIP 85- 42C	156	191	202	170	158	162	192	173	182	193
FLIP 85- 44C	167	191	201	172	157	160	192	174	184	195
FLIP 85- 93C	156	185	204	172	155	162	192	174	178	193
FLIP 86- 2C	156	191	200	171	156	158	192	173	181	190
FLIP 86- 6C	162	187	202	171	154	153	192	173	180	193
FLIP 86- 42C	137	187	201	169	154	158	191	173	175	189
FLIP 86- 50C	148	187	200	170	156	158	192	173	179	191
FLIP 87- 96C	151	191	201	171	154	153	191	173	182	191
FLIP 88- 82C	156	191	200	169	156	157	192	174	177	188
FLIP 88- 85C	163	191	201	170	157	153	193	173	180	189
FLIP 89- 26C	143	191	201	170	161	153	193	176	183	195
FLIP 89- 29C	145	187	202	170	155	153	191	173	178	189
FLIP 89- 38C	148	185	203	164	155	149	192	173	176	188
FLIP 89- 44C	137	191	199	171	155	153	192	172	180	192
FLIP 89- 62C	156	187	203	169	154	153	190	172	176	190
FLIP 89- 63C	143	191	201	166	158	153	193	173	179	192
FLIP 89- 78C	152	187	205	166	152	158	191	174	178	191
FLIP 89- 96C	165	191	200	168	156	153	191	172	179	191
FLIP 82-150C	167	185	200	170	157	158	192	173	181	191
ILC 482	156	187	200	170	155	148	191	171	176	186
Local check	137	187	200	172	156	162	192	172	179	193
Location Mean	153	189	201	170	156	156	192	173	179	191
S.E. of Mean	0.86	0.08	1.14	1.14	1.35	0.53	0.28	0.80	0.79	1.04
L.S.D. at 5%	2.44	0.23	-	3.25	3.83	1.52	0.79	-	2.25	2.96
C.V. %	0.97	0.08	0.98	1.17	1.49	0.59	0.25	0.80	0.76	0.94
Error d.f.	46	46	46	46	46	46	46	46	46	46
Significance	*	*	NS	*	*	*	*	NS	*	*

Cont'd. ...

Table 3.2.3. Cont'd. ...

Entry Name	SYRIA					TURKEY			(1) Overall Mean
	Homs	Idleb	Izra'a	Jindiress	Tel Hadya	Amasya	Diyarbakir	Izmir	
FLIP 84- 15C	195	191	181	190	197	123	198	168	186
FLIP 85- 5C	195	192	189	190	199	122	201	168	189
FLIP 85- 18C	194	195	185	190	198	120	201	168	189
FLIP 85- 42C	195	194	184	193	201	120	201	168	189
FLIP 85- 44C	197	195	190	192	202	122	204	168	191
FLIP 85- 93C	193	192	185	189	197	119	198	168	187
FLIP 86- 2C	193	194	184	192	200	119	203	168	189
FLIP 86- 6C	194	191	183	192	198	121	203	168	188
FLIP 86- 42C	191	188	185	187	191	122	195	168	183
FLIP 86- 50C	193	193	187	187	194	120	201	168	186
FLIP 87- 96C	193	189	184	190	197	119	197	168	187
FLIP 88- 82C	191	193	188	189	191	122	197	168	187
FLIP 88- 85C	194	192	187	190	194	124	199	168	187
FLIP 89- 26C	200	193	191	194	198	120	198	168	188
FLIP 89- 29C	193	188	181	187	190	122	194	168	184
FLIP 89- 38C	191	192	178	185	191	121	196	168	184
FLIP 89- 44C	193	192	186	190	198	120	197	168	187
FLIP 89- 62C	192	188	180	192	196	119	194	168	185
FLIP 89- 63C	195	191	185	190	191	122	196	168	185
FLIP 89- 78C	192	190	182	189	197	120	195	168	186
FLIP 89- 96C	193	194	185	189	197	120	202	168	188
FLIP 82-150C	196	195	186	192	195	120	200	168	188
IIC 482	193	193	181	189	196	119	194	168	184
Local check	194	192	182	192	200	123	203	168	
Location Mean	194	192	184	190	196	121	199	168	
S.E. of Mean	0.62	1.22	1.26	0.63	0.95	1.01	1.10		
L.S.D. at 5%	1.76	3.48	3.57	1.79	2.69	2.89	3.13		
C.V. %	0.55	1.10	1.18	0.57	0.83	1.45	0.96		
Error d.f.	46	46	46	46	46	46	46		
Significance	*	*	*	*	*	*	*		

(1) Oued Smar had missing values; and Kaermanshah, Zarghan, and Amasya were planted in spring and were excluded from the overall mean. * = 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 1991/92.

Entry Name	ALGERIA					CYPRUS		IRAN		ITALY
	Beni Slimane	Khroub	Oued Smar	Setif	Tiaret	Athalassa	Gorgan	Kaermanshah	Zarghan	Papiano
FLIP 84- 15C	55	78	63	35	37	50	67	37	45	48
FLIP 85- 5C	55	90	66	36	42	58	80	40	47	60
FLIP 85- 18C	63	92	63	45	46	63	87	32	62	58
FLIP 85- 42C	61	78	60	42	38	50	93	41	45	63
FLIP 85- 44C	58	85	67	52	44	60	92	37	58	60
FLIP 85- 93C	53	70	54	28	34	45	84	35	42	52
FLIP 86- 2C	54	78	59	29	46	48	79	41	46	57
FLIP 86- 6C	55	72	65	45	40	55	86	37	52	68
FLIP 86- 42C	55	68	45	32	35	48	78	41	40	47
FLIP 86- 50C	55	75	56	38	32	45	82	38	41	48
FLIP 87- 96C	57	82	72	47	41	55	87	41	44	58
FLIP 88- 82C	54	75	54	42	35	45	85	35	47	52
FLIP 88- 85C	60	75	53	33	32	48	90	38	42	45
FLIP 89- 26C	60	85	73	52	41	58	91	35	48	67
FLIP 89- 29C	52	70	56	35	34	53	81	32	50	52
FLIP 89- 38C	48	70	51	35	33	40	75	38	37	55
FLIP 89- 44C	57	70	63	48	37	50	84	45	55	55
FLIP 89- 62C	50	65	45	38	35	48	80	42	38	45
FLIP 89- 63C	45	70	48	30	30	38	80	39	38	43
FLIP 89- 78C	57	80	66	32	36	53	89	40	45	52
FLIP 89- 96C	57	87	-	48	38	50	86	36	49	68
FLIP 82-150C	46	65	49	35	35	48	78	34	44	47
ILC 482	53	75	49	25	41	45	78	36	39	45
Local check	52	82	49	52	48	45	81	37	40	52
Location Mean	55	55	58	39	38	50	83	38	46	54
S.E. of Mean	3.51	3.51	3.74	0.92		2.33	4.11	0.26	1.18	4.70
L.S.D. at 5%	-	10.00	10.67	2.62		5.56	11.71	0.73	3.37	13.38
C.V. %	11.13	11.13	11.23	4.09		6.63	8.58	1.17	5.80	15.07
Error d.f.	46	46	44	46		23	46	46	46	46
Significance	NS	NS	*	*		*	*	*	*	*

Cont'd. ...

Table 3.2.4. Cont'd. ...

	ITALY	JORDAN	LEBANON	LIBYA	MOROCCO	PORTUGAL	SPAIN	SYRIA				
Entry Name	Tolentino	Rabba	Terbol	El Safsaf	Jema'a-Shain	Elvas	Badajoz	Cordoba	Tomejil	Al Ghab	Gelline	Hama
FLIP 84- 15C	52	33	46	53	50	65	39	81	45	58	44	48
FLIP 85- 5C	49	35	50	55	60	67	35	86	47	62	50	53
FLIP 85- 18C	60	44	39	59	50	71	36	91	50	70	52	58
FLIP 85- 42C	53	40	41	50	60	62	37	96	43	58	50	57
FLIP 85- 44C	55	38	45	61	60	65	35	90	50	65	49	57
FLIP 85- 93C	48	35	40	42	50	54	32	81	43	43	35	45
FLIP 86- 2C	53	36	49	47	50	60	33	83	38	48	42	47
FLIP 86- 6C	53	40	47	58	45	59	39	84	52	55	45	53
FLIP 86- 42C	45	33	36	44	50	59	39	75	43	40	43	42
FLIP 86- 50C	45	31	39	39	40	54	28	89	43	47	37	42
FLIP 87- 96C	58	39	41	59	47	64	35	82	47	58	47	57
FLIP 88- 82C	44	39	31	46	45	61	35	85	35	57	45	47
FLIP 88- 85C	46	32	34	43	50	57	34	74	38	42	40	43
FLIP 89- 26C	48	37	38	53	60	63	33	97	45	57	47	57
FLIP 89- 29C	49	34	31	54	60	56	40	88	38	50	39	47
FLIP 89- 38C	31	32	36	40	50	51	34	78	33	43	35	40
FLIP 89- 44C	52	39	41	48	25	61	36	83	45	63	42	57
FLIP 89- 62C	48	34	27	44	35	55	31	68	33	40	42	42
FLIP 89- 63C	34	29	27	40	30	48	31	76	33	35	34	38
FLIP 89- 78C	43	36	33	52	40	61	31	87	45	47	43	50
FLIP 89- 96C	51	37	39	47	40	57	36	89	45	55	46	47
FLIP 82-150C	43	32	27	40	60	59	36	85	43	47	42	45
ILC 482	42	29	28	43	50	57	33	72	30	38	37	43
Local check	61	31	36	36	40	64	27	87	51	45	42	45
Location Mean	48	35	38	48	48	60	34	84	42	51	43	48
S.E. of Mean	1.96	2.79	0.63	2.71	0.89	2.25	3.39	4.90	1.77	2.75	3.73	1.87
L.S.D. at 5%	5.58	7.93	1.80	7.71	2.53	6.41	-	13.95	5.04	7.83	10.61	5.31
C.V. %	7.01	10.59	2.90	9.76	3.21	6.55	17.06	10.16	7.23	9.35	15.07	6.70
Error d.f.	46	46	46	46	46	46	46	46	46	46	46	46
Significance	*	*	*	*	*	*	NS	*	*	*	*	*

Cont'd. ...

Table 3.2.4. Cont'd. ...

Entry Name	SYRIA						TURKEY			(1) Overall Mean
	Heimo	Homs	Idleb	Izra'a	Jindiress	Tel Hadya	Amasya	Diyarbakir	Izmir	
FLIP 84- 15C	48	55	56	45	36	37	40	49	50	50
FLIP 85- 5C	50	57	50	53	39	41	42	49	53	54
FLIP 85- 18C	58	67	62	52	49	46	49	57	48	58
FLIP 85- 42C	45	67	53	50	42	39	43	51	53	54
FLIP 85- 44C	50	63	57	51	45	42	46	54	58	57
FLIP 85- 93C	40	53	49	41	38	31	37	45	45	47
FLIP 86- 2C	47	52	44	45	32	35	42	44	47	49
FLIP 86- 6C	50	60	51	50	42	39	43	50	51	53
FLIP 86- 42C	36	48	46	44	32	32	32	44	51	46
FLIP 86- 50C	39	50	46	41	34	32	32	47	52	46
FLIP 87- 96C	55	63	52	54	43	44	46	52	41	54
FLIP 88- 82C	47	57	50	50	39	34	36	55	55	50
FLIP 88- 85C	45	53	52	47	35	34	34	45	54	47
FLIP 89- 26C	47	65	57	52	40	38	39	53	46	55
FLIP 89- 29C	44	55	51	45	36	38	39	49	56	49
FLIP 89- 38C	41	48	44	36	32	31	32	47	50	45
FLIP 89- 44C	42	62	50	55	42	38	38	54	50	52
FLIP 89- 62C	39	52	44	39	32	31	35	48	49	44
FLIP 89- 63C	35	47	43	36	31	27	27	45	48	42
FLIP 89- 78C	41	57	47	46	36	34	40	51	52	49
FLIP 89- 96C	48	55	54	46	38	34	40	51	53	52
FLIP 82-150C	44	55	45	38	29	31	33	45	52	46
ILC 482	38	45	41	37	30	25	32	44	43	43
Local check	37	53	47	42	46	42	38	47	56	
Location Mean	44	56	50	46	37	36	38	49	50	
S.E. of Mean	1.42	1.31	1.74	2.21	1.36	1.28	1.39	1.56	4.55	
L.S.D. at 5%	4.04	3.73	4.95	6.28	3.86	3.63	3.94	4.45	-	
C.V. %	5.53	4.07	6.06	8.38	6.28	6.20	6.30	5.53	12.81	
Error d.f.	46	46	46	46	46	46	46	46	23	
Significance	*	*	*	*	*	*	*	*	NS	

(1) Oued Smar had missing values and Kaermanshah, Zarghan, Tolentino and Amasya were planted in spring and were excluded from the overall mean. * = 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 1991/92.

Entry Name	ALGERIA		CYPRUS		IRAN		ITALY
	Oued Smar	Setif	Athalassa	Gorgan	Kaermanshah	Zarghan	Papiano
FLIP 84- 15C	41	38	47	49	27	37	40
FLIP 85- 5C	41	44	50	48	28	49	43
FLIP 85- 18C	33	37	37	38	26	35	36
FLIP 85- 42C	35	36	41	43	25	40	37
FLIP 85- 44C	32	45	41	43	26	42	36
FLIP 85- 93C	35	37	39	41	27	37	36
FLIP 86- 2C	37	41	46	45	26	42	37
FLIP 86- 6C	36	38	42	44	26	41	39
FLIP 86- 42C	-	41	38	39	27	36	36
FLIP 86- 50C	40	39	40	43	26	39	33
FLIP 87- 96C	47	41	40	45	28	42	36
FLIP 88- 82C	28	29	32	30	27	29	30
FLIP 88- 85C	27	35	38	33	27	31	35
FLIP 89- 26C	-	37	37	37	26	33	36
FLIP 89- 29C	26	26	32	36	26	32	32
FLIP 89- 38C	36	34	38	39	26	34	34
FLIP 89- 44C	38	40	40	38	26	35	34
FLIP 89- 62C	-	26	30	31	27	26	29
FLIP 89- 63C	26	28	29	32	27	25	30
FLIP 89- 78C	29	32	33	38	26	36	29
FLIP 89- 96C	-	41	39	38	28	35	34
FLIP 82-150C	26	27	29	27	27	27	26
IIC 482	25	34	30	34	26	27	28
Local check	-	28	37	32	28	30	31
Location Mean	34	36	38	38	26	35	34
S.E. of Mean	1.88	1.10	0.96	1.92	0.10	2.08	1.27
L.S.D. at 5%	5.39	3.13	2.30	5.46	0.28	5.91	3.62
C.V. %	9.69	5.35	3.61	8.65	0.65	10.29	6.46
Error d.f.	36	46	23	46	46	46	46
Significance	*	*	*	*	*	*	*

Cont'd. ...

Table 3.2.5. Cont'd. ...

Entry Name	ITALY	LEBANON	LIBYA	PORTUGAL	SPAIN	SYRIA	
	Tolentino	Terbol	El Safsaf	Elvas	Badajoz	Al Ghab	Gelline
FLIP 84- 15C	50	46	38	40	31	46	42
FLIP 85- 5C	55	50	43	46	24	48	45
FLIP 85- 18C	39	39	33	37	32	39	34
FLIP 85- 42C	42	41	35	40	29	36	36
FLIP 85- 44C	47	45	37	38	26	42	39
FLIP 85- 93C	41	40	31	38	23	40	37
FLIP 86- 2C	52	49	41	45	24	47	44
FLIP 86- 6C	50	47	37	41	30	43	37
FLIP 86- 42C	41	36	30	37	18	38	36
FLIP 86- 50C	42	39	34	40	30	41	39
FLIP 87- 96C	45	41	34	38	30	43	39
FLIP 88- 82C	39	31	30	34	29	35	30
FLIP 88- 85C	43	34	34	33	25	36	36
FLIP 89- 26C	41	38	29	36	32	41	35
FLIP 89- 29C	35	31	26	33	28	33	29
FLIP 89- 38C	49	36	33	35	30	38	35
FLIP 89- 44C	43	41	35	39	34	39	39
FLIP 89- 62C	32	27	23	28	27	28	26
FLIP 89- 63C	35	27	26	27	28	31	29
FLIP 89- 78C	41	33	30	35	24	36	31
FLIP 89- 96C	41	39	31	38	36	38	34
FLIP 82-150C	34	27	25	30	22	30	27
ILC 482	36	28	24	30	18	30	26
Local check	32	36	28	40	21	31	27
Location Mean	42	38	32	37	27	38	35
S.E. of Mean	0.71	0.63	1.06	1.26	3.38	0.75	0.90
L.S.D. at 5%	2.01	1.80	3.02	3.58	9.61	2.14	2.56
C.V. %	2.92	2.90	5.76	5.95	21.59	3.43	4.48
Error d.f.	46	46	46	46	46	46	46
Significance	*	*	*	*	*	*	*

Cont'd. ...

Table 3.2.5. Cont'd. ...

Entry Name	SYRIA				TURKEY			(1) Overall Mean
	Heimo	Homs	Tel Hadya	Altinova	Amasya	Diyarbakir	Izmir	
FLIP 84- 15C	41	41	48	48	47	42	36	42
FLIP 85- 5C	42	45	51	55	50	46	41	45
FLIP 85- 18C	35	39	38	42	39	34	37	37
FLIP 85- 42C	36	40	43	44	42	36	39	38
FLIP 85- 44C	38	42	43	43	41	39	43	40
FLIP 85- 93C	38	35	38	41	41	38	37	37
FLIP 86- 2C	42	45	50	52	50	45	41	43
FLIP 86- 6C	38	40	45	48	43	41	40	41
FLIP 86- 42C	35	35	42	40	35	33	37	36
FLIP 86- 50C	33	40	41	39	41	35	42	38
FLIP 87- 96C	38	39	46	39	41	40	38	39
FLIP 88- 82C	30	32	31	35	33	31	41	32
FLIP 88- 85C	36	37	35	36	36	33	46	35
FLIP 89- 26C	34	38	36	37	37	34	45	36
FLIP 89- 29C	29	30	34	39	34	32	39	32
FLIP 89- 38C	35	33	40	43	38	34	37	36
FLIP 89- 44C	37	39	41	44	41	36	36	38
FLIP 89- 62C	24	28	30	36	29	25	43	29
FLIP 89- 63C	26	31	29	33	28	27	33	29
FLIP 89- 78C	33	31	33	38	36	30	36	33
FLIP 89- 96C	36	38	37	39	39	36	37	37
FLIP 82-150C	27	29	29	32	30	27	43	29
ILC 482	28	30	30	35	29	26	45	30
Local check	27	31	31	50	38	30	40	
Location Mean	34	36	38	41	38	35	39	
S.E. of Mean	0.36	0.85	0.97	1.84	1.40	0.67	3.53	
L.S.D. at 5%	1.04	2.41	2.75	4.38	4.00	1.91	-	
C.V. %	1.85	4.06	4.36	6.35	6.36	3.36	12.69	
Error d.f.	46	46	46	23	46	46	23	
Significance	*	*	*	*	*	*	NS	

(1)Kaermanshah, Zarghan, Tolentino and Amasya were excluded from the overall mean since it is spring planting, * = 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 1991/92.

Entry Name	ALGERIA										CYPRUS		IRAN	
	Beni Slimane		Khroub		Oued Smar		Setif		Tiaret		Athalassa		Gorgan	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	951	19	3016	8	1303	8	403	24	1184	21	2444	4	925	11
FLIP 85- 5C	722	21	2409	22	1383	7	711	20	1608	17	2631	2	571	23
FLIP 85- 18C	1014	17	2536	16	1109	10	1247	6	1031	22	1986	14	884	12
FLIP 85- 42C	1111	8	2469	21	1183	9	615	22	1541	18	2281	6	748	17
FLIP 85- 44C	1097	12	3109	7	1575	5	932	16	2115	6	2072	12	789	16
FLIP 85- 93C	972	18	3245	4	1544	6	846	17	1010	24	2169	7	1061	6
FLIP 86- 2C	733	20	2268	24	577	14	722	18	1656	16	1719	20	381	24
FLIP 86- 6C	1111	10	2776	11	480	15	457	23	2164	4	1876	17	653	21
FLIP 86- 42C	1021	14	2510	18	0	23	1340	5	2013	7	2115	9	980	9
FLIP 86- 50C	1250	5	2974	9	3106	2	1540	3	1930	8	1711	21	1306	2
FLIP 87- 96C	1281	4	2523	17	5485	1	619	21	1027	23	1554	24	653	19
FLIP 88- 82C	1024	13	2484	19	236	19	1381	4	1815	12	2011	13	653	20
FLIP 88- 85C	1552	2	2477	20	425	17	954	15	1878	11	2379	5	796	15
FLIP 89- 26C	1017	16	2747	12	138	21	1176	7	2423	3	1556	23	803	14
FLIP 89- 29C	701	22	3232	5	688	13	1129	9	1690	14	1920	16	1429	1
FLIP 89- 38C	549	24	2901	10	982	11	987	14	1674	15	2126	8	857	13
FLIP 89- 44C	1111	9	3154	6	2441	3	1057	13	1774	13	1848	18	966	10
FLIP 89- 62C	1667	1	3328	3	23	22	2100	1	2683	2	2448	3	980	8
FLIP 89- 63C	1101	11	3875	1	431	16	1099	10	1200	20	2088	10	1211	4
FLIP 89- 78C	1247	6	2622	15	1717	4	718	19	2737	1	2086	11	1224	3
FLIP 89- 96C	1021	15	2711	13	-	-	1614	2	1882	10	1668	22	626	22
FLIP 82-150C	1233	7	2352	23	335	18	1088	11	1385	19	1759	19	1170	5
IIC 482	701	23	3346	2	910	12	1083	12	2117	5	1975	15	748	18
Local check	1326	3	2677	14	169	20	1146	8	1902	9	2640	1	1020	7
Location Mean	1063		2823		1141		1040		1768		2044		893	
S.E. of Mean	289.51		233.92		696.95		234.92		158.35		219.55		101.99	
L.S.D. at 5%	-		665.87		1986.46		668.69		450.74		524.53		290.31	
C.V. %	47.17		14.36		105.81		39.12		15.51		15.19		19.78	
Error d.f.	46		46		44		46		46		23		46	
Significance	NS		*		*		*		*		*		*	
Entry > L. Check	-		2		3		1		3		0		1	

Cont'd. ...

Table 3.2.6. Cont'd. ...

Entry Name	IRAN				ITALY				JORDAN		LEBANON		LIBYA		MOROCCO	
	Kaermanshah		Zarghan		Papiano		Tolentino		Rabba		Terbol		El Safsaf		Jema'a Shain	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	735	16	2365	15	2814	10	3190	17	1189	22	2374	6	1012	21	2042	1
FLIP 85- 5C	733	17	2802	6	3065	6	3405	9	2378	2	2136	14	1417	13	1083	16
FLIP 85- 18C	783	3	2230	19	3748	2	3242	14	1909	8	2007	21	1000	22	900	20
FLIP 85- 42C	743	11	1683	23	3790	1	3611	2	2210	4	2395	5	1298	17	1117	15
FLIP 85- 44C	484	24	1587	24	2193	21	3577	3	2227	3	2163	10	1321	14	1142	13
FLIP 85- 93C	754	9	2452	13	2576	14	3491	6	1084	23	2102	18	1429	9	1250	11
FLIP 86- 2C	765	7	2143	20	2068	22	3242	13	2744	1	2159	11	1417	10	825	22
FLIP 86- 6C	778	4	1960	22	2256	19	3467	7	1385	18	2453	3	1488	7	733	23
FLIP 86- 42C	770	6	2897	2	2725	12	2845	24	2029	5	1967	22	1500	5	1508	4
FLIP 86- 50C	775	5	2532	11	1626	24	3262	12	1905	9	1511	24	1131	20	1042	19
FLIP 87- 96C	790	2	2095	21	1959	23	3175	18	609	24	2408	4	845	23	875	21
FLIP 88- 82C	730	18	2857	3	2652	13	3104	20	1267	21	2259	7	1560	4	1458	8
FLIP 88- 85C	738	13	3278	1	2218	20	3563	4	1953	7	2531	2	1417	11	1083	18
FLIP 89- 26C	727	19	2389	14	2933	7	3740	1	1356	19	1857	23	631	24	1392	9
FLIP 89- 29C	722	21	2690	7	3109	4	3213	16	1521	14	2115	17	1810	2	1133	14
FLIP 89- 38C	711	22	2468	12	2328	16	3458	8	1733	11	2204	9	1881	1	1475	7
FLIP 89- 44C	746	10	2294	18	2297	17	3324	11	1895	10	2140	13	1298	16	1250	12
FLIP 89- 62C	529	23	2802	5	2890	8	3242	15	1638	12	2142	12	1631	3	1483	6
FLIP 89- 63C	738	12	2587	10	3097	5	3386	10	1989	6	2076	20	1488	6	1708	3
FLIP 89- 78C	738	14	2325	16	2737	11	2912	23	1446	16	2784	1	1440	8	1083	17
FLIP 89- 96C	762	8	2294	17	2856	9	3166	19	1581	13	2098	19	1298	15	733	24
FLIP 82-150C	814	1	2675	8	2259	18	2969	22	1301	20	2130	16	1274	18	1500	5
ILC 482	722	20	2849	4	2559	15	3099	21	1455	15	2130	15	1417	12	1375	10
Local check	738	15	2627	9	3275	3	3558	5	1444	17	2246	8	1262	19	1725	2
Location Mean	730		2453		2668		3302		1677		2183		1344		1247	
S.E. of Mean	66.94		247.36		372.91		174.04		308.69		177.57		149.52		270.71	
L.S.D. at 5%	190.53		704.11		1061.51		-		878.69		505.46		425.62		-	
C.V. %	15.88		17.46		24.21		9.13		31.88		14.09		19.27		37.61	
Error d.f.	46		46		46		46		46		46		46		46	
Significance	NS		*		*		NS		*		*		*		NS	
Entry > L. Check	-		0		0		-		2		1		2		-	

Cont'd. ...

Table 3.2.6. Cont'd. ...

Entry Name	MOROCCO		PORTUGAL		SPAIN						SYRIA			
	Marchouch		Elvas		Badajoz		Cordoba		Tomejil		Al Ghab		Gelline	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	1913	4	894	20	373	3	1907	7	1204	9	3394	19	2150	14
FLIP 85- 5C	1763	8	1162	11	64	23	1757	12	942	18	3680	11	2136	15
FLIP 85- 18C	1113	22	1285	8	256	7	1648	17	954	16	3354	21	2082	16
FLIP 85- 42C	2433	1	758	24	289	5	1387	24	1175	11	3592	13	2544	2
FLIP 85- 44C	1546	14	1028	17	93	21	1596	18	779	23	3993	5	2293	10
FLIP 85- 93C	1650	11	1297	7	119	19	1925	5	1358	3	4007	3	2408	4
FLIP 86- 2C	1692	10	883	21	116	20	1845	9	900	20	3306	22	2367	6
FLIP 86- 6C	2088	2	1131	12	200	13	1829	10	879	21	3034	23	2463	3
FLIP 86- 42C	833	24	1420	4	61	24	2123	2	954	17	3619	12	2340	9
FLIP 86- 50C	1783	7	1428	3	83	22	2156	1	1379	2	3772	10	2014	19
FLIP 87- 96C	1296	20	789	22	141	16	1585	20	1204	10	3429	18	2163	12
FLIP 88- 82C	1592	12	1129	13	350	4	1592	19	1275	6	4041	2	2381	5
FLIP 88- 85C	1433	16	919	19	173	14	1895	8	1383	1	4204	1	2674	1
FLIP 89- 26C	900	23	1111	14	148	15	1498	23	1233	8	3490	17	1932	21
FLIP 89- 29C	1763	9	1330	6	491	1	1919	6	1013	13	3833	9	2156	13
FLIP 89- 38C	1871	6	1096	16	276	6	1732	13	1267	7	3871	8	2075	17
FLIP 89- 44C	1583	13	1348	5	249	10	1799	11	1088	12	3932	6	1899	22
FLIP 89- 62C	1254	21	1279	9	250	9	1679	15	763	24	3381	20	1959	20
FLIP 89- 63C	1329	18	1534	2	231	12	2098	3	1313	5	3884	7	2354	7
FLIP 89- 78C	1958	3	760	23	233	11	1545	22	929	19	3503	16	2272	11
FLIP 89- 96C	1367	17	1271	10	439	2	2015	4	879	22	2510	24	1694	24
FLIP 82-150C	1908	5	1104	15	137	18	1650	16	1346	4	3538	15	2061	18
IIC 482	1488	15	929	18	251	8	1546	21	963	15	4000	4	2347	8
Local check	1321	19	1619	1	140	17	1687	14	967	14	3585	14	1878	23
Location Mean	1578		1146		215		1767		1089		3623		2193	
S.E. of Mean	327.73		169.61		99.43		167.23		104.05		263.74		171.66	
L.S.D. at 5%	-		482.80		-		-		296.19		750.74		488.64	
C.V. %	35.97		25.63		80.07		16.39		16.54		12.61		13.56	
Error d.f.	46		46		46		46		46		46		46	
Significance	NS		*		NS		NS		*		*		*	
Entry > L. Check	-		0		-		-		7		0		6	

Cont'd. ...

Table 3.2.6. Cont'd. ...

Entry Name	SYRIA											
	Hama		Heimo		Homs		Idleb		Izra'a		Jindiress	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	3000	13	1741	7	3331	8	2708	5	2605	16	3088	1
FLIP 85- 5C	3259	3	1845	5	3294	9	2570	9	2803	13	2556	4
FLIP 85- 18C	2652	22	1388	24	3043	17	2790	3	2585	17	2008	11
FLIP 85- 42C	3132	7	1801	6	3698	2	2104	19	2823	12	2167	8
FLIP 85- 44C	2656	21	1695	11	3379	6	2803	2	2898	10	2228	6
FLIP 85- 93C	3005	12	1881	3	3266	10	2310	16	2360	21	2110	9
FLIP 86- 2C	2936	14	1738	8	2794	23	2266	18	2830	11	2218	7
FLIP 86- 6C	3339	2	1871	4	3200	13	2363	14	3177	3	2319	5
FLIP 86- 42C	3217	4	1718	9	3180	14	2685	6	2953	9	1575	23
FLIP 86- 50C	2852	19	1582	19	3365	7	2075	21	2626	15	1699	19
FLIP 87- 96C	2243	24	1505	21	3263	11	2713	4	2259	22	2939	2
FLIP 88- 82C	3079	9	1682	14	3036	18	2000	22	2435	20	1991	12
FLIP 88- 85C	3825	1	2122	1	3921	1	3241	1	3306	2	2633	3
FLIP 89- 26C	2603	23	1413	23	2664	24	2588	8	2640	14	1578	22
FLIP 89- 29C	2926	15	1680	15	3690	3	1985	23	2565	18	1907	14
FLIP 89- 38C	3037	11	1689	13	2838	22	2104	20	3068	5	1770	17
FLIP 89- 44C	3095	8	1529	20	3148	15	2357	15	3660	1	1912	13
FLIP 89- 62C	2884	18	1477	22	3143	16	2555	11	2973	8	1690	20
FLIP 89- 63C	3159	6	1700	10	3571	4	2440	13	3020	7	1842	15
FLIP 89- 78C	3169	5	1614	18	3029	19	2502	12	2476	19	2078	10
FLIP 89- 96C	2799	20	1691	12	2911	20	1977	24	2007	24	1713	18
FLIP 82-150C	2894	17	1889	2	3509	5	2612	7	2204	23	1456	24
ILC 482	3048	10	1670	16	2869	21	2267	17	3048	6	1835	16
Local check	2905	16	1637	17	3216	12	2568	10	3088	4	1590	21
Location Mean	2988		1690		3223		2441		2767		2038	
S.E. of Mean	192.46		126.43		256.26		297.26		433.59		267.10	
L.S.D. at 5%	547.83		-		-		-		-		760.31	
C.V. %	11.16		12.96		13.77		21.09		27.14		22.70	
Error d.f.	46		46		46		46		46		46	
Significance	*		NS		NS		NS		NS		*	
Entry > L. Check	1		-		-		-		-		4	

Cont'd. ...

Table 3.2.6. Cont'd. ...

Entry Name	SYRIA		TURKEY										(1) Overall Mean
	Tel Hadya		Altinova		Amasya		Diyarbakir		Izmir				
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	
FLIP 84- 15C	2005	5	938	22	1639	19	2365	2	1102	9	1935	3	
FLIP 85- 5C	1707	14	1136	16	1980	7	2011	10	1120	8	1900	8	
FLIP 85- 18C	1424	22	1154	14	1741	15	1498	19	1296	3	1752	19	
FLIP 85- 42C	1576	19	1895	1	1769	12	2033	9	1056	10	1938	4	
FLIP 85- 44C	1590	16	1012	21	2000	5	1328	21	1130	7	1843	15	
FLIP 85- 93C	1987	6	1549	4	1646	18	1900	15	778	22	1853	9	
FLIP 86- 2C	1753	12	1222	12	2048	3	1035	23	1204	6	1726	22	
FLIP 86- 6C	1797	11	1821	2	1395	24	917	24	676	24	1819	13	
FLIP 86- 42C	1827	8	1099	18	1558	22	1311	22	1213	5	1842	14	
FLIP 86- 50C	1862	7	1340	7	1619	20	1522	18	981	16	1798	17	
FLIP 87- 96C	1817	9	1148	15	1728	16	1574	17	1019	13	1667	20	
FLIP 88- 82C	2073	4	1049	20	2027	4	2141	7	824	20	1835	12	
FLIP 88- 85C	2088	3	1340	9	1939	9	2593	1	1343	1	2102	1	
FLIP 89- 26C	1407	23	1506	5	1993	6	1656	16	1028	12	1685	21	
FLIP 89- 29C	2103	2	1105	17	2048	2	2302	3	870	19	1908	6	
FLIP 89- 38C	2110	1	1753	3	1973	8	1950	12	917	17	1858	11	
FLIP 89- 44C	1511	21	1340	8	1748	14	1980	11	991	15	1866	10	
FLIP 89- 62C	1684	15	728	24	1748	13	2244	4	1000	14	1917	5	
FLIP 89- 63C	1749	13	1377	6	1810	11	2209	6	870	18	1981	2	
FLIP 89- 78C	1802	10	1278	10	2095	1	2217	5	824	21	1875	7	
FLIP 89- 96C	1583	17	1173	13	1701	17	1444	20	1046	11	1666	23	
FLIP 82-150C	1580	18	1235	11	1585	21	1920	14	1324	2	1768	18	
ILC 482	1512	20	914	23	1918	10	2052	8	750	23	1800	16	
Local check	1022	24	1086	19	1429	23	1943	13	1231	4			
Location Mean	1732		1258		1797		1839		1025				
S.E. of Mean	118.95		231.51		224.02		216.31		154.77				
L.S.D. at 5%	338.61		-		-		615.73		-				
C.V. %	11.90		31.87		21.59		20.37		21.36				
Error d.f.	46		46		46		46		23				
Significance	*		NS		NS		*		NS				
Entry > L. Check	23		-		-		1		-				

(1) Oued Smar had missing values and Kaermanshah, Zarghan, Tolentino and Amasya were planted in spring and were 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 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Beni Slimane	FLIP 89-62C	FLIP 88-85C	Local check	FLIP 87-96C	FLIP 86-50C
Algeria	Khroub	FLIP 89-63C	ILC 482	FLIP 89-62C	FLIP 85-93C	FLIP 89-29C
Algeria	Oued Smar	FLIP 87-96C	FLIP 86-50C	FLIP 89-44C	FLIP 89-78C	FLIP 85-44C
Algeria	Setif	FLIP 89-62C	FLIP 89-96C	FLIP 86-50C	FLIP 88-82C	FLIP 86-42C
Algeria	Tiaret	FLIP 89-78C	FLIP 89-62C	FLIP 89-26C	FLIP 86-6C	ILC 482
Cyprus	Athalassa	Local check	FLIP 85-5C	FLIP 89-62C	FLIP 84-15C	FLIP 88-85C
Iran	Gorgan	FLIP 89-29C	FLIP 86-50C	FLIP 89-78C	FLIP 89-63C	FLIP 82-150C
Iran	Kaermanshah	FLIP 82-150C	FLIP 87-96C	FLIP 85-18C	FLIP 86-6C	FLIP 86-50C
Iran	Zarghan	FLIP 88-85C	FLIP 86-42C	FLIP 88-82C	ILC 482	FLIP 89-62C
Italy	Papiano	FLIP 85-42C	FLIP 85-18C	Local check	FLIP 89-29C	FLIP 89-63C
Italy	Tolentino	FLIP 89-26C	FLIP 85-42C	FLIP 85-44C	FLIP 88-85C	Local check
Lodan	Rabba	FLIP 86-2C	FLIP 85-5C	FLIP 85-44C	FLIP 85-47C	FLIP 86-42C
Lebanon	Terbol	FLIP 89-78C	FLIP 88-85C	FLIP 86-6C	FLIP 87-96C	FLIP 85-42C
Libya	El Safsaf	FLIP 89-38C	FLIP 89-29C	FLIP 89-62C	FLIP 88-82C	FLIP 86-42C
Morocco	Jema'a Shain	FLIP 84-15C	Local check	FLIP 89-63C	FLIP 86-42C	FLIP 82-150C
Morocco	Marchouch	FLIP 85-42C	FLIP 86-6C	FLIP 89-78C	FLIP 84-15C	FLIP 82-150C
Portugal	Elvas	Local check	FLIP 89-63C	FLIP 86-50C	FLIP 86-42C	FLIP 89-44C
Spain	Badajoz	FLIP 89-29C	FLIP 89-96C	FLIP 84-15C	FLIP 88-82C	FLIP 85-42C
Spain	Córdoba	FLIP 86-50C	FLIP 86-42C	FLIP 89-63C	FLIP 89-96C	FLIP 85-93C
Spain	Tomejil	FLIP 88-85C	FLIP 86-50C	FLIP 85-93C	FLIP 82-150C	FLIP 89-63C
Syria	Al Ghab	FLIP 88-85C	FLIP 88-82C	FLIP 85-93C	ILC 482	FLIP 85-44C
Syria	Gelline	FLIP 88-85C	FLIP 85-42C	FLIP 86-6C	FLIP 85-93C	FLIP 88-82C
Syria	Hama	FLIP 88-85C	FLIP 86-6C	FLIP 85-5C	FLIP 86-42C	FLIP 89-78C
Syria	Heimo	FLIP 88-85C	FLIP 82-150C	FLIP 85-93C	FLIP 86-6C	FLIP 85-5C
Syria	Homs	FLIP 88-85C	FLIP 85-42C	FLIP 89-29C	FLIP 89-63C	FLIP 82-150C
Syria	Idleb	FLIP 88-85C	FLIP 85-44C	FLIP 85-18C	FLIP 87-96C	FLIP 84-15C
Syria	Izra'a	FLIP 89-44C	FLIP 88-85C	FLIP 86-6C	Local check	FLIP 89-38C
Syria	Jindiress	FLIP 84-15C	FLIP 87-96C	FLIP 88-85C	FLIP 85-5C	FLIP 86-6C
Syria	Tel Hadya	FLIP 89-38C	FLIP 89-29C	FLIP 88-85C	FLIP 88-82C	FLIP 84-15C
Turkey	Altinova	FLIP 85-42C	FLIP 86-6C	FLIP 89-38C	FLIP 85-93C	FLIP 89-26C
Turkey	Amasya	FLIP 89-78C	FLIP 89-29C	FLIP 86-2C	FLIP 88-82C	FLIP 85-44C
Turkey	Diyarbakir	FLIP 88-85C	FLIP 84-15C	FLIP 89-29C	FLIP 89-62C	FLIP 89-78C
Turkey	Izmir	FLIP 88-85C	FLIP 82-150C	FLIP 85-18C	Local check	FLIP 86-42C

and 3.2.5, respectively. The entry means across locations for time to flowering ranged from 65 days to 154 days. FLIP 89-38C and FLIP 89-63C took the minimum time to flower. In general, early flowering entries were also earlier in maturity. The plant height varied from 42 cm for FLIP 89-63C to 59 cm for FLIP 85-18C.

The location means for 100-seed weight (Table 3.2.5) varied from 26 g (for Kaemanshah in Iran), to 42 g (for Tolentino in Italy). The overall mean for 100-seed weight for entries ranged between 29 and 45 g, and the entry FLIP 85- 5C had the largest seed size.

The ANOVA for seed yield revealed that at 13 locations some of the test entries exceeded the respective local check by a significant margin (Table 3.2.6). Across locations, the highest seed yield was recorded for FLIP 88-85C (2107 kg/ha) which was closely followed by FLIP 89-63C, FLIP 84-15C, FLIP 85-42C and FLIP 89-62C with respective yields of 1981, 1963, 1928 and 1928 kg/ha. The top five high yielding lines at each location are given in Table 3.2.7. FLIP 88-85C occurred most frequently among the top five and was the most adaptable.

On the basis of average over two years for the 10 common entries (Table 3.2.8.), FLIP 85-5C (2119 kg/ha) ranked number 1 in seed yield and was closely followed by FLIP 84-15C (2095 kg/ha), FLIP 85-93C (2075 kg/ha), FLIP 85-44C (2037 kg/ha), and FLIP 86-6C (2022 kg/ha), respectively.

Table 3.2.8. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-W-MR during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
FLIP 84- 15C	2255	3	1935	1	2095	2
FLIP 85- 5C	2337	1	1900	2	2119	1
FLIP 85- 18C	1887	10	1752	8	1820	10
FLIP 85- 44C	2230	5	1843	4	2037	4
FLIP 85- 93C	2296	2	1853	3	2075	3
FLIP 86- 2C	2164	7	1726	9	1945	9
FLIP 86- 6C	2224	6	1819	6	2022	5
FLIP 87- 96C	2235	4	1667	10	1951	7
FLIP 88- 82C	2102	9	1835	5	1969	6
ILC 482	2120	8	1800	7	1960	8

3.3. CHICKPEA INTERNATIONAL YIELD TRIAL-SOUTHERLY LATITUDES - 1 (CIYT-SL1)

Material

The material for the CIYT-SL1 comprised 23 test entries, and one local check to be supplied by the cooperator. Twenty two test entries from these were the advanced breeding lines developed through hybridization at ICARDA. These test entries were resistant to Ascochyta blight and were selected from the local and regional yield trials based on their superior yield performance.

Methods and Management

The trial design was a randomized complete block with three replications. The suggested plot size was four rows each 4 m long with an inter row spacing of 35 cm.

Nineteen sets of trial were distributed to cooperators in 11 countries and the results were returned for 11 sets covering 8 countries. The agronomic practices employed at different locations are shown in Table 3.3.1.

Table 3.3.1. Agronomic data for different locations in the CIYT-SL1 during 1991/92.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
			N	P	K			
Argentina								
Cordoba	06.05.92	28.12.92	-	-	-	-	-	S-156
Ethiopia								
Ghinchie	09.09.92	-	-	-	-	-	-	-
India								
New Delhi	05.11.91	20.04.92	20	40	-	-	Thiodan, Basalin	Pusa 267
Oman								
Jimah	16.11.91	22.04.92	100	100	-	-	-	ILC 237
Rumais	17.11.91	26.04.92	100	100	-	3	-	ILC 237
Qatar								
Rawdat Harma	26.10.91	20.04.92	90	150	-	15	-	FLIP89-112C
Saudi Arabia								
Alkharj	08.12.91	01.04.92	80	100	50	15	-	-
Sudan								
Hudeiba	16.11.91	--.03.92	-	-	-	-	-	Shendi
Shendi-1	05.12.91	26.03.92	82	-	-	10	-	NEC 2491
Shendi-2	23.11.92	15.03.92	43	-	-	6	-	Shendi
Syria								
Tel Hadya	26.11.91	15.06.92	-	50	-	-	Igran, Kerb	Ghab-2

NA = Not available

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. The earliest entries included FLIP 87-89C, FLIP 88-79C and FLIP 87-60C which flowered in 63, 64 and 65 days, respectively.

The mean plant height for the entries over locations revealed that the entry FLIP 89-25C (64 cm) was the tallest and was closely followed by FLIP 89-47C, FLIP 89-48C and FLIP 89-110C (63 cm). The 100-seed weight for entries varied from 22 g to 33 g.

The ANOVA of the seed yield revealed that at Jimah and Rumais in Oman, Rawdat Harma in Qatar, and Tel Hadya in Syria, 2,1,1, and 16 entries,

Table 3.3.2. Time to flowering (days) of entries at different locations in the CIYT-SL1 during 1991/92.

Entry Name	Pedigree	Origin	ARGENTINA	ETHIOPIA	OMAN
			Cordoba	Ghinchie	Jimah
FLIP 87- 42C	X 84 TH 68/ILC 484XFLIP 82-80C	ICARDA/ICRISAT	108	61	79
FLIP 87- 45C	X 84 TH 74/ILC 482XFLIP 82-80C	ICARDA/ICRISAT	111	61	77
FLIP 87- 60C	X 85 TH 276/ILC3843XFLIP 82-191C	ICARDA/ICRISAT	108	55	59
FLIP 87- 89C	X 85 TH 294/ILC4293XFLIP 83-13C	ICARDA/ICRISAT	108	53	62
FLIP 88- 79C	X 85 TH 278/ILC 3843XFLIP 83-13C	ICARDA/ICRISAT	108	55	62
FLIP 88- 83C	X 85 TH 15/FLIP 82-100CXILC 200	ICARDA/ICRISAT	115	60	85
FLIP 88- 84C	X 85 TH 211/ILC 2371XFLIP 82-144C	ICARDA/ICRISAT	109	67	95
FLIP 88- 86C	X 86 TH 79/ILC 493XFLIP 82-150C	ICARDA/ICRISAT	118	72	90
FLIP 88- 87C	X 86 TH 79/ILC 493XFLIP 82-150C	ICARDA/ICRISAT	115	77	93
FLIP 89- 25C	X 84 TH 185/ICCL81169xILC3279	ICARDA/ICRISAT	108	75	93
FLIP 89- 45C	X 87 TH 31/FLIP 83-7CXFLIP 84-92C	ICARDA/ICRISAT	111	71	97
FLIP 89- 47C	X 87 TH 57/FLIP 83-104CXFLIP 84-78C	ICARDA/ICRISAT	106	73	100
FLIP 89- 48C	X 87 TH 86/FLIP 84-78CXILC4921	ICARDA/ICRISAT	118	67	93
FLIP 89- 49C	X 87 TH 19/FLIP 85- 4CXFLIP 84-78C	ICARDA/ICRISAT	108	67	95
FLIP 89- 50C	X 87 TH 146/FLIP 85-62CXFLIP 82-78C	ICARDA/ICRISAT	116	73	98
FLIP 89- 74C	X 86 TH 11/ILC 484XFLIP 84- 18C	ICARDA/ICRISAT	116	67	90
FLIP 89- 79C	X 87 TH 68/FLIP 82-87CXFLIP 85-180C	ICARDA/ICRISAT	109	62	90
FLIP 89- 86C	X 87 TH 272/(ILC484XFLIP 84-18C)X	ICARDA/ICRISAT	109	67	87
FLIP 89-100C	X 86 TH 257/(ILC165XFLIP82-130C)X	ICARDA/ICRISAT	108	70	87
FLIP 89-110C	X 85 TH 67/(FLIP 82-65CXFLIP81-3C)X	ICARDA/ICRISAT	116	63	89
FLIP 89-130C	X 87 TH 299/(ILC165XFLIP 81-65C)XILC165	ICARDA/ICRISAT	116	61	90
FLIP 82-150C	X 79 TH 101/ILC 523XILC 183	ICARDA/ICRISAT	111	75	98
ILC 482	Long term check	Turkey	115	61	87
Local check	-	-	109	50	90
Location Mean			111	65	87
S.E. of Mean			5.01	1.76	3.69
L.S.D. at 5%			-	5.02	10.50
C.V. %			7.78	4.69	7.36
Error d.f.			46	46	46
Significance			NS	*	*

Cont'd. ...

Table 3.3.2. Cont'd. ...

Entry Name	OMAN	QATAR	SAUDI ARABIA	SUDAN			SYRIA	(1) Overall Mean
	Rumais	Rawdat Harma	Alkharj	Hudeiba	Shendi-1	Shendi-2	Tel Hadya	
FLIP 87- 42C	89	67	94	79	64	48	147	76
FLIP 87- 45C	90	65	94	81	62	43	147	76
FLIP 87- 60C	66	56	87	43	46	38	146	62
FLIP 87- 89C	65	40	87	42	45	38	145	60
FLIP 88- 79C	66	53	84	43	45	42	144	62
FLIP 88- 83C	86	65	95	85	65	44	148	78
FLIP 88- 84C	96	70	98	80	68	50	147	81
FLIP 88- 86C	95	71	94	81	69	46	147	82
FLIP 88- 87C	96	72	95	85	70	55	148	84
FLIP 89- 25C	85	70	99	86	69	68	151	83
FLIP 89- 45C	95	69	96	72	67	48	149	81
FLIP 89- 47C	94	70	100	89	68	59	150	84
FLIP 89- 48C	94	65	99	82	67	53	148	82
FLIP 89- 49C	106	66	101	84	65	47	148	82
FLIP 89- 50C	97	72	103	83	68	59	152	86
FLIP 89- 74C	87	68	94	78	63	57	150	80
FLIP 89- 79C	91	63	94	76	62	46	148	77
FLIP 89- 86C	83	66	93	72	64	50	149	77
FLIP 89-100C	87	64	94	71	63	57	149	77
FLIP 89-110C	86	69	98	78	67	49	149	79
FLIP 89-130C	84	67	92	73	63	49	147	77
FLIP 82-150C	106	72	99	84	71	55	150	85
ILC 482	86	63	95	75	63	49	148	77
Local check	94	69	98	44	45	38	153	
Location Mean	88	65	95	73	62	49	148	
S.E. of Mean	3.45	1.13	1.20	0.94	1.30	3.50	0.54	
L.S.D. at 5%	9.83	3.21	3.41	2.25	3.69	8.36	1.53	
C.V. %	6.76	2.99	2.18	1.82	3.60	10.01	0.63	
Error d.f.	46	46	46	23	46	23	46	
Significance	*	*	*	*	*	*	*	

(1) Tel Hadya was excluded from the 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-SL1 during 1991/92.

Entry Name	ARGENTINA	ETHIOPIA	INDIA	OMAN		QATAR	SAUDI ARABIA	SUDAN		SYRIA	(1)	
	Cordoba	Ghinchie	New - Delhi	Jimah	Rumais	Rawdat- Harma	Alkharj	Hudeiba	Shendi-1	Shendi-2	Tel - Hadya	Overall Mean
FLIP 87- 42C	165	170	146	143	152	165	143	133	110	100	191	143
FLIP 87- 45C	165	171	149	144	160	166	145	133	104	100	192	143
FLIP 87- 60C	165	173	150	145	152	165	145	128	96	98	191	142
FLIP 87- 89C	165	169	151	148	158	169	143	130	100	96	195	143
FLIP 88- 79C	165	171	150	145	151	167	144	131	98	98	190	142
FLIP 88- 83C	165	171	149	150	155	167	146	134	110	100	197	145
FLIP 88- 84C	165	171	149	151	160	169	146	131	111	101	192	145
FLIP 88- 86C	165	175	149	147	159	168	147	133	106	100	193	145
FLIP 88- 87C	165	174	151	150	159	167	145	132	109	100	195	145
FLIP 89- 25C	165	173	151	147	147	161	147	130	110	103	199	144
FLIP 89- 45C	165	173	150	151	149	167	147	130	106	100	197	144
FLIP 89- 47C	165	174	147	153	159	170	146	133	110	103	198	146
FLIP 89- 48C	165	175	151	147	148	168	145	131	109	102	197	144
FLIP 89- 49C	165	175	152	150	157	168	148	130	111	104	198	146
FLIP 89- 50C	165	170	153	147	151	170	149	128	111	105	198	145
FLIP 89- 74C	165	171	146	145	139	165	144	132	105	100	191	141
FLIP 89- 79C	165	172	149	151	150	162	145	132	109	100	191	143
FLIP 89- 86C	165	171	148	151	151	164	145	131	109	104	195	144
FLIP 89-100C	165	171	151	141	131	158	144	126	107	103	191	140
FLIP 89-110C	165	173	150	148	151	165	148	132	109	101	196	144
FLIP 89-130C	165	173	148	148	157	163	146	131	108	102	193	144
FLIP 82-150C	165	175	150	155	160	169	146	132	110	100	198	146
IIC 482	165	171	146	140	154	163	147	131	109	100	195	142
Local check	165	169	146	143	157	163	148	123	97	102	199	
Location Mean	165	172	149	147	153	166	146	130	107	101	195	
S.E. of Mean		1.63		2.63	3.10	1.75	0.72	1.18	1.40	1.53	1.01	
L.S.D. at 5%		-		7.49	8.83	5.00	2.05	2.82	3.99	-	2.87	
C.V. %		1.64		3.09	3.51	1.82	0.86	1.28	2.27	2.16	0.90	
Error d.f.		46		46	46	46	46	23	46	23	46	
Significance		NS		*	*	*	*	*	*	NS	*	

(1) Tel Hadya was excluded from the overall mean, * = Significant at $P \leq 0.05$, NS = Not significant.

Table 3.3.4. Plant height (cm) of entries at different locations in the CIYT-SLI during 1991/92.

Entry Name	ARGENTINA	ETHIOPIA	INDIA	OMAN		QATAR	SAUDI ARABIA	SUDAN		SYRIA	(1)	
	Cordoba	Ghinchie	New - Delhi	Jimah	Rumais	Rawdat- Harma	Alkharj	Hudeiba	Shendi- 1	Shendi- 2	Tel- Hadya	Overall Mean
FLIP 87- 42C	18	45	75	70	47	70	46	48	67	63	31	55
FLIP 87- 45C	14	43	74	57	40	68	42	46	60	57	30	50
FLIP 87- 60C	14	42	70	55	45	70	47	48	50	50	36	49
FLIP 87- 89C	15	37	67	56	38	70	44	46	55	55	31	49
FLIP 88- 79C	15	40	82	57	43	68	46	48	60	58	33	52
FLIP 88- 83C	15	46	72	59	46	83	48	48	61	54	32	53
FLIP 88- 84C	14	49	64	61	54	72	47	47	64	54	31	52
FLIP 88- 86C	15	47	78	65	57	73	49	47	67	65	35	56
FLIP 88- 87C	17	55	85	60	48	78	60	48	64	51	37	56
FLIP 89- 25C	16	63	87	74	65	90	67	46	67	64	40	64
FLIP 89- 45C	14	52	74	64	55	78	57	47	60	47	36	55
FLIP 89- 47C	15	65	67	77	61	90	71	47	75	62	44	63
FLIP 89- 48C	18	57	76	74	60	95	66	48	70	69	43	64
FLIP 89- 49C	14	55	83	74	59	83	57	48	77	58	42	61
FLIP 89- 50C	17	60	100	74	63	95	71	48	80	62	45	67
FLIP 89- 74C	16	46	85	50	48	82	42	48	59	70	29	55
FLIP 89- 79C	15	61	74	61	48	75	51	47	72	59	35	56
FLIP 89- 86C	13	56	78	71	63	90	65	46	67	61	39	61
FLIP 89-100C	17	61	52	84	68	82	66	48	68	63	43	61
FLIP 89-110C	16	63	78	75	68	88	56	48	74	58	46	63
FLIP 89-130C	13	44	75	60	50	68	48	49	64	56	28	52
FLIP 82-150C	16	50	77	53	48	80	50	48	60	56	35	53
ILC 482	14	42	74	55	42	75	51	47	64	59	30	53
Local check	15	30	67	63	47	73	54	48	59	49	45	
Location Mean	15	50	76	64	53	79	54	47	65	58	36	
S.E. of Mean	1.31	3.08		5.08	3.58	4.75	3.09		3.59	3.75	1.36	
L.S.D. at 5%	3.73	8.75		14.47	10.18	13.52	8.80		10.22	8.97	3.86	
C.V. %	14.95	10.57		13.66	11.78	10.40	9.88		9.53	9.74	6.44	
Error d.f.	46	466		46	46	46	46		46	23	46	

(1) Tel Hadya was excluded from the overall mean, * = 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-SL1 during 1991/92.

Entry Name	ARGENTINA	ETHIOPIA	INDIA	QATAR		SUDAN		SYRIA	(1) Overall
	Cordoba	Ghinchie	New Delhi	Rawdat	Harma	Hudeiba	Shendi-1	Shendi-2	Tel Hadya Mean
FLIP 87- 42C	27	32	32	28	21	29	24	36	27
FLIP 87- 45C	28	30	30	23	18	25	23	31	26
FLIP 87- 60C	27	29	31	26	17	26	29	36	26
FLIP 87- 89C	31	36	33	31	23	29	32	37	30
FLIP 88- 79C	27	34	34	28	18	39	27	39	29
FLIP 88- 83C	24	24	25	20	20	23	21	27	23
FLIP 88- 84C	25	29	32	29	16	22	19	30	25
FLIP 88- 86C	21	29	24	27	18	26	21	28	24
FLIP 88- 87C	24	29	31	26	16	21	19	30	23
FLIP 89- 25C	25	35	41	31	19	28	19	35	28
FLIP 89- 45C	29	34	35	33	23	26	23	37	29
FLIP 89- 47C	30	38	22	34	25	29	27	41	30
FLIP 89- 48C	28	34	36	30	25	26	19	35	28
FLIP 89- 49C	25	36	45	33	21	28	23	37	30
FLIP 89- 50C	32	36	39	36	23	32	24	37	32
FLIP 89- 74C	25	24	36	21	23	22	19	25	24
FLIP 89- 79C	26	26	30	23	21	26	23	29	25
FLIP 89- 86C	31	26	30	27	16	24	17	28	25
FLIP 89-100C	32	37	40	30	23	28	26	41	31
FLIP 89-110C	22	27	28	23	18	21	19	25	22
FLIP 89-130C	26	28	22	25	14	26	20	30	23
FLIP 82-150C	21	28	25	26	9	21	18	29	21
ILC 482	22	29	27	24	21	25	25	32	25
Local check	44	13	19	31	14	19	18	31	
Location Mean	27	30	31	28	19	26	22	33	
S.E. of Mean	2.29	0.78		0.93		1.37	1.82	1.08	
L.S.D. at 5%	6.51	2.22		2.64		3.89	4.36	3.08	
C.V. %	14.59	4.48		5.79		9.27	11.63	5.72	
Error d.f.	46	46		46		46	23	46	
Significance	*	*		*		*	*	*	

(1) Tel Hadya was excluded from the overall mean, * = 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-SL1 during 1991/92.

Entry Name	ARGENTINA		ETHIOPIA		INDIA		OMAN				QATAR	
	Cordoba		Ghinchie		New Delhi		Jimah		Rumais		Rawdat Harna	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 42C	775	8	1024	8	2556	4	1804	22	35	12	6765	2
FLIP 87- 45C	429	13	1036	7	2306	10	2752	3	41	10	5917	10
FLIP 87- 60C	463	12	408	22	2333	9	2387	8	76	3	7352	1
FLIP 87- 89C	650	9	404	23	2083	20	2230	10	6	24	5830	12
FLIP 88- 79C	374	18	535	19	1944	23	2621	6	36	11	6540	3
FLIP 88- 83C	370	19	718	11	2361	8	1831	20	33	13	5966	9
FLIP 88- 84C	1105	3	1047	6	2139	17	2544	7	115	1	5639	17
FLIP 88- 86C	418	14	489	20	2139	18	2056	14	59	6	5491	18
FLIP 88- 87C	345	20	664	15	2222	12	2734	4	13	20	6080	8
FLIP 89- 25C	650	10	689	12	2167	15	1923	19	80	2	5167	21
FLIP 89- 45C	498	11	889	9	2000	21	1945	18	21	17	5364	19
FLIP 89- 47C	204	23	608	16	2139	16	1353	24	11	22	5318	20
FLIP 89- 48C	396	16	413	21	2444	7	2078	12	23	16	5861	11
FLIP 89- 49C	338	21	578	17	2444	6	2033	15	12	21	5114	23
FLIP 89- 50C	391	17	669	14	1833	24	1827	21	13	19	4460	24
FLIP 89- 74C	873	6	843	10	2889	2	2030	16	57	7	6238	6
FLIP 89- 79C	802	7	1072	4	2000	22	2070	13	15	18	5759	14
FLIP 89- 86C	1367	2	1343	2	2611	3	2984	2	51	8	5753	15
FLIP 89-100C	1065	4	543	18	2194	13	1710	23	9	23	5139	22
FLIP 89-110C	329	22	1094	3	2167	14	3017	1	61	5	6373	4
FLIP 89-130C	966	5	1049	5	2083	19	2317	9	76	4	6080	7
FLIP 82-150C	398	15	375	24	2250	11	2709	5	24	14	5778	13
ILC 482	204	24	672	13	2500	5	1962	17	24	15	6309	5
Local check	2255	1	1636	1	2917	1	2119	11	50	9	5747	16
Location Mean	653		783		2280		2210		39		5835	
S.E. of Mean	274.33		222.41		139.04		276.93		15.52		411.11	
L.S.D. at 5%	780.90		633.11		395.77		788.28		44.17		1170.23	
C.V. %	72.79		49.18		10.56		21.71		68.48		12.20	
Error d.f.	46		46		46		46		46		46	
Significance	*		*		*		*		*		*	
Entry > L. Check	0		0		0		2		1		1	

Cont'd. ...

Table 3.3.6. Cont'd. ...

Entry Name	SAUDI ARABIA		SUDAN				SYRIA				(1) Overall Mean	
	Alkharj		Hudeiba		Shendi-1		Shendi-2		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 87- 42C	829	7	124	20	741	7	1262	6	2208	7	1764	4
FLIP 87- 45C	331	21	265	15	455	14	1042	7	1853	13	1614	11
FLIP 87- 60C	505	14	1275	2	1732	3	1399	4	2302	3	1984	2
FLIP 87- 89C	407	17	697	5	1158	4	1827	2	1827	14	1698	5
FLIP 88- 79C	1460	1	762	3	1735	2	2256	1	2305	2	2025	1
FLIP 88- 83C	770	8	128	19	363	17	589	15	1964	10	1455	16
FLIP 88- 84C	918	5	41	23	563	11	577	16	2238	5	1619	10
FLIP 88- 86C	1161	3	304	12	354	18	839	9	2295	4	1472	14
FLIP 88- 87C	1403	2	330	11	304	19	494	18	2411	1	1619	9
FLIP 89- 25C	512	13	297	13	149	24	435	19	1145	24	1332	20
FLIP 89- 45C	370	19	732	4	280	20	315	21	1569	22	1377	19
FLIP 89- 47C	680	9	70	22	262	21	792	10	1707	17	1269	22
FLIP 89- 48C	516	12	170	16	372	16	875	8	1865	12	1458	15
FLIP 89- 49C	453	16	97	21	476	13	292	22	1661	21	1314	21
FLIP 89- 50C	295	22	10	24	262	22	167	24	1684	20	1101	23
FLIP 89- 74C	154	24	449	6	423	15	1381	5	1704	18	1697	6
FLIP 89- 79C	385	18	292	14	622	10	708	11	1771	15	1523	13
FLIP 89- 86C	646	10	337	10	777	6	369	20	1749	16	1798	3
FLIP 89-100C	595	11	363	9	476	12	530	17	1688	19	1402	18
FLIP 89-110C	271	23	419	7	717	8	280	23	2065	8	1629	7
FLIP 89-130C	842	6	396	8	667	9	231	13	2233	6	1626	8
FLIP 82-150C	467	15	140	17	238	23	595	14	1980	9	1439	17
IIC 482	366	20	135	18	914	5	679	12	1927	11	1527	12
Local check	996	4	1358	1	2375	1	1518	3	1344	23		
Location Mean	639		383		684		827		1896			
S.E. of Mean	286.56		223.85		116.43		248.95		131.29			
L.S.D. at 5%	-		534.79		331.41		594.75		373.71			
C.V. %	77.71		82.71		29.49		42.56		12			
Error d.f.	46		23		46		23		46			
Significance	NS		*		*		*		*			
Entry > L. Check	-		0		0		1		16			

(1) Tel Hadya and Rumais were excluded from the 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-SL1 during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Argentina	Córdoba	Local check	FLIP 89-86C	FLIP 88-84C	FLIP 89-100C	FLIP 89-130C
Ethiopia	Ghinchie	Local check	FLIP 89-86C	FLIP 89-110C	FLIP 89-79C	FLIP 89-130C
India	New Delhi	Local check	FLIP 89-74C	FLIP 89-86C	FLIP 87-42C	ILC 482
Oman	Jimah	FLIP 89-110C	FLIP 89-86C	FLIP 87-45C	FLIP 88-87C	FLIP 82-150C
Oman	Rumais	FLIP 88-84C	FLIP 89-25C	FLIP 87-60C	FLIP 89-130C	FLIP 89-110C
Qatar	Rawdat Harma	FLIP 87-60C	FLIP 87-42C	FLIP 88-79C	FLIP 89-110C	ILC 482
Saudi Arabia	Al Kharj	FLIP 88-79C	FLIP 88-87C	FLIP 88-86C	Local check	FLIP 88-84C
Sudan	Hudeiba	Local check	FLIP 87-60C	FLIP 88-79C	FLIP 89-45C	FLIP 87-89C
Sudan	Shendi-1	Local check	FLIP 88-79C	FLIP 87-60C	FLIP 87-89C	ILC 482
Sudan	Shendi-2	FLIP 88-79C	FLIP 87-89C	Local check	FLIP 87-60C	FLIP 89-74C
Syria	Tel Hadya	FLIP 88-87C	FLIP 88-79C	FLIP 87-60C	FLIP 88-86C	FLIP 88-84C

respectively, excelled the respective local check in seed yield by a significant margin (Table 3.3.6). The five heaviest yielders at different locations are given in Table 3.3.7. The entries FLIP 87-60C, and FLIP 88-79C occurred most frequently among the top five heaviest yielders and were relatively more stable.

On the basis of common entries over two years (Table 3.3.8), FLIP 88-79C ranked number 1 and was followed by FLIP 87-60C, FLIP 88-87C, FLIP 87-42C, and FLIP 88-84C, respectively.

Table 3.3.8. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-SL1 conducted during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
FLIP 87-42C	574	4	1827	3	1200	4
FLIP 87-45C	502	4	1686	6	1094	7
FLIP 87-60C	467	10	2057	1	1262	2
FLIP 87-89C	473	9	1682	7	1077	8
FLIP 88-79C	651	2	1996	2	1323	1
FLIP 88-83C	519	5	1563	9	1041	9
FLIP 88-84C	518	6	1749	5	1133	5
FLIP 88-86C	497	8	1551	10	1024	10
FLIP 88-87C	679	1	1760	4	1219	3
ILC 482	602	3	1633	8	1117	6

3.4. CHICKPEA INTERNATIONAL YIELD TRIAL-SOUTHERLY LATITUDES - 2 (CIYT-SL2)

Material

The material for CIYT-SL2 comprised of 23 test entries and one check. The test entries were tolerant to ascochyta blight and were selected from the local and regional yield trials based on their superior yield performance.

Methods and Management

The trial design was randomized complete block with three replications. The suggested plot size was four rows 4 meter long with an inter row spacing of 35 cm.

Fifteen sets of trial were distributed to cooperators in 11 countries and the results were returned for 8 sets covering 6 countries. The agronomic practices employed at different locations are given in Table 3.4.1.

Results and Discussion

Means for time to flowering, time to maturity, plant height, and 100-seed weight are compiled in Tables 3.4.2, 3.4.3, 3.4.4 and 3.4.5, respectively. For entry means the time to flowering ranged from 51 days (for FLIP 88-44C,

to 67 days (for FLIP 82-150C), for the time to maturity from 128 days to 138 days, for plant height 48 cm to 60 cm, and for 100-seed weight from 30 g to 50 g.

The seed yields for different locations are given in Table 3.4.6. On an average over locations the five best entries included FLIP 88-56C, FLIP 88-66C, FLIP 88-30C, FLIP 88-36C, and FLIP 88-39C and gave seed yield of 1538, 1453, 1410, 1409 and 1385 kg/ha, respectively.

On the basis of average of common entries over two years, FLIP 88-44C ranked number 1 and was followed by FLIP 88-36C, FLIP 88-30C, FLIP 88-50C and ILC 482 (Table 3.4.7).

Table 3.4.1. Agronomic data for different locations in the CIYT-SL2 during 1991/92.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
			N	P	K			
Ethiopia								
Ghinchie	10.09.92	-	-	-	-	-	-	-
India								
New Delhi	05.11.91	20.04.92	20	40	92	-	Thiodan, Basalin	Pusa 267
Srilanka								
Bandarawela	07.05.92	-	40	60	-	-	Tokuthion	ICCV 2
Sudan								
Shendi-1	04.12.91	22.03.92	80	-	-	-	Diazinon	NEC 2421
Shendi-2	16.11.92	18.03.93	43	-	-	8	-	Shendi
Syria								
Breda	27.11.91	05.06.92	-	50	-	-	Kerb, Igran	ILC 3279
Tel Hadya	26.11.91	15.06.92	-	50	-	-	Kerb, Igran	Ghab 2
Thailand								
Phu Ruer	29.11.91	-	38	38	38	-	-	-

Table 3.4.2. Time to flowering (days) of entries at different locations in the CIYT-SL2 during 1991/92.

Entry Name	Pedigree	Origin	ETHIOPIA SRI LANKA	
			Ghinchie	Bandarawela
FLIP 88- 30C	X85 TH 230/ILC3395XFLIP 83-13C	ICARDA/ICRISAT	56	45
FLIP 88- 32C	X85 TH 246/ILC3398XFLIP 83-13C	ICARDA/ICRISAT	54	45
FLIP 88- 34C	X85 TH 246/ILC3398XFLIP 83-13C	ICARDA/ICRISAT	54	48
FLIP 88- 36C	X85 TH 247/ILC3398XFLIP 83-15C	ICARDA/ICRISAT	54	46
FLIP 88- 39C	X85 TH 255/ILC3713XFLIP 82-59C	ICARDA/ICRISAT	54	46
FLIP 88- 42C	X85 TH 230/ILC3395XFLIP 83-13C	ICARDA/ICRISAT	54	46
FLIP 88- 44C	X85 TH 230/ILC3395XFLIP 83-13C	ICARDA/ICRISAT	54	47
FLIP 88- 46C	X85 TH 231/ILC3396XFLIP 83-15C	ICARDA/ICRISAT	54	45
FLIP 88- 47C	X85 TH 233/ILC3396XILC 187	ICARDA/ICRISAT	54	43
FLIP 88- 48C	X85 TH 233/ILC3396XILC 187	ICARDA/ICRISAT	54	51
FLIP 88- 50C	X85 TH 162/ILC3488XFLIP 83-13C	ICARDA/ICRISAT	59	50
FLIP 88- 56C	X85 TH 229/ILC3395XFLIP 82-243C	ICARDA/ICRISAT	54	50
FLIP 88- 61C	X85 TH 230/ILC3395XFLIP 83-13C	ICARDA/ICRISAT	59	50
FLIP 88- 66C	X85 TH 246/ILC3398XFLIP 83-13C	ICARDA/ICRISAT	54	46
FLIP 88- 67C	X85 TH 248/ILC3398XFLIP 83-46C	ICARDA/ICRISAT	59	48
FLIP 89- 35C	X86 TH 276/(ILC1919XFLIP82-127C)X FLIP 84-18C	ICARDA/ICRISAT	67	49
FLIP 89- 81C	X87 TH 180/ICC14194XFLIP83-48C	ICARDA/ICRISAT	54	52
FLIP 89- 82C	X87 TH 186/ICC14198XFLIP82-150C	ICARDA/ICRISAT	56	43
FLIP 89-117C	X85 TH 65/(ILC4297XFLIP82-64C)X ILC 2380	ICARDA/ICRISAT	54	45
FLIP 89-120C	X85 TH 223/ILC3326XFLIP82-59C	ICARDA/ICRISAT	54	45
FLIP 89-128C	X87 TH 215/ILC4296XFLIP84-79C	ICARDA/ICRISAT	56	46
FLIP 82-150C	X79 TH 101/ILC 523XILC 183	ICARDA/ICRISAT	74	49
ILC 482	Long Term Check	Turkey	70	50
Local Check	-	-	53	48
Location Mean			57	47
S.E. of Mean			1.75	1.56
L.S.D. at 5%			4.97	4.44
C.V. %			5.31	5.72
Error d.f.			46	46
Significance			*	*

Cont'd. ...

Table 3.4.2. Cont'd. ...

Entry Name	SUDAN		SYRIA		THAILAND	(1) Overall Mean
	Shendi-1	Shendi-2	Breda	Tel Hadya	Phu Ruer	
FLIP 88- 30C	43	30	138	139	66	48
FLIP 88- 32C	44	30	139	141	64	48
FLIP 88- 34C	45	35	138	141	66	49
FLIP 88- 36C	43	35	137	140	67	49
FLIP 88- 39C	43	40	138	140	66	50
FLIP 88- 42C	43	35	140	142	66	49
FLIP 88- 44C	40	29	138	140	64	47
FLIP 88- 46C	41	32	137	141	68	48
FLIP 88- 47C	46	34	137	138	67	49
FLIP 88- 48C	47	34	137	139	66	50
FLIP 88- 50C	59	39	144	146	70	55
FLIP 88- 56C	45	36	137	140	65	50
FLIP 88- 61C	49	29	139	140	66	51
FLIP 88- 66C	43	29	137	139	66	47
FLIP 88- 67C	51	34	141	142	70	52
FLIP 89- 35C	62	38	144	146	72	57
FLIP 89- 81C	46	38	140	141	67	52
FLIP 89- 82C	43	30	136	136	64	48
FLIP 89-117C	45	31	137	138	67	49
FLIP 89-120C	47	32	140	142	63	48
FLIP 89-128C	48	32	141	141	67	50
FLIP 82-150C	73	50	148	151	71	64
ILC 482	65	40	148	148	72	59
Local Check	45	37	151	152	-	
Location Mean	48	35	140	142	67	
S.E. of Mean	1.77	0.76	0.34	0.60	2.09	
L.S.D. at 5%	5.04	2.17	0.98	1.70	-	
C.V. %	6.37	3.83	0.42	0.73	5.40	
Error d.f.	46	46	46	46	44	
Significance	*	*	*	*	NS	

(1) Breda and Tel hadya were excluded from the overall mean.

* = 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-SL2 during 1991/92.

Entry Name	ETHIOPIA	INDIA	SRI LANKA	SUDAN		SYRIA		THAILAND	(1) Overall
	Ghinchie	New Delhi	Bandarawela	Shendi-1	Shendi-2	Breda	Tel Hadya	Phu Ruer	Mean
FLIP 88- 30C	169	148	110	92	93	184	189	94	123
FLIP 88- 32C	169	150	105	93	94	188	198	90	122
FLIP 88- 34C	169	149	107	99	100	183	190	90	125
FLIP 88- 36C	169	151	105	94	95	183	193	90	123
FLIP 88- 39C	169	146	105	90	94	181	190	90	121
FLIP 88- 42C	169	146	107	98	92	187	193	93	122
FLIP 88- 44C	169	149	110	93	84	186	192	93	121
FLIP 88- 46C	172	148	107	98	84	183	195	90	122
FLIP 88- 47C	169	143	107	94	92	182	189	90	121
FLIP 88- 48C	169	148	105	97	96	183	189	93	123
FLIP 88- 50C	169	149	112	123	94	188	193	90	129
FLIP 88- 56C	171	147	110	105	96	184	191	90	126
FLIP 88- 61C	173	149	110	96	84	186	192	90	122
FLIP 88- 66C	169	149	107	96	81	185	191	90	120
FLIP 88- 67C	175	151	112	99	98	187	195	93	127
FLIP 89- 35C	175	146	107	105	96	187	191	-	126
FLIP 89- 81C	171	150	105	96	86	185	192	93	122
FLIP 89- 82C	169	149	105	98	90	181	189	90	122
FLIP 89-117C	169	149	110	99	95	184	190	93	125
FLIP 89-120C	169	149	105	97	96	182	191	90	123
FLIP 89-128C	172	149	112	101	98	189	198	94	127
FLIP 82-150C	173	147	110	109	103	186	196	95	129
ILC 482	172	147	112	108	105	186	193	93	129
Local Check	171	145	105	103	98	189	199	-	-
Location Mean	170	148	108	99	94	185	192	92	
S.E. of Mean	1.11		1.60	5.32	2.87	0.75	1.10		
L.S.D. at 5%	3.15		4.57	-	8.16	2.14	3.14		
C.V. %	1.13		2.58	9.29	5.31	0.70	0.99		
Error d.f.	46		46	46	46	46	46		
Significance	*		*	NS	*	*	*		

(1) Breda, Tel hadya and Phu Ruer were 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-SL2 during 1991/92.

Entry Name	ETHIOPIA	INDIA	SRI LANKA	SUDAN		SYRIA		THAILAND	(1) Overall Mean
	Ginchie	New Delhi	Bandarawela	Shendi-1	Shendi-2	Breda	Tel Hadya	Phu Ruer	
FLIP 88- 30C	37	72	37	65	61	23	30	45	53
FLIP 88- 32C	35	80	37	46	61	22	29	51	52
FLIP 88- 34C	43	77	36	53	73	25	33	53	56
FLIP 88- 36C	38	87	37	55	67	23	31	53	56
FLIP 88- 39C	37	75	34	55	63	24	32	53	53
FLIP 88- 42C	37	67	35	57	77	24	33	50	44
FLIP 88- 44C	29	69	36	56	52	24	27	51	49
FLIP 88- 46C	37	70	38	61	60	24	29	52	53
FLIP 88- 47C	38	73	34	65	65	25	30	55	55
FLIP 88- 48C	34	85	38	56	63	24	31	55	56
FLIP 88- 50C	44	82	48	67	61	24	32	56	59
FLIP 88- 56C	44	80	43	72	61	27	34	54	59
FLIP 88- 61C	43	70	44	61	57	24	32	56	55
FLIP 88- 66C	39	67	36	56	60	23	30	53	52
FLIP 88- 67C	36	75	48	60	64	24	32	55	57
FLIP 89- 35C	37	69	40	71	60	22	34	50	55
FLIP 89- 81C	40	75	36	59	56	22	31	51	53
FLIP 89- 82C	33	70	30	57	57	23	29	51	50
FLIP 89-117C	39	87	46	57	63	25	29	53	57
FLIP 89-120C	39	72	36	69	62	22	32	52	55
FLIP 89-128C	35	77	41	54	64	23	30	44	52
FLIP 82-150C	42	80	55	68	73	25	32	54	62
ILC 482	35	78	46	78	87	23	28	52	63
Local Check	38	51	23	66	68	34	44	-	-
Location Mean	38	75	39	61	64	24	31	46	
S.E. of Mean	2.58		4.11	3.90	5.83	0.89	3.90	2.24	
L.S.D. at 5%	7.35		11.69	11.11	-	2.55	3.47	6.37	
C.V. %	11.80		18.23	11.08	15.78	6.39	6.72	8.46	
Error d.f.	46		46	46	46	46	46	46	
Significance	*		*	*	NS	*	*	*	

(1) Breda and Tel hadya were excluded from the overall mean, * = Significant at $P \leq 0.0$.

Table 3.4.5. 100-Seed weight (g) of entries at different locations in the CIYT-SL2 during 1991/92.

Entry Name	ETHIOPIA	INDIA	SUDAN		SYRIA		THAILAND	(1) Overall Mean
	Ghinchie	New Delhi	Shendi-1	Shendi-2	Breda	Tel Hadya	Phu Rue	
FLIP 88- 30C	43	54	37	41	39	44	55	47
FLIP 88- 32C	54	52	40	41	40	46	52	46
FLIP 88- 34C	43	42	37	34	39	44	51	41
FLIP 88- 36C	43	44	43	44	41	48	57	47
FLIP 88- 39C	34	45	37	41	35	41	47	43
FLIP 88- 42C	35	45	35	34	37	40	47	41
FLIP 88- 44C	47	44	40	43	41	50	54	45
FLIP 88- 46C	39	50	42	46	51	45	57	49
FLIP 88- 47C	38	44	36	39	41	43	53	43
FLIP 88- 48C	36	47	33	40	38	45	52	43
FLIP 88- 50C	32	50	37	30	41	47	53	42
FLIP 88- 56C	30	48	40	39	40	45	49	44
FLIP 88- 61C	41	47	40	49	43	51	52	47
FLIP 88- 66C	41	41	40	40	38	45	51	43
FLIP 88- 67C	34	46	35	34	37	40	48	41
FLIP 89- 35C	35	31	29	25	31	32	39	31
FLIP 89- 81C	31	35	33	34	35	36	46	37
FLIP 89- 82C	40	27	35	36	31	37	45	36
FLIP 89-117C	-	40	39	39	38	40	53	43
FLIP 89-120C	37	42	39	42	36	38	51	44
FLIP 89-128C	-	44	36	44	39	44	50	44
FLIP 82-150C	26	28	25	20	26	29	37	28
ILC 482	28	34	28	23	29	32	36	31
Local Check	18	21	23	19	28	31	-	
Location Mean	37	42	36	36	37	41	43	
S.E. of Mean	2.49		1.03	4.00	2.13	1.16	1.79	
L.S.D. at 5%	7.10		2.94	5.69	6.05	3.30	5.10	
C.V. %	11.77		5.00	9.49	9.89	4.85	7.19	
Error d.f.	42		46	46	46	46	46	
Significance	*		*	*	*	*	*	

(1) Ghinchie Breda and Tel Hadya were excluded from the overall mean, * = Significant at $P \leq 0.05$.

Table 3.4.6. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CIYT-SL2 during 1991/92.

Entry Name	ETHIOPIA		INDIA		SRI LANKA		SUDAN			
	Ghinchie		New Delhi		Bandarawela		Shendi-1		Shendi-2	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 30C	160	16	2111	11	905	6	3048	1	1615	9
FLIP 88- 32C	149	18	2111	12	500	21	2324	10	2357	1
FLIP 88- 34C	204	11	1917	18	514	20	2077	16	1968	2
FLIP 88- 36C	371	6	2167	6	821	12	2771	5	1790	6
FLIP 88- 39C	361	7	2528	1	690	16	2429	8	1889	5
FLIP 88- 42C	283	9	1639	22	1005	4	2077	15	1639	8
FLIP 88- 44C	178	13	1917	19	993	5	2908	2	1190	16
FLIP 88- 46C	170	14	2111	10	705	15	2384	9	1214	14
FLIP 88- 47C	149	19	2056	14	395	23	2810	4	1611	10
FLIP 88- 48C	124	21	2056	13	560	19	2125	14	1456	11
FLIP 88- 50C	125	20	2139	8	1133	2	1089	22	968	22
FLIP 88- 56C	1010	2	2250	4	779	13	2747	7	1123	18
FLIP 88- 61C	443	4	1944	17	452	22	1827	19	976	21
FLIP 88- 66C	117	22	2333	3	881	8	2845	3	1405	12
FLIP 88- 67C	164	15	1611	24	895	7	1851	18	1087	19
FLIP 89- 35C	157	17	1722	20	1248	1	1491	20	817	23
FLIP 89- 81C	279	10	2000	16	1119	3	1854	17	1194	15
FLIP 89- 82C	328	8	2028	15	595	18	2756	6	1921	3
FLIP 89-117C	43	23	2167	7	857	10	2167	13	1262	13
FLIP 89-120C	400	5	2111	9	750	14	2235	11	1710	7
FLIP 89-128C	37	24	1639	21	871	9	1202	21	1163	17
FLIP 82-150C	183	12	1611	23	364	24	435	24	365	24
ILC 482	622	3	2250	5	850	11	923	23	1060	20
Local Check	1331	1	2444	2	655	17	2202	12	1909	4
Location Mean	308		2036		772		2107		1404	
S.E. of Mean	251.41		182.63		161.31		256.73		302.49	
L.S.D. at 5%	-		519.86		459.17		730.80		861.05	
C.V. %	141.47		15.54		36.17		21.10		37.32	
Error d.f.	46		46		46		46		46	
Significance	NS		*		*		*		*	
Entry > L. Check	0		0		3		1		0	

Cont'd. ...

Table 3.4.6. Cont'd. ...

Entry Name	SYRIA				THAILAND		(1) Overall Mean	
	Breda		Tel Hadya		Phu Ruer		Y	R
	Y	R	Y	R	Y	R		
FLIP 88- 30C	739	3	1756	17	827	17	1444	5
FLIP 88- 32C	327	24	1203	24	803	18	1375	7
FLIP 88- 34C	661	8	2509	1	973	5	1276	11
FLIP 88- 36C	446	20	1541	19	917	9	1473	1
FLIP 88- 39C	690	5	2239	3	917	10	1469	2
FLIP 88- 42C	652	10	2022	8	883	13	1255	12
FLIP 88- 44C	548	17	1538	20	677	20	1310	10
FLIP 88- 46C	586	13	1746	18	877	14	1243	13
FLIP 88- 47C	653	9	1781	16	1003	3	1337	9
FLIP 88- 48C	680	7	1929	11	943	8	1210	16
FLIP 88- 50C	497	18	2011	9	947	6	1067	19
FLIP 88- 56C	739	2	2407	2	903	11	1469	3
FLIP 88- 61C	551	16	2050	7	1270	1	1152	17
FLIP 88- 66C	571	15	1824	15	1087	2	1445	4
FLIP 88- 67C	469	19	1886	14	900	12	1085	18
FLIP 89- 35C	442	21	1924	13	946	7	1064	20
FLIP 89- 81C	629	11	2086	6	867	15	1219	15
FLIP 89- 82C	759	1	2207	4	800	19	1404	6
FLIP 89-117C	604	12	1927	12	860	16	1226	14
FLIP 89-120C	686	6	2006	10	997	4	1368	8
FLIP 89-128C	400	22	1480	21	567	23	913	22
FLIP 82-150C	731	4	1467	22	600	22	593	23
ILC 482	578	14	2124	5	667	21	1062	21
Local Check	394	23	1368	23	-	-		
Location Mean	585		1876		839			
S.E. of Mean	42.30		121.40		95.49			
L.S.D. at 5%	120.40		345.56		271.81			
C.V. %	12.53		11.21		19.72			
Error d.f.	46		46		46			
Significance	*		*		*			
Entry > L. Check	17		18		23			

(1) Breda and Tel hadya were excluded from the overall mean.

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

Table 3.4.7. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-SL2 conducted during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
FLIP 88- 30C	480	5	1410	1	945	3
FLIP 88- 36C	528	4	1409	2	968	2
FLIP 88- 44C	614	2	1334	3	974	1
FLIP 88- 48C	469	6	1161	4	815	6
FLIP 88- 50C	785	1	1087	5	936	4
ILC 482	589	3	1062	6	825	5

3.5. CHICKPEA INTERNATIONAL YIELD TRIAL-LATIN AMERICA (CIYT-LA)

Material

The Chickpea International Yield Trial-Latin American comprised of 23 test entries and one local check which was to be added by the cooperator. Fourteen of the test entries were derived through hybridization at ICARDA and the remaining were selections from germplasm accessions selected on the basis of their superior performance in regional, or local trials.

Methods and Management

The trial design was randomized complete block with two replications. The suggested plot size was 4 rows, each 4 meter long with inter row spacings of 35 cm.

Fifteen sets of trial were sent to cooperators in 10 countries. The results were, however, received for 5 trials from 4 countries. The agronomic information received from the cooperators is given in Table 3.5.1.

Table 3.5.1. Agronomic data for different locations in the CIYT-LA during 1990/91.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
			N	P	K			
Brazil								
Vicosa	02.05.92	-	20	70	40	-	EPTC	IAC Mexico
Mexico								
Sonora	NA	NA	NA			NA	NA	Surutato77
Spain								
Badajoz	14.12.91	09.6.92	-	-	-	-	Dimethoate, Terbutrine + Propizamide	Castlio
Spain								
Cordoba	22.11.91	12.07.92	-	-	-	1	-	Mejicanos
Syria								
Tel Hadya	26.11.91	15.06.92	-	50	-	-	Kerb, Igran	Ghab 2

NA = Not available

Table 3.5.2. Time to flowering (days) of entries at different locations in the CIYT-LA during 1991/92.

Entry Name	Pedigree	Origin	BRAZIL
			Vicosa
ILC 97	-	Spain	91
ILC 99	-	Spain	87
ILC 169	-	Tunisia	91
ILC 613	-	Tunisia	91
ILC 1272	-	Turkey	84
ILC 3356	-	Spain	91
ILC 4184	-	Tunisia	91
FLIP 85- 2C	X82TH 60/ILC 95XILC2956	ICARDA/ICRISAT	91
FLIP 86- 77C	X83TH 23/FLIP82-69CXFLIP82-72C	ICARDA/ICRISAT	91
FLIP 86- 93C	X83TH132/ILC195XFLIP82-78C	ICARDA/ICRISAT	91
FLIP 86-102C	X83TH 23/FLIP82-69CXFLIP82-72C	ICARDA/ICRISAT	91
FLIP 87- 5C	X85TH230/ILC3395XFLIP83-13C	ICARDA/ICRISAT	77
FLIP 87- 12C	X83TH 19/FLIP81-65CXFLIP82-69C	ICARDA/ICRISAT	91
FLIP 87- 90C	X83TH124/FLIP82-64CXILC 72	ICARDA/ICRISAT	87
FLIP 87- 93C	X85TH230/ILC3395XFLIP83-13C	ICARDA/ICRISAT	72
FLIP 88- 6C	X84TH332/(FLIP82-69CX FLIP82-81C)XILC3847	ICARDA/ICRISAT	91
FLIP 88- 33C	X85TH246/ILC3398XFLIP83-13C	ICARDA/ICRISAT	65
FLIP 88- 58C	X85TH230/ILC3395XFLIP83-13C	ICARDA/ICRISAT	62
FLIP 89- 16C	X86TH277/(ILC1919XFLIP82-130C)X FLIP84-18C	ICARDA/ICRISAT	91
FLIP 89- 56C	X87TH319/(Pl.Se.Be.81-46X FLIP83-46C)XFLIP85-18C	ICARDA/ICRISAT	91
FLIP 89-131C	X85TH230/ILC3395XFLIP83-13C	ICARDA/ICRISAT	65
ILC 136	-	Spain	87
ILC 464	-	Turkey	91
Local Check	-	-	41
Location Mean			83
S.E. of Mean			3
L.S.D. at 5%			8
C.V. %			6
Error d.f.			46
Significance			0

Cont'd. ...

Table 3.5.2. Cont'd. ...

Entry Name	MEXICO	SPAIN		SYRIA	Overall Mean
	Sonora	Badajoz	Cordoba	Tel Hadya	
ILC 97	66	121	114	149	101
ILC 99	65	108	110	148	96
ILC 169	66	121	114	150	101
ILC 613	65	118	111	148	99
ILC 1272	66	120	116	148	100
ILC 3356	65	121	112	148	100
ILC 4184	65	118	112	147	99
FLIP 85- 2C	69	130	115	150	104
FLIP 86- 77C	75	121	118	149	105
FLIP 86- 93C	65	122	114	150	101
FLIP 86-102C	67	126	112	149	102
FLIP 87- 5C	64	123	117	147	100
FLIP 87- 12C	66	125	111	149	101
FLIP 87- 90C	65	122	116	150	101
FLIP 87- 93C	62	121	111	146	95
FLIP 88- 6C	68	119	112	148	100
FLIP 88- 33C	60	107	108	143	90
FLIP 88- 58C	60	127	112	141	94
FLIP 89- 16C	66	117	116	149	101
FLIP 89- 56C	70	120	115	151	102
FLIP 89-131C	63	119	112	143	94
ILC 136	64	122	110	148	99
ILC 464	65	123	112	147	101
Local Check	59	118	135	153	
Location Mean	65	120	114	148	
S.E. of Mean	0.84	1.82	1.84	0.63	
L.S.D. at 5%	2.38	5.18	5.23	1.78	
C.V. %	2.22	2.62	2.79	0.73	
Error d.f.	46	46	46	46	
Significance	*	*	*	*	

* = Significant at $P \leq 0.05$.

Table 3.5.3. Time to maturity (days) of entries at different locations in the CIYT-LA during 1991/92.

Entry Name	MEXICO	SPAIN		SYRIA	Overall Mean
	Sonora	Badajoz	Cordoba	Tel Hadya	
ILC 97	124	174	155	197	163
ILC 99	123	165	157	197	161
ILC 169	124	173	157	200	163
ILC 613	123	169	156	197	161
ILC 1272	123	170	156	195	161
ILC 3356	124	171	154	197	162
ILC 4184	123	172	156	193	161
FLIP 85- 2C	126	176	158	199	165
FLIP 86- 77C	124	172	156	197	162
FLIP 86- 93C	125	171	160	198	164
FLIP 86-102C	122	174	155	195	161
FLIP 87- 5C	123	172	159	195	162
FLIP 87- 12C	120	174	155	193	161
FLIP 87- 90C	124	169	156	197	162
FLIP 87- 93C	123	171	159	197	162
FLIP 88- 6C	120	169	158	197	161
FLIP 88- 33C	119	165	157	191	158
FLIP 88- 58C	123	176	159	193	163
FLIP 89- 16C	123	169	158	196	162
FLIP 89- 56C	123	171	160	198	163
FLIP 89-131C	122	170	157	194	161
ILC 136	121	173	155	193	161
ILC 464	124	171	155	197	162
Local Check	122	170	172	197	
Location Mean	123	171	157	196	
S.E. of Mean	0.99	1.11	1.11	0.92	
L.S.D. at 5%	2.81	3.17	3.15	2.62	
C.V. %	1.39	1.13	1.22	0.81	
Error d.f.	46	46	46	46	
Significance	*	*	*	*	

* = Significant at $P \leq 0.05$.

Table 3.5.4. Plant height (cm) of entries at different locations in the CIYT-LA during 1991/92.

Entry Name	MEXICO	SPAIN		SYRIA	Overall Mean
	Sonora	Badajoz	Cordoba	Tel hadya	
ILC 97	52	29	74	36	48
ILC 99	49	28	73	36	46
ILC 169	55	37	75	39	51
ILC 613	55	30	77	38	50
ILC 1272	41	31	64	30	41
ILC 3356	53	35	80	39	52
ILC 4184	53	30	88	37	52
FLIP 85- 2C	56	32	90	38	54
FLIP 86- 77C	60	39	87	43	57
FLIP 86- 93C	60	32	87	40	55
FLIP 86-102C	69	33	78	41	55
FLIP 87- 5C	56	36	60	36	47
FLIP 87- 12C	65	31	86	43	56
FLIP 87- 90C	56	33	65	40	49
FLIP 87- 93C	56	37	68	35	49
FLIP 88- 6C	55	33	77	37	51
FLIP 88- 33C	50	26	65	32	43
FLIP 88- 58C	53	33	71	32	47
FLIP 89- 16C	58	36	84	38	54
FLIP 89- 56C	69	35	79	46	57
FLIP 89-131C	49	39	83	35	51
ILC 136	46	27	72	41	46
ILC 464	51	29	80	35	49
Local Check	41	23	55	44	
Location Mean	54	32	76	38	
S.E. of Mean	2.27	3.18	7.17	1.32	
L.S.D. at 5%	6.47	-	-	3.75	
C.V. %	7.23	17.17	13.38	6.01	
Error d.f.	46	46	23	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-LA during 1991/92.

Entry Name	MEXICO	SPAIN	SYRIA	Overall Mean
	Sonora	Badajoz	Tel Hadya	
ILC 97	48	19	57	41
ILC 99	47	26	52	41
ILC 169	46	26	53	42
ILC 613	43	23	52	39
ILC 1272	41	26	49	39
ILC 3356	50	29	55	44
ILC 4184	50	25	54	43
FLIP 85- 2C	50	25	56	43
FLIP 86- 77C	38	27	41	35
FLIP 86- 93C	49	22	55	42
FLIP 86-102C	46	21	43	37
FLIP 87- 5C	46	29	51	42
FLIP 87- 12C	43	22	45	37
FLIP 87- 90C	47	28	50	42
FLIP 87- 93C	45	28	49	41
FLIP 88- 6C	44	27	52	41
FLIP 88- 33C	46	21	48	38
FLIP 88- 58C	40	21	48	36
FLIP 89- 16C	37	22	44	34
FLIP 89- 56C	36	24	42	34
FLIP 89-131C	40	30	50	40
ILC 136	50	19	55	41
ILC 464	46	26	49	40
Local Check	51	19	31	
Location Mean	45	24	49	
S.E. of Mean	2.29	4.37	1.31	
L.S.D. at 5%	6.52	-	3.74	
C.V. %	8.86	31.14	4.63	
Error d.f.	46	46	46	
Significance	*	NS	0	

* = 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 the CIYT-LA during 1991/92.

Entry Name	MEXICO		SPAIN				SYRIA		Overall Mean	
	Sonora		Badajoz		Cordoba		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R
ILC 97	247	21	66	19	2124	3	1938	13	1094	11
ILC 99	550	4	546	1	1951	7	2166	9	1303	2
ILC 169	273	18	174	9	1537	23	1484	22	867	23
ILC 613	272	19	82	17	1905	8	2304	5	1141	9
ILC 1272	285	15	217	7	1764	15	2492	3	1190	7
ILC 3356	365	12	167	10	2029	4	2358	4	1230	5
ILC 4184	588	2	163	11	1992	5	2606	1	1337	1
FLIP 85- 2C	174	24	39	24	1831	9	2034	12	1020	16
FLIP 86- 77C	246	22	306	5	1564	21	1933	14	1012	17
FLIP 86- 93C	235	23	145	14	1705	17	1673	19	939	20
FLIP 86-102C	527	6	81	18	1813	10	1918	15	1085	13
FLIP 87- 5C	464	7	211	8	1794	12	1654	20	1031	15
FLIP 87- 12C	538	5	57	21	1744	16	1689	18	1007	18
FLIP 87- 90C	257	20	344	3	2161	2	2097	10	1215	6
FLIP 87- 93C	435	9	235	6	1769	14	1837	17	1069	14
FLIP 88- 6C	334	14	155	12	2273	1	2173	7	1234	4
FLIP 88- 33C	444	8	134	15	1557	22	1870	16	1001	19
FLIP 88- 58C	567	3	62	20	1796	11	2065	11	1123	10
FLIP 89- 16C	280	17	152	13	1599	20	1651	21	920	21
FLIP 89- 56C	368	11	318	4	1674	18	1111	24	868	22
FLIP 89-131C	600	1	380	2	1618	19	2556	2	1288	3
ILC 136	388	10	47	23	1968	6	2200	6	1151	8
ILC 464	339	13	56	22	1779	13	2171	8	1086	12
Local Check	284	16	100	16	521	24	1305	23		
Location Mean	377		177		1769		1970			
S.E. of Mean	68.86		93.97		187.03		150.92			
L.S.D. at 5%	196.01		267.48		532.37		429.61			
C.V. %	31.60		92.20		18.31		13.27			
Error d.f.	46		46		46		46			
Significance	*		*		*		*			
Entry > L. Check	6		2		23		17			

* = Significant at $P \leq 0.05$.

Results and Discussion

The entry means for time to flowering (Table 3.5.2.), time to maturity (Table 3.5.3), and plant height (Table 3.5.4) ranged from 90 days (for FLIP 88-33C) to 105 days (for FLIP 86-77C), 158 days (for FLIP 88-33C) to 165 days (for FLIP 85-2C), and 41 cm (for ILC 1272) to 57 cm (for FLIP 86-77C and FLIP 89-56C), respectively. The 100-seed weight, was 45 g and 49 g at Sonora in Mexico and Tel Hadya in Syria (Table 3.5.5.). The ANOVA for seed yield revealed that the local check was excelled by a significant margin ($P \leq 0.05$) by 6, 2, 23 and 17 entries at Sonora (Mexico), Badajoz and Cordoba (Spain), and Tel Hadya (Syria) (Table 3.5.6). On an average over locations, the five best yielding entries included ILC 4184, ILC 99, FLIP 89-131C, ILC 464, ILC 3356 with respective seed yields of 1337, 1303, 1234 and 1230 kg/ha (Table 3.5.6). The mean of common entries across two years (Table 3.5.7) revealed that ILC 464 with seed yield of 1545 kg/ha ranked number 1 and was followed by FLIP 87-93C, FLIP 87-90C, FLIP 88-58C and ILC 1272 with seed yields of 1156, 1100, 1086 and 1073 kg/ha, respectively.

Table 3.5.7. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-LA conducted during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
ILC 613	746	8	1141	4	943	8
ILC 1272	957	7	1190	2	1073	5
FLIP 85- 2C	984	5	1020	9	1002	7
FLIP 87- 5C	569	9	1031	8	800	9
FLIP 87-90C	986	4	1215	1	1100	3
FLIP 87-93C	1244	2	1069	7	1156	2
FLIP 88-58C	1049	3	1123	5	1086	4
ILC 136	976	6	1151	3	1063	6
ILC 464	2004	1	1086	6	1545	1

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

Material

The Chickpea International Screening Nursery-Winter comprised 48 test entries which originated from the materials developed through hybridization at ICARDA. The nursery also included three checks namely ILC 482, ILC 3279 and one local check to be supplied by the cooperator. 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 4m length in an augmented block design. 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.

Fifty six sets of the nursery were distributed to cooperators in 19 countries and the results were received from 32 locations in 11 countries. 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. On the basis of average over locations, the entries FLIP90-28C, FLIP90-59C and ILC 482 were among the earliest to flower in 128-129 days and the other early flowering lines which flowered in 130 days included FLIP 90-33C, FLIP 90-57C, FLIP 90-71C and FLIP 90-116C. For days to maturity, there was little variation among the lines. On the basis of entry means over locations FLIP 90-58C, FLIP 90-95C, and ILC 3279, were among the tallest; and entries FLIP 90-109C and FLIP 90-136C had the largest seed size (43 g/100-seed).

The adjusted seed yields of entries are presented in Table 3.6.6. The ANOVA for seed yield revealed that at 11 locations, some of the test entries excelled the respective local check by a significant margin. The five heaviest seed yielding entries across locations included FLIP 90-12C, FLIP 90-8C, FLIP 90-13C, FLIP 90-136C, and FLIP 90-71C. The top five heaviest yielders at each location are presented in Table 3.6.7.

3.7. CHICKPEA INTERNATIONAL SCREENING NURSERY-SPRING (CIEN-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, FLIP 82-150C 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 4m length. The three checks were repeatedly grown in blocks of 12 test entries in an augmented block design. The spacings between rows were 45 cm.

Forty six sets of nursery were distributed to cooperators in 17 countries and the results were received from 27 locations in 7 countries. The agronomic details received from the cooperators are given in Table 3.7.1.

Results and Discussion

The adjusted means for entries across locations varied from 57 to 68 days for days to flowering, 103 to 107 days for days to maturity, 29 to 45 cm for plant height, and 25 to 40 g for 100-seed weight (Tables, 3.7.2, 3.7.3, 3.7.4 and 3.7.5).

Table 3.6.1. Agronomic details for CISON-W-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Setif	04.11.91	20.07.92	-	100	-	-	Treflan	ILC 3279
Cyprus	Athalassa	04.12.91	30.06.92	21	48	-	-	Terbutrine	Local Cyprus
Iran	Kaermanshah	29.10.91	-	20	100	-	-	Sevin	Mahali Bakhtaran
Iran	Zarghan	29.04.92	06.08.92	27	69	-	-	-	Kooroush
Italy	Tarquini	30.01.92	12.08.92	45	130	-	-	-	Principe
Italy	Tolentino	03.03.92	29.07.92	45	115	-	-	-	Sultano
Lebanon	Terbol	21.12.91	15.07.92	-	50	-	-	Kerb + Igran	Lebanese Local
Morocco	Marchouch	03.12.91	25.06.92	21	56	-	-	-	Pch 46
Morocco	Jama'a Shain	04.12.91	20.05.92	30	50	-	-	Kerb	Pch 46
Portugal	Elvas	05.11.91	25.06.92	-	-	-	-	Terbutrine, Propizamide	Chk 510
Portugal	Oeiras	22.11.91	03.07.92	21	63	20	-	Fusilade	c.v. Odunhas
Spain	Cordoba	25.12.91	12.07.92	-	-	-	-	-	Zegri
Spain	Sevilla	24.11.91	30.07.92	25	50	-	-	Decis + Rogor, Lazo + Afalon	FLIP 85-1C
Syria	Al Ghab	15.12.91	-	-	-	-	-	-	Ghab 3
Syria	Gelline	24.12.91	08.07.92	20	50	-	-	-	Ghab 3
Syria	Hama	15.12.91	21.06.92	-	50	-	-	-	Ghab 3
Syria	Idleb	23.12.91	-	-	60	-	-	-	Ghab 3
Syria	Izra'a	23.12.91	10.07.92	-	50	-	-	-	Ghab 3
Syria	Jindiress	03.12.91	21.06.92	-	50	-	-	-	Ghab 3
Syria	Tel Hadya-NARS	10.12.91	-	-	100	-	-	-	Ghab 3
Syria	Tel Hadya-ICARDA	26.11.-91	15.06.92	-	50	-	-	Kerb + Igran	Ghab 3
Tunisia	Beja-Winter 1	NA	NA	NA	NA	NA	-	NA	Amdoun 1
Tunisia	Beja-Winter 2	NA	NA	NA	NA	NA	NA	NA	Amdoun 1
Tunisia	Beja-Spring 1	NA	NA	NA	NA	NA	NA	NA	Amdoun 1
Tunisia	Beja-Spring 2	NA	NA	NA	NA	NA	NA	NA	Amdoun 1
Tunisia	Oued Meliz	NA	NA	NA	NA	NA	NA	NA	Amdoun 1
Turkey	Ankara	30.03.92	-	12	60	-	-	-	Eser 87
Turkey	Adana	20.11.91	11.07.92	30	50	-	-	-	-
Turkey	Diyarbakir	25.12.91	31.07.92	-	-	-	-	Kerb + Fortrol	Yerli Nohut
Turkey	Erzurum-1	01.05.92	04.11.92	30	60	-	-	-	Canitez 87
Turkey	Menemen	02.12.91	23.07.92	30	60	-	-	Igran	Canitez 87
Turkey	Saruhanli	29.11.91	31.07.92	30	60	-	-	Igran	Canitez 87

Table 3.6.2. Adjusted time to flowering (days) of entries at different locations in the CISON-W during 1991/91.

Entry Name	Pedigree	Origin	ALGERIA	CYPRUS
			Setif	Athalassa
FLIP 88- 1C	X83 TH 22/FLIP 81-65CXFLIP 82-81C	ICARDA/ICRISAT	197	126
FLIP 89-13C	X86 TH 277/(ILC1919XFLIP82-130C)XFLIP84-18C	ICARDA/ICRISAT	201	127
FLIP 89-36C	X86 TH 277/(ILC1919XFLIP82-130C)XFLIP84-18C	ICARDA/ICRISAT	204	125
FLIP 90- 3C	X86 TH 289/(FLIP81-65CXILC187)XFLIP84-19C	ICARDA/ICRISAT	201	127
FLIP 90- 4C	X86 TH 289/(FLIP81-65CXILC187)XFLIP84-19C	ICARDA/ICRISAT	204	127
FLIP 90- 6C	X87 TH 32/FLIP83-7CXFLIP84-109C	ICARDA/ICRISAT	202	122
FLIP 90- 8C	X87 TH 317/(Pl. Se. Be. 81-40XILC195)XFLIP84-46C	ICARDA/ICRISAT	199	127
FLIP 90- 9C	X85 TH 67/(FLIP82-65CXFLIP81-3C)XILC327	ICARDA/ICRISAT	202	123
FLIP 90-12C	X87 TH 317/(Pl. Se. Be. 81-40XILC195)XFLIP84-46C	ICARDA/ICRISAT	199	126
FLIP 90-13C	X87 TH 317/(Pl. Se. Be. 81-40XILC195)XFLIP84-46C	ICARDA/ICRISAT	204	124
FLIP 90-28C	X86 TH 279/(ILC1919XFLIP82-191C)XFLIP84-18C	ICARDA/ICRISAT	196	118
FLIP 90-29C	X86 TH 284/(FLIP81-54WXILC3856)XFLIP82-64C	ICARDA/ICRISAT	205	128
FLIP 90-31C	X86 TH 75/(ILC480XFLIP84-48C	ICARDA/ICRISAT	197	124
FLIP 90-33C	X86 TH 35/ILC1919XFLIP84-48C	ICARDA/ICRISAT	197	123
FLIP 90-38C	X86 TH 165/ILC3546XILC3856	ICARDA/ICRISAT	194	122
FLIP 90-45C	X86 TH 286/FLIP81-54WXILC2506)XFLIP82-64C	ICARDA/ICRISAT	201	125
FLIP 90-47C	X87 TH 32/FLIP83-7CXFLIP84-109C	ICARDA/ICRISAT	205	125
FLIP 90-55C	X87 TH 137/FLIP84-46CXFLIP82-92C	ICARDA/ICRISAT	201	127
FLIP 90-57C	X87 TH 317/(Pl. Se. Be. 81-40XILC195)XFLIP84-46C	ICARDA/ICRISAT	196	125
FLIP 90-58C	X87 TH 318/(Pl. Se. Be. 81-41XFLIP81-79C)X FLIP85-18C	ICARDA/ICRISAT	202	126
FLIP 90-59C	X87 TH 344/(FLIP84-48CXILC3856)XFLIP84-48C	ICARDA/ICRISAT	199	121
FLIP 90-60C	X87 TH 344/(FLIP84-48CXILC3856)XFLIP84-48C	ICARDA/ICRISAT	204	122
FLIP 90-71C	X86 TH 141/FLIP84-46CXILC482	ICARDA/ICRISAT	197	124
FLIP 90-76C	X86 TH 303/(ILC171XFLIP82-127C)XILC171	ICARDA/ICRISAT	205	125
FLIP 90-77C	X86 TH 303/(ILC171XFLIP82-127C)XILC171	ICARDA/ICRISAT	198	122
FLIP 90-78C	X86 TH 29/ILC263XFLIP82-150C	ICARDA/ICRISAT	187	120
FLIP 90- 93C	X87 TH 9/FLIP81-293CXFLIP84-79C	ICARDA/ICRISAT	201	127
FLIP 90- 95C	X87 TH 26/ILC5342XFLIP84-93C	ICARDA/ICRISAT	198	130

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	Pedigree	Origin	ALGERIA	CYPRUS
			Setif	Athalassa
FLIP 90- 96C	X87 TH 26/ILC5342XFLIP84-93C	ICARDA/ICRISAT	197	124
FLIP 90- 97C	X87 TH 31/FLIP83-7CXFLIP84-92C	ICARDA/ICRISAT	199	126
FLIP 90- 98C	X87 TH 31/FLIP83-7CXFLIP84-92C	ICARDA/ICRISAT	204	121
FLIP 90-102C	X87 TH 160/S85088XILC3870	ICARDA/ICRISAT	205	127
FLIP 90-103C	X87 TH 160/S85088XILC3870	ICARDA/ICRISAT	196	127
FLIP 90-104C	X87 TH 160/S85088XILC3870	ICARDA/ICRISAT	207	126
FLIP 90-105C	X87 TH 160/S85088XILC3870	ICARDA/ICRISAT	197	122
FLIP 90-107C	X88 TH 66/FLIP85-2CXFLIP86-12C	ICARDA/ICRISAT	197	124
FLIP 90-108C	X88 TH 71/FLIP85-10CXFLIP86-12C	ICARDA/ICRISAT	202	126
FLIP 90-109C	X88 TH 89/FLIP83-98CXFLIP86-93C	ICARDA/ICRISAT	204	123
FLIP 90-116C	X88 TH 242/(FLIP83-7CXFLIP84-92C)XFLIP83-7C	ICARDA/ICRISAT	196	124
FLIP 90-118C	X88 TH 303/(FLIP85-18CXFLIP85-90C)XFLIP85-18C	ICARDA/ICRISAT	199	127
FLIP 90-122C	X88 TH 323/(ILC519XFLIP83-47C)XILC519	ICARDA/ICRISAT	202	125
FLIP 90-123C	X88 TH 323/(ILC519XFLIP83-47C)XILC519	ICARDA/ICRISAT	205	126
FLIP 90-136C	X87 TH 67/FLIP82-87CXFLIP85-46C	ICARDA/ICRISAT	196	123
FLIP 90-154C	X87 TH 63/FLIP82-189CXFLIP84-164C	ICARDA/ICRISAT	202	123
FLIP 90-182C	X87 TH 290/(ILC263XFLIP82-150C)XILC263	ICARDA/ICRISAT	194	121
FLIP 90-184C	X87 TH 8/(FLIP81-293CXFLIP84-78C	ICARDA/ICRISAT	202	125
FLIP 90-185C	X87 TH 63/FLIP82-189CXFLIP84-164C	ICARDA/ICRISAT	205	122
FLIP 90-186C	X87 TH 93/FLIP84-164CXILC3396	ICARDA/ICRISAT	199	122
ILC 482	Improved check	Turkey	195	120
ILC 3279	Long Term Check	USSR	200	128
Local Check	-		202	121
Location Mean			200	124
S.E. of Mean			1.05	0.41
L.S.D. at 5% for Check			3.64	1.41
L.S.D. at 5% for test entries in the same block			7.27	2.83
L.S.D. at 5% for test entries in different blocks			8.40	3.26
L.S.D. at 5% for checks Vs test entries			6.64	2.58
C.V. %			1.05	0.66

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	IRAN		ITALY		LEBANON	MOROCCO	PORTUGAL	
	Kaermanshah	Zarghan	Tarquini	Tolentino	Terbol	Jema'a Shain	Elvas	Oeiras
FLIP 88- 1C	73	48	99	86	155	104	129	106
FLIP 89- 13C	68	49	99	86	151	101	133	107
FLIP 89- 36C	69	43	99	85	148	109	167	106
FLIP 90- 3C	69	48	101	87	153	101	134	111
FLIP 90- 4C	71	51	99	89	152	119	168	110
FLIP 90- 6C	75	46	98	81	155	100	131	103
FLIP 90- 8C	73	47	97	89	150	113	168	106
FLIP 90- 9C	67	45	96	87	136	107	167	103
FLIP 90- 12C	69	55	97	83	157	115	135	106
FLIP 90- 13C	73	54	97	83	157	119	132	103
FLIP 90- 28C	67	44	99	77	149	89	129	104
FLIP 90- 29C	69	47	99	84	157	112	133	103
FLIP 90- 31C	66	47	96	83	143	108	134	106
FLIP 90- 33C	69	44	97	85	141	107	135	106
FLIP 90- 38C	66	44	98	81	134	105	167	103
FLIP 90- 45C	70	43	98	84	-	105	137	107
FLIP 90- 47C	73	46	101	88	157	112	132	106
FLIP 90- 55C	71	49	99	87	149	101	134	107
FLIP 90- 57C	70	39	99	87	149	93	134	111
FLIP 90- 58C	75	53	100	88	157	104	135	110
FLIP 90- 59C	71	35	98	72	143	115	132	103
FLIP 90- 60C	69	43	96	81	153	111	131	106
FLIP 90- 71C	62	39	97	84	141	95	131	110
FLIP 90- 76C	72	45	102	84	155	96	130	110
FLIP 90- 77C	71	41	99	86	151	106	133	107
FLIP 90- 78C	66	45	99	76	153	96	127	110
FLIP 90- 93C	68	40	98	84	151	101	138	111
FLIP 90- 95C	72	38	99	87	151	106	137	104

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	IRAN		ITALY		LEBANON	MOROCCO	PORTUGAL	
	Kaemanshah	Zarghan	Tarquinia	Tolentino	Terbol	Jema'a Shain	Elvas	Oeiras
FLIP 90- 96C	69	47	97	87	148	105	171	106
FLIP 90- 97C	65	55	97	83	153	115	135	106
FLIP 90- 98C	73	41	95	86	157	111	139	106
FLIP 90-102C	75	50	100	83	157	108	136	106
FLIP 90-103C	71	35	102	85	153	101	134	107
FLIP 90-104C	73	53	100	88	157	115	132	103
FLIP 90-105C	65	40	96	80	155	112	130	106
FLIP 90-107C	68	47	95	87	144	109	171	106
FLIP 90-108C	71	47	100	89	-	113	167	106
FLIP 90-109C	68	41	98	80	152	109	167	103
FLIP 90-116C	72	44	97	84	149	93	133	111
FLIP 90-118C	69	53	99	88	157	119	133	103
FLIP 90-122C	69	50	98	89	140	114	167	110
FLIP 90-123C	73	46	101	86	153	96	134	106
FLIP 90-136C	68	35	100	80	151	91	130	104
FLIP 90-154C	65	33	94	80	134	101	174	103
FLIP 90-182C	65	46	97	80	140	105	173	106
FLIP 90-184C	66	39	99	78	153	95	130	110
FLIP 90-185C	66	44	96	80	139	104	131	110
FLIP 90-186C	73	41	93	75	151	105	138	110
IIC 482	68	45	95	75	141	100	113	106
IIC 3279	71	52	98	87	152	113	142	105
Local Check	67	46	104	87	149	111	144	110
Location Mean	70	46	99	84	150	106	140	106
S.E. of Mean	2.85	3.11	0.60	0.76	2.48	2.73	14.00	1.00
L.S.D. at 5% for:								
Checks	6.42	11.75	2.06	2.64	8.57	9.46	48.00	4.00
T.E. in S.B.	12.83	21.49	4.12	5.29	17.15	18.92	96.00	8.00
T.E. in D.B.	14.82	24.82	4.76	6.10	19.80	21.00	110.00	9.00
Checks Vs T.E.	11.71	19.62	3.76	4.83	15.65	17.00	87.00	7.00
C.V. %	5.33	13.62	1.21	1.83	3.44	5.00	20.00	2.00

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	SPAIN		SYRIA						
	Cordoba	Sevilla	Al Ghab	Gelline	Hama	Idleb	Izra'a	Jindiress	
FLIP 88- 1C	111	142	135	124	128	126	128	148	
FLIP 89- 13C	112	142	133	122	133	130	128	144	
FLIP 89- 36C	111	144	133	124	133	129	130	146	
FLIP 90- 3C	115	145	133	123	134	132	129	141	
FLIP 90- 4C	116	147	134	123	134	129	127	142	
FLIP 90- 6C	111	144	134	125	134	130	130	145	
FLIP 90- 8C	107	140	132	124	131	127	131	143	
FLIP 90- 9C	107	145	132	123	130	124	128	144	
FLIP 90- 12C	114	143	133	124	135	129	131	146	
FLIP 90- 13C	114	146	134	124	135	133	132	146	
FLIP 90- 28C	115	142	131	124	130	123	123	140	
FLIP 90- 29C	108	148	136	126	139	129	141	149	
FLIP 90- 31C	108	142	134	124	132	128	133	145	
FLIP 90- 33C	114	141	132	123	131	127	129	144	
FLIP 90- 38C	113	144	132	123	129	125	131	143	
FLIP 90- 45C	115	146	135	122	135	132	127	146	
FLIP 90- 47C	108	145	134	124	136	131	131	147	
FLIP 90- 55C	115	145	133	123	132	129	130	143	
FLIP 90- 57C	106	142	132	122	131	126	125	143	
FLIP 90- 58C	111	143	135	126	136	131	130	147	
FLIP 90- 59C	110	146	128	121	127	128	128	133	
FLIP 90- 60C	109	140	133	123	131	127	134	144	
FLIP 90- 71C	105	142	131	123	130	126	130	144	
FLIP 90- 76C	106	144	135	124	136	131	132	146	
FLIP 90- 77C	112	145	133	123	131	130	128	144	
FLIP 90- 78C	111	141	135	124	133	129	131	146	
FLIP 90- 93C	115	145	133	123	134	127	130	144	
FLIP 90- 95C	115	146	135	122	135	128	128	145	

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	SPAIN		SYRIA					
	Cordoba	Sevilla	Al Ghab	Gelline	Hama	Idleb	Izra'a	Jindiress
FLIP 90- 96C	113	144	132	123	134	131	130	144
FLIP 90- 97C	111	145	132	123	131	127	132	144
FLIP 90- 98C	109	144	132	123	132	127	129	145
FLIP 90-102C	108	147	132	124	136	129	136	147
FLIP 90-103C	115	149	133	123	135	127	129	141
FLIP 90-104C	114	146	133	124	135	131	131	144
FLIP 90-105C	111	145	134	124	135	129	130	146
FLIP 90-107C	116	145	132	124	132	128	129	145
FLIP 90-108C	113	142	132	123	130	128	129	144
FLIP 90-109C	113	142	133	123	131	128	131	145
FLIP 90-116C	110	142	132	123	131	125	126	143
FLIP 90-118C	114	143	133	124	135	128	132	148
FLIP 90-122C	111	147	132	124	130	127	127	144
FLIP 90-123C	106	147	132	124	131	129	132	147
FLIP 90-136C	112	149	134	122	133	128	126	145
FLIP 90-154C	111	144	132	123	132	124	129	141
FLIP 90-182C	116	144	133	124	131	126	132	145
FLIP 90-184C	114	144	133	124	135	126	129	144
FLIP 90-185C	111	142	132	123	130	127	127	146
FLIP 90-186C	109	137	131	123	131	127	130	143
ILC 482	109	138	131	123	129	125	125	142
ILC 3279	111	145	133	124	135	129	132	147
Local Check	112	145	132	123	131	125	129	145
Location Mean	111	144	133	123	132	128	130	144
S.E. of Mean	1.69	0.75	0.40	0.57	0.58	0.67	0.78	0.24
L.S.D. at 5% for:								
Checks	5.83	2.58	1.38	1.98	2.02	2.33	2.69	0.82
T.E. in S.B.	11.66	5.16	2.77	3.95	4.04	4.65	5.38	1.63
T.E. in D.B.	13.47	5.96	3.19	4.57	4.66	5.37	6.21	1.88
Checks Vs T.E.	10.65	4.71	2.53	3.61	3.69	4.25	4.91	1.49
C.V. %	3.03	1.04	0.60	0.93	0.88	1.05	1.20	0.33

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	SYRIA		TURKEY				(1) Overall Mean
	Tel Hadya-NARS	Tel Hadya	Diyarbakir	Erzurum-1	Izmir	Saruhanli	
FLIP 88- 1C	123	148	156	77	154	169	132
FLIP 89- 13C	119	150	152	86	149	169	132
FLIP 89- 36C	113	151	155	81	156	169	134
FLIP 90- 3C	116	151	156	76	153	169	132
FLIP 90- 4C	113	152	-	78	156	169	136
FLIP 90- 6C	114	151	156	81	150	169	132
FLIP 90- 8C	111	151	152	75	152	169	134
FLIP 90- 9C	121	150	152	74	152	169	133
FLIP 90- 12C	119	150	162	75	153	169	133
FLIP 90- 13C	123	149	159	76	157	169	134
FLIP 90- 28C	112	147	149	85	153	169	128
FLIP 90- 29C	114	153	156	82	150	169	134
FLIP 90- 31C	116	149	153	80	150	169	131
FLIP 90- 33C	119	149	155	74	132	169	130
FLIP 90- 38C	116	149	155	84	152	169	132
FLIP 90- 45C	120	153	153	77	153	169	133
FLIP 90- 47C	114	149	160	84	154	169	133
FLIP 90- 55C	117	149	154	85	153	169	132
FLIP 90- 57C	117	151	152	83	153	169	130
FLIP 90- 58C	120	151	156	79	150	169	133
FLIP 90- 59C	117	145	155	68	132	169	129
FLIP 90- 60C	121	149	154	79	153	169	132
FLIP 90- 71C	117	147	158	77	153	169	130
FLIP 90- 76C	116	148	153	80	154	169	132
FLIP 90- 77C	120	151	153	78	153	169	132
FLIP 90- 78C	121	148	155	77	150	169	130
FLIP 90- 93C	117	150	-	86	153	169	133
FLIP 90- 95C	114	152	155	84	153	169	133

Cont'd. ...

Table 3.6.2. Cont'd. ...

Entry Name	SYRIA		TURKEY				Overall ⁽¹⁾ Mean
	Tel Hadya-NARS	Tel Hadya	Diyarbakir	Erzurum-1	Izmir	Saruhanli	
FLIP 90- 96C	115	150	152	74	152	169	134
FLIP 90- 97C	120	150	156	73	153	169	132
FLIP 90- 98C	119	150	150	83	153	169	133
FLIP 90-102C	117	149	155	86	154	169	134
FLIP 90-103C	113	149	157	79	149	169	132
FLIP 90-104C	117	152	157	74	157	169	134
FLIP 90-105C	114	148	-	80	154	169	132
FLIP 90-107C	114	150	155	78	152	169	134
FLIP 90-108C	113	153	152	73	152	169	134
FLIP 90-109C	117	151	153	80	156	169	134
FLIP 90-116C	115	149	153	81	149	169	130
FLIP 90-118C	119	152	155	77	157	169	134
FLIP 90-122C	115	151	157	76	152	169	134
FLIP 90-123C	118	149	156	82	154	169	132
FLIP 90-136C	120	150	152	85	149	169	131
FLIP 90-154C	118	149	152	82	152	169	133
FLIP 90-182C	116	149	155	83	152	169	133
FLIP 90-184C	123	149	157	76	153	169	132
FLIP 90-185C	114	149	-	84	150	169	131
FLIP 90-186C	117	149	153	81	153	169	131
ILC 482	117	148	152	79	149	169	128
ILC 3279	119	151	155	79	153	169	134
Local Check	116	150	151	78	152	169	
Location Mean	117	150	154	79	152	169	
S.E. of Mean	1.77	1.23	1.08	0.82	1.72		
L.S.D. at 5% for:							
Checks	6.12	4.27	3.74	2.84	5.96		
T.E. in S.B.	12.25	8.53	7.48	5.68	11.91		
T.E. in D.B.	14.14	9.85	8.63	6.56	13.76		
Checks Vs T.E.	11.18	7.79	6.83	5.19	10.88		
C.V. %	3.03	1.65	2.80	2.07	2.27		

(1) Terbol and Diyarbakir had missing values; and Tarquinia, Tolentino, Zarghan and Erzurum-1 were spring planted and were excluded from the overall mean.

Table 3.6.3. Adjusted time to maturity (days) of entries at different locations in the CISON-W during 1991/92.

Entry Name	ALGERIA	IRAN		ITALY	LEBANON	MOROCCO		PORTUGAL		SPAIN	
	Setif	Kaermanshah	Zarghan	Tarquinia	Terbol	Jema'a	Shain	Elvas	Oeiras	Cordoba	Sevilla
FLIP 88- 1C	249	259	78	167	199	146		203	164	148	218
FLIP 89- 13C	251	257	70	171	191	158		204	164	155	221
FLIP 89- 36C	250	257	83	164	191	152		205	166	158	213
FLIP 90- 3C	248	257	76	166	191	158		205	160	158	216
FLIP 90- 4C	253	259	73	166	191	163		204	160	153	213
FLIP 90- 6C	257	259	73	169	193	154		200	160	152	218
FLIP 90- 8C	253	260	82	168	191	152		206	166	153	214
FLIP 90- 9C	250	259	80	173	191	144		208	160	156	214
FLIP 90- 12C	252	256	76	169	198	167		202	167	150	216
FLIP 90- 13C	259	256	76	165	198	171		202	165	153	220
FLIP 90- 28C	256	258	79	167	193	143		199	166	153	217
FLIP 90- 29C	257	255	74	174	199	161		201	160	160	222
FLIP 90- 31C	249	254	72	168	189	154		201	160	155	214
FLIP 90- 33C	254	259	73	169	190	152		205	167	155	223
FLIP 90- 38C	258	257	80	173	185	163		206	166	149	214
FLIP 90- 45C	253	259	78	164	-	165		202	160	156	216
FLIP 90- 47C	253	259	77	168	199	154		203	164	152	221
FLIP 90- 55C	251	259	79	169	189	158		204	164	150	220
FLIP 90- 57C	250	258	74	161	193	152		202	166	150	216
FLIP 90- 58C	253	260	78	167	199	148		205	166	158	221
FLIP 90- 59C	254	259	75	166	190	171		202	167	150	215
FLIP 90- 60C	257	256	72	166	192	154		204	165	150	216
FLIP 90- 71C	259	256	72	169	190	149		204	161	150	216
FLIP 90- 76C	253	259	77	170	193	145		203	166	152	214
FLIP 90- 77C	253	259	69	164	189	169		205	160	153	220
FLIP 90- 78C	257	256	77	168	191	145		203	166	155	215
FLIP 90- 93C	248	256	69	158	191	150		204	160	158	225
FLIP 90- 95C	258	258	79	166	197	158		204	166	158	216

Cont'd. ...

Table 3.6.3. Cont'd. ...

Entry Name	ALGERIA	IRAN		ITALY	LEBANON	MOROCCO		PORTUGAL		SPAIN	
	Setif	Kaermanshah	Zarghan	Tarquinia	Terbol	Jema'a	Shain	Elvas	Oeiras	Cordoba	Sevilla
FLIP 90- 96C	251	257	78	171	191	163		208	164	153	222
FLIP 90- 97C	255	253	76	168	194	177		205	167	150	224
FLIP 90- 98C	254	257	75	167	198	160		202	165	150	216
FLIP 90-102C	257	259	71	168	195	154		203	160	148	215
FLIP 90-103C	253	259	79	166	193	158		202	164	156	216
FLIP 90-104C	259	257	76	167	192	174		199	165	153	216
FLIP 90-105C	249	257	83	169	193	161		200	160	158	215
FLIP 90-107C	250	258	81	173	191	146		208	164	153	218
FLIP 90-108C	253	260	82	171	-	159		208	166	156	213
FLIP 90-109C	251	259	85	169	-	145		204	160	156	213
FLIP 90-116C	250	258	76	167	193	150		204	166	153	216
FLIP 90-118C	252	256	78	168	198	171		199	165	153	219
FLIP 90-122C	256	258	78	167	187	152		203	160	149	218
FLIP 90-123C	249	259	76	165	195	145		206	164	148	222
FLIP 90-136C	258	256	79	164	197	149		199	166	153	217
FLIP 90-154C	248	256	80	167	189	135		208	166	149	214
FLIP 90-182C	253	256	78	172	189	163		205	166	153	213
FLIP 90-184C	259	258	74	170	194	147		205	167	153	220
FLIP 90-185C	255	256	77	170	191	143		201	160	152	214
FLIP 90-186C	255	257	76	166	192	167		202	161	150	216
IIC 482	252	257	78	166	191	151		204	164	152	216
IIC 3279	253	259	81	167	193	159		202	165	152	220
Local Check	252	257	77	171	192	162		204	160	154	218
Location Mean	253	257	77	168	193	156		203	163	153	217
S.E. of Mean	2.05	0.83	0.74	0.89	0.62	5.01		0.85	0.90	1.62	1.40
L.S.D. at 5% for:											
Checks	7.09	2.87	2.56	3.07	2.14	17.35		2.94	3.11	5.60	4.83
T.E. in S.B.	14.18	5.74	5.13	6.13	4.28	34.69		5.88	6.21	11.20	9.67
T.E. in D.B.	16.38	6.63	5.92	7.08	4.94	40.06		6.79	7.17	12.93	11.16
Checks Vs T.E.	12.95	5.24	4.68	5.60	3.91	31.67		5.37	5.67	10.22	8.83
C.V. %	1.62	0.65	1.92	1.06	0.68	6.42		0.84	1.10	2.12	1.29

Cont'd. ...

Table 3.6.3. Cont'd. ...

Entry Name	SYRIA								TURKEY	Overall Mean
	Al Ghab	Gelline	Hama	Idleb	Izra'a	Jindiress	Tel Hadya- NARS	Tel - Hadya	Erzurum-1	
FLIP 88- 1C	193	174	182	193	185	196	169	197	126	192
FLIP 89- 13C	192	174	184	191	186	192	166	198	125	193
FLIP 89- 36C	194	172	183	195	183	192	160	195	127	192
FLIP 90- 3C	192	173	183	193	181	191	160	198	122	192
FLIP 90- 4C	193	173	182	192	181	190	162	197	122	192
FLIP 90- 6C	191	175	182	190	182	192	161	191	123	191
FLIP 90- 8C	192	173	181	191	180	190	158	195	126	191
FLIP 90- 9C	192	173	181	190	180	192	166	192	125	190
FLIP 90- 12C	191	172	181	194	182	192	168	196	123	192
FLIP 90- 13C	193	172	183	195	182	193	168	196	124	194
FLIP 90- 28C	193	172	178	189	178	190	160	189	125	189
FLIP 90- 29C	191	177	188	195	187	196	161	197	124	194
FLIP 90- 31C	191	173	181	188	182	191	163	194	125	190
FLIP 90- 33C	191	175	181	189	183	192	166	196	124	193
FLIP 90- 38C	192	175	182	188	181	193	164	194	126	192
FLIP 90- 45C	192	177	186	196	184	192	164	197	123	193
FLIP 90- 47C	192	176	185	196	186	194	161	196	125	193
FLIP 90- 55C	191	173	182	190	180	191	164	197	125	192
FLIP 90- 57C	192	172	180	190	180	191	164	198	124	191
FLIP 90- 58C	192	172	183	193	186	193	167	196	126	193
FLIP 90- 59C	193	173	184	193	183	193	164	197	125	193
FLIP 90- 60C	191	172	180	189	179	191	167	196	124	191
FLIP 90- 71C	192	172	180	191	180	192	164	192	124	191
FLIP 90- 76C	191	174	183	192	182	192	163	195	125	191
FLIP 90- 77C	192	174	183	199	184	191	166	196	122	194
FLIP 90- 78C	191	172	183	192	184	194	169	194	125	192
FLIP 90- 93C	191	175	182	189	181	189	163	197	124	191
FLIP 90- 95C	192	174	184	196	182	191	161	198	128	193

Cont'd. ...

Table 3.6.3. Cont'd. ...

Entry Name	SYRIA								TURKEY	Overall Mean
	Al Ghab	Gelline	Hama	Idleb	Izra'a	Jindiress	Tel Hadya- Aleppo	Tel - Hadya	Erzurum-1	
FLIP 90- 96C	193	177	182	192	183	193	165	196	124	193
FLIP 90- 97C	191	175	181	191	186	192	166	197	123	194
FLIP 90- 98C	192	175	181	189	183	192	166	197	127	192
FLIP 90-102C	192	175	187	196	188	194	163	196	129	192
FLIP 90-103C	191	174	185	195	182	192	161	197	125	192
FLIP 90-104C	191	173	183	194	179	192	164	196	123	193
FLIP 90-105C	192	175	182	193	183	193	161	196	125	192
FLIP 90-107C	193	175	182	193	182	192	166	195	124	192
FLIP 90-108C	192	172	181	192	179	190	160	196	126	192
FLIP 90-109C	194	175	182	195	184	193	163	195	125	191
FLIP 90-116C	191	172	182	192	179	189	162	196	124	191
FLIP 90-118C	192	174	184	195	181	193	167	197	122	193
FLIP 90-122C	192	174	182	191	178	192	163	196	121	191
FLIP 90-123C	191	174	182	192	183	192	164	192	124	191
FLIP 90-136C	191	175	179	199	181	191	167	193	125	192
FLIP 90-154C	193	172	181	188	179	192	165	196	126	189
FLIP 90-182C	192	174	182	191	182	190	164	195	126	192
FLIP 90-184C	192	173	183	193	180	192	169	196	125	192
FLIP 90-185C	192	172	179	191	181	191	161	195	125	190
FLIP 90-186C	190	173	180	188	179	191	163	194	125	191
ILC 482	191	172	179	189	180	191	164	195	125	191
ILC 3279	192	173	182	192	181	192	166	196	125	192
Local Check	191	175	182	193	182	192	163	197	123	
Location Mean	192	174	182	192	182	192	164	196	124	
S.E. of Mean	0.45	0.46	0.57	0.33	0.72	0.29	1.68	0.50	0.61	
L.S.D. at 5%	1.55	1.61	1.98	1.15	2.50	1.00	5.82	1.73	2.10	
L.S.D. at 5%	3.11	3.21	3.95	2.31	4.99	2.00	11.63	3.46	4.20	
L.S.D. at 5%	3.59	3.71	4.57	2.66	5.77	2.31	13.43	4.00	4.85	
L.S.D. at 5%	2.84	2.93	3.61	2.11	4.56	1.82	10.62	3.16	3.83	
C.V. %	0.47	0.54	0.63	0.35	0.79	0.30	2.05	0.51	0.98	

(1) Terbol had missing values; and Zargan, Tarquinia, Erzurum-1 were planted in spring and were excluded from the overall mean.

Table 3.6.4. Adjusted plant height (cm) of entries at different locations in the CISN-W during 1991/92.

Entry Name	ALGERIA	CYPRUS	IRAN	ITALY		LEBANON	MOROCCO
	Setif	Athalassa	Kaermanshah	Tarquinia	Tolentino	Terbol	Jema'a Shain
FLIP 88- 1C	37	54	38	73	62	51	60
FLIP 89- 13C	35	43	49	68	61	57	45
FLIP 89- 36C	31	48	40	66	54	62	55
FLIP 90- 3C	27	43	39	48	51	42	35
FLIP 90- 4C	34	38	45	61	52	52	35
FLIP 90- 6C	34	44	38	58	50	53	50
FLIP 90- 8C	35	48	32	71	52	52	65
FLIP 90- 9C	33	38	38	76	52	55	45
FLIP 90- 12C	44	46	34	68	50	53	21
FLIP 90- 13C	39	41	38	73	50	47	36
FLIP 90- 28C	40	33	36	78	43	41	35
FLIP 90- 29C	21	44	40	53	50	51	50
FLIP 90- 31C	26	54	37	58	55	48	50
FLIP 90- 33C	33	46	45	58	55	53	36
FLIP 90- 38C	44	43	37	66	49	52	55
FLIP 90- 45C	43	43	42	63	56	-	50
FLIP 90- 47C	35	54	31	53	55	57	60
FLIP 90- 55C	38	43	39	73	56	53	50
FLIP 90- 57C	40	38	45	73	56	51	50
FLIP 90- 58C	40	54	36	78	60	61	60
FLIP 90- 59C	33	46	39	58	50	43	21
FLIP 90- 60C	40	46	38	48	50	55	46
FLIP 90- 71C	40	46	36	68	48	53	36
FLIP 90- 76C	31	54	42	58	55	64	40
FLIP 90- 77C	33	48	41	73	61	42	35
FLIP 90- 78C	36	49	37	78	48	51	30
FLIP 90- 93C	29	33	40	78	58	46	40
FLIP 90- 95C	44	48	35	53	64	59	60

Cont'd. ...

Table 3.6.4. Adjusted plant height (cm) of entries at different locations in the CISON-W during 1991/92.

Entry Name	ALGERIA	CYPRUS	IRAN	ITALY		LEBANON	MOROCCO
	Setif	Athalassa	Kaermanshah	Tarquinia	Tolentino	Terbol	Jema'a Shain
FLIP 90- 96C	40	38	41	86	53	52	55
FLIP 90- 97C	33	41	39	78	48	41	26
FLIP 90- 98C	31	41	35	48	45	40	36
FLIP 90-102C	33	54	38	63	50	58	30
FLIP 90-103C	38	43	37	58	56	34	50
FLIP 90-104C	29	46	39	68	48	50	31
FLIP 90-105C	37	49	30	53	53	54	30
FLIP 90-107C	42	38	31	61	49	49	50
FLIP 90-108C	33	53	42	76	64	-	55
FLIP 90-109C	34	38	39	71	49	57	50
FLIP 90-116C	42	43	30	58	61	47	50
FLIP 90-118C	35	51	40	63	67	65	26
FLIP 90-122C	40	48	36	56	54	55	45
FLIP 90-123C	32	39	35	68	53	51	40
FLIP 90-136C	48	43	41	63	51	37	30
FLIP 90-154C	30	43	44	66	49	52	55
FLIP 90-182C	34	38	39	51	44	49	40
FLIP 90-184C	41	46	43	63	55	50	36
FLIP 90-185C	35	44	39	58	50	46	35
FLIP 90-186C	36	51	39	58	50	44	46
ILC 482	32	40	38	63	49	44	38
ILC 3279	42	53	42	75	60	55	58
Local Check	40	45	36	71	67	44	39
Location Mean	36	45	38	66	54	51	43
S.E. of Mean	3.72	1.86	1.81	2.80	1.71	1.93	3.31
L.S.D. at 5% for:							
Checks	12.87	6.45	6.26	9.67	5.93	6.68	11.44
T.E. in S.B.	25.75	12.90	12.52	19.34	11.86	13.36	22.89
T.E. in D.B.	29.73	14.89	14.45	22.34	13.70	15.43	26.43
Checks Vs T.E.	23.51	11.77	11.43	17.66	10.83	12.20	20.90
C.V. %	20.66	8.31	9.47	8.54	6.32	7.97	15.32

Cont'd. ...

Table 3.6.4. Cont'd. ...

Entry Name	MOROCCO	PORTUGAL		SYRIA				
	Marchouch	Elvas	Oeiras	Al Ghab	Gelline	Hama	Idleb	Izra'a
FLIP 88- 1C	64	54	83	63	51	53	52	49
FLIP 89- 13C	72	58	79	68	40	57	53	41
FLIP 89- 36C	49	50	73	48	48	48	53	46
FLIP 90- 3C	57	50	69	53	39	42	43	41
FLIP 90- 4C	59	46	66	38	34	43	42	41
FLIP 90- 6C	54	49	68	68	41	48	57	49
FLIP 90- 8C	54	45	68	43	44	53	53	48
FLIP 90- 9C	49	46	78	48	37	48	53	47
FLIP 90- 12C	55	50	80	63	41	42	51	39
FLIP 90- 13C	55	56	66	68	36	37	53	41
FLIP 90- 28C	57	52	79	63	36	47	44	33
FLIP 90- 29C	49	44	71	63	43	43	57	43
FLIP 90- 31C	59	44	91	63	34	58	51	53
FLIP 90- 33C	55	58	90	63	33	47	48	40
FLIP 90- 38C	64	45	68	43	36	53	44	41
FLIP 90- 45C	67	65	69	73	48	52	55	49
FLIP 90- 47C	59	49	73	73	33	58	61	53
FLIP 90- 55C	67	43	64	63	34	52	54	41
FLIP 90- 57C	62	53	79	58	40	52	50	44
FLIP 90- 58C	64	59	88	73	35	58	56	56
FLIP 90- 59C	60	53	77	68	56	47	51	41
FLIP 90- 60C	55	58	85	73	37	52	43	44
FLIP 90- 71C	55	52	68	63	43	47	46	37
FLIP 90- 76C	59	53	98	73	47	48	51	48
FLIP 90- 77C	67	58	74	73	39	62	62	52
FLIP 90- 78C	54	49	93	68	40	43	49	43
FLIP 90- 93C	62	48	67	53	34	47	49	38
FLIP 90- 95C	67	68	69	68	42	62	62	50

Cont'd. ...

Table 3.6.4. Cont'd. ...

Entry Name	MOROCCO	PORTUGAL		SYRIA				
	Marchouch	Elvas	Oeiras	Al Ghab	Gelline	Hama	Idleb	Izra'a
FLIP 90- 96C	49	50	93	43	37	48	46	43
FLIP 90- 97C	60	48	80	63	35	42	48	49
FLIP 90- 98C	50	48	60	53	39	37	39	37
FLIP 90-102C	54	59	63	73	42	38	48	59
FLIP 90-103C	62	53	89	73	43	52	47	46
FLIP 90-104C	50	53	80	73	48	52	51	46
FLIP 90-105C	54	54	73	53	36	48	47	48
FLIP 90-107C	44	46	66	43	36	38	46	38
FLIP 90-108C	59	46	58	53	44	58	56	59
FLIP 90-109C	54	39	83	48	38	53	48	46
FLIP 90-116C	57	53	82	63	43	57	49	48
FLIP 90-118C	60	58	95	83	37	67	61	47
FLIP 90-122C	59	51	73	48	37	48	52	43
FLIP 90-123C	44	39	58	63	50	43	54	38
FLIP 90-136C	52	63	74	63	37	52	53	39
FLIP 90-154C	54	47	73	38	38	53	50	51
FLIP 90-182C	54	41	66	33	37	38	44	55
FLIP 90-184C	60	58	60	58	35	52	52	39
FLIP 90-185C	49	55	78	53	36	48	51	46
FLIP 90-186C	55	58	75	58	42	47	43	44
ILC 482	48	46	75	60	36	41	44	40
ILC 3279	69	58	79	68	46	56	60	52
Local Check	55	57	75	50	37	43	41	43
Location Mean	57	52	75	59	40	49	50	45
S.E. of Mean	2.24	2.58	2.92	6.61	2.46	1.10	1.41	1.64
L.S.D. at 5% for:								
Checks	7.76	8.92	10.10	22.89	8.50	3.81	4.87	5.67
T.E. in S.B.	15.53	17.83	20.20	45.77	17.00	7.63	9.74	11.35
T.E. in D.B.	17.93	20.59	23.33	52.85	19.63	8.81	11.24	13.10
Checks Vs T.E.	14.18	16.28	18.44	41.79	15.52	6.97	8.89	10.36
C.V. %	7.89	9.96	7.73	22.33	12.37	4.52	5.64	7.24

Cont'd. ...

Table 3.6.4. Cont'd. ...

Entry Mean	SYRIA			TURKEY			Saruhanli	Overall Mean ⁽¹⁾
	Jindiress	Tel Hadya- NARS	Tel Hadya	Diyarbakir	Erzurum -1	Izmir		
FLIP 88- 1C	37	48	44	38	38	65	44	53
FLIP 89- 13C	36	30	37	46	31	69	55	51
FLIP 89- 36C	42	49	31	57	42	78	42	49
FLIP 90- 3C	30	38	32	42	34	63	44	44
FLIP 90- 4C	29	39	31	-	34	64	42	43
FLIP 90- 6C	34	42	36	54	22	62	49	48
FLIP 90- 8C	40	39	36	47	23	72	42	48
FLIP 90- 9C	39	44	38	45	31	62	44	46
FLIP 90- 12C	33	41	31	42	30	58	44	45
FLIP 90- 13C	34	39	29	45	30	58	37	45
FLIP 90- 28C	28	44	30	47	28	61	39	45
FLIP 90- 29C	33	43	36	48	18	63	35	46
FLIP 90- 31C	38	34	39	45	33	63	45	49
FLIP 90- 33C	44	35	39	54	36	66	42	48
FLIP 90- 38C	42	55	40	46	23	67	44	48
FLIP 90- 45C	33	35	41	55	32	81	46	52
FLIP 90- 47C	38	40	41	73	33	76	50	52
FLIP 90- 55C	37	36	40	48	30	64	47	48
FLIP 90- 57C	37	31	37	42	28	65	37	48
FLIP 90- 58C	46	40	45	54	39	76	44	55
FLIP 90- 59C	41	31	31	50	29	59	38	47
FLIP 90- 60C	37	37	36	48	26	57	43	49
FLIP 90- 71C	37	49	36	42	33	57	52	47
FLIP 90- 76C	35	39	38	45	39	75	39	51
FLIP 90- 77C	35	39	37	51	35	78	50	52
FLIP 90- 78C	34	42	33	44	36	74	44	48
FLIP 90- 93C	32	46	30	-	35	60	43	44
FLIP 90- 95C	33	36	38	73	37	78	51	54

Cont'd. ...

Table 3.6.4. Cont'd. ...

Entry Mean	SYRIA			TURKEY			Overall Mean	
	Jindiress	Tel Hadya- NARS	Tel Hadya	Diyarbakir	Erzurum -1	Izmir		Saruhanli
FLIP 90- 96C	39	40	29	50	30	65	48	47
FLIP 90- 97C	32	37	29	47	35	56	47	45
FLIP 90- 98C	29	48	26	42	31	65	45	42
FLIP 90-102C	32	39	38	45	33	64	52	48
FLIP 90-103C	33	45	41	45	34	66	40	50
FLIP 90-104C	33	51	38	49	37	58	52	49
FLIP 90-105C	36	42	41	-	28	67	50	47
FLIP 90-107C	33	42	30	38	27	59	48	43
FLIP 90-108C	46	51	45	59	34	84	47	52
FLIP 90-109C	38	46	36	45	32	74	53	48
FLIP 90-116C	35	32	36	45	30	67	44	49
FLIP 90-118C	47	42	39	62	28	74	47	53
FLIP 90-122C	38	44	38	45	37	66	50	48
FLIP 90-123C	30	44	36	36	29	53	34	43
FLIP 90-136C	33	33	32	48	39	63	35	47
FLIP 90-154C	37	43	38	50	25	69	51	48
FLIP 90-182C	29	54	28	42	32	62	45	43
FLIP 90-184C	37	52	38	54	38	58	47	48
FLIP 90-185C	31	41	31	-	30	68	44	46
FLIP 90-186C	36	52	33	47	29	68	46	49
ILC 482	27	43	28	37	30	60	40	43
ILC 3279	40	41	42	54	30	70	45	54
Local Check	31	40	30	43	33	69	43	46
Location Mean	35	42	35	48	32	66	45	
S.E. of Mean	1.44	2.97	0.75		1.19	2.20	1.96	
L.S.D. at 5% for:								
Checks	4.99	10.27	2.58		4.12	7.61	6.77	
T.E. in S.B.	9.97	20.54	5.16		8.24	15.23	13.55	
T.E. in D.B.	11.51	23.71	5.96		9.51	17.58	15.65	
Checks Vs T.E.	9.10	18.75	4.71		7.52	13.90	12.37	
C.V. %	8.20	14.27	4.26		7.55	6.67	8.80	

(1) Terbol and Diyarbakir had missing values; and Tarquinia, Tolentino and Erzurum-1 were planted in Spring and were excluded from the overall mean.

Table 3.6.5. Adjusted 100-Seed weight (g) of entries at different locations in the CISON-W during 1991/92.

Entry Name	ALGERIA	IRAN		ITALY		LEBANON	PORTUGAL		SPAIN
	Setif	Kaermanshah	Zarghan	Tarquini	Tolentino	Terbol	Elvas	Oeiras	Sevilla
FLIP 88- 1C	36	34	37	38	39	40	34	39	33
FLIP 89- 13C	24	34	29	53	45	-	40	44	34
FLIP 89- 36C	36	28	25	38	48	37	32	44	35
FLIP 90- 3C	39	37	42	38	44	47	37	44	35
FLIP 90- 4C	40	37	39	47	50	43	37	44	40
FLIP 90- 6C	31	30	25	35	37	-	29	34	33
FLIP 90- 8C	38	-	34	41	42	36	31	34	35
FLIP 90- 9C	36	27	29	44	36	40	37	44	30
FLIP 90- 12C	40	33	33	47	44	41	36	37	36
FLIP 90- 13C	38	35	35	50	46	44	37	47	36
FLIP 90- 28C	47	29	27	47	48	-	35	39	34
FLIP 90- 29C	32	32	31	42	45	-	32	39	33
FLIP 90- 31C	29	32	35	41	38	31	34	39	31
FLIP 90- 33C	41	27	35	38	34	33	33	37	32
FLIP 90- 38C	34	26	30	37	35	31	29	34	29
FLIP 90- 45C	39	35	29	46	50	-	40	39	33
FLIP 90- 47C	30	38	39	49	47	-	37	49	38
FLIP 90- 55C	41	25	27	37	33	27	27	29	29
FLIP 90- 57C	36	30	31	49	44	38	38	34	32
FLIP 90- 58C	25	34	37	39	45	41	39	34	31
FLIP 90- 59C	32	-	41	48	45	-	40	37	37
FLIP 90- 60C	35	27	35	41	33	32	29	37	32
FLIP 90- 71C	29	40	39	41	37	34	33	42	33
FLIP 90- 76C	30	34	33	37	43	36	38	39	32
FLIP 90- 77C	33	33	28	44	39	38	40	29	32
FLIP 90- 78C	32	26	25	31	36	26	29	29	24

Cont'd. ...

Table 3.6.5. Cont'd. ...

Entry Name	ALGERIA	IRAN		ITALY		LEBANON	PORTUGAL		SPAIN
	Setif	Kaermanshah	Zarghan	Tarquinoa	Tolentino	Terbol	Elvas	Oeiras	Sevilla
FLIP 90- 93C	28	26	24	40	34	29	31	34	26
FLIP 90- 95C	34	30	29	41	41	-	35	44	33
FLIP 90- 96C	31	30	26	49	43	37	35	39	33
FLIP 90- 97C	38	31	34	45	36	38	35	37	34
FLIP 90- 98C	33	33	39	40	41	-	34	42	35
FLIP 90-102C	32	33	33	40	45	38	36	39	32
FLIP 90-103C	34	30	23	47	48	-	34	39	33
FLIP 90-104C	34	31	41	41	42	-	35	42	36
FLIP 90-105C	32	33	32	40	41	38	36	34	32
FLIP 90-107C	39	35	38	54	48	44	36	44	40
FLIP 90-108C	33	36	36	49	48	-	37	44	36
FLIP 90-109C	43	37	45	51	47	35	40	49	35
FLIP 90-116C	43	29	30	41	39	40	35	39	35
FLIP 90-118C	37	33	33	44	43	-	36	47	38
FLIP 90-122C	36	28	31	39	41	32	32	34	35
FLIP 90-123C	29	29	37	39	41	34	35	34	31
FLIP 90-136C	34	41	21	54	52	-	45	49	38
FLIP 90-154C	36	29	30	36	35	33	33	39	30
FLIP 90-182C	31	35	38	45	42	36	34	39	32
FLIP 90-184C	40	32	37	48	41	39	36	52	38
FLIP 90-185C	37	36	41	40	41	-	39	44	35
FLIP 90-186C	38	31	33	48	38	-	32	37	35
ILC 482	34	27	28	35	37	28	31	33	28
ILC 3279	31	25	30	36	36	31	27	36	31
Local Check	30	36	27	39	34	37	40	34	43
Location Mean	34	32	32	42	41	36	34	39	34
S.E. of Mean	2.13	1.17	1.24	2.49	1.34		0.29	1.23	0.80
L.S.D. at 5% for:									
Checks	7.35	4.03	4.28	8.63	4.63		1.00	4.27	2.78
T.E. in S.B.	14.70	8.07	8.55	17.26	9.26		2.00	8.53	5.56
T.E. in D.B.	16.98	9.31	9.88	19.93	11.69		2.31	9.85	6.41
Checks Vs T.E.	13.42	7.36	7.81	15.76	8.45		1.82	7.79	5.07
C.V. %	12.39	-	7.74	11.94	6.60		1.68	6.37	4.77

Cont'd. ...

Table 3.6.5. Cont'd. ...

Entry Name	SPAIN		SYRIA		TURKEY			(1) Overall Mean
	Al Ghab	Jindiress	Tel Hadya- NARS	Tel - Hadya	Diyarbakir	Erzurum-1	Izmir	
FLIP 88- 1C	35	34	27	40	33	42	32	37
FLIP 89- 13C	42	41	32	42	36	40	37	39
FLIP 89- 36C	41	-	25	40	36	40	35	39
FLIP 90- 3C	40	41	27	40	43	34	-	40
FLIP 90- 4C	41	41	30	40	-	38	37	42
FLIP 90- 6C	29	29	26	30	31	28	29	32
FLIP 90- 8C	31	37	28	33	30	29	29	35
FLIP 90- 9C	33	37	30	38	34	33	32	36
FLIP 90- 12C	35	35	29	38	36	46	36	38
FLIP 90- 13C	38	37	34	41	34	52	37	40
FLIP 90- 28C	35	37	27	40	31	36	36	40
FLIP 90- 29C	37	32	33	41	33	29	36	37
FLIP 90- 31C	33	27	25	37	29	40	35	34
FLIP 90- 33C	30	37	34	33	35	44	29	34
FLIP 90- 38C	30	31	20	33	27	26	29	32
FLIP 90- 45C	39	39	33	39	31	34	33	40
FLIP 90- 47C	41	39	28	43	41	42	35	41
FLIP 90- 55C	26	26	29	28	24	25	26	30
FLIP 90- 57C	32	37	23	39	31	23	32	36
FLIP 90- 58C	33	34	29	37	35	45	27	35
FLIP 90- 59C	38	27	30	33	33	49	35	37
FLIP 90- 60C	30	32	32	31	27	44	30	32
FLIP 90- 71C	33	28	36	36	29	43	31	35
FLIP 90- 76C	28	-	31	38	33	44	34	35
FLIP 90- 77C	36	39	-	34	32	39	33	35
FLIP 90- 78C	27	26	31	29	27	43	35	29
FLIP 90- 93C	29	32	30	31	-	26	27	30
FLIP 90- 95C	33	37	32	36	35	34	30	37

Cont'd. ...

Table 3.6.5. Cont'd. ...

Entry Name	SPAIN		SYRIA		TURKEY			(1) Overall Mean
	Al Ghab	Jindiress	Tel Hadya- NARS	Tel - Hadya	Diyarbakir	Erzurum-1	Izmir	
FLIP 90- 96C	34	36	27	37	33	28	31	36
FLIP 90- 97C	33	35	33	36	30	45	33	36
FLIP 90- 98C	34	33	32	37	33	39	33	37
FLIP 90-102C	38	34	33	39	35	42	34	37
FLIP 90-103C	37	39	30	40	34	28	33	38
FLIP 90-104C	36	33	29	43	34	49	33	38
FLIP 90-105C	37	34	28	38	-	40	35	36
FLIP 90-107C	39	40	29	43	38	24	35	41
FLIP 90-108C	38	38	23	39	35	40	35	39
FLIP 90-109C	42	45	19	45	41	38	37	43
FLIP 90-116C	34	37	25	37	31	32	33	37
FLIP 90-118C	38	36	31	36	32	45	36	39
FLIP 90-122C	33	35	20	33	31	27	32	35
FLIP 90-123C	33	31	33	36	32	35	32	34
FLIP 90-136C	38	44	29	43	39	30	38	43
FLIP 90-154C	31	31	31	37	28	49	31	34
FLIP 90-182C	39	40	21	38	38	33	32	36
FLIP 90-184C	39	31	30	37	33	40	33	40
FLIP 90-185C	36	36	23	40	-	46	36	39
FLIP 90-186C	34	32	27	35	30	43	32	36
ILC 482	30	28	30	32	25	39	30	32
ILC 3279	28	29	29	30	28	34	29	31
Local Check	30	30	29	30	30	54	35	
Location Mean	34	35	29	36	33	39	15	
S.E. of Mean	0.19	2.20	2.50	0.77	1.74	2.89	0.46	
L.S.D. at 5%	0.65	7.63	8.64	2.67	6.03	9.99	1.60	
L.S.D. at 5%	1.29	15.26	17.29	5.33	12.07	19.99	3.19	
L.S.D. at 5%	1.49	17.62	19.96	6.16	13.94	23.08	3.69	
L.S.D. at 5%	1.18	13.93	15.78	4.87	11.02	18.25	2.92	
C.V. %	1.10	-	42.64	4.29	-	14.99	5.97	

(1) Terbol, Tel Hadya-Aleppo, Diyarbakir and Izmir had missing values; and Kaermanshah, Zarghan, Terquinia and Erzurum-1 were planted in spring and were excluded from the overall mean.

Table 3.6.6. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CISN-W during 1991/92.

Entry Name	ALGERIA		CYPRUS		IRAN				ITALY				LEBANON	
	Setif		Athalassa		Kaermanshah		Zarghan		Tarquinia		Tolentino		Terbol	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 1C	366	26	1443	31	169	48	1290	33	5651	11	4545	1	2571	M21
FLIP 89- 13C	105	50	1185	42	630	15	845	47	4318	23	2553	49	-	-
FLIP 89- 36C	359	27	835	50	449	33	1877	16	2814	43	3951	11	2531	23
FLIP 90- 3C	427	20	1135	44	481	28	1179	39	5207	16	2363	51	2778	18
FLIP 90- 4C	681	5	768	51	309	40	1163	40	2814	44	3548	24	2122	27
FLIP 90- 6C	277	36	2160	9	197	46	1433	24	4826	19	4027	9	-	-
FLIP 90- 8C	437	19	1093	46	192	47	1067	42	3005	37	3606	22	2041	29
FLIP 90- 9C	248	39	1126	45	458	32	591	50	3703	30	3778	17	1959	32
FLIP 90- 12C	537	13	1771	21	1365	1	2179	8	6010	7	4066	6	3857	4
FLIP 90- 13C	325	31	1738	23	607	17	1750	18	6645	3	4009	10	3000	15
FLIP 90- 28C	416	22	1960	17	804	9	1274	34	5715	10	2725	47	-	-
FLIP 90- 29C	400	24	835	49	490	25	1052	43	4191	25	3510	27	-	-
FLIP 90- 31C	300	33	2385	4	302	41	671	49	6350	5	3223	32	2429	26
FLIP 90- 33C	148	47	2379	6	810	8	2702	3	5248	15	3376	30	3400	8
FLIP 90- 38C	603	7	1060	48	379	36	1401	26	3640	32	3606	21	1959	32
FLIP 90- 45C	305	32	1260	39	649	13	1226	37	3493	33	2725	45	-	-
FLIP 90- 47C	566	10	2976	2	485	27	861	45	5524	13	3165	33	-	-
FLIP 90- 55C	327	30	1360	36	322	39	274	51	3366	36	2725	46	2889	17
FLIP 90- 57C	538	12	1285	37	595	19	2702	2	4889	18	3242	31	2667	20
FLIP 90- 58C	266	37	1960	16	140	49	1337	28	5143	17	3913	12	4714	2
FLIP 90- 59C	514	14	1679	25	226	43	798	48	2391	48	2744	44	-	-
FLIP 90- 60C	459	16	2046	13	622	16	2702	4	7915	1	3894	13	2444	24
FLIP 90- 71C	437	18	2146	10	816	7	1940	13	6010	8	4066	8	5143	1
FLIP 90- 76C	222	45	1501	29	362	37	1528	21	2731	45	3510	26	3667	5
FLIP 90- 77C	116	49	2310	7	922	3	1988	11	4445	21	3530	25	3167	11
FLIP 90- 78C	144	48	2026	14	851	5	1385	27	4762	20	4085	5	2714	19
FLIP 90- 93C	238	42	1468	30	468	29	1321	29	3366	35	2851	39	2556	22
FLIP 90- 95C	238	40	1076	47	247	42	3083	1	2858	41	2610	48	-	-

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	ALGERIA		CYPRUS		IRAN				ITALY				LEBANON	
	Setif		Athalassa		Kaermanshah		Zarghan		Tarquinia		Tolentino		Terbol	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 96C	370	25	1176	43	757	10	1306	32	5989	9	4238	2	3592	6
FLIP 90- 97C	425	21	1979	15	1013	2	1321	30	6581	4	3376	29	3020	13
FLIP 90- 98C	225	44	2113	11	508	22	2274	7	5566	12	3146	36	-	-
FLIP 90-102C	250	38	4443	1	603	18	909	44	6731	2	2821	40	3265	9
FLIP 90-103C	438	17	1276	38	354	38	2131	9	2858	42	2380	50	-	-
FLIP 90-104C	281	34	1363	35	486	26	2464	5	1883	51	3146	35	-	-
FLIP 90-105C	577	9	2385	5	213	44	1528	20	2985	38	2993	38	3265	9
FLIP 90-107C	548	11	1210	41	817	6	1210	38	2941	39	3606	20	2000	31
FLIP 90-108C	70	51	1376	34	590	20	1067	41	2433	47	3836	14	-	-
FLIP 90-109C	337	29	1526	27	890	4	2115	10	3830	29	4181	3	1796	34
FLIP 90-116C	472	15	1410	32	208	45	845	46	5461	14	3817	15	2111	28
FLIP 90-118C	748	3	2113	12	638	14	1274	35	4296	24	3146	34	-	-
FLIP 90-122C	592	8	1551	26	500	24	1448	23	2941	40	3778	18	2041	29
FLIP 90-123C	233	43	1843	20	42	51	1433	25	2667	46	3050	37	3000	15
FLIP 90-136C	238	41	1518	28	503	23	1893	15	3874	28	3645	19	-	-
FLIP 90-154C	192	46	1235	40	462	31	1925	14	2370	50	4181	4	1633	35
FLIP 90-182C	337	28	1401	33	687	12	1448	22	2370	49	2801	42	2444	24
FLIP 90-184C	714	4	1738	22	464	30	1321	31	3407	34	4066	7	3000	15
FLIP 90-185C	677	6	2260	8	115	50	1623	19	3683	31	3510	28	-	-
FLIP 90-186C	281	35	1846	19	419	34	1988	12	6264	6	2802	41	-	-
ILC 482	415	23	1850	18	582	21	1750	17	4017	26	2787	43	4167	3
ILC 3279	922	1	1706	24	386	35	1262	36	4366	22	3549	23	3056	12
Local Check	772	2	2631	3	735	11	2381	6	3937	27	3793	16	3426	7
Location Mean	394		1704		516		1540		4284		3423		2869	
S.E. of Mean	41.96		268.14		122.21		98.57		726.40		156.91		604.23	
L.S.D. at 5% for:														
Checks	145.19		928.78		422.84		341.06		2513.40		542.93		2090.67	
T.E. in S.B.	290.38		1855.57		845.69		682.11		5026.80		1085.86		4181.34	
T.E. in D.B.	335.30		2142.62		976.52		787.64		5804.45		1253.84		4828.19	
Checks Vs T.E.	265.12		1694.15		772.12		622.77		4589.51		991.40		3817.60	
C.V. %	19.04		30.51		46.67		12.49		34.13		9.19		65.72	
Error d.f.	6		6		6		6		6		6		6	
T.E. > L. Check	0		1		0		1		0		0		0	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	MOROCCO				PORTUGAL				SPAIN			
	Jema'a Shain		Marchouch		Elvas		Oeiras		Cordoba		Sevilla	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 1C	1006	27	2146	15	820	33	3223	30	3031	6	516	13
FLIP 89- 13C	948	35	3338	2	679	43	4089	13	2068	21	306	34
FLIP 89- 36C	1365	4	1138	45	531	46	2080	46	1597	33	82	50
FLIP 90- 3C	1248	7	2363	11	1010	18	2121	45	1056	48	226	39
FLIP 90- 4C	915	39	938	48	474	47	3032	32	1131	47	681	6
FLIP 90- 6C	1156	11	1371	42	970	23	3477	23	1931	24	487	15
FLIP 90- 8C	1615	3	2388	10	993	20	3223	29	3119	4	251	37
FLIP 90- 9C	1065	25	888	49	693	42	2334	43	1364	40	376	28
FLIP 90- 12C	981	30	2854	5	795	35	2863	37	2560	11	777	2
FLIP 90- 13C	581	49	2579	8	758	40	1911	48	2560	12	483	16
FLIP 90- 28C	1248	6	1913	25	935	28	3010	34	1834	28	244	38
FLIP 90- 29C	1156	12	871	50	452	50	4429	9	1908	25	122	48
FLIP 90- 31C	1106	22	2271	13	802	34	4429	7	1242	44	691	5
FLIP 90- 33C	931	37	2854	4	1239	4	3181	31	2371	15	137	47
FLIP 90- 38C	1615	2	138	51	793	36	3032	33	1564	35	398	25
FLIP 90- 45C	948	33	1988	22	1279	2	3957	15	2156	19	620	8
FLIP 90- 47C	1106	21	1796	30	1145	9	4747	5	2086	20	580	11
FLIP 90- 55C	998	29	1713	34	766	39	3328	26	1134	46	376	29
FLIP 90- 57C	1248	8	2088	17	1010	19	2788	39	2456	14	436	21
FLIP 90- 58C	1106	23	1721	33	1270	3	4429	8	2753	8	561	12
FLIP 90- 59C	481	51	1854	26	439	51	2927	36	1838	27	0	51
FLIP 90- 60C	931	38	2179	14	1164	8	2990	35	1794	29	449	18
FLIP 90- 71C	981	31	2804	6	958	26	3308	28	3938	2	335	32
FLIP 90- 76C	1206	10	2071	19	1445	1	5254	1	1864	26	397	26
FLIP 90- 77C	898	41	3338	3	1091	13	2693	41	2056	22	158	45
FLIP 90- 78C	1106	20	2746	7	1095	12	3540	20	2164	18	437	20
FLIP 90- 93C	1298	5	1988	21	947	27	2439	42	1301	41	747	3
FLIP 90- 95C	948	34	1838	28	985	21	4470	6	2290	16	268	36

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	MOROCCO				PORTUGAL				SPAIN			
	Jema'a Shain		Marchouch		Elvas		Oeiras		Cordoba		Sevilla	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 96C	1215	9	1113	46	1024	17	4365	11	1775	30	906	1
FLIP 90- 97C	1031	26	4804	1	1058	15	2736	40	1638	31	419	22
FLIP 90- 98C	881	43	2404	9	1039	16	4768	4	1944	23	643	7
FLIP 90-102C	806	45	1521	41	1208	6	4366	10	675	50	217	41
FLIP 90-103C	1098	24	1763	31	641	44	3518	22	1523	36	171	44
FLIP 90-104C	881	42	1279	43	964	25	1784	49	1260	43	95	49
FLIP 90-105C	806	46	1921	23	1208	7	3858	16	4342	1	615	9
FLIP 90-107C	1115	18	1138	44	768	38	2842	38	1486	38	463	17
FLIP 90-108C	1115	15	938	47	774	37	3318	27	2686	9	406	24
FLIP 90-109C	1115	17	1638	37	1081	14	3984	14	1264	42	392	27
FLIP 90-116C	998	28	1663	35	1097	11	4978	2	3045	5	727	4
FLIP 90-118C	531	50	1554	39	970	24	3561	18	3727	3	340	30
FLIP 90-122C	1115	16	1918	24	718	41	1445	50	1153	45	314	33
FLIP 90-123C	806	47	1571	38	639	45	2143	44	1042	49	153	46
FLIP 90-136C	798	48	1763	32	1122	10	4788	3	2490	13	337	31
FLIP 90-154C	1865	1	1538	40	462	48	3350	25	542	51	301	35
FLIP 90-182C	1115	19	1838	29	456	49	2080	47	1419	39	220	40
FLIP 90-184C	856	44	2079	18	977	22	1022	51	2682	10	408	23
FLIP 90-185C	956	32	2321	12	927	29	3826	17	2897	7	508	14
FLIP 90-186C	1131	14	1854	27	877	30	3371	24	2205	17	215	42
ILC 482	944	36	2125	16	852	31	3524	21	1572	34	197	43
ILC 3279	1138	13	1663	36	850	32	4302	12	1506	37	443	19
Local Check	913	40	2050	20	1234	5	3556	19	1636	32	584	10
Location Mean	1047		1934		911		3349		1993		396	
S.E. of Mean	65.32		370.22		117.06		380.68		369.57		104.48	
L.S.D. at 5%	226.01		1281.00		405.03		1317.17		1278.74		361.49	
L.S.D. at 5%	452.01		2562.00		810.05		2634.34		2557.48		722.99	
L.S.D. at 5%	521.94		2958.34		935.37		3041.87		2953.13		834.83	
L.S.D. at 5%	412.69		2339.12		739.59		2405.18		2335.00		660.09	
C.V. %	12.56		38.26		25.40		22.29		38.29		52.60	
Error d.f.	6		6		6		6		6		6	
T.E. > L. Check	4		1		0		0		1		0	

Cont'd. ...

Table 3.6.6. Cont'd. ...

SYRIA													
Entry Name	Al Ghab		Gelline		Hama		Idleb		Izra'a		Jindiress		
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	
FLIP 88- 1C	2031	51	1550	10	2397	21	1833	22	2180	14	1888	18	
FLIP 89- 13C	3323	18	1050	43	1974	40	2146	7	2667	5	1549	39	
FLIP 89- 36C	3100	25	1410	16	2333	29	1822	24	1640	42	216	51	
FLIP 90- 3C	2688	39	1019	44	1815	44	1963	19	2254	12	1749	26	
FLIP 90- 4C	3291	21	1347	22	2365	25	1896	20	1894	26	2123	7	
FLIP 90- 6C	2730	36	1378	20	2333	28	1588	34	1831	29	1316	48	
FLIP 90- 8C	3989	8	1347	21	2683	12	1799	25	1831	31	2216	4	
FLIP 90- 9C	2243	47	1632	8	2365	26	2205	4	1767	35	1716	29	
FLIP 90- 12C	3767	12	1272	27	1804	45	1788	26	1862	28	2776	1	
FLIP 90- 13C	3069	26	1336	24	1328	51	1593	33	1513	47	1647	32	
FLIP 90- 28C	2656	40	1272	29	3116	1	1974	17	2698	4	1878	19	
FLIP 90- 29C	3047	28	1569	9	1857	43	1828	23	1640	41	1809	23	
FLIP 90- 31C	2761	35	1410	15	2556	16	1570	36	2402	8	1380	45	
FLIP 90- 33C	2815	31	1082	40	2217	31	1970	18	1958	21	2076	10	
FLIP 90- 38C	2487	46	1347	23	2397	22	1462	37	1481	49	1766	25	
FLIP 90- 45C	2688	38	1272	30	1910	41	1369	41	1524	46	1364	47	
FLIP 90- 47C	2952	29	1728	5	2143	32	1599	32	1704	37	2259	3	
FLIP 90- 55C	3132	24	1209	34	2354	27	1586	35	2254	13	1878	20	
FLIP 90- 57C	2069	50	1146	37	1974	39	1460	39	1746	36	1642	33	
FLIP 90- 58C	2507	45	1448	14	1762	46	2039	9	1831	30	1666	31	
FLIP 90- 59C	2783	34	765	50	2312	30	965	47	1386	50	2126	6	
FLIP 90- 60C	4148	5	1146	35	2979	7	2028	11	2148	15	2097	8	
FLIP 90- 71C	4021	6	1076	42	3011	5	2479	1	1831	32	2147	5	
FLIP 90- 76C	2190	48	1124	38	2111	33	645	51	1767	34	930	50	
FLIP 90- 77C	3862	10	1272	28	2704	10	2249	2	2698	3	1842	21	
FLIP 90- 78C	4285	4	1474	13	2048	36	1130	45	1704	38	1395	43	
FLIP 90- 93C	2593	43	955	45	2545	17	2009	12	2063	16	1907	17	
FLIP 90- 95C	3065	27	1146	36	2069	34	1351	42	1619	44	1928	16	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	SYRIA											
	Al Ghab		Gelline		Hama		Idleb		Izra'a		Jindiress	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 96C	3957	9	1232	31	3032	3	1325	43	1894	24	2280	2
FLIP 90- 97C	3418	15	1082	41	3011	4	2245	3	3228	1	2018	11
FLIP 90- 98C	3323	17	923	47	1741	47	2039	10	1958	23	1561	38
FLIP 90-102C	4666	1	1378	19	1730	48	1639	30	3101	2	1616	35
FLIP 90-103C	3482	14	892	48	1593	49	1986	15	1619	45	1671	30
FLIP 90-104C	2624	41	765	49	1392	50	1616	31	1958	22	1968	13
FLIP 90-105C	2571	44	1220	32	2365	24	856	49	2021	18	1388	44
FLIP 90-107C	3195	23	1854	2	2492	19	1999	13	1958	20	1602	36
FLIP 90-108C	3291	20	1220	33	2683	13	2165	6	1704	39	1630	34
FLIP 90-109C	3322	19	1696	6	2841	9	2199	5	1894	25	2080	9
FLIP 90-116C	3545	13	1095	39	2640	14	1729	29	2571	6	1378	46
FLIP 90-118C	4402	3	1272	26	2376	23	1433	40	1291	51	1468	42
FLIP 90-122C	3259	22	1823	3	2587	15	1759	28	1640	43	1959	14
FLIP 90-123C	2095	49	1943	1	2016	37	959	48	1862	27	1538	40
FLIP 90-136C	4434	2	955	46	2958	8	1980	16	2063	17	1578	37
FLIP 90-154C	2604	42	1505	11	3095	2	1782	27	2275	10	1930	15
FLIP 90-182C	2719	37	1740	4	2524	18	1890	21	1958	19	2002	12
FLIP 90-184C	2815	32	701	51	1868	42	1153	44	1672	40	1797	24
FLIP 90-185C	4000	7	1378	18	3000	6	725	50	2466	7	1045	49
FLIP 90-186C	3831	11	1399	17	1995	38	1022	46	2307	9	1811	22
IIC 482	2945	30	1635	7	2698	11	2084	8	1817	33	1736	27
IIC 3279	2786	33	1476	12	2063	35	1461	38	1500	48	1521	41
Local Check	3381	16	1278	25	2460	20	1994	14	2270	11	1727	28
Location Mean	3156		1299		2326		1694		1979		1737	
S.E. of Mean	317.33		98.53		260.44		147.33		150.38		171.43	
L.S.D. at 5%	1097.98		340.90		901.15		509.78		520.31		593.15	
L.S.D. at 5%	2195.96		681.80		1802.31		1019.56		1040.62		1186.30	
L.S.D. at 5%	2535.68		787.28		2081.12		1177.28		1201.60		1369.82	
L.S.D. at 5%	2004.93		622.49		1645.52		930.86		950.09		1083.10	
C.V. %	20.22		14.89		22.28		17.16		15.33		19.87	
Error d.f.	6		6		6		6		6		6	
T.E. > L. Check	0		1		0		0		1		0	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	SYRIA				TUNISIA							
	Al Ghab		Gelline		Beja-Winter-1		Beja-Winter-2		Beja-Spring-1		Beja-Spring-2	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 1C	987	6	1415	42	2042	10	1563	30	713	12	1096	7
FLIP 89- 13C	865	23	1992	16	1708	15	1996	16	429	20	729	14
FLIP 89- 36C	642	41	1390	44	1208	26	1246	38	213	33	0	49
FLIP 90- 3C	770	34	2327	2	1658	16	2346	9	1029	7	779	13
FLIP 90- 4C	528	49	2166	6	1858	11	1396	34	163	39	629	16
FLIP 90- 6C	630	42	1693	28	1142	31	1963	17	213	34	496	21
FLIP 90- 8C	776	33	1578	33	2508	4	2196	11	3813	3	3579	4
FLIP 90- 9C	841	25	1660	31	858	38	1046	45	13	49	0	50
FLIP 90- 12C	605	43	2297	3	2692	2	3146	4	4446	2	4596	1
FLIP 90- 13C	967	10	2003	14	2492	5	2996	5	5346	1	4146	2
FLIP 90- 28C	1147	1	2057	13	1658	17	1946	18	229	31	229	35
FLIP 90- 29C	711	39	852	51	242	50	963	46	163	40	496	22
FLIP 90- 31C	879	21	1578	34	842	39	1063	42	413	22	546	18
FLIP 90- 33C	884	20	1529	36	392	45	696	49	196	35	0	44
FLIP 90- 38C	509	51	2141	9	558	43	1396	33	0	51	0	51
FLIP 90- 45C	984	7	2106	10	758	42	1696	24	129	46	279	31
FLIP 90- 47C	1011	3	2517	1	1042	33	1913	19	165	37	446	24
FLIP 90- 55C	921	16	1478	39	458	44	1646	26	79	47	279	33
FLIP 90- 57C	830	29	1371	45	2208	7	3346	2	2629	5	3729	3
FLIP 90- 58C	877	22	1676	29	942	36	1263	36	363	24	896	10
FLIP 90- 59C	966	12	1301	46	292	49	496	51	296	26	0	39
FLIP 90- 60C	957	14	1668	30	842	40	1046	44	146	45	0	41
FLIP 90- 71C	1014	2	2150	7	0	51	1246	37	396	23	0	48
FLIP 90- 76C	900	18	2207	4	2092	8	2063	15	813	10	946	9
FLIP 90- 77C	572	47	1869	20	1208	27	2246	10	829	9	984	8
FLIP 90- 78C	888	19	1529	37	1342	25	1563	31	463	19	646	15
FLIP 90- 93C	996	4	1437	41	1158	29	2146	13	329	25	329	27
FLIP 90- 95C	578	46	2000	15	2058	9	3346	3	179	36	329	29

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	SYRIA				TUNISIA							
	Al Ghab		Gelline		Beja-Winter-1		Beja-Winter-2		Beja-Spring-1		Beja-Spring-2	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 96C	718	38	1897	19	1108	32	2196	12	763	11	1329	6
FLIP 90- 97C	759	36	1848	22	392	46	1096	40	146	42	0	45
FLIP 90- 98C	925	15	1546	35	1342	24	946	47	146	44	0	40
FLIP 90-102C	833	28	1970	17	792	41	1063	43	613	15	896	11
FLIP 90-103C	777	32	2065	12	1508	21	2546	8	29	48	279	30
FLIP 90-104C	988	5	2084	11	1142	30	1296	35	646	13	346	26
FLIP 90-105C	593	44	2150	8	1742	14	1613	27	613	14	846	12
FLIP 90-107C	791	31	925	50	1558	20	1846	21	13	50	179	36
FLIP 90-108C	835	27	1766	26	1408	22	1596	29	263	29	0	43
FLIP 90-109C	968	9	1864	21	1008	34	1596	28	163	38	0	47
FLIP 90-116C	521	50	1796	24	2558	3	2696	6	229	32	279	32
FLIP 90-118C	759	35	1301	47	342	47	846	48	296	27	0	42
FLIP 90-122C	585	45	1244	48	1658	18	1546	32	563	17	279	34
FLIP 90-123C	696	40	1839	23	1592	19	1713	22	413	21	546	17
FLIP 90-136C	721	37	1396	43	2358	6	3996	1	279	28	329	28
FLIP 90-154C	856	24	1741	27	1758	12	1896	20	1013	8	529	19
FLIP 90-182C	960	13	1488	38	1158	28	2096	14	613	16	379	25
FLIP 90-184C	974	8	1946	18	342	48	596	50	246	30	0	46
FLIP 90-185C	548	48	1790	25	1392	23	1713	23	1263	6	496	20
FLIP 90-186C	905	17	2182	5	1742	13	1096	41	146	43	96	38
ILC 482	836	26	1604	32	1000	35	1238	39	150	41	175	37
ILC 3279	967	11	1218	49	888	37	1688	25	538	18	450	23
Local Check	814	30	1447	40	2838	1	2563	7	3150	4	2963	5
Location Mean	815		1747		1331		1754		715		717	
S.E. of Mean	63.06		173.77		192.89		210.16		119.82		287.26	
L.S.D. at 5% for:												
Checks	218.21		601.24		667.40		727.16		414.60		993.93	
T.E. in S.B.	436.41		1202.48		1334.79		1454.32		829.19		1987.86	
T.E. in D.B.	503.92		1388.50		1541.28		1679.31		957.47		2295.38	
Checks Vs T.E.	398.45		1097.87		1218.68		1327.81		757.06		1814.94	
C.V. %	15.32		20.46		28.21		23.81		30.02		76.26	
Error d.f.	6		6		6		6		6		6	
T.E. > L. Check	0		0		0		1		2		0	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	TUNISIA				TURKEY								(1) Overall Mean
	Oued Meliz		Diyarbakir		Erzurum-1		Izmir		Saruhanli				
	Y	R	Y	R	Y	R	Y	R	Y	R			
FLIP 88- 1C	2046	30	1304	33	1093	14	1405	33	1234	35	1559	22	
FLIP 89- 13C	2846	17	2407	10	250	42	1016	45	1188	37	1636	17	
FLIP 89- 36C	1246	46	1615	22	769	20	1803	18	1343	24	1161	49	
FLIP 90- 3C	2046	31	985	42	750	21	2350	10	-	51	1516	28	
FLIP 90- 4C	1896	36	-	51	1269	11	1359	35	2093	3	1384	39	
FLIP 90- 6C	2946	14	1904	16	398	34	988	46	2039	4	1447	35	
FLIP 90- 8C	2546	22	993	39	657	22	3414	1	1926	5	2069	2	
FLIP 90- 9C	1796	39	193	47	602	25	1692	23	1538	16	1234	47	
FLIP 90- 12C	3563	3	985	41	1611	5	1331	36	1347	23	2193	1	
FLIP 90- 13C	3913	2	2163	14	944	17	1164	41	708	48	1959	3	
FLIP 90- 28C	2946	15	2941	5	472	30	1655	25	1326	25	1645	15	
FLIP 90- 29C	346	50	2415	9	204	49	794	49	1289	30	1173	48	
FLIP 90- 31C	3096	12	1526	25	815	18	1183	40	1623	10	1531	24	
FLIP 90- 33C	3363	9	1519	26	1833	2	1942	15	1291	27	1529	26	
FLIP 90- 38C	1846	38	1615	21	185	50	1414	32	1593	12	1234	47	
FLIP 90- 45C	2296	26	1052	38	250	44	2461	6	1743	8	1478	33	
FLIP 90- 47C	1996	34	2348	11	287	39	1544	28	1178	38	1674	11	
FLIP 90- 55C	2396	24	2185	13	472	29	877	47	910	44	1342	41	
FLIP 90- 57C	2046	29	1274	34	250	43	1627	26	1354	22	1751	7	
FLIP 90- 58C	3296	10	2504	8	1315	10	3155	2	1039	41	1649	14	
FLIP 90- 59C	1063	48	496	44	944	16	414	51	569	50	1092	50	
FLIP 90- 60C	3113	11	985	40	1361	9	1442	31	1291	28	1582	20	
FLIP 90- 71C	4313	1	1474	29	944	15	1775	19	1597	11	1791	5	
FLIP 90- 76C	2096	28	1881	17	1898	1	1738	20	1289	29	1563	21	
FLIP 90- 77C	2396	25	1585	23	778	19	2461	7	1271	31	1773	6	
FLIP 90- 78C	1996	35	3637	1	1537	7	1877	17	1567	14	1585	19	
FLIP 90- 93C	96	51	-	48	389	35	1266	38	2215	1	1336	42	
FLIP 90- 95C	2196	27	2963	4	250	45	1211	39	1160	39	1541	23	

Cont'd. ...

Table 3.6.6. Cont'd. ...

Entry Name	TUNISIA		TURKEY										(1) Overall Mean
	Oued Meliz		Diyarbakir		Erzurum-1		Izmir		Saruhanli				
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	
FLIP 90- 96C	1846	37	3215	3	352	36	1998	13	1260	34	1664	13	
FLIP 90- 97C	3463	7	1496	27	1750	3	1081	43	1430	20	1691	10	
FLIP 90- 98C	1463	43	2830	6	500	28	1720	21	1013	42	1485	31	
FLIP 90-102C	2596	21	2570	7	398	33	766	50	1262	33	1641	16	
FLIP 90-103C	2001	32	1541	24	250	41	850	48	632	49	1395	38	
FLIP 90-104C	2813	18	1852	18	1722	4	1303	37	819	46	1275	44	
FLIP 90-105C	3396	8	-	50	1565	6	1044	44	984	43	1667	12	
FLIP 90-107C	1296	44	1726	20	630	24	1525	29	1510	18	1375	40	
FLIP 90-108C	1196	47	1104	37	1435	8	2720	4	1538	17	1467	34	
FLIP 90-109C	1696	41	615	43	241	46	3081	3	2204	2	1593	18	
FLIP 90-116C	1646	42	2252	12	472	31	1905	16	1132	40	1704	9	
FLIP 90-118C	3513	6	1363	32	500	27	1720	22	875	45	1530	25	
FLIP 90-122C	1996	33	1393	30	213	47	2387	9	1732	9	1417	36	
FLIP 90-123C	2446	23	393	45	204	48	1155	42	1567	13	1273	45	
FLIP 90-136C	3546	4	1230	35	306	38	2600	5	771	47	1859	4	
FLIP 90-154C	1246	45	193	46	657	23	1942	14	1399	21	1483	32	
FLIP 90-182C	1746	40	2037	15	157	51	1664	24	1232	36	1413	37	
FLIP 90-184C	2613	20	1363	31	1167	12	2081	12	1263	32	1293	43	
FLIP 90-185C	3096	13	-	49	1120	13	2100	11	1539	15	1717	8	
FLIP 90-186C	2713	19	1141	36	278	40	1581	27	1319	26	1523	27	
ILC 482	2888	16	1817	19	333	37	1514	30	1757	7	1495	29	
ILC 3279	3513	5	1478	28	403	32	1382	34	1444	19	1494	30	
Local Check	738	49	3572	2	514	26	2431	8	1889	6			
Location Mean	2337		1684		739		1684		1366				
S.E. of Mean	339.42		393.71		89.53		225.18		177.84				
L.S.D. at 5% for:													
Checks	1174.43		1362.24		309.79		779.14		615.35				
T.E. in S.B.	2348.85		2724.48		619.58		1558.28		1230.69				
T.E. in D.B.	2712.22		3145.96		715.43		1799.34		1421.08				
Checks Vs T.E.	2145.52		2487.48		565.68		1422.72		1123.63				
C.V. %	28.97		57.12		25.92		26.52		27.30				
Error d.f.	6		6		6		6		6				
T.E. > L. Check	14		0		14		0		0				

(1) Terbol, Diyarbakir and Saruhanli had missing values; and Zarghan, Tarquinia, Tolentino and Erzurum-1 were planted in spring were excluded from the overall mean.

Table 3.6.7. The five heaviest seed yielding entries at the individual locations in the CISN-W during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Setif	ILC 3279	Local check	FLIP 90-118C	FLIP 90-184C	FLIP 90-4C
Cyprus	Athalassa	FLIP 90-102C	FLIP 90-47C	Local check	FLIP 90-31C	FLIP 90-105C
Iran	Kaermanshah	FLIP 90-12C	FLIP 90-97C	FLIP 90-77C	FLIP 90-109C	FLIP 90-78C
Iran	Zarghan	FLIP 90-95C	FLIP 90-57C	FLIP 90-33C	FLIP 90-60C	FLIP 90-104C
Italy	Tarquinia	FLIP 90-60C	FLIP 90-102C	FLIP 90-13C	FLIP 90-97C	FLIP 90-31C
Italy	Tolentino	FLIP 88-1C	FLIP 90-96C	FLIP 90-109C	FLIP 90-154C	FLIP 90-78C
Lebanon	Terbol	FLIP 90-58C	FLIP 90-77C	FLIP 90-55C	FLIP 90-3C	FLIP 90-57C
Morocco	Jema'a Shain	FLIP 90-154C	FLIP 90-38C	FLIP 90-8C	FLIP 89-36C	FLIP 90-93C
Morocco	Marchouch	FLIP 90-97C	FLIP 89-13C	FLIP 90-77C	FLIP 90-33C	FLIP 90-12C
Portugal	Elvas	FLIP 90-76C	FLIP 90-45C	FLIP 90-58C	FLIP 90-33C	Local check
Portugal	Oeiras	FLIP 90-76C	FLIP 90-116C	FLIP 90-136C	FLIP 90-98C	FLIP 90-47C
Spain	Córdoba	FLIP 90-105C	FLIP 90-71C	FLIP 90-118C	FLIP 90-8C	FLIP 90-116C
Spain	Sevilla	FLIP 90-96C	FLIP 90-12C	FLIP 90-93C	FLIP 90-116C	FLIP 90-31C
Syria	Al Ghab	FLIP 90-102C	FLIP 90-136C	FLIP 90-118C	FLIP 90-78C	FLIP 90-60C
Syria	Gelline	FLIP 90-123C	FLIP 90-107C	FLIP 90-122C	FLIP 90-182C	FLIP 90-47C
Syria	Hama	FLIP 90-28C	FLIP 90-154C	FLIP 90-96C	FLIP 90-97C	FLIP 90-71C
Syria	Idleb	FLIP 90-71C	FLIP 90-77C	FLIP 90-97C	FLIP 90-9C	FLIP 90-109C
Syria	Izra'a	FLIP 90-97C	FLIP 90-102C	FLIP 90-77C	FLIP 90-28C	FLIP 89-13C
Syria	Jindiress	FLIP 90-12C	FLIP 90-96C	FLIP 90-47C	FLIP 90-8C	FLIP 90-71C
Syria	Tel Hadya-NARS	FLIP 90-28C	FLIP 90-71C	FLIP 90-47C	FLIP 90-93C	FLIP 90-104C
Syria	Tel Hadya	FLIP 90-47C	FLIP 90-3C	FLIP 90-12C	FLIP 90-76C	FLIP 90-186C
Tunisia	Beja-Spring-1	Local check	FLIP 90-12C	FLIP 90-116C	FLIP 90-8C	FLIP 90-13C
Tunisia	Beja-Spring-2	FLIP 90-136C	FLIP 90-57C	FLIP 90-95C	FLIP 90-12C	FLIP 90-13C
Tunisia	Beja-Winter-1	FLIP 90-13C	FLIP 90-12C	FLIP 90-8C	Local check	FLIP 90-57C
Tunisia	Beja-Winter-2	FLIP 90-12C	FLIP 90-13C	FLIP 90-57C	FLIP 90-8C	Local check
Tunisia	Oued Meliz	FLIP 90-71C	FLIP 90-13C	FLIP 90-12C	FLIP 90-136C	ILC 3279
Turkey	Diyarbakir	FLIP 90-78C	Local check	FLIP 90-96C	FLIP 90-95C	FLIP 90-28C
Turkey	Erzurum-1	FLIP 90-76C	FLIP 90-33C	FLIP 90-97C	FLIP 90-104C	FLIP 90-12C
Turkey	Izmir	FLIP 90-8C	FLIP 90-58C	FLIP 90-109C	FLIP 90-108C	FLIP 90-136C
Turkey	Sarahanli	FLIP 90-93C	FLIP 90-109C	FLIP 90-4C	FLIP 90-6C	FLIP 90-8C

Table 3.7.1. Agronomic details for CISON-SP-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Hungary	Tapioszele	25.03.92	12.08.92	47	-	-	-	-	Donia
Iran	Karaj	15.04.92	05.08.92	24	72	-	4	Metasystox, Treflan	Jam
Iran	Maragheh	16.04.92	29.07.92	10	60	-	-	Actellic, Diazinon	Jam
Iran	Mashhad	01.04.92	27.07.92	24	72	-	8	Metasystox, Sevin	Jam
Iran	Hamadan	28.04.92	28.08.92	25	75	-	4	Metasystox, Diazinon	Jam
Lebanon	Terbol	14.04.92	25.08.92	-	50	-	-	-	Lebanese Local
Mexico	Hermosillo	25.12.91	26.05.92	100	40	-	-	Nitragin, Treflan	Surutato 77
Syria	Al Ghab	18.03.92	-	-	-	-	-	-	ILC 1929
Syria	Gelline	15.03.92	10.07.92	20	50	-	-	-	ILC 1929
Syria	Hama	03.03.92	25.06.92	-	50	-	-	-	ILC 1929
Syria	Idleb	26.03.92	-	-	60	-	-	-	ILC 1929
Syria	Izra'a	14.07.92	-	50	-	-	-	-	ILC 1929
Syria	Jindiress	03.03.92	01.07.92	-	50	-	-	-	ILC 1929
Syria	Tel Hadya-NARS	03.03.92	-	-	100	-	-	-	ILC 1929
Syria	Tel Hadya-ICARDA	03.03.92	02.07.92	-	50	-	-	Kerb + Igran	Syrian local
Tunisia	Beja Spring 1	NA	NA	NA	NA	NA	NA	NA	NA
Tunisia	Beja Spring 2	NA	NA	NA	NA	NA	NA	NA	NA
Tunisia	Beja Winter 1	NA	NA	NA	NA	NA	NA	NA	NA
Tunisia	Beja Winter 2	NA	NA	NA	NA	NA	NA	NA	NA
Tunisia	Oued Meliz	NA	NA	NA	NA	NA	NA	NA	NA
Turkey	Adana	20.12.91	11.07.92	30	50	-	-	-	-
Turkey	Ankara	30.03.92	-	22	60	-	-	-	Eser 87
Turkey	Antalya	08.04.92	12.07.92	50	30	-	-	-	-
Turkey	Eskisehir	NA	NA	NA	NA	NA	NA	NA	NA
Turkey	Gal	03.03.92	28.07.92	30	60	-	-	Igran	Canitez 87
Turkey	Haymana	NA	NA	NA	NA	NA	NA	NA	Akcin 91
Turkey	Izmir	02.03.92	23.07.92	30	60	-	-	Metasystox, Igran+Fusilade	Canitez 87

NA = Not available

Table 3.7.2. Adjusted time to flowering (days) of entries at different locations in the CISON-SP during 1991/92.

Entry Name	Pedigree	Origin	HUNGARY	IRAN	
			Tapioszele	Hamadan	Karaj
FLIP 89- 8C	X85 TH194/ILC3499XFLIP 82-93C	ICARDA/ICRISAT	95	-	61
FLIP 89- 23C	X86 TH336/(ILC3398XFLIP83-15C)XILC3398	ICARDA/ICRISAT	68	29	56
FLIP 89- 57C	X87 TH345/(FLIP84-48CXILC237)XFLIP84-48C	ICARDA/ICRISAT	92	37	55
FLIP 89- 59C	X87 TH 79/S85091XFLIP 82-64C	ICARDA/ICRISAT	87	34	59
FLIP 89- 66C	X86 TH 70/ILC295XFLIP 84-48C	ICARDA/ICRISAT	83	31	60
FLIP 89- 93C	X85 TH 9/ILC171XFLIP 83-13C	ICARDA/ICRISAT	74	33	53
FLIP 89- 97C	X86 TH112/FLIP 82-64CXFLIP 81-293C	ICARDA/ICRISAT	88	32	55
FLIP 89- 99C	X86 TH256/(ILC165XFLIP82-127C)XFLIP82-78C	ICARDA/ICRISAT	84	33	58
FLIP 90- 21C	X87 TH283/(ILC295XFLIP84-18C)XFLIP84-164C	ICARDA/ICRISAT	85	-	57
FLIP 90- 23C	X87 TH291/(ILC136XFLIP81-293C)XILC136	ICARDA/ICRISAT	96	34	56
FLIP 90- 36C	X86 TH 80/ILC 493XFLIP84-48C	ICARDA/ICRISAT	91	34	56
FLIP 90- 41C	X86 TH263/(ILC451XFLIP81-293C)XFLIP82-92C	ICARDA/ICRISAT	74	31	62
FLIP 90- 43C	X86 TH269/(ILC480XFLIP82-243C)XFLIP82-64C	ICARDA/ICRISAT	93	38	56
FLIP 90- 48C	X87 TH165/ILC1919XFLIP84 -C	ICARDA/ICRISAT	86	33	56
FLIP 90- 53C	X87 TH 7/FLIP81-293CXFLIP83-72C	ICARDA/ICRISAT	86	28	57
FLIP 90- 61C	X87 TH 32/FLIP83- 7CXFLIP84-109C	ICARDA/ICRISAT	84	40	60
FLIP 90- 66C	X86 TH277/(ILC1919XFLIP82-130C)XFLIP84-18C	ICARDA/ICRISAT	88	33	55
FLIP 90- 67C	X86 TH 57/ILC 171XFLIP81-293C	ICARDA/ICRISAT	88	36	58
FLIP 90- 74C	X86 TH261/ILC 171XFLIP81-13C	ICARDA/ICRISAT	88	32	65
FLIP 90- 86C	X86 TH266/(ILC480XFLIP82-130C)XFLIP82-64C	ICARDA/ICRISAT	87	29	54
FLIP 90- 88C	X86 TH 10/ILC 136XFLIP84-48C	ICARDA/ICRISAT	69	25	55
FLIP 90- 90C	X87 TH276/(ILC1919XFLIP84-18C)XFLIP83-47C	ICARDA/ICRISAT	88	30	60
FLIP 90- 91C	X87 TH276/(ILC1919XFLIP84-18C)XFLIP83-47C	ICARDA/ICRISAT	66	45	58
FLIP 90-106C	X88 TH 51/FLIP85-112CXFLIP81-293C	ICARDA/ICRISAT	87	-	57
FLIP 90-113C	X88 TH216/FLIP85-122XFLIP85-112C	ICARDA/ICRISAT	74	32	55
FLIP 90-125C	X88 TH346/(ICC14212XFLIP82-150C)XICC14212	ICARDA/ICRISAT	66	29	52
FLIP 90-126C	X88 TH346/(ICC14212XFLIP82-150C)XICC14212	ICARDA/ICRISAT	72	33	58
FLIP 90-127C	X88 TH346/(ICC14212XFLIP82-150C)XICC14212	ICARDA/ICRISAT	65	30	57
FLIP 90-132C	X85 TH246/ILC3398XFLIP83-13C	ICARDA/ICRISAT	67	30	52
FLIP 90-137C	X87 TH216/ILC4296XFLIP84-93C	ICARDA/ICRISAT	66	29	59

Cont'd. ...

Table 3.7.2. Cont'd. ...

Entry Name	Pedigree	Origin	HUNGARY	IRAN	
			Tapioszele	Hamadan	Karaj
FLIP 90-138C	X87 TH216/ILC4296XFLIP84-93C	ICARDA/ICRISAT	74	37	57
FLIP 90-140C	X86 TH 35/ILC1919XFLIP84-48C	ICARDA/ICRISAT	68	27	55
FLIP 90-141C	X86 TH 35/ILC1919XFLIP84-48C	ICARDA/ICRISAT	85	31	59
FLIP 90-142C	X86 TH 35/ILC1919XFLIP84-48C	ICARDA/ICRISAT	84	32	58
FLIP 90-143C	X86 TH 35/ILC1919XFLIP84-48C	ICARDA/ICRISAT	84	27	56
FLIP 90-150C	X87 TH 18/ILC 493XFLIP84-78C	ICARDA/ICRISAT	68	34	58
FLIP 90-153C	X87 TH273/(ILC116XFLIP84-18C)XFLIP84-48C	ICARDA/ICRISAT	87	28	51
FLIP 90-155C	X86 TH 32/ILC1919XFLIP81-293C	ICARDA/ICRISAT	66	30	55
FLIP 90-165C	X86 TH333/(ILC3398XFLIP82-191C)XILC3398	ICARDA/ICRISAT	89	25	57
FLIP 90-170C	X87 TH 34/FLIP83-15CXFLIP84-109C	ICARDA/ICRISAT	68	22	55
FLIP 90-171C	X87 TH 58/FLIP83-104CXFLIP84 -C	ICARDA/ICRISAT	77	31	56
FLIP 90-172C	X87 TH 63/FLIP82-189CXFLIP84-164C	ICARDA/ICRISAT	73	33	56
FLIP 90-173C	X87 TH 68/FLIP82-87CXFLIP85-180C	ICARDA/ICRISAT	88	30	56
FLIP 90-177C	X87 TH169/ILC1920XFLIP84 -C	ICARDA/ICRISAT	69	29	57
FLIP 90-179C	X87 TH192/ICC14212XFLIP83-98C	ICARDA/ICRISAT	89	36	58
FLIP 90-181C	X87 TH216/ILC4296XFLIP84-93C	ICARDA/ICRISAT	66	38	55
FLIP 90-183C	X87 TH308/(ILC493XFLIP82-150C)XILC493	ICARDA/ICRISAT	68	35	55
FLIP 90-187C	X87 TH165/ILC1919XFLIP84 -C	ICARDA/ICRISAT	80	39	55
ILC 482	Long Term Check	Turkey	68	37	56
FLIP 82-150C	X79 TH 101/ILC523XILC183 (Improved check)	ICARDA/ICRISAT	81	32	58
Local Check			87	32	57
Location Mean			79	32	57
S.E. of Mean			2.20	1.74	1.07
L.S.D. at 5% for Checks			7.62	6.01	3.70
L.S.D. at 5% for Test entries in the same block			15.25	12.03	7.41
L.S.D. at 5% for test entries in different blocks			17.61	13.89	8.55
L.S.D. at 5% checks Vs test entries			13.92	10.98	6.76
C.V. %			5.55	-	3.76

Cont'd. ...

Table 3.7.2. Cont'd. ...

Entry Name	IRAN		LEBANON	MEXICO	SYRIA			
	Maragheh	Mashhad	Terbol	Hermosillo	Al Ghab	Gelline	Hama	Idleb
FLIP 89- 8C	67	53	53	72	71	67	76	71
FLIP 89- 23C	69	52	54	70	67	73	62	62
FLIP 89- 57C	67	53	65	75	70	65	78	65
FLIP 89- 59C	72	60	58	74	69	75	76	64
FLIP 89- 66C	69	53	67	73	69	78	78	62
FLIP 89- 93C	66	53	53	72	68	66	65	61
FLIP 89- 97C	70	53	67	73	69	74	76	63
FLIP 89- 99C	66	53	53	71	69	62	71	61
FLIP 90- 21C	72	52	56	74	68	70	76	63
FLIP 90- 23C	68	53	57	72	69	62	75	61
FLIP 90- 36C	69	53	53	72	70	62	75	63
FLIP 90- 41C	66	53	53	72	70	68	75	60
FLIP 90- 43C	64	53	57	80	69	70	78	63
FLIP 90- 48C	69	56	61	71	69	54	76	62
FLIP 90- 53C	72	63	70	74	68	69	78	65
FLIP 90- 61C	64	64	61	73	68	67	78	64
FLIP 90- 66C	64	53	53	72	69	58	75	64
FLIP 90- 67C	70	56	79	71	70	58	72	65
FLIP 90- 74C	67	63	67	71	72	62	81	66
FLIP 90- 86C	72	52	56	72	68	77	79	71
FLIP 90- 88C	73	57	58	75	68	75	72	63
FLIP 90- 90C	64	56	55	70	70	67	76	63
FLIP 90- 91C	65	56	55	70	65	66	76	64
FLIP 90-106C	69	59	59	73	69	56	66	64
FLIP 90-113C	62	53	59	70	70	67	73	64
FLIP 90-125C	59	48	57	71	48	73	66	60
FLIP 90-126C	61	48	47	70	63	62	66	59
FLIP 90-127C	69	48	51	69	63	66	61	56
FLIP 90-132C	65	48	55	71	48	78	60	56
FLIP 90-137C	63	48	57	71	48	78	60	53

Cont'd. ...

Table 3.7.2. Cont'd. ...

Entry Name	IRAN		LEBANON	MEXICO	SYRIA			
	Maragheh	Mashhad	Terbol	Hermosillo	Al Ghab	Gelline	Hama	Idleb
FLIP 90-138C	62	48	47	61	47	62	56	54
FLIP 90-140C	65	57	60	71	66	70	76	61
FLIP 90-141C	63	56	55	70	70	61	76	65
FLIP 90-142C	64	59	57	69	70	67	72	62
FLIP 90-143C	68	57	56	71	67	65	78	62
FLIP 90-150C	65	57	52	72	54	69	67	60
FLIP 90-153C	65	59	61	72	69	72	75	63
FLIP 90-155C	63	53	63	72	68	66	71	63
FLIP 90-165C	65	53	51	67	49	73	75	54
FLIP 90-170C	62	57	56	70	61	74	69	62
FLIP 90-171C	66	53	61	72	69	77	71	62
FLIP 90-172C	64	53	51	71	67	68	64	62
FLIP 90-173C	70	56	59	71	70	60	72	63
FLIP 90-177C	72	57	56	70	65	72	76	65
FLIP 90-179C	64	54	55	70	49	70	62	60
FLIP 90-181C	65	48	57	67	53	79	60	55
FLIP 90-183C	63	57	54	71	63	77	72	61
FLIP 90-187C	66	53	57	71	66	66	75	62
ILC 482	66	53	55	71	66	67	66	62
FLIP 82-150C	67	56	63	73	69	68	75	64
Local Check	68	56	56	64	67	64	70	61
Location Mean	66	54	57	71	65	68	72	62
S.E. of Mean	1.02	1.27	1.68	0.98	1.22	2.01	1.71	0.43
L.S.D. at 5% for:								
Checks	3.54	4.38	5.80	3.38	4.23	6.95	5.91	1.50
T.E. in S.B.	7.09	8.75	11.59	6.75	8.46	13.90	11.82	3.00
T.E. in D.B.	8.18	10.11	13.38	7.79	9.76	16.05	13.65	3.46
Checks Vs T.E.	6.47	7.99	10.58	6.16	7.72	12.69	10.79	2.74
C.V. %	3.09	4.64	5.85	2.75	3.75	5.93	4.78	1.40

Cont'd. ...

Table 3.7.2. Cont'd. ...

Entry Name	SYRIA				TURKEY				(1) Overall
	Izra'a	Jindiress	Tel Hadya- NARS	Tel Hadya	Ankara	Antalya	Haymana	Izmir	Mean
FLIP 89- 8C	73	74	-	69	57	46	61	81	66
FLIP 89- 23C	74	65	-	64	58	45	66	81	62
FLIP 89- 57C	73	75	-	71	57	46	65	81	66
FLIP 89- 59C	75	70	-	68	61	45	66	81	67
FLIP 89- 66C	71	72	47	67	61	46	62	81	67
FLIP 89- 93C	71	65	48	65	57	47	60	81	62
FLIP 89- 97C	77	75	49	69	57	44	64	81	67
FLIP 89- 99C	71	68	-	67	61	44	65	81	64
FLIP 90- 21C	75	71	47	70	58	44	66	81	66
FLIP 90- 23C	74	72	49	67	57	46	65	81	65
FLIP 90- 36C	74	72	-	69	58	46	66	81	65
FLIP 90- 41C	73	69	-	67	58	46	63	81	64
FLIP 90- 43C	73	71	47	63	57	45	65	81	65
FLIP 90- 48C	72	72	-	69	58	43	62	81	64
FLIP 90- 53C	75	72	50	71	57	46	67	81	68
FLIP 90- 61C	76	70	45	63	57	45	65	81	66
FLIP 90- 66C	72	69	50	63	61	46	60	81	63
FLIP 90- 67C	72	73	-	69	57	44	65	81	66
FLIP 90- 74C	77	73	49	69	61	46	65	81	68
FLIP 90- 86C	74	70	44	68	58	45	67	81	67
FLIP 90- 88C	73	73	-	68	61	44	66	81	65
FLIP 90- 90C	69	66	-	65	61	45	60	81	64
FLIP 90- 91C	72	66	-	65	58	45	65	81	63
FLIP 90-106C	70	73	47	69	58	44	67	81	64
FLIP 90-113C	74	66	50	61	58	48	63	81	63
FLIP 90-125C	68	64	45	58	57	44	59	81	59
FLIP 90-126C	72	65	-	59	61	47	56	81	60
FLIP 90-127C	70	57	-	57	57	44	57	81	59
FLIP 90-132C	70	59	50	57	58	45	64	81	59
FLIP 90-137C	66	60	-	57	58	45	64	81	59

Cont'd. ...

Table 3.7.2. Cont'd. ...

Entry Name	SYRIA				TURKEY				(1) Overall
	Izra'a	Jindiress	Tel Hadya- NARS	Tel Hadya	Ankara	Antalya	Haymana	Izmir	Mean
FLIP 90-138C	67	56	47	56	57	47	68	81	57
FLIP 90-140C	72	67	-	63	57	45	61	81	63
FLIP 90-141C	72	69	50	67	61	44	61	81	64
FLIP 90-142C	72	69	49	64	57	45	60	81	64
FLIP 90-143C	73	65	47	62	59	45	64	81	64
FLIP 90-150C	68	62	49	60	57	45	61	81	60
FLIP 90-153C	73	71	47	63	58	43	62	81	65
FLIP 90-155C	72	67	-	59	58	46	65	81	62
FLIP 90-165C	67	60	50	57	58	45	61	81	61
FLIP 90-170C	72	62	-	58	59	45	64	81	62
FLIP 90-171C	74	69	-	63	58	45	65	81	64
FLIP 90-172C	72	67	-	65	28	45	65	81	60
FLIP 90-173C	73	65	-	67	58	44	62	81	64
FLIP 90-177C	75	63	-	58	59	44	63	81	63
FLIP 90-179C	66	59	-	61	57	43	66	81	61
FLIP 90-181C	67	59	42	57	61	45	63	81	59
FLIP 90-183C	71	62	48	58	57	47	61	81	62
FLIP 90-187C	74	67	-	62	61	46	64	81	64
ILC 482	72	67	45	65	57	46	64	81	62
FLIP 82-150C	73	70	50	67	60	46	65	81	65
Local Check	71	61	47	58	59	46	61	81	
Location Mean	72	67	48	64	58	45	63	81	
S.E. of Mean	1.00	0.28	0.69	0.38	0.98	0.20	0.84		
L.S.D. at 5% for:									
Checks	3.47	0.96	2.40	1.32	3.40	0.69	2.92		
T.E. in S.B.	6.94	1.91	4.79	2.64	6.80	1.38	5.83		
T.E. in D.B.	8.02	2.21	5.53	3.05	7.85	1.59	6.73		
Checks Vs T.E.	6.34	1.75	4.37	2.41	6.21	1.26	5.32		
C.V. %	2.79	0.83	-	1.20	3.39	0.88	2.66		

(1) Hamadan, Hermosillo and Tel Hadya-NARS were excluded from the overall mean.
T.E. = Test entries, S.B. = Same Block, D.B. = Different Blocks.

Table 3.7.3. Adjusted time to maturity (days) of entries at different locations in the CISN-SP during 1991/92.

Entry Name	HUNGARY	IRAN				LEBANON	MEXICO	SYRIA
	Tapioszele	Hamadan	Karaj	Maragheh	Mashhad	Terbol	Hermosillo	Al Ghab
FLIP 89- 8C	132	-	103	98	95	98	123	105
FLIP 89- 23C	131	87	102	96	96	94	121	103
FLIP 89- 57C	132	87	102	95	95	106	124	101
FLIP 89- 59C	130	87	102	103	96	98	123	102
FLIP 89- 66C	131	92	102	96	95	102	124	101
FLIP 89- 93C	132	87	100	96	96	96	123	103
FLIP 89- 97C	130	82	102	96	93	102	124	100
FLIP 89- 99C	140	87	104	94	98	94	123	104
FLIP 90- 21C	129	-	102	100	91	98	122	103
FLIP 90- 23C	132	84	100	97	94	98	123	102
FLIP 90- 36C	129	87	100	95	96	96	124	102
FLIP 90- 41C	132	92	101	93	94	90	122	102
FLIP 90- 43C	132	86	100	94	95	96	122	101
FLIP 90- 48C	133	85	102	102	95	96	123	103
FLIP 90- 53C	132	92	102	97	96	108	124	104
FLIP 90- 61C	132	89	103	97	94	98	123	102
FLIP 90- 66C	133	88	100	91	94	96	123	101
FLIP 90- 67C	135	89	100	97	98	104	123	102
FLIP 90- 74C	134	93	104	95	96	100	123	105
FLIP 90- 86C	131	86	101	101	95	100	124	103
FLIP 90- 88C	130	86	100	101	91	100	124	102
FLIP 90- 90C	134	90	105	93	98	94	123	102
FLIP 90- 91C	130	90	101	99	96	96	122	103
FLIP 90-106C	135	-	100	96	97	94	123	102
FLIP 90-113C	131	86	102	94	96	98	122	100
FLIP 90-125C	130	97	100	91	95	90	124	100
FLIP 90-126C	133	85	103	92	96	90	122	101
FLIP 90-127C	131	85	99	101	98	92	122	101
FLIP 90-132C	130	88	101	96	93	91	123	102
FLIP 90-137C	131	87	103	93	95	96	121	101

Cont'd. ...

Table 3.7.3. Cont'd. ...

Entry Name	HUNGARY	IRAN				LEBANON	MEXICO	SYRIA
	Tapioszele	Hamadan	Karaj	Maragheh	Mashhad	Terbol	Hermosillo	Al Ghab
FLIP 90-138C	133	85	101	97	95	98	123	103
FLIP 90-140C	131	90	100	92	94	100	121	102
FLIP 90-141C	131	85	104	92	98	88	124	104
FLIP 90-142C	130	85	98	97	96	94	121	101
FLIP 90-143C	131	88	105	102	95	96	122	100
FLIP 90-150C	132	89	101	95	96	92	122	101
FLIP 90-153C	131	93	98	91	95	94	123	100
FLIP 90-155C	130	85	101	93	93	98	123	101
FLIP 90-165C	131	86	101	95	95	90	123	100
FLIP 90-170C	131	89	100	100	96	96	121	102
FLIP 90-171C	131	82	102	94	95	98	122	100
FLIP 90-172C	130	86	100	95	96	92	122	102
FLIP 90-173C	131	87	99	101	93	96	124	103
FLIP 90-177C	132	98	101	103	95	94	122	100
FLIP 90-179C	133	87	100	97	97	92	123	102
FLIP 90-181C	133	93	100	97	95	96	123	103
FLIP 90-183C	130	88	100	97	97	98	122	100
FLIP 90-187C	132	91	100	97	95	94	123	101
IIC 482	129	87	100	95	95	93	122	102
FLIP 82-150C	132	89	102	97	95	104	123	104
Local Check	132	89	100	98	94	94	118	103
Location Mean	132	88	101	96	95	96	123	102
S.E. of Mean	0.57	1.24	1.14	1.08	1.11	1.61	0.71	0.49
L.S.D. at 5% for:								
Checks	1.98	4.28	3.95	3.73	3.84	5.56	2.46	1.71
T.E. in S.B.	3.95	8.55	7.91	7.45	7.68	11.12	4.93	3.41
T.E. in D.B.	4.57	9.88	9.13	8.61	8.86	12.84	5.69	3.94
Checks Vs T.E.	3.61	7.81	7.22	6.80	7.01	10.16	4.50	3.12
C.V. %	0.87	7.34	2	2.24	2.34	3.34	1.17	0.97

Cont'd. ...

Table 3.7.3. Cont'd. ...

Entry Name	SYRIA							TURKEY	Overall (1) Mean
	Gelline	Hama	Idleb	Izra'a	Jindiress	Tel Hadya- NARS	Tel- Hadya	Antalya	
FLIP 89- 8C	106	110	101	121	111	-	110	92	106
FLIP 89- 23C	101	109	96	124	109	-	107	92	105
FLIP 89- 57C	105	110	100	123	111	-	109	92	106
FLIP 89- 59C	106	110	96	122	110	-	108	93	106
FLIP 89- 66C	106	111	94	123	110	94	110	91	106
FLIP 89- 93C	108	109	96	123	110	98	107	94	105
FLIP 89- 97C	103	111	98	128	110	94	108	93	106
FLIP 89- 99C	105	111	96	123	110	-	106	91	106
FLIP 90- 21C	106	111	100	123	110	94	107	93	106
FLIP 90- 23C	105	109	95	121	111	97	109	91	105
FLIP 90- 36C	105	109	95	122	110	-	110	93	105
FLIP 90- 41C	109	109	93	124	109	-	109	91	104
FLIP 90- 43C	106	109	101	127	110	98	107	93	105
FLIP 90- 48C	104	111	94	122	110	-	110	91	106
FLIP 90- 53C	101	111	100	126	111	91	109	93	107
FLIP 90- 61C	104	111	94	132	111	95	109	92	106
FLIP 90- 66C	104	109	100	122	109	97	104	93	104
FLIP 90- 67C	105	109	100	124	108	-	108	92	106
FLIP 90- 74C	106	111	101	128	108	95	109	91	107
FLIP 90- 86C	111	111	100	123	111	95	109	93	107
FLIP 90- 88C	103	110	96	123	109	-	108	93	105
FLIP 90- 90C	105	110	94	122	108	-	104	89	104
FLIP 90- 91C	103	110	99	127	108	-	104	94	105
FLIP 90-106C	102	109	99	123	109	91	106	90	105
FLIP 90-113C	108	109	98	123	109	94	104	95	105
FLIP 90-125C	104	109	95	126	109	96	104	93	104
FLIP 90-126C	103	109	93	120	109	-	102	93	103
FLIP 90-127C	105	109	94	121	108	-	107	90	104
FLIP 90-132C	107	110	94	125	108	94	109	92	104
FLIP 90-137C	109	109	94	129	108	-	107	93	105

Cont'd. ...

Table 3.7.3. Cont'd. ...

Entry Name	SYRIA							TURKEY	(1) Overall
	Gelline	Hama	Idleb	Izra'a	Jindiress	Tel Hadya- NARS	Tel- Hadya	Antalya	Mean
FLIP 90-138C	104	109	93	123	105	96	107	94	105
FLIP 90-140C	101	109	92	126	107	-	107	94	104
FLIP 90-141C	102	110	100	118	109	96	106	90	104
FLIP 90-142C	117	110	97	124	107	95	104	92	105
FLIP 90-143C	101	110	96	122	106	95	104	94	105
FLIP 90-150C	103	109	92	123	106	92	107	92	104
FLIP 90-153C	104	109	98	125	110	92	109	92	104
FLIP 90-155C	104	109	98	126	109	-	107	93	105
FLIP 90-165C	105	110	90	123	109	93	107	92	104
FLIP 90-170C	101	109	96	121	106	-	102	93	104
FLIP 90-171C	105	109	97	127	109	-	109	93	105
FLIP 90-172C	108	108	94	122	110	-	108	92	104
FLIP 90-173C	103	110	98	126	110	-	108	91	105
FLIP 90-177C	102	110	96	121	109	-	102	93	104
FLIP 90-179C	113	109	94	121	109	-	106	92	105
FLIP 90-181C	108	111	92	127	109	96	107	92	105
FLIP 90-183C	106	109	92	122	109	93	104	93	104
FLIP 90-187C	105	111	94	127	110	-	109	93	105
ILC 482	104	108	93	125	108	95	107	92	104
FLIP 82-150C	105	111	100	129	110	94	107	92	107
Local Check	104	110	95	126	108	93	104	93	
Location Mean	105	110	96	124	109	95	107	92	
S.E. of Mean	0.58	0.30	0.85	1.97	0.44	0.66	0.53	0.34	
L.S.D. at 5% for:									
Checks	2.02	1.04	2.96	6.81	1.53	2.27	1.82	1.18	
T.E. in S.B.	4.04	2.08	5.91	13.61	3.05	4.55	3.65	2.35	
T.E. in D.B.	4.66	2.40	6.82	15.72	3.52	5.25	4.21	2.72	
Checks Vs T.E.	3.69	1.90	5.40	12.43	2.79	4.15	3.33	2.15	
C.V. %	1.11	0.55	1.77	3.16	0.81	-	0.99	0.74	

(1) Hamadan, Hermosillo and Tel Hadya-NARS were excluded from the overall mean.

T.E. = Test entries, S.B. = Same Block, D.B. = Different Blocks.

Table 3.7.4. Adjusted plant height (cm) of entries at different locations in the CISN-SP during 1991/92.

Entry Name	HUNGARY	IRAN			LEBANON	MEXICO	SYRIA		
	Tapioszele	Karaj	Maragheh	Mashhad	Terbol	Hermosillo	Al Ghab	Gelline	Hama
FLIP 89- 8C	56	39	38	33	53	50	58	35	45
FLIP 89- 23C	42	35	32	48	41	37	46	30	32
FLIP 89- 57C	49	37	36	33	50	65	63	28	45
FLIP 89- 59C	60	37	28	43	48	47	61	24	47
FLIP 89- 66C	49	49	24	33	43	50	55	26	47
FLIP 89- 93C	55	39	33	33	60	55	53	34	40
FLIP 89- 97C	55	36	35	38	42	70	55	33	42
FLIP 89- 99C	54	53	29	46	50	58	51	31	45
FLIP 90- 21C	43	44	36	38	40	42	46	27	32
FLIP 90- 23C	50	38	29	38	43	55	58	25	40
FLIP 90- 36C	45	42	35	43	49	50	53	37	40
FLIP 90- 41C	52	48	30	38	48	60	58	25	45
FLIP 90- 43C	49	42	34	43	47	60	58	29	45
FLIP 90- 48C	61	51	25	41	42	63	56	23	45
FLIP 90- 53C	55	39	33	43	38	42	46	33	32
FLIP 90- 61C	55	47	30	23	46	75	60	28	42
FLIP 90- 66C	47	30	29	43	50	50	48	25	30
FLIP 90- 67C	55	36	36	46	43	43	51	28	40
FLIP 90- 74C	54	44	22	41	39	63	46	27	40
FLIP 90- 86C	70	47	42	38	52	52	61	26	47
FLIP 90- 88C	61	35	32	38	38	32	46	34	27
FLIP 90- 90C	54	46	19	46	42	58	41	29	35
FLIP 90- 91C	44	42	29	36	42	43	46	31	35
FLIP 90-106C	50	38	21	41	38	58	51	37	40
FLIP 90-113C	52	38	31	28	50	50	58	33	45
FLIP 90-125C	51	20	18	38	32	45	45	30	32
FLIP 90-126C	50	25	28	38	42	45	43	28	35
FLIP 90-127C	60	29	17	46	38	48	41	24	30
FLIP 90-132C	52	35	29	33	41	60	45	37	37
FLIP 90-137C	55	32	31	28	44	50	55	30	32

Cont'd. ...

Table 3.7.4. Cont'd. ...

Entry Name	HUNGARY	IRAN			LEBANON	MEXICO	SYRIA		
	Tapioszele	Karaj	Maragheh	Mashhad	Terbol	Hermosillo	Al Ghab	Gelline	Hama
FLIP 90-138C	32	39	26	38	32	45	48	24	30
FLIP 90-140C	54	47	34	38	38	52	56	28	27
FLIP 90-141C	65	52	25	46	53	53	46	41	35
FLIP 90-142C	61	38	30	51	49	43	51	35	40
FLIP 90-143C	57	38	29	33	46	37	46	20	32
FLIP 90-150C	48	47	30	33	42	35	41	23	37
FLIP 90-153C	52	35	28	38	51	65	55	22	42
FLIP 90-155C	52	40	25	33	39	50	50	30	37
FLIP 90-165C	52	48	29	43	46	55	50	26	37
FLIP 90-170C	50	40	34	48	38	37	46	28	27
FLIP 90-171C	47	44	32	33	38	70	55	30	42
FLIP 90-172C	45	40	32	38	51	50	43	31	35
FLIP 90-173C	54	32	18	31	44	58	46	30	35
FLIP 90-177C	52	37	39	38	42	42	56	30	37
FLIP 90-179C	46	34	27	41	34	53	51	31	40
FLIP 90-181C	47	35	21	38	42	52	50	33	37
FLIP 90-183C	58	41	29	33	36	42	46	29	37
FLIP 90-187C	46	35	26	33	46	45	55	25	37
IIC 482	47	30	26	35	38	44	41	28	33
FLIP 82-150C	50	39	28	38	41	44	49	31	36
Local Check	61	35	29	41	39	43	39	31	33
Location Mean	52	39	29	38	44	51	51	29	38
S.E. of Mean	2.66	1.02	2.37	2.40	1.78	3.80	3.12	2.47	1.10
L.S.D. at 5% for:									
Checks	9.21	3.52	8.19	8.29	6.16	13.13	10.79	8.55	3.81
T.E. in S.B.	18.43	7.04	16.38	16.58	12.33	26.27	21.58	17.10	7.63
T.E. in D.B.	21.28	8.13	18.92	19.15	14.24	30.33	24.92	19.74	8.81
Checks Vs T.E.	16.82	6.43	14.96	15.14	11.26	23.98	19.70	15.61	6.97
C.V. %	10.20	5.28	16.38	12.53	8.33	15.29	12.64	16.69	5.93

Cont'd. ...

Table 3.7.4. Cont'd. ...

Entry Name	SYRIA					TURKEY			(1) Overall
	Idleb	Izra'a	Jindiress	Tel Hadya NARS	Tel Hadya	Antalya	Gal	Haymana	Mean
FLIP 89- 8C	26	39	35	-	38	59	32	25	41
FLIP 89- 23C	30	35	34	-	29	48	28	25	36
FLIP 89- 57C	37	37	41	-	38	57	34	25	41
FLIP 89- 59C	29	46	39	-	34	63	39	24	41
FLIP 89- 66C	34	44	40	27	34	48	29	22	38
FLIP 89- 93C	39	33	34	29	31	42	35	24	39
FLIP 89- 97C	27	40	31	23	35	44	29	22	38
FLIP 89- 99C	31	40	38	-	41	51	28	21	41
FLIP 90- 21C	28	34	36	31	30	48	29	18	35
FLIP 90- 23C	39	33	39	27	38	50	29	17	38
FLIP 90- 36C	33	38	36	-	38	45	36	22	39
FLIP 90- 41C	34	41	39	-	38	47	35	15	40
FLIP 90- 43C	30	35	35	32	36	47	34	24	39
FLIP 90- 48C	34	32	37	-	41	44	19	34	39
FLIP 90- 53C	34	41	38	28	36	51	28	27	38
FLIP 90- 61C	28	48	34	27	33	45	23	24	38
FLIP 90- 66C	38	23	32	30	30	37	38	17	34
FLIP 90- 67C	31	36	36	-	36	45	20	26	38
FLIP 90- 74C	33	40	29	29	34	50	19	27	36
FLIP 90- 86C	36	45	46	27	40	63	36	33	45
FLIP 90- 88C	28	38	36	-	33	53	34	14	36
FLIP 90- 90C	36	36	29	-	30	42	14	20	35
FLIP 90- 91C	31	35	34	-	31	42	19	22	35
FLIP 90-106C	36	34	31	28	37	44	18	23	36
FLIP 90-113C	32	37	38	28	35	47	37	29	39
FLIP 90-125C	35	26	21	26	24	28	23	19	29
FLIP 90-126C	33	24	22	-	27	27	30	21	32
FLIP 90-127C	38	25	25	-	26	27	14	20	31
FLIP 90-132C	24	32	30	24	29	43	26	23	34
FLIP 90-137C	26	40	29	-	25	41	29	20	34

Cont'd. ...

Table 3.7.4. Cont'd. ...

Entry Name	SYRIA					TURKEY			(1) Overall
	Idleb	Izra'a	Jindiress	Tel Hadya NARS	Tel Hadya	Antalya	Gal	Haymana	Mean
FLIP 90-138C	33	23	32	24	32	42	25	15	31
FLIP 90-140C	30	41	37	-	33	48	27	23	37
FLIP 90-141C	33	38	36	27	35	47	19	19	39
FLIP 90-142C	32	40	37	26	35	45	24	27	40
FLIP 90-143C	35	43	33	27	31	48	31	20	36
FLIP 90-150C	29	33	29	27	27	48	25	23	34
FLIP 90-153C	32	32	33	27	36	48	29	16	37
FLIP 90-155C	39	42	26	-	29	41	23	15	35
FLIP 90-165C	38	34	30	27	36	43	26	17	37
FLIP 90-170C	28	29	28	-	28	40	26	13	34
FLIP 90-171C	33	44	35	-	36	43	27	13	37
FLIP 90-172C	38	23	33	-	30	35	29	19	35
FLIP 90-173C	27	28	28	-	31	42	24	19	33
FLIP 90-177C	30	44	35	-	30	48	29	29	38
FLIP 90-179C	33	25	33	-	33	45	18	22	34
FLIP 90-181C	35	27	30	26	29	43	21	16	34
FLIP 90-183C	29	38	34	30	29	53	26	19	36
FLIP 90-187C	24	42	33	-	33	38	22	15	34
IIC 482	32	30	28	26	29	38	25	21	32
FLIP 82-150C	31	37	33	30	30	44	27	22	36
Local Check	30	32	26	27	26	38	31	24	
Location Mean	32	36	33	27	33	45	27	22	
S.E. of Mean	2.01	1.34	1.97	0.86	0.57	0.66	2.90	1.80	
L.S.D. at 5% for:									
Checks	6.95	4.65	6.83	2.98	1.98	2.28	10.02	6.22	
T.E. in S.B.	13.90	9.30	13.66	5.95	3.95	4.56	20.04	12.44	
T.E. in D.B.	16.05	10.74	15.77	6.87	4.57	5.27	23.13	14.36	
Checks Vs T.E.	12.69	8.49	12.47	5.43	3.61	4.17	18.29	11.36	
C.V. %	12.57	7.66	12.13	-	3.57	2.98	21.38	16.69	

(1) Hermosillo and Tel Hadya-Aleppo were excluded from the overall mean.

T.E. = Test entries, S.B. = Same Block, D.B. = Different Blocks.

Table 3.7.5. Adjusted 100-seed weight (g) of entries at different locations in the CISN-SP during 1991/92.

Entry Name	HUNGARY	IRAN			LEBANON	MEXICO	SYRIA
	Tapioszele	Karaj	Maragheh	Mashhad	Terbol	Hermosillo	Al Ghab
FLIP 89- 8C	-	30	40	34	49	38	35
FLIP 89- 23C	34	38	50	27	41	45	44
FLIP 89- 57C	27	28	32	25	33	41	34
FLIP 89- 59C	31	31	-	34	35	38	41
FLIP 89- 66C	36	27	33	27	28	37	34
FLIP 89- 93C	27	32	43	29	38	42	38
FLIP 89- 97C	26	30	37	30	34	34	34
FLIP 89- 99C	30	27	37	26	34	46	31
FLIP 90- 21C	-	37	41	28	35	38	39
FLIP 90- 23C	27	29	40	28	39	39	41
FLIP 90- 36C	25	29	34	26	34	44	34
FLIP 90- 41C	29	40	33	27	33	39	33
FLIP 90- 43C	30	28	35	29	33	39	34
FLIP 90- 48C	31	33	-	28	38	42	37
FLIP 90- 53C	31	27	33	23	27	29	29
FLIP 90- 61C	30	28	37	29	33	35	34
FLIP 90- 66C	29	28	34	25	33	39	34
FLIP 90- 67C	28	27	33	27	33	35	32
FLIP 90- 74C	31	31	35	26	36	40	33
FLIP 90- 86C	32	30	36	26	33	38	38
FLIP 90- 88C	29	36	37	28	33	36	34
FLIP 90- 90C	30	34	36	29	38	41	32
FLIP 90- 91C	33	32	39	29	34	40	36
FLIP 90-106C	-	26	28	27	29	44	30
FLIP 90-113C	-	29	35	22	31	40	34
FLIP 90-125C	31	25	29	24	21	35	25
FLIP 90-126C	31	28	23	23	30	38	33
FLIP 90-127C	30	26	26	23	24	37	25
FLIP 90-132C	35	34	44	32	37	42	40
FLIP 90-137C	33	33	42	34	36	40	37

Cont'd. ...

Table 3.7.5. Cont'd. ...

Entry Name	HUNGARY	IRAN			LEBANON	MEXICO	SYRIA
	Tapioszele	Karaj	Maragheh	Mashhad	Terbol	Hermosillo	Al Ghab
FLIP 90-138C	28	35	46	35	51	50	44
FLIP 90-140C	32	30	34	29	31	38	34
FLIP 90-141C	29	27	34	28	30	37	29
FLIP 90-142C	32	26	35	24	32	39	31
FLIP 90-143C	25	31	32	28	29	37	32
FLIP 90-150C	28	32	37	26	34	34	34
FLIP 90-153C	25	25	34	25	28	43	31
FLIP 90-155C	31	29	36	27	30	30	34
FLIP 90-165C	31	32	34	30	38	43	34
FLIP 90-170C	28	25	30	23	26	32	28
FLIP 90-171C	31	31	36	26	31	35	32
FLIP 90-172C	35	29	33	26	31	33	34
FLIP 90-173C	30	32	33	24	34	50	34
FLIP 90-177C	27	32	-	29	31	38	33
FLIP 90-179C	29	37	41	29	39	39	42
FLIP 90-181C	32	29	34	31	33	42	35
FLIP 90-183C	30	30	36	24	33	41	33
FLIP 90-187C	31	28	32	29	30	35	30
IIC 482	28	25	33	22	27	32	30
FLIP 82-150C	33	23	29	23	25	31	29
Local Check	30	26	32	23	31	51	33
Location Mean	30	30	35	27	33	39	33
S.E. of Mean	1.13	0.38	0.43	0.58	1.14	1.42	0.81
L.S.D. at 5% for:							
Checks	3.91	1.31	1.50	2.02	3.94	4.90	2.81
T.E. in S.B.	7.82	2.63	3.00	4.04	7.87	9.80	5.62
T.E. in D.B.	9.03	3.03	3.46	4.66	9.09	11.32	6.49
Checks Vs T.E.	7.14	2.40	2.74	3.69	7.19	8.95	5.13
C.V. %	-	2.61	2.63	4.41	7.06	7.32	4.89

Cont'd. ...

Table 3.7.5. Cont'd. ...

Entry Name	SYRIA			TURKEY		Overall Mean	(1)
	Jindiress	Tel Hadya-NARS	Tel Hadya	Ankara	Antalya		
FLIP 89- 8C	47	-	41	26	32	37	
FLIP 89- 23C	38	-	45	25	34	37	
FLIP 89- 57C	30	-	35	26	29	30	
FLIP 89- 59C	37	-	38	19	-	34	
FLIP 89- 66C	31	31	33	24	23	29	
FLIP 89- 93C	35	29	39	29	35	34	
FLIP 89- 97C	33	25	37	26	32	32	
FLIP 89- 99C	32	-	36	29	28	31	
FLIP 90- 21C	37	28	37	23	-	34	
FLIP 90- 23C	35	34	39	25	28	34	
FLIP 90- 36C	32	-	35	26	24	31	
FLIP 90- 41C	32	-	33	26	28	32	
FLIP 90- 43C	30	39	36	30	30	31	
FLIP 90- 48C	34	-	40	25	28	34	
FLIP 90- 53C	27	26	30	22	-	26	
FLIP 90- 61C	34	26	36	28	29	32	
FLIP 90- 66C	32	38	34	28	29	31	
FLIP 90- 67C	29	-	34	25	24	30	
FLIP 90- 74C	31	25	39	29	29	32	
FLIP 90- 86C	34	28	35	27	-	32	
FLIP 90- 88C	30	-	38	24	-	32	
FLIP 90- 90C	33	-	40	26	25	33	
FLIP 90- 91C	34	-	37	23	26	32	
FLIP 90-106C	27	36	32	25	19	28	
FLIP 90-113C	31	32	34	31	30	30	
FLIP 90-125C	26	30	26	25	24	25	
FLIP 90-126C	31	-	35	27	24	30	
FLIP 90-127C	26	-	29	28	21	26	
FLIP 90-132C	42	26	42	25	31	36	
FLIP 90-137C	39	-	40	29	30	35	

Cont'd. ...

Table 3.7.5. Cont'd. ...

Entry Name	SYRIA			TURKEY		Overall Mean ⁽¹⁾
	Jindiress	Tel Hadya-Aleppo	Tel Hadya	Ankara	Antalya	
FLIP 90-138C	46	29	46	26	38	40
FLIP 90-140C	32	-	36	31	28	32
FLIP 90-141C	26	31	34	28	25	29
FLIP 90-142C	28	23	33	24	24	28
FLIP 90-143C	30	36	32	27	-	30
FLIP 90-150C	32	26	33	30	23	32
FLIP 90-153C	29	29	35	26	27	28
FLIP 90-155C	34	-	36	27	28	31
FLIP 90-165C	38	28	36	28	41	34
FLIP 90-170C	29	-	31	24	-	27
FLIP 90-171C	34	-	36	25	26	31
FLIP 90-172C	31	-	33	26	31	30
FLIP 90-173C	31	-	36	26	25	31
FLIP 90-177C	30	-	35	26	22	31
FLIP 90-179C	32	-	44	25	34	35
FLIP 90-181C	37	32	35	25	29	32
FLIP 90-183C	32	31	35	20	-	30
FLIP 90-187C	33	-	34	24	28	30
ILC 482	28	30	31	24	23	27
FLIP 82-150C	27	34	25	25	19	25
Local Check	38	27	40	26	29	
Location Mean	32	30	36	26	28	
S.E. of Mean	0.53	1.38	0.74	1.80	0.52	
L.S.D. at 5% for:						
Checks	1.83	4.77	2.57	6.24	3.30	
T.E. in S.B.	3.67	9.53	5.13	12.48	6.59	
T.E. in D.B.	4.24	11.01	5.93	14.41	7.61	
Checks Vs T.E.	3.35	8.70	4.69	11.39	6.02	
C.V. %	3.27	-	4.22	14.04	-	

(1) Hamadan, Maragheh, Hermosillo, Tel Hadya-Aleppo and Antalya were excluded from the overall mean. T.E. = Test entries, S.B. = Same Block, D.B. = Different Blocks.

Table 3.7.6. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CISON-SP during 1991/91.

Entry Name	IRAN								LEBANON		MEXICO	
	Hamadan		Karaĵ		Maragheh		Mashhad		Terbol		Hermosillo	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 89- 8C	-	-	1326	11	910	24	83	47	2619	7	692	44
FLIP 89- 23C	427	38	926	33	977	18	1036	5	1336	42	1425	23
FLIP 89- 57C	920	19	726	45	1003	16	83	48	2563	9	1292	28
FLIP 89- 59C	-	-	412	51	163	51	607	27	2328	16	625	47
FLIP 89- 66C	715	24	812	40	737	40	940	8	1537	36	792	40
FLIP 89- 93C	1075	14	1155	19	1403	1	512	34	2294	18	1492	22
FLIP 89- 97C	1018	16	1069	24	817	30	798	16	1481	37	1992	11
FLIP 89- 99C	715	23	1307	12	1217	4	598	31	1849	29	1892	13
FLIP 90- 21C	-	-	1840	1	857	29	464	39	2606	8	925	35
FLIP 90- 23C	623	26	755	43	937	22	83	49	1341	41	1792	15
FLIP 90- 36C	789	20	1840	2	1110	8	655	20	2103	23	692	45
FLIP 90- 41C	1400	3	498	50	1070	12	369	40	2357	14	1092	32
FLIP 90- 43C	1183	10	869	34	1097	11	655	22	3786	2	1792	18
FLIP 90- 48C	1229	7	850	35	243	48	798	13	2643	6	1192	29
FLIP 90- 53C	1353	5	1783	3	697	42	607	28	495	51	825	38
FLIP 90- 61C	355	40	812	38	883	27	655	26	1759	32	1792	16
FLIP 90- 66C	1126	12	812	41	1177	6	655	21	3310	4	1292	26
FLIP 90- 67C	566	30	1079	22	1257	3	1083	2	643	50	-	-
FLIP 90- 74C	572	29	1593	5	1110	9	369	42	833	49	1392	24
FLIP 90- 86C	513	32	1269	13	897	26	750	19	1209	44	425	49
FLIP 90- 88C	216	43	1126	20	430	46	464	38	1146	46	1125	30
FLIP 90- 90C	555	31	1164	18	857	28	798	10	2294	17	2292	4
FLIP 90- 91C	463	37	1079	23	723	41	598	33	2183	22	1292	27
FLIP 90-106C	-	-	1479	6	977	17	798	11	1786	31	392	50
FLIP 90-113C	498	34	698	47	1097	10	-	-	2452	12	1892	12
FLIP 90-125C	663	25	1269	14	777	37	655	25	2696	5	1792	14
FLIP 90-126C	1018	17	755	44	1363	2	-	-	4008	1	1392	25
FLIP 90-127C	229	42	1479	7	657	43	1083	4	2238	20	2192	6
FLIP 90-132C	578	28	955	31	950	21	512	36	1569	35	1792	17
FLIP 90-137C	1229	8	1240	15	817	31	940	7	1378	39	2492	3

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	IRAN								LEBANON		MEXICO	
	Hamadan		KaraJ		Maragheh		Mashhad		Terbol		Hermosillo	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90-138C	1126	11	583	49	1163	7	369	41	1350	40	1092	31
FLIP 90-140C	-	-	1440	9	577	45	321	43	939	48	1625	19
FLIP 90-141C	1086	13	821	37	1057	14	940	6	2294	19	2092	8
FLIP 90-142C	303	41	1193	17	910	25	1369	1	2214	21	0	43
FLIP 90-143C	73	44	640	48	243	49	607	30	3352	3	625	48
FLIP 90-150C	1376	4	1440	8	403	47	607	29	2352	15	925	34
FLIP 90-153C	595	27	1012	26	1070	13	655	24	2093	24	2792	2
FLIP 90-155C	1023	15	812	39	803	34	655	23	1188	45	2992	1
FLIP 90-165C	932	18	1023	25	777	36	798	14	1442	38	792	39
FLIP 90-170C	1456	2	1012	27	963	20	750	18	1328	43	1525	21
FLIP 90-171C	1212	9	783	42	817	33	512	35	1648	34	2092	7
FLIP 90-172C	1880	1	1640	4	963	19	226	46	1976	27	892	37
FLIP 90-173C	469	36	1079	21	603	44	798	12	2548	10	2092	9
FLIP 90-177C	-	-	698	46	243	50	893	9	2495	11	625	46
FLIP 90-179C	486	35	850	36	1190	5	598	32	960	47	2292	5
FLIP 90-181C	412	39	1212	16	790	35	798	15	1815	30	1992	10
FLIP 90-183C	-	-	955	32	763	38	321	44	1923	28	725	42
FLIP 90-187C	503	33	983	30	817	32	1083	3	2077	25	1592	20
ILC 482	1263	6	1329	10	917	23	500	37	2012	26	975	33
FLIP 82-150C	776	21	1007	28	1047	15	286	45	1738	33	775	41
Local Check	763	22	986	29	740	39	750	17	2448	13	925	36
Location Mean	814		1070		866		615		1972		1399	
S.E. of Mean	170.78		90.45		92.80		178.57		259.87		91.29	
L.S.D. at 5% for:												
Checks	590.92		312.94		321.08		617.87		899.16		315.86	
T.E. in S.B.	1181.84		625.89		642.16		1235.74		1798.33		631.72	
T.E. in D.B.	1364.67		722.71		741.50		1426.90		2076.53		729.44	
Checks Vs T.E.	1079.03		571.44		586.30		1128.24		1641.89		576.76	
C.V. %	77.39		16.84		21.34		59.57		26.07		14.03	
Error d.f.	6		6		6		6		6		6	
T.E. > L. Check	1		5		2		0		0		21	

Cont'd. ...

Table 3.7.6. Cont'd. ...

SYRIA													
Entry Name	Al Ghab		Gelline		Hama		Idleb		Izra'a		Jindiress		
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	
FLIP 89- 8C	1431	51	955	25	1558	28	3358	6	1000	43	2056	26	
FLIP 89- 23C	1568	50	574	49	2468	1	2053	30	1190	35	2772	3	
FLIP 89- 57C	1939	42	860	36	1304	41	2530	17	1190	32	2531	7	
FLIP 89- 59C	2394	33	701	43	2404	2	1962	32	1952	3	2131	23	
FLIP 89- 66C	2183	38	1040	20	1189	45	2291	24	1085	40	1581	43	
FLIP 89- 93C	2765	20	872	34	2256	5	735	49	1603	13	1997	29	
FLIP 89- 97C	2818	17	1103	13	1158	46	1800	35	767	50	1014	51	
FLIP 89- 99C	2468	32	1082	16	1515	32	2486	19	1614	12	2133	22	
FLIP 90- 21C	2571	26	892	32	1547	30	1790	36	1698	10	2797	2	
FLIP 90- 23C	3241	5	828	39	1653	25	3838	3	1190	33	2256	13	
FLIP 90- 36C	3146	9	765	41	1780	20	2507	18	1254	25	2297	10	
FLIP 90- 41C	3146	8	606	48	1653	26	2821	13	1317	21	2614	6	
FLIP 90- 43C	2796	19	860	35	1335	40	3484	5	3095	1	1831	35	
FLIP 90- 48C	3643	2	828	40	1833	18	2326	23	1804	5	2217	16	
FLIP 90- 53C	2267	35	638	46	1420	37	3019	10	1762	6	2197	17	
FLIP 90- 61C	2215	37	1135	9	1348	39	2366	22	1085	39	2222	15	
FLIP 90- 66C	2955	13	669	45	1462	36	1324	42	1190	34	2022	28	
FLIP 90- 67C	2532	27	1146	7	1484	34	2897	12	1455	16	1892	34	
FLIP 90- 74C	1929	44	1146	8	1261	42	1143	45	1265	23	1967	31	
FLIP 90- 86C	2521	29	860	37	1230	43	653	50	1254	26	2464	8	
FLIP 90- 88C	1886	45	1114	10	1103	47	1208	44	1667	11	1897	32	
FLIP 90- 90C	2151	40	1177	6	1642	27	3491	4	1423	17	2275	12	
FLIP 90- 91C	3135	10	765	42	1706	22	1909	33	1201	31	2175	19	
FLIP 90-106C	3198	6	923	28	1801	19	2909	11	1360	19	2183	18	
FLIP 90-113C	2003	41	1082	15	1970	14	3284	7	1698	9	2614	5	
FLIP 90-125C	2945	14	1230	5	2078	12	1383	41	862	48	1247	48	
FLIP 90-126C	2860	15	1082	14	2224	8	3112	8	968	44	2297	11	
FLIP 90-127C	2659	23	955	27	2277	4	1531	39	1042	42	1708	40	
FLIP 90-132C	2754	21	1325	2	1983	13	1280	43	1053	41	2147	21	
FLIP 90-137C	2231	36	1357	1	1856	16	829	48	1212	30	1806	38	

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	SYRIA											
	Al Ghab		Gelline		Hama		Idleb		Izra'a		Jindiress	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90-138C	2828	16	-	-	1526	31	4015	2	937	45	1664	42
FLIP 90-140C	1695	48	1050	19	1071	48	2259	26	1254	27	1822	37
FLIP 90-141C	1929	43	1019	24	1230	44	1891	34	2217	2	1892	33
FLIP 90-142C	2468	31	1019	23	1039	49	2263	25	1296	22	1825	36
FLIP 90-143C	1886	46	1114	11	1357	38	1636	38	1095	38	1497	46
FLIP 90-150C	2521	28	701	44	1547	29	2368	21	1127	36	1322	47
FLIP 90-153C	2342	34	881	33	1507	33	623	51	767	51	1181	50
FLIP 90-155C	1580	49	1103	12	1697	23	2406	20	1116	37	1572	44
FLIP 90-165C	2691	22	1230	4	2237	7	891	47	831	49	1197	49
FLIP 90-170C	3156	7	1019	22	2246	6	3070	9	1540	14	2689	4
FLIP 90-171C	3421	3	1040	21	1754	21	2160	28	1751	7	1731	39
FLIP 90-172C	3336	4	542	50	2288	3	4290	1	1254	24	1556	45
FLIP 90-173C	3833	1	860	38	2150	10	2114	29	1868	4	2333	9
FLIP 90-177C	2806	18	638	47	1007	50	1013	46	1349	20	1989	30
FLIP 90-179C	2151	39	1241	3	2214	9	2023	31	915	47	2158	20
FLIP 90-181C	2659	24	1071	18	999	51	1526	40	1402	18	2114	24
FLIP 90-183C	1854	47	955	26	1674	24	2202	27	1222	29	2247	14
FLIP 90-187C	2469	30	1071	17	1475	35	2754	15	926	46	1697	41
ILC 482	3048	12	913	29	2111	11	1657	37	1238	28	2031	27
FLIP 82-150C	2643	25	897	30	1863	15	2800	14	1460	15	2056	25
Local Check	3080	11	897	31	1841	17	2549	16	1698	8	3613	1
Location Mean	2553		958		1670		2206		1337		1998	
S.E. of Mean	227.42		97.42		163.81		510.15		157.05		127.66	
L.S.D. at 5% for:												
Checks	786.88		337.07		567.78		1765.16		543.39		441.72	
T.E. in S.B.	1573.76		674.14		1133.56		3530.31		1086.78		883.44	
T.E. in D.B.	1817.22		778.43		1308.92		4076.45		1254.90		1020.11	
Checks Vs T.E.	1436.85		615.50		1034.95		3223.20		992.24		806.59	
C.V. %	17.38		23.61		19.13		45.74		23.06		12.10	
Error d.f.	6		6		6		6		6		6	
T.E. > L. Check	0		0		0		0		1		0	

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	SYRIA				TUNISIA							
	Tel Hadya-NARS		Tel Hadya		Beja-Spring-1		Beja-Spring-2		Beja-Winter-1		Beja-Winter-2	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 89- 8C	-	-	447	50	1533	39	1488	41	549	16	500	33
FLIP 89- 23C	-	-	1122	12	2167	21	2588	8	267	31	983	17
FLIP 89- 57C	-	-	434	51	1383	44	1088	49	449	20	250	38
FLIP 89- 59C	-	-	913	29	1267	48	1288	46	117	40	683	27
FLIP 89- 66C	475	13	633	48	2417	14	1738	33	50	44	150	43
FLIP 89- 93C	469	14	1076	14	1433	43	1538	40	399	24	2550	3
FLIP 89- 97C	616	3	703	44	2167	22	1738	34	0	46	150	41
FLIP 89- 99C	-	-	1048	16	2683	4	2138	17	584	13	217	39
FLIP 90- 21C	608	4	1313	6	2017	24	2788	5	1467	3	2283	4
FLIP 90- 23C	456	15	599	49	1983	26	2038	22	1099	7	1400	7
FLIP 90- 36C	-	-	885	32	1933	30	1138	48	352	28	200	40
FLIP 90- 41C	-	-	796	40	1283	47	738	51	549	15	400	34
FLIP 90- 43C	582	6	1203	8	1633	38	1538	39	1149	6	650	28
FLIP 90- 48C	-	-	813	37	1883	31	1588	37	434	21	0	48
FLIP 90- 53C	368	21	1160	10	1117	49	1138	47	0	51	336	37
FLIP 90- 61C	386	20	640	47	2567	10	2038	23	0	49	150	44
FLIP 90- 66C	431	16	1006	20	1483	41	1538	38	1199	5	1050	13
FLIP 90- 67C	-	-	934	28	2633	6	2088	18	634	11	917	20
FLIP 90- 74C	574	7	845	34	1983	25	1788	29	284	30	0	50
FLIP 90- 86C	335	27	995	23	2367	17	2238	14	717	8	883	21
FLIP 90- 88C	-	-	1433	2	2317	19	2788	4	367	27	1083	10
FLIP 90- 90C	-	-	1118	13	1733	34	1938	26	384	26	367	36
FLIP 90- 91C	-	-	1042	17	2533	11	2438	11	0	42	0	49
FLIP 90-106C	403	18	953	26	2383	16	2638	7	334	29	817	24
FLIP 90-113C	361	23	1038	18	1483	42	788	50	399	25	1050	14
FLIP 90-125C	668	1	983	24	3317	1	2038	21	450	19	1200	8
FLIP 90-126C	-	-	1203	9	333	50	1988	24	1249	4	1650	5
FLIP 90-127C	-	-	1397	3	2383	15	2838	3	684	10	1067	12
FLIP 90-132C	513	11	856	33	0	51	2288	13	525	17	1050	15
FLIP 90-137C	-	-	900	30	2617	7	2938	2	400	23	850	22

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	SYRIA				TUNISIA							
	Tel Hadya-NARS		Tel Hadya		Beja-Spring-1		Beja-Spring-2		Beja-Winter-1		Beja-Winter-2	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90-138C	545	10	841	35	1383	45	1438	42	599	12	1000	16
FLIP 90-140C	-	-	1027	19	2617	8	2438	10	217	33	933	18
FLIP 90-141C	638	2	813	38	1483	40	1388	43	184	34	0	51
FLIP 90-142C	346	26	947	27	1933	29	1738	32	234	32	367	35
FLIP 90-143C	417	17	1129	11	1667	37	2238	15	167	35	1083	9
FLIP 90-150C	558	8	798	39	1717	36	1788	30	167	36	1583	6
FLIP 90-153C	358	25	741	43	1967	27	1638	35	0	48	700	25
FLIP 90-155C	-	-	640	46	2517	12	2188	16	100	41	150	42
FLIP 90-165C	366	22	646	45	2317	18	1988	25	150	37	100	46
FLIP 90-170C	-	-	1471	1	2217	20	2538	9	117	38	833	23
FLIP 90-171C	-	-	792	41	1717	35	1388	44	0	50	53	47
FLIP 90-172C	-	-	758	42	1383	46	1588	36	549	14	700	26
FLIP 90-173C	-	-	966	25	2583	9	1788	31	434	22	517	30
FLIP 90-177C	-	-	1395	4	1967	28	2338	12	17	45	1083	11
FLIP 90-179C	-	-	997	22	2683	5	2088	19	684	9	517	31
FLIP 90-181C	361	24	887	31	2467	13	3438	1	4200	1	3750	1
FLIP 90-183C	398	19	1217	7	2067	23	1938	27	117	39	933	19
FLIP 90-187C	-	-	824	36	2817	3	1388	45	0	47	100	45
ILC 482	584	5	1056	15	1850	32	1800	28	63	43	513	32
FLIP 82-150C	477	12	998	21	1813	33	2038	20	0	18	575	29
Local Check	545	9	1325	5	3138	2	2675	6	2200	2	2763	2
Location Mean	473		949		1964		1922		462		768	
S.E. of Mean	11.92		96.79		227.34		253.62		181.26		243.63	
L.S.D. at 5% for:												
Checks	41.24		334.90		786.61		877.54		627.17		842.99	
T.E. in S.B.	82.48		669.79		1573.23		1755.08		1254.34		1685.98	
T.E. in D.B.	95.25		773.41		1816.61		2026.59		1448.39		1946.80	
Checks Vs T.E.	75.31		611.53		1436.37		1602.41		1145.22		1539.31	
C.V. %	-		19.72		22.35		25.73		64.86		56.33	
Error d.f.	6		6		6		6		6		6	
T.E. > L. Check	2		0		0		0		1		0	

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	TUNISIA				TURKEY								(1) Overall Mean
	Oued Meliz-Winter		Ankara		Antalya		Gal		Izmir				
	Y	R	Y	R	Y	R	Y	R	Y	R			
FLIP 89- 8C	1708	37	1215	47	634	36	236	42	556	39	1409	45	
FLIP 89- 23C	2675	13	1705	38	579	37	282	31	1444	8	1614	18	
FLIP 89- 57C	2408	21	2685	10	912	27	292	28	1361	10	1502	33	
FLIP 89- 59C	2625	16	1560	42	-	-	255	37	250	47	1377	47	
FLIP 89- 66C	2725	9	3063	5	745	33	366	16	574	36	1443	42	
FLIP 89- 93C	3058	3	1669	39	1134	21	431	6	1278	12	1545	28	
FLIP 89- 97C	1025	44	2246	22	1301	9	282	34	519	42	1327	48	
FLIP 89- 99C	2742	8	819	51	2208	2	144	50	454	44	1562	26	
FLIP 90- 21C	2125	29	1569	41	-	-	338	19	194	49	1709	7	
FLIP 90- 23C	2858	7	2639	11	1634	5	264	36	0	51	1624	16	
FLIP 90- 36C	2708	10	3846	2	1245	13	375	14	2333	1	1896	2	
FLIP 90- 41C	908	49	2920	7	1412	7	403	11	1250	13	1633	13	
FLIP 90- 43C	908	47	2168	24	1134	20	292	27	1500	7	1902	1	
FLIP 90- 48C	2692	12	1472	44	1819	4	171	49	870	28	1597	19	
FLIP 90- 53C	2425	20	2476	17	-	-	282	32	1028	20	1489	35	
FLIP 90- 61C	2225	26	2155	25	856	30	255	41	769	33	1508	31	
FLIP 90- 66C	2658	14	2921	6	690	34	375	15	1806	2	1670	9	
FLIP 90- 67C	2992	4	2778	9	1208	15	227	45	1204	16	1650	12	
FLIP 90- 74C	2692	11	1454	45	1264	11	60	51	231	48	1247	50	
FLIP 90- 86C	2225	25	2485	16	-	-	338	18	528	41	1460	40	
FLIP 90- 88C	2875	6	3109	4	-	-	477	3	1583	6	1583	21	
FLIP 90- 90C	3492	2	1998	30	1208	16	310	24	1009	23	1672	8	
FLIP 90- 91C	2042	31	855	50	1097	24	255	39	787	32	1573	23	
FLIP 90-106C	942	45	1908	32	1208	14	255	38	1037	19	1776	5	
FLIP 90-113C	2308	24	2077	27	2245	1	403	10	1583	5	1656	11	
FLIP 90-125C	1475	39	2246	21	856	28	227	46	269	46	1595	20	
FLIP 90-126C	1908	34	1414	46	356	42	319	23	0	50	1632	14	
FLIP 90-127C	2442	19	865	49	1875	3	310	25	454	43	1560	27	
FLIP 90-132C	2525	18	2564	13	245	43	338	21	741	34	1391	46	
FLIP 90-137C	1375	40	2383	19	1190	17	282	35	1019	21	1536	29	

Cont'd. ...

Table 3.7.6. Cont'd. ...

Entry Name	TUNISIA				TURKEY						(1) Overall Mean	
	Oued Meliz-Winter		Ankara		Antalya		Gal		Izmir			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90-138C	908	48	2212	23	1134	22	319	22	417	45	1477	36
FLIP 90-140C	2325	23	1805	36	523	38	394	12	1111	18	1461	39
FLIP 90-141C	1042	42	1726	37	1486	6	449	4	1370	9	1469	38
FLIP 90-142C	1042	43	1953	31	1264	12	227	43	843	30	1489	34
FLIP 90-143C	2625	15	1841	34	-	-	394	13	1639	3	1472	37
FLIP 90-150C	2025	32	1215	48	468	40	282	30	1250	15	1438	43
FLIP 90-153C	625	51	2609	12	1190	18	338	20	574	37	1319	49
FLIP 90-155C	1575	38	2790	8	1356	8	310	26	796	31	1458	41
FLIP 90-165C	875	50	2028	29	1023	26	255	40	1602	4	1423	44
FLIP 90-170C	4225	1	2069	28	-	-	532	1	1250	14	1863	3
FLIP 90-171C	2875	5	4197	1	856	29	199	48	1019	22	1670	10
FLIP 90-172C	2158	27	2331	20	1079	25	292	29	861	29	1751	6
FLIP 90-173C	2142	28	1817	35	653	35	227	44	1009	24	1780	4
FLIP 90-177C	2375	22	2113	26	412	41	421	7	1194	17	1502	32
FLIP 90-179C	1042	41	1862	33	1153	19	282	33	954	25	1523	30
FLIP 90-181C	1975	33	2518	14	745	32	449	5	546	40	1630	15
FLIP 90-183C	2075	30	2431	18	-	-	338	17	1306	11	1581	22
FLIP 90-187C	1825	35	3153	3	1301	10	421	8	880	27	1620	17
ILC 482	2575	17	1630	40	1125	23	403	9	903	26	1570	24
FLIP 82-150C	1738	36	1555	43	500	39	215	47	646	35	1563	25
Local Check	913	46	2510	15	778	31	507	2	563	38		
Location Mean	2116		2142		1079		312		936			
S.E. of Mean	157.07		364.19		291.01		66.00		90.34			
L.S.D. at 5% for:												
Checks	543.46		1260.13		1006.89		228.37		312.57			
T.E. in S.B.	1086.92		2520.26		2013.79		456.75		625.14			
T.E. in D.B.	1255.07		2910.15		2325.32		527.41		721.85			
Checks Vs T.E.	992.37		2301.02		1838.60		417.01		570.76			
C.V. %	15.40		34.49		296.78		40.68		20.19			
Error d.f.	6		6		6		6		6			
T.E. > L. Check	33		0		0		0		17			

(1) The locations namely, Hamadan, Mashhad, Hermosillo, Gelline, Tel Hadya-NARS, Beja-Winter-1, Beja-Winter-2, Oued Meliz-Winter and Antalya were excluded from the overall mean either because of missing values or these

Table 3.7.7. The five heaviest seed yielding entries at the individual locations in the CISN-Sp during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Iran	Hamadan	FLIP 90-172C	FLIP 90-170C	FLIP 90-41C	FLIP 90-150C	FLIP 90-53C
Iran	Karaj	FLIP 90-21C	FLIP 90-36C	FLIP 90-53C	FLIP 90-172C	FLIP 90-74C
Iran	Maragheh	FLIP 89-93C	FLIP 90-126C	FLIP 90-67C	FLIP 89-99C	FLIP 90-179C
Iran	Mashhad	FLIP 90-142C	FLIP 90-67C	FLIP 90-187C	FLIP 90-127C	FLIP 89-23C
Lebanon	Terbol	FLIP 90-126C	FLIP 90-43C	FLIP 90-143C	FLIP 90-66C	FLIP 90-125C
Mexico	Hermosillo	FLIP 90-155C	FLIP 90-153C	FLIP 90-137C	FLIP 90-90C	FLIP 90-179C
Syria	Al Ghab	FLIP 90-173C	FLIP 90-48C	FLIP 90-171C	FLIP 90-172C	FLIP 90-23C
Syria	Gelline	FLIP 90-137C	FLIP 90-132C	FLIP 90-179C	FLIP 90-165C	FLIP 90-125C
Syria	Hama	FLIP 89-23C	FLIP 89-59C	FLIP 90-172C	FLIP 90-127C	FLIP 89-93C
Syria	Idleb	FLIP 90-172C	FLIP 90-138C	FLIP 90-23C	FLIP 90-90C	FLIP 90-43C
Syria	Izra'a	FLIP 90-43C	FLIP 90-141C	FLIP 89-59C	FLIP 90-173C	FLIP 90-48C
Syria	Jindiress	Local check	FLIP 90-21C	FLIP 89-23C	FLIP 90-170C	FLIP 90-113C
Syria	Tel Hadya-NARS	FLIP 90-125C	FLIP 90-141C	FLIP 89-97C	FLIP 90-21C	ILC 482
Syria	Tel Hadya-ICARDA	FLIP 90-170C	FLIP 90-88C	FLIP 90-127C	FLIP 90-177C	Local check
Tunisia	Beja-Spring-1	FLIP 90-125C	Local check	FLIP 90-187C	FLIP 89-99C	FLIP 90-179C
Tunisia	Beja-Spring-2	FLIP 90-181C	FLIP 90-137C	FLIP 90-127C	FLIP 90-88C	FLIP 90-21C
Tunisia	Beja-Winter-1	FLIP 90-181C	Local check	FLIP 90-21C	FLIP 90-126C	FLIP 90-66C
Tunisia	Beja-Winter-2	FLIP 90-181C	Local check	FLIP 89-93C	FLIP 90-21C	FLIP 90-126C
Tunisia	Oued Meliz	FLIP 90-170C	FLIP 90-90C	FLIP 89-93C	FLIP 90-67C	FLIP 90-171C
Turkey	Ankara	FLIP 90-171C	FLIP 90-36C	FLIP 90-187C	FLIP 90-88C	FLIP 89-66C
Turkey	Antalya	FLIP 90-113C	FLIP 89-99C	FLIP 90-127C	FLIP 90-48C	FLIP 90-23C
Turkey	Gal	FLIP 90-170C	Local check	FLIP 90-88C	FLIP 90-141C	FLIP 90-181C
Turkey	Izmir	FLIP 90-36C	FLIP 90-66C	FLIP 90-143C	FLIP 90-165C	FLIP 90-113C

The adjusted seed yields for the entries are given in Table 3.7.6. On the basis of overall mean, FLIP 90-43C gave the highest yield (1902 kg/ha) and was followed by FLIP 90-36C (1896 kg/ha), FLIP90-170C (1863 kg/ha), FLIP 90-173C (1780 kg/ha), and FLIP 90-106C (1776 kg/ha). At seven locations the test 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.

3.8. CHICKPEA INTERNATIONAL SCREENING NURSERY - SOUTHERLY LATITUDES 1 (CISN-SL1)

The Chickpea International Screening Nursery - Southerly Latitudes 1 comprised 48 test entries and three checks, namely ILC 482, FLIP 82-150C and one local check to be supplied by the cooperator.

Methods and Management

The entries were planted in single row plots of 4 m length. The three checks were repeatedly grown in blocks of 12 test entries in an augmented block design. The spacing between and within rows were 45- and 10 cm, respectively. Fifteen sets of nursery were distributed to cooperators in 10 countries and the results were received from 6 locations in 6 countries. The agronomic details received from the cooperators are presented in Table 3.8.1.

Results and Discussion

The adjusted mean time to flowering, time to maturity, plant height, 100-seed weight, and seed yield are given in Tables 3.8.2, 3.8.3, 3.8.4, 3.8.5, and 3.8.6, respectively. The entry means for time to flowering, time to maturity, plant height, 100-seed weight, and seed yield ranged between 111 to 118 days, 165-171 days, 46 to 65 cm, 27 to 39 g, and 1186 to 2520 kg/ha respectively. The five heaviest yielding entries based on mean over locations included FLIP 89-67C, FLIP 90-185C, FLIP 90-94C, FLIP 90-169C, and FLIP 90-144C, respectively with seed yields of 2520, 2344, 2320, 2211 and 2200 kg/ha.

Table 3.8.1. Agronomic data for different locations in the CISN-SL1 during 1991/92.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
			N	P	K			
Cyprus								
Athalassa	04.12.91	30.06.92	21	48	-	-	Terbutrine	Yialousa
Egypt								
Gemmiza	27.11.91	25.05.92	-	71	-	-	Igran	Giza 88
India								
New Delhi	11.11.91	24.04.92	20	40	-	2	Thiodan, Basalin	Pusa 267
Portugal								
Elvas	05.11.91	25.06.92	-	-	-	-	Terbutrine Propizamide	Chk 510
Syria								
Tel Hadya	26.11.91	15.06.91	-	50	-	-	Kerb, Igran	ILC 3279
Turkey								
Amasya	07.04.92	14.08.92	50	-	-	-	-	Canitez 87

Table 3.8.2. Adjusted time to flowering (days) of entries at different locations in the CISON-SLI during 1991/92.

Entry Name	Pedigree	Origin	CYPRUS	EGYPT
			Athalassa	Gemiza
FLIP 89- 2C	X 85 TH 179/ILC3683XFLIP 83-15C	ICARDA/ICRISAT	127	118
FLIP 89- 7C	X 85 TH 179/ILC3683XFLIP 83-15C	ICARDA/ICRISAT	125	118
FLIP 89- 31C	X 85 TH 247/ILC3398XFLIP 83-15C	ICARDA/ICRISAT	121	112
FLIP 89- 37C	X 86 TH 278/(ILC1919XFLIP82-144C)XFLIP84-18C	ICARDA/ICRISAT	123	116
FLIP 89- 55C	X 87 TH 273/(ILC116XFLIP84-18C)XFLIP84-48C	ICARDA/ICRISAT	121	112
FLIP 89- 64C	X 86 TH 28/ILC 263XFLIP 81- 65C	ICARDA/ICRISAT	122	109
FLIP 89- 67C	X 86 TH 78/ILC 493XFLIP 81- 65C	ICARDA/ICRISAT	122	110
FLIP 89- 69C	X 86 TH 131/FLIP 84-48CXILC 493	ICARDA/ICRISAT	125	110
FLIP 89- 76C	X 87 TH 36/FLIP 83-47CXFLIP 84-145C	ICARDA/ICRISAT	121	105
FLIP 89- 77C	X 87 TH 36/FLIP 83-47CXFLIP 84-145C	ICARDA/ICRISAT	122	109
FLIP 89- 94C	X 86 TH 34/ILC1919XFLIP 82-150C	ICARDA/ICRISAT	116	103
FLIP 89-103C	X 86 TH 266/(ILC480XFLIP82-130C)XFLIP82-64C	ICARDA/ICRISAT	125	114
FLIP 89-105C	X 86 TH 290/(FLIP81-56CXILC2380)XFLIP84-19C	ICARDA/ICRISAT	121	113
FLIP 89-109C	X 87 TH 242/ILC 195XILC 263	ICARDA/ICRISAT	125	108
FLIP 90- 5C	X 87 TH 32/FLIP83- 7CXFLIP84-109C	ICARDA/ICRISAT	121	113
FLIP 90- 7C	X 87 TH 32/FLIP83- 7CXFLIP84-109C	ICARDA/ICRISAT	122	113
FLIP 90- 10C	X 85 TH 67/(FLIP82-65CXFLIP81-3C)XILC3279	ICARDA/ICRISAT	125	111
FLIP 90- 11C	X 86 TH 283/(FLIP81-41WXILC3279)XFLIP84-18C	ICARDA/ICRISAT	121	115
FLIP 90- 14C	X 86 TH 29/ILC 263XFLIP82-150C	ICARDA/ICRISAT	119	108
FLIP 90- 27C	X 86 TH 276/(ILC1919XFLIP82-127C)XFLIP84-18C	ICARDA/ICRISAT	119	105
FLIP 90- 30C	X 86 TH 19/ILC 116XFLIP82-150C	ICARDA/ICRISAT	125	110
FLIP 90- 34C	X 86 TH 35/ILC1919XFLIP84-48C	ICARDA/ICRISAT	124	112
FLIP 90- 44C	X 86 TH 269/(ILC 480XFLIP82-243C)XFLIP82-64C	ICARDA/ICRISAT	123	108
FLIP 90- 56C	X 87 TH 159/S 85088XILC3856	ICARDA/ICRISAT	123	115
FLIP 90- 62C	X 86 TH 32/ILC1919XFLIP81-293C	ICARDA/ICRISAT	127	109
FLIP 90- 63C	X 86 TH 34/ILC1919XFLIP82-150C	ICARDA/ICRISAT	119	111
FLIP 90- 64C	X 86 TH 34/ILC1919XFLIP82-150C	ICARDA/ICRISAT	117	111
FLIP 90- 65C	X 86 TH 34/ILC1919XFLIP82-150C	ICARDA/ICRISAT	126	116

Entry Name	Pedigree	Origin	CYPRUS	EGYPT
			Athalassa	Gemmiza
FLIP 90- 72C	X 86 TH 142/FLIP84-46CXILC 484	ICARDA/ICRISAT	123	116
FLIP 90- 76C	X 86 TH 303/(ILC171XFLIP82-127C)XILC171	ICARDA/ICRISAT	123	112
FLIP 90- 79C	X 86 TH 33/ILC1919XFLIP81-65C	ICARDA/ICRISAT	124	110
FLIP 90- 83C	X 86 TH 141/FLIP84-46CXILC 482	ICARDA/ICRISAT	122	113
FLIP 90- 84C	X 86 TH 141/FLIP84-46CXILC 482	ICARDA/ICRISAT	129	115
FLIP 90- 85C	X 86 TH 148/FLIP84-46CXILC3870	ICARDA/ICRISAT	123	114
FLIP 90- 94C	X 87 TH 20/ILC 576XFLIP84-93C	ICARDA/ICRISAT	125	114
FLIP 90- 99C	X 87 TH 34/FLIP83-15CXFLIP84-109C	ICARDA/ICRISAT	124	109
FLIP 90-100C	X 87 TH 34/FLIP83-15CXFLIP84-109C	ICARDA/ICRISAT	125	111
FLIP 90-110C	X 88 TH 122/FLIP85-122CXBe. Sel. 81-48	ICARDA/ICRISAT	121	113
FLIP 90-111C	X 88 TH 122/FLIP85-122CXBe. Sel. 81-48	ICARDA/ICRISAT	126	108
FLIP 90-114C	X 88 TH 225/(FLIP81-293CXFLIP84-79C)X FLIP81-293C	ICARDA/ICRISAT	123	111
FLIP 90-115C	X 88 TH 242/(FLIP83-7CXFLIP84-92C)XFLIP83-7C	ICARDA/ICRISAT	126	108
FLIP 90-117C	X 88 TH 287/(FLIP84-48CXILC1931)XFLIP84-48C	ICARDA/ICRISAT	122	114
FLIP 90-144C	X 86 TH 276/(ILC1919XFLIP82-127C)XFLIP84-18C	ICARDA/ICRISAT	119	107
FLIP 90-151C	X 87 TH 32/FLIP83- 7CXFLIP84-109C	ICARDA/ICRISAT	126	115
FLIP 90-169C	X 87 TH 14/ILC295XFLIP84-78C	ICARDA/ICRISAT	122	111
FLIP 90-175C	X 87 TH 93/FLIP84-164CXILC3396	ICARDA/ICRISAT	125	109
FLIP 90-182C	X 87 TH 290/(ILC 263XFLIP82-150C)XILC 263	ICARDA/ICRISAT	124	114
FLIP 90-185C	X 87 TH 63/FLIP82-189CXFLIP84-164C	ICARDA/ICRISAT	126	109
ILC 482	Long Term Check	Turkey	120	109
FLIP 82-150C	X 79 TH 101/ILC 523XILC183 (Improved Check)	ICARDA/ICRISAT	124	114
Local check			129	107
Location Mean			123	111
S.E. of Mean			0.14	0.64
L.S.D. at 5% for Checks			0.50	2.22
L.S.D. at 5% for test entries in the same block			1.00	4.43
L.S.D. at 5% for test entries in different blocks			1.15	5.12
L.S.D. at 5% for checks Vs test entries			0.91	4.04
C.V. %			0.23	1.15

Cont'd. ...

Table 3.8.2. Cont'd. ...

Entry Name	INDIA	PORTUGAL	SYRIA	TURKEY	Overall Mean
	New Delhi	Elvas	Tel Hadya	Amasya	
FLIP 89- 2C	101	142	155	63	118
FLIP 89- 7C	104	142	152	63	117
FLIP 89- 31C	103	144	150	60	115
FLIP 89- 37C	104	142	152	60	116
FLIP 89- 55C	104	142	149	63	115
FLIP 89- 64C	104	137	149	64	114
FLIP 89- 67C	101	141	147	63	114
FLIP 89- 69C	101	142	147	60	114
FLIP 89- 76C	104	141	147	60	113
FLIP 89- 77C	103	141	147	64	114
FLIP 89- 94C	102	137	146	61	111
FLIP 89-103C	99	144	153	63	116
FLIP 89-105C	105	140	152	64	116
FLIP 89-109C	98	141	152	60	114
FLIP 90- 5C	102	142	149	63	115
FLIP 90- 7C	104	144	149	76	118
FLIP 90- 10C	99	144	151	69	116
FLIP 90- 11C	104	139	152	60	115
FLIP 90- 14C	99	137	145	63	112
FLIP 90- 27C	105	138	145	61	112
FLIP 90- 30C	104	144	150	76	118
FLIP 90- 34C	102	142	150	69	116
FLIP 90- 44C	98	139	152	63	114
FLIP 90- 56C	105	145	152	69	118
FLIP 90- 62C	96	136	148	64	113
FLIP 90- 63C	101	140	150	63	114
FLIP 90- 64C	100	136	147	60	112
FLIP 90- 65C	101	140	152	60	116

Entry Name	INDIA	PORTUGAL	SYRIA	TURKEY	Overall Mean
	New Delhi	Elvas	Tel Hadya	Amasya	
FLIP 90- 72C	98	142	150	63	115
FLIP 90- 76C	96	139	150	64	114
FLIP 90- 79C	102	140	147	60	114
FLIP 90- 83C	99	140	150	61	114
FLIP 90- 84C	101	143	150	60	116
FLIP 90- 85C	103	146	149	66	117
FLIP 90- 94C	104	146	149	63	117
FLIP 90- 99C	104	142	152	63	116
FLIP 90-100C	99	142	153	63	115
FLIP 90-110C	100	140	153	63	115
FLIP 90-111C	100	140	150	63	114
FLIP 90-114C	97	142	151	69	115
FLIP 90-115C	105	144	149	67	116
FLIP 90-117C	103	141	150	63	115
FLIP 90-144C	103	136	145	60	111
FLIP 90-151C	102	146	152	60	117
FLIP 90-169C	102	140	151	60	114
FLIP 90-175C	106	141	149	52	113
FLIP 90-182C	101	146	149	63	116
FLIP 90-185C	102	142	149	60	115
ILC 482	102	140	148	63	114
FLIP 82-150C	102	142	150	63	116
Local check	99	143	153	60	
Location Mean	102	141	150	63	
S.E. of Mean	1.37	0.69	0.78	0.39	
L.S.D. at 5%	4.73	2.38	2.69	1.35	
T.E. in S.B.	9.46	4.76	5.38	2.70	
T.E. in D.B.	10.92	5.49	6.21	3.12	
Checks Vs T.E	8.64	4.34	4.91	2.47	
C.V. %	2.69	0.97	1.04	1.25	

Table 3.8.3. Adjusted time to maturity (days) of entries at different locations in the CISN-SLI during 1991/92.

Entry Name	EGYPT	INDIA	PORTUGAL	SYRIA	TURKEY	Overall Mean
	Gemiza	New Delhi	Elvas	Tel Hadya	Amasya	
FLIP 89- 2C	173	152	205	199	120	170
FLIP 89- 7C	173	155	206	196	119	170
FLIP 89- 31C	167	156	205	194	121	169
FLIP 89- 37C	172	156	203	195	121	169
FLIP 89- 55C	172	156	203	195	121	169
FLIP 89- 64C	169	155	205	197	117	169
FLIP 89- 67C	171	152	205	195	120	169
FLIP 89- 69C	170	151	200	195	120	167
FLIP 89- 76C	167	158	200	194	120	168
FLIP 89- 77C	168	151	203	198	116	167
FLIP 89- 94C	166	150	203	196	118	167
FLIP 89-103C	170	148	206	197	119	168
FLIP 89-105C	171	158	205	198	118	170
FLIP 89-109C	165	148	203	195	120	166
FLIP 90- 5C	170	153	206	190	122	168
FLIP 90- 7C	169	155	203	193	118	168
FLIP 90- 10C	169	148	201	196	119	166
FLIP 90- 11C	169	156	201	196	121	169
FLIP 90- 14C	168	148	203	191	120	166
FLIP 90- 27C	169	156	201	193	116	167
FLIP 90- 30C	167	156	203	198	120	169
FLIP 90- 34C	169	152	203	195	119	168
FLIP 90- 44C	167	148	206	191	121	166
FLIP 90- 56C	169	158	205	196	120	170
FLIP 90- 62C	170	146	200	198	120	167
FLIP 90- 63C	166	150	209	195	121	168
FLIP 90- 64C	169	146	210	195	121	168
FLIP 90- 65C	173	152	205	197	120	169

Entry Name	EGYPT	INDIA	PORTUGAL	SYRIA	TURKEY	Overall Mean
	Gemmiza	New Delhi	Elvas	Tel Hadya	Amasya	
FLIP 90- 72C	170	148	201	196	118	166
FLIP 90- 76C	171	146	203	198	119	167
FLIP 90- 79C	170	153	206	196	123	170
FLIP 90- 83C	172	147	203	197	117	167
FLIP 90- 84C	170	151	205	195	120	168
FLIP 90- 85C	171	156	203	195	120	169
FLIP 90- 94C	173	154	200	198	121	169
FLIP 90- 99C	169	157	205	197	119	169
FLIP 90-100C	169	148	203	197	119	167
FLIP 90-110C	170	149	206	196	120	168
FLIP 90-111C	168	152	205	195	119	168
FLIP 90-114C	169	143	200	195	118	165
FLIP 90-115C	169	158	206	197	117	169
FLIP 90-117C	166	156	205	194	120	168
FLIP 90-144C	170	156	201	191	119	167
FLIP 90-151C	173	155	205	196	120	170
FLIP 90-169C	171	154	203	197	120	169
FLIP 90-175C	171	158	206	196	125	171
FLIP 90-182C	172	153	205	190	123	169
FLIP 90-185C	169	153	203	195	122	168
ILC 482	168	153	204	195	120	168
FLIP 82-150C	170	151	209	196	120	169
Local check	168	148	204	197	121	
Location Mean	169	152	204	196	120	
S.E. of Mean	0.74	1.84	0.69	0.70	0.81	
L.S.D. at 5% for:	2.56	6.35	2.40	2.43	2.80	
T.E. in S.B.	5.13	12.70	4.79	4.86	5.59	
T.E. in D.B.	5.92	14.67	5.53	5.61	6.46	
Checks Vs T.E	4.68	11.60	4.37	4.44	5.11	
C.V. %	0.88	2.42	0.68	0.72	1.35	

Table 3.8.4. Adjusted plant height (cm) of entries at different locations in the CISN-SL1 during 1991/92.

Entry Name	CYPRUS	EGYPT	INDIA	PORTUGAL	SYRIA	TURKEY	Overall Mean
	Athalassa	Germiza	New Delhi	Elvas	Tel Hadya	Amasya	
FLIP 89- 2C	48	85	60	46	32	30	50
FLIP 89- 7C	58	92	65	59	36	33	57
FLIP 89- 31C	48	84	72	49	37	34	54
FLIP 89- 37C	43	84	65	54	32	32	51
FLIP 89- 55C	41	90	73	58	38	30	56
FLIP 89- 64C	44	87	69	38	38	30	52
FLIP 89- 67C	53	89	70	50	31	33	54
FLIP 89- 69C	46	87	71	48	35	34	54
FLIP 89- 76C	46	85	60	46	33	30	50
FLIP 89- 77C	44	82	61	43	35	30	50
FLIP 89- 94C	34	92	53	58	30	24	50
FLIP 89-103C	58	95	72	60	41	39	61
FLIP 89-105C	44	82	63	53	43	30	55
FLIP 89-109C	48	95	60	55	36	34	55
FLIP 90- 5C	46	97	61	53	34	30	54
FLIP 90- 7C	44	102	70	51	40	28	58
FLIP 90- 10C	43	85	62	50	38	35	52
FLIP 90- 11C	43	89	65	44	33	32	51
FLIP 90- 14C	43	85	65	47	31	28	50
FLIP 90- 27C	34	72	69	48	30	27	47
FLIP 90- 30C	44	92	69	52	45	33	58
FLIP 90- 34C	53	94	70	56	38	37	58
FLIP 90- 44C	43	95	63	45	33	36	52
FLIP 90- 56C	58	109	79	52	46	47	65
FLIP 90- 62C	44	82	62	48	35	33	51
FLIP 90- 63C	53	79	57	54	36	30	52
FLIP 90- 64C	48	79	55	49	33	31	49
FLIP 90- 65C	48	74	65	54	34	35	51

Entry Name	CYPRUS	EGYPT	INDIA	PORTUGAL	SYRIA	TURKEY	Overall Mean
	Athalassa	Gemmiza	New Delhi	Elvas	Tel Hadya	Amasya	
FLIP 90- 72C	48	90	68	65	36	41	57
FLIP 90- 76C	49	87	63	53	38	38	55
FLIP 90- 79C	46	90	70	56	33	29	55
FLIP 90- 83C	44	92	64	55	36	33	55
FLIP 90- 84C	46	85	64	58	36	38	54
FLIP 90- 85C	41	87	58	48	35	31	51
FLIP 90- 94C	41	95	62	53	31	28	52
FLIP 90- 99C	41	95	61	53	38	34	54
FLIP 90-100C	43	87	54	50	31	36	49
FLIP 90-110C	48	90	68	50	38	37	55
FLIP 90-111C	38	85	57	41	31	38	47
FLIP 90-114C	43	83	53	49	33	34	49
FLIP 90-115C	39	72	51	58	27	25	46
FLIP 90-117C	48	94	60	52	36	43	54
FLIP 90-144C	38	79	73	49	31	30	50
FLIP 90-151C	46	96	73	58	31	32	56
FLIP 90-169C	48	95	58	55	34	33	54
FLIP 90-175C	39	92	61	45	30	32	50
FLIP 90-182C	46	97	63	56	24	29	52
FLIP 90-185C	46	75	63	63	28	33	50
IIC 482	41	86	50	52	28	27	48
FLIP 82-150C	45	81	60	52	32	31	50
Local check	61	84	52	54	45	37	
Location Mean	46	87	62	52	35	33	
S.E. of Mean	1.38	2.74	1.19	3.32	0.65	0.78	
L.S.D. at 5%	4.78	9.49	4.11	11.49	2.25	2.69	
T.E. in S.B.	9.56	18.98	8.22	22.97	4.50	5.38	
T.E. in D.B.	11.04	21.91	9.49	26.53	5.20	6.21	
Checks Vs T.E	8.73	17.33	7.50	20.98	4.11	4.91	
C.V. %	6.02	6.30	3.84	12.77	3.76	4.77	

Table 3.8.5. Adjusted 100-seed weight (g) of entries at different locations in the CISN-SLI during 1991/92.

Entry Name	INDIA	PORTUGAL	SYRIA	TURKEY	Overall Mean
	New Delhi	Elvas	Tel Hadya	Amasya	
FLIP 89- 2C	42	37	43	32	39
FLIP 89- 7C	31	44	44	35	38
FLIP 89- 31C	35	33	33	36	34
FLIP 89- 37C	36	29	30	34	32
FLIP 89- 55C	35	30	31	28	31
FLIP 89- 64C	34	28	33	34	32
FLIP 89- 67C	31	34	35	35	34
FLIP 89- 69C	31	33	39	30	33
FLIP 89- 76C	37	31	44	26	35
FLIP 89- 77C	27	29	34	28	29
FLIP 89- 94C	26	27	30	26	27
FLIP 89-103C	29	34	36	41	35
FLIP 89-105C	31	31	34	31	32
FLIP 89-109C	36	30	44	36	37
FLIP 90- 5C	29	29	31	26	29
FLIP 90- 7C	28	31	31	26	29
FLIP 90- 10C	29	38	44	37	37
FLIP 90- 11C	42	35	41	34	38
FLIP 90- 14C	26	24	27	30	27
FLIP 90- 27C	31	31	33	32	32
FLIP 90- 30C	30	31	38	30	32
FLIP 90- 34C	31	30	31	39	32
FLIP 90- 44C	36	34	35	38	36
FLIP 90- 56C	32	28	29	49	34
FLIP 90- 62C	37	33	35	32	34
FLIP 90- 63C	27	28	27	32	28
FLIP 90- 64C	29	26	26	33	28

Entry Name	INDIA	PORTUGAL	SYRIA	TURKEY	Overall Mean
	New Delhi	Elvas	Tel Hadya	Amasya	
FLIP 90- 72C	37	34	41	43	39
FLIP 90- 76C	37	36	36	36	36
FLIP 90- 79C	38	35	40	25	35
FLIP 90- 83C	33	31	36	27	32
FLIP 90- 84C	35	32	35	34	34
FLIP 90- 85C	29	30	33	27	30
FLIP 90- 94C	39	36	37	39	38
FLIP 90- 99C	32	31	31	30	31
FLIP 90-100C	33	31	34	38	34
FLIP 90-110C	34	31	31	39	34
FLIP 90-111C	29	29	32	40	32
FLIP 90-114C	32	32	34	36	34
FLIP 90-115C	33	34	38	36	35
FLIP 90-117C	30	32	32	45	35
FLIP 90-144C	34	31	31	32	32
FLIP 90-151C	31	31	34	28	31
FLIP 90-169C	35	33	35	35	34
FLIP 90-175C	38	34	38	35	36
FLIP 90-182C	37	37	39	25	35
FLIP 90-185C	40	39	41	29	37
ILC 482	27	30	32	30	30
FLIP 82-150C	28	28	29	30	29
Local check	21	39	31	41	
Location Mean	32	32	34	33	
S.E. of Mean	0.72	0.51	0.94	1.92	
L.S.D. at 5%	2.49	1.75	3.25	6.65	
T.E. in S.B.	4.99	3.51	6.50	13.30	
T.E. in D.B.	5.76	4.05	7.51	15.36	
Checks Vs T.E	4.55	3.20	5.94	12.14	
C.V. %	4.57	3.16	5.51	11.49	

Table 3.8.6. Adjusted seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CISN-SLI during 1991/92.

Entry Mean	CYPRUS		EGYPT		INDIA		PORTUGAL		SYRIA		TURKEY		Overall Mean	
	Athalassa		Gemmiza		New Delhi		Elvas		Tel Hadya		Amasya		Y	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 89- 2C	2134	13	1287	51	1378	30	421	50	959	50	937	34	1186	50
FLIP 89- 7C	2998	2	2139	49	1481	24	1681	1	1103	46	1254	17	1776	36
FLIP 89- 31C	1965	17	3528	36	2015	9	1338	9	1707	28	1063	25	1936	20
FLIP 89- 37C	1490	40	3194	44	2193	6	1000	26	1739	27	1381	10	1833	32
FLIP 89- 55C	2092	16	3954	28	1289	36	1104	16	2150	14	598	48	1865	28
FLIP 89- 64C	1892	20	4565	16	1963	12	706	39	2270	12	704	44	2017	11
FLIP 89- 67C	2423	7	5972	3	1970	11	975	29	2270	13	1508	3	2520	1
FLIP 89- 69C	1692	30	4565	14	1311	35	1260	12	1677	30	1106	22	1935	21
FLIP 89- 76C	1801	25	5731	5	733	49	1310	10	1620	37	788	41	1997	13
FLIP 89- 77C	1867	21	4565	15	1874	15	569	47	523	51	577	50	1662	44
FLIP 89- 94C	1367	44	4787	12	1896	14	625	46	1919	21	1370	12	1994	14
FLIP 89-103C	1642	34	2954	47	1067	44	702	40	1473	41	1381	11	1536	49
FLIP 89-105C	1667	31	4343	19	2319	3	513	49	2417	8	958	30	2036	10
FLIP 89-109C	2284	10	3954	31	1333	33	902	31	1856	24	683	45	1835	30
FLIP 90- 5C	1934	19	3954	29	733	48	1035	21	2110	17	788	40	1759	38
FLIP 90- 7C	1526	37	4676	13	1341	31	644	44	2597	4	323	51	1851	29
FLIP 90- 10C	1659	32	4231	22	1378	29	871	34	2118	15	1444	8	1950	18
FLIP 90- 11C	1823	24	3694	35	2148	8	1181	15	1568	39	937	32	1892	27
FLIP 90- 14C	1517	38	4287	20	1422	28	1071	19	2322	11	937	33	1926	23
FLIP 90- 27C	1634	35	1787	50	2785	2	1063	20	2515	5	958	28	1790	34
FLIP 90- 30C	1517	39	3287	43	1563	21	944	30	1625	34	958	29	1649	45
FLIP 90- 34C	2531	6	2861	48	2193	5	1256	13	1446	43	714	43	1834	31
FLIP 90- 44C	1951	18	3398	42	2156	7	671	41	1048	48	1508	4	1789	35
FLIP 90- 56C	2206	11	3417	39	1259	40	1356	8	1625	35	2143	1	2001	12
FLIP 90- 62C	1709	29	3120	46	1430	27	869	35	2107	18	958	31	1699	42
FLIP 90- 63C	2756	3	3417	38	1570	20	1019	25	2809	3	810	39	2063	9
FLIP 90- 64C	2640	4	3750	33	1259	41	1500	3	2409	9	1476	7	2172	7
FLIP 90- 65C	1456	42	3472	37	3037	1	1463	6	1584	38	1635	2	2108	8

Table 3.8.6. Cont'd. ...

Entry Mean	CYPRUS		EGYPT		INDIA		PORTUGAL		SYRIA		TURKEY		Overall Mean	
	Athalassa		Gemmiza		New Delhi		Elvas		Tel Hadya		Amasya		Overall Mean	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 72C	1842	22	4565	17	1267	39	652	43	1759	26	1317	13	1900	25
FLIP 90- 76C	1251	47	4120	26	1896	13	550	48	2490	6	1275	15	1930	22
FLIP 90- 79C	859	50	4120	25	1489	23	998	27	1954	20	598	49	1670	43
FLIP 90- 83C	2101	15	4454	18	896	46	419	51	1527	40	1085	24	1747	39
FLIP 90- 84C	1309	45	3398	40	956	45	985	28	1995	19	1106	23	1625	47
FLIP 90- 85C	1776	27	3398	41	422	51	1492	4	2428	7	788	42	1717	41
FLIP 90- 94C	1826	23	5676	6	1444	26	1192	14	2869	2	915	36	2320	3
FLIP 90- 99C	1592	36	6176	1	1311	34	1492	5	1620	36	915	35	2184	6
FLIP 90-100C	2376	8	3176	45	1467	25	1096	17	1318	44	1127	21	1760	37
FLIP 90-110C	1742	28	4787	11	1333	32	1021	24	1261	45	1254	20	1900	26
FLIP 90-111C	1251	46	4231	21	1289	37	865	36	1881	22	1254	19	1795	33
FLIP 90-114C	2117	14	5009	7	1289	38	1033	22	975	49	1508	5	1989	15
FLIP 90-115C	834	51	5898	4	1741	18	625	45	1650	32	894	37	1940	19
FLIP 90-117C	2356	9	4083	27	1704	19	1281	11	1470	42	1000	26	1982	16
FLIP 90-144C	1781	26	4139	24	2015	10	1031	23	2980	1	1254	16	2200	5
FLIP 90-151C	1042	49	4787	10	1556	22	779	37	1669	31	598	47	1738	40
FLIP 90-169C	3001	1	4843	9	711	50	1090	18	2371	10	1254	18	2211	4
FLIP 90-175C	1651	33	4176	23	1852	16	706	38	2115	16	1275	14	1962	17
FLIP 90-182C	1109	48	3954	30	778	47	885	33	1685	29	979	27	1565	48
FLIP 90-185C	1409	43	6009	2	1756	17	1623	2	1783	25	1487	6	2344	2
ILC 482	2158	12	4917	8	1156	43	666	42	1869	23	667	46	1905	24
FLIP 82-150C	1481	41	3708	34	1183	42	900	32	1633	33	857	38	1627	46
Local check	2588	5	3903	32	2217	4	1447	7	1096	47	1413	9		
Location Mean	1872		4100		1541		999		1796		1059			
S.E. of Mean	349.29		121.88		251.70		65.12		227.26		154.35			
L.S.D. at 5%	1208.55		421.69		870.88		225.32		786.34		534.06			
T.E. in S.B.	2417.10		843.39		1741.76		450.63		1572.69		1068.11			
T.E. in D.B.	2791.03		973.86		2011.21		520.34		1815.98		1233.35			
Checks Vs T.E	2206.84		770.02		1590.24		411.43		1435.88		975.20			
C.V. %	37.32		5.95		32.66		13.04		25.31		29.16			
Error d.f.	6		6		6		6		6		6			
Test > Check	0		12		0		0		4		0			

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

3.9. CHICKPEA INTERNATIONAL SCREENING NURSERY - SOUTHERLY LATITUDES 2 (CISN-SL2)

The Chickpea International Screening Nursery - Southerly Latitudes 2 comprised 48 test entries and three checks, namely ILC 482, ILC 2566 and one local check to be supplied by the cooperator.

Methods and Management

The entries were planted in single row plots of 4 m length. The three checks were repeatedly grown in blocks of 12 test entries in an augmented block design. The spacing between and within rows were 45- and 10 cm respectively. Fourteen sets of nursery were distributed to cooperators in 13 countries and the results were received from 5 locations from 5 countries. The agronomic details received from the cooperators are presented in Table 3.9.1.

Table 3.9.1. Agronomic data for different locations in the CISN-SL2 during 1990/91.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N P K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Argentina						
Cordoba	08.05.92	-	- - -	-	-	-
Cyprus						
Athalassa	04.12.91	30.06.92	21 48 -	-	Terbutrine	Vialousa
India						
New Delhi	11.11.91	24.04.92	20 40 -	-	Thiodan	Pusa 267
Sri Lanka						
Bandarawela	07.05.92	-	40 60 40	5	Tokathion,	IOCV 37
Syria						
Tel Hadya	26.11.91	-	- 50 -	-	Kerb, Igran	Ghab 3

Results and Discussion

The adjusted entry means for time to flowering, time to maturity, plant height, 100-seed weight, and seed yield are given in Table 3.9.2. The adjusted entry means across locations varied from 113 to 124 days for time to flowering, 167 to 172 days for time to maturity, 31 to 49 cm for plant height, 25 to 44 g for 100-seed weight, and 1073 to 2326 kg/ha for seed yield. The five heaviest yielding entries at each of the 4 locations are given below:

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Cyprus	FLIP90-69C	FLIP90-81C	ILC2566	ILC2566	FLIP90-132C
(Athalassa)					
India	FLIP90-113C	FLIP90-148C	FLIP90-125C	FLIP89-92C	FLIP90-37C
(New Delhi)					
Sri Lanka	FLIP90-145C	FLIP90-166C	FLIP90-40C	FLIP90-132C	FLIP90-152C
(Bandarawela)					
Syria	FLIP90-126C	FLIP90-146C	FLIP90-157C	FLIP90-155C	FLIP90-81C
(Tel Hadya)					

Table 3.9.2. Adjusted time to flowering (days), time to maturity (days), plant height (cm), 100-seed weight (g) and seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CISN-SL2 during 1991/92.

Entry Name	Pedigree	Origin	Time to flowering			
			ARGENTINA	CYPRUS	INDIA	SRI LANKA
			Cordoba	Athalassa	New Delhi	Bandarawela
FLIP 89- 67C	X 86 TH 78/ILC 493XFLIP 81- 65C	ICARDA/ICRISAT	120	121	90	61
FLIP 89- 84C	X 87 TH 186/ICC14198XFLIP 82-150C	ICARDA/ICRISAT	120	116	86	55
FLIP 89- 92C	X 85 TH 223/ILC3326XFLIP 82-59C	ICARDA/ICRISAT	-	120	86	61
FLIP 89- 94C	X 86 TH 34/ILC1919XFLIP 82-150C	ICARDA/ICRISAT	-	114	80	59
FLIP 89-122C	X 85 TH 246/ILC3398XFLIP 83-13C	ICARDA/ICRISAT	-	118	92	51
FLIP 89-123C	X 85 TH 246/ILC3398XFLIP 83-13C	ICARDA/ICRISAT	-	117	87	51
FLIP 90- 24C	X 86 TH 35/ILC1919XFLIP84-48C	ICARDA/ICRISAT	120	123	90	57
FLIP 90- 25C	X 86 TH 35/ILC1919XFLIP84-48C	ICARDA/ICRISAT	120	120	95	-
FLIP 90- 37C	X 86 TH 131/FLIP84-48CXILC 493	ICARDA/ICRISAT	-	121	86	62
FLIP 90- 39C	X 86 TH 256/(ILC165XFLIP82-127C)XFLIP82-78C	ICARDA/ICRISAT	-	127	91	57
FLIP 90- 40C	X 86 TH 256/(ILC165XFLIP82-127C)XFLIP82-78C	ICARDA/ICRISAT	-	126	96	57
FLIP 90- 66C	X 86 TH 277/(ILC1919XFLIP82-130C)XFLIP84-18C	ICARDA/ICRISAT	120	121	85	60
FLIP 90- 67C	X 86 TH 57/ILC 171XFLIP81-293C	ICARDA/ICRISAT	-	126	85	62
FLIP 90- 68C	X 86 TH 92/FLIP84-19CXFLIP81-293C	ICARDA/ICRISAT	120	121	95	61
FLIP 90- 69C	X 86 TH 92/FLIP84-19CXFLIP81-293C	ICARDA/ICRISAT	-	126	92	64
FLIP 90- 81C	X 86 TH 107/FLIP84-12CXFLIP81-293C	ICARDA/ICRISAT	-	125	95	59
FLIP 90- 82C	X 86 TH 108/FLIP84-12CXFLIP82-127C	ICARDA/ICRISAT	-	124	96	59
FLIP 90- 90C	X 87 TH 276/(ILC1919XFLIP84-18C)XFLIP83-47C	ICARDA/ICRISAT	-	122	95	62
FLIP 90-113C	X 88 TH 216/FLIP85-122CXFLIP85-112C	ICARDA/ICRISAT	-	124	95	61
FLIP 90-125C	X 88 TH 346/(ICC14212XFLIP82-150C)XICC14212	ICARDA/ICRISAT	-	116	93	52
FLIP 90-126C	X 88 TH 346/(ICC14212XFLIP82-150C)XICC14212	ICARDA/ICRISAT	120	115	86	56
FLIP 90-127C	X 88 TH 346/(ICC14212XFLIP82-150C)XICC14212	ICARDA/ICRISAT	-	116	86	56
FLIP 90-131C	X 87 TH 216/ILC4296XFLIP84-93C	ICARDA/ICRISAT	120	118	87	52
FLIP 90-132C	X 85 TH 246/ILC3398XFLIP83-13C	ICARDA/ICRISAT	-	119	92	54
FLIP 90-133C	X 85 TH 223/ILC3326XFLIP82-59C	ICARDA/ICRISAT	120	123	99	56
FLIP 90-134C	X 85 TH 294/ILC4293XFLIP83-13C	ICARDA/ICRISAT	-	125	98	52
FLIP 90-145C	X 86 TH 119/ILC3443XFLIP83-15C	ICARDA/ICRISAT	120	123	100	56
FLIP 90-146C	X 86 TH 256/(ILC165XFLIP82-127C)XFLIP82-78C	ICARDA/ICRISAT	120	121	96	62
FLIP 90-148C	X 86 TH 50/ILC 451XFLIP84-48C	ICARDA/ICRISAT	-	120	97	60

Table 3.9.2. Cont'd. ...

Entry Name	Pedigree	Origin	Time to flowering			
			ARGENTINA	CYPRUS	INDIA	SRI LANKA
			Cordoba	Athalassa	New Delhi	Bandarawela
FLIP 90-149C	X 86 TH 256/(ILC165XFLIP82-127C)XFLIP82-78C	ICARDA/ICRISAT	-	125	84	57
FLIP 90-152C	X 87 TH 79/S 85091XFLIP82-64C	ICARDA/ICRISAT	120	119	94	57
FLIP 90-153C	X 87 TH 273/(ILC116XFLIP84-18C)XFLIP84-48C	ICARDA/ICRISAT	-	122	89	65
FLIP 90-155C	X 86 TH 32/ILC1919XFLIP81-293C	ICARDA/ICRISAT	-	119	93	62
FLIP 90-156C	X 86 TH 164/ILC3398XIILC 191	ICARDA/ICRISAT	120	125	95	58
FLIP 90-157C	X 86 TH 278/(ILC1919XFLIP82-114)XFLIP84-18C	ICARDA/ICRISAT	120	123	96	62
FLIP 90-159C	X 86 TH 231/ILC4296XFLIP81-293C	ICARDA/ICRISAT	-	124	86	63
FLIP 90-161C	X 86 TH 333/(ILC3398XFLIP82-191C)XIILC3398	ICARDA/ICRISAT	-	125	90	52
FLIP 90-162C	X 86 TH 35/ILC1919XFLIP84-18C	ICARDA/ICRISAT	120	118	94	58
FLIP 90-163C	X 86 TH 137/FLIP84-48CXIILC4293	ICARDA/ICRISAT	-	116	93	57
FLIP 90-164C	X 86 TH 176/ILC3843XIILC 191	ICARDA/ICRISAT	120	124	93	52
FLIP 90-165C	X 86 TH 333/(ILC3398XFLIP82-191C)XIILC3398	ICARDA/ICRISAT	-	119	86	57
FLIP 90-166C	X 86 TH 333/(ILC3398XFLIP82-191C)XIILC3398	ICARDA/ICRISAT	-	120	86	53
FLIP 90-167C	X 87 TH 200/ICC14219XFLIP83-98C	ICARDA/ICRISAT	120	118	95	57
FLIP 90-168C	X 87 TH 214/ILC4296XFLIP83-72C	ICARDA/ICRISAT	-	119	89	55
FLIP 90-174C	X 87 TH 82/FLIP81-180CXFLIP83-48C	ICARDA/ICRISAT	-	125	89	52
FLIP 90-176C	X 87 TH 165/ILC1919XFLIP84-99C	ICARDA/ICRISAT	-	122	89	55
FLIP 90-178C	X 87 TH 177/ICC14194XFLIP84-78C	ICARDA/ICRISAT	120	117	85	51
FLIP 90-179C	X 87 TH 192/ICC14212XFLIP83-98C	ICARDA/ICRISAT	-	116	96	53
ILC 482	Long term check	Turkey	-	120	92	59
ILC 2566	-	Turkey	120	120	92	60
Local check	-	-	120	129	91	57
Location Mean			120	122	91	57
S.E. of Mean				0.36	2.47	0.79
L.S.D. at 5% for checks				1.26	8.56	2.72
L.S.D. at 5% for test entries in same block				2.51	17.12	5.44
L.S.D. at 5% for test entries in different blocks				2.90	19.76	6.28
L.S.D. at 5% for checks Vs test entries				2.30	15.63	4.97
C.V. %				0.60	5.41	3.94

Cont'd. ...

Table 3.9.2. Cont'd. ...

Entry Name	Time to flowering		Time to maturity		Plant height			100-seed weight		
	SYRIA		INDIA		CYPRUS		SYRIA	INDIA		SYRIA
	Overall							Overall		
	Tel Hadya	Mean	New Delhi	Tel Hadya	Athalassa	Bandarawela	Tel Hadya	Mean	New Delhi	Tel Hadya
FLIP 89- 67C	148	120	143	195	43	58	31	44	29	34
FLIP 89- 84C	137	113	144	195	33	37	26	32	36	25
FLIP 89- 92C	146	117	143	190	48	36	33	39	17	42
FLIP 89- 94C	143	113	143	190	35	41	28	35	28	30
FLIP 89-122C	145	118	146	197	48	42	29	40	42	41
FLIP 89-123C	144	116	147	196	43	38	28	37	35	36
FLIP 90- 24C	149	121	145	196	48	57	35	47	38	37
FLIP 90- 25C	148	121	144	195	43	46	37	42	35	33
FLIP 90- 37C	148	118	145	196	53	44	33	44	34	39
FLIP 90- 39C	150	123	144	198	48	58	36	48	40	39
FLIP 90- 40C	147	123	143	199	50	56	40	49	40	38
FLIP 90- 66C	147	118	143	192	43	43	28	38	37	37
FLIP 90- 67C	150	120	145	196	48	48	28	42	31	34
FLIP 90- 68C	148	121	144	196	48	49	36	44	29	34
FLIP 90- 69C	150	123	147	194	48	43	30	40	31	33
FLIP 90- 81C	147	123	146	198	50	47	38	45	26	33
FLIP 90- 82C	148	123	143	198	50	47	40	46	44	44
FLIP 90- 90C	149	122	145	198	40	40	28	36	33	43
FLIP 90-113C	148	122	144	195	53	49	40	47	17	36
FLIP 90-125C	146	119	142	197	33	39	25	32	19	29
FLIP 90-126C	144	115	145	196	43	43	29	39	34	34
FLIP 90-127C	145	116	144	195	38	31	24	31	32	31
FLIP 90-131C	145	117	145	197	38	41	30	37	36	44
FLIP 90-132C	145	119	145	196	43	41	32	39	41	44
FLIP 90-133C	150	124	144	196	48	53	33	45	40	40
FLIP 90-134C	148	124	144	198	40	42	29	37	27	47
FLIP 90-145C	150	124	144	195	43	50	30	41	29	31
FLIP 90-146C	147	121	148	196	48	45	42	45	39	37
FLIP 90-148C	148	122	143	192	50	52	41	47	35	37

Table 3.9.2. Cont'd. ...

Entry Name	Time to flowering		Time to maturity		Plant height			100-seed weight		
	SYRIA		INDIA		CYPRUS			INDIA		
	Overall				Overall					
	Tel Hadya	Mean	New Delhi	Tel Hadya	Athalassa	Bandarawela	Tel Hadya	Mean	New Delhi	Tel Hadya
FLIP 90-149C	148	119	141	199	50	51	40	47	37	43
FLIP 90-152C	148	121	146	190	45	45	35	42	30	34
FLIP 90-153C	149	120	143	194	48	50	36	45	33	35
FLIP 90-155C	147	120	147	194	38	35	34	36	34	35
FLIP 90-156C	148	123	143	195	38	44	32	38	31	31
FLIP 90-157C	147	122	146	195	43	41	38	41	35	38
FLIP 90-159C	144	118	144	190	38	44	32	38	24	44
FLIP 90-161C	147	121	144	197	48	55	30	44	45	40
FLIP 90-162C	144	119	144	193	33	35	27	32	18	21
FLIP 90-163C	140	117	144	198	45	43	32	40	33	42
FLIP 90-164C	149	122	146	192	40	51	27	39	31	34
FLIP 90-165C	144	117	140	193	45	41	38	41	44	41
FLIP 90-166C	144	117	143	190	43	36	34	38	40	39
FLIP 90-167C	147	120	142	196	43	36	30	36	37	44
FLIP 90-168C	147	119	144	197	38	40	31	36	38	40
FLIP 90-174C	149	121	146	196	48	58	26	44	46	40
FLIP 90-176C	149	120	144	197	38	37	30	35	38	36
FLIP 90-178C	142	115	145	195	43	33	23	33	42	41
FLIP 90-179C	141	118	144	196	53	45	32	43	38	43
ILC 482	148	120	142	195	45	37	26	36	27	32
ILC 2566	147	120	143	195	45	45	26	38	32	37
Local check	151	-	143	196	65	36	31	-	17	32
Location Mean	147		144	195	46	43	31		32	36
S.E. of Mean	0.62		0.72	0.58	1.44	2.57	0.93		0.34	0.86
L.S.D. at 5%	2.16		2.50	2.00	4.99	8.88	3.22		1.19	2.97
T.E. in S.B.	4.32		4.99	4.00	9.99	17.76	6.45		2.38	5.94
T.E. in D.B.	4.98		5.77	4.61	11.53	20.51	7.45		2.75	6.86
Checks Vs T.E.	3.94		4.56	3.65	9.12	16.22	5.89		2.17	5.43
C.V. %	0.85		1.00	0.59	6.31	11.82	5.96		2.13	4.71

Cont'd. ...

Table 3.9.2. Cont'd. ...

Entry Name	Seed yield (kg/ha)									
	CYPRUS		INDIA		SRI LANKA		SYRIA		Overall Mean (2)	
	Athalassa		New Delhi		Bandarawela		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 89- 67C	2287	8	822	43	536	13	2338	11	1816	8
FLIP 89- 84C	965	46	1104	25	316	40	2080	18	1383	36
FLIP 89- 92C	1848	17	1696	4	-	51	1606	41	1717	16
FLIP 89- 94C	1617	31	1000	33	369	34	1878	27	1499	29
FLIP 89-122C	1720	22	644	47	431	19	1579	42	1314	41
FLIP 89-123C	1820	20	911	35	436	18	1914	25	1548	27
FLIP 90- 24C	1673	25	1415	10	594	8	1957	21	1682	19
FLIP 90- 25C	1715	23	1252	17	412	23	1998	20	1655	23
FLIP 90- 37C	2103	11	1533	5	581	10	2003	19	1880	6
FLIP 90- 39C	1031	44	881	37	577	11	1802	31	1238	44
FLIP 90- 40C	1767	21	822	41	786	3	2425	8	1672	21
FLIP 90- 66C	1873	16	1370	11	266	45	1794	33	1679	20
FLIP 90- 67C	1978	14	1178	20	408	24	1522	44	1559	26
FLIP 90- 68C	1415	38	407	51	284	42	1696	35	1173	47
FLIP 90- 69C	2878	1	911	36	369	33	1554	43	1781	11
FLIP 90- 81C	2834	2	1489	7	403	27	2523	5	2282	2
FLIP 90- 82C	1626	29	1089	27	381	32	2115	17	1610	25
FLIP 90- 90C	2409	7	933	34	525	15	1944	23	1762	13
FLIP 90-113C	2023	13	2630	1	323	38	2324	12	2326	1
FLIP 90-125C	915	47	1993	3	588	9	2300	13	1736	14
FLIP 90-126C	1845	18	644	48	408	25	2877	1	1789	10
FLIP 90-127C	2128	10	1533	6	381	31	1775	34	1812	9
FLIP 90-131C	1040	43	1215	18	671	6	1810	30	1355	37
FLIP 90-132C	2512	5	1356	14	753	4	2395	9	2088	3
FLIP 90-133C	1503	34	822	44	81	50	926	50	1084	49
FLIP 90-134C	1426	36	822	42	336	37	2286	14	1511	28
FLIP 90-145C	1878	15	867	40	892	1	885	51	1210	45
FLIP 90-146C	1431	35	407	50	629	7	2651	2	1497	30
FLIP 90-148C	1659	26	2111	2	225	46	1886	26	1886	5

Table 3.9.2. Cont'd. ...

Entry Name	Seed yield (kg/ha)									
	CYPRUS		INDIA		SRI LANKA		SYRIA		(2)	
	Athalassa		New Delhi		Bandarawela		Tel Hadya		Overall Mean	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90-149C	1192	42	867	38	408	26	1160	49	1073	50
FLIP 90-152C	1634	28	1089	28	703	5	1503	45	1409	35
FLIP 90-153C	673	50	1281	15	366	35	1941	24	1298	42
FLIP 90-155C	1423	37	1119	24	356	36	2537	4	1693	18
FLIP 90-156C	1606	32	1074	29	323	39	1671	37	1451	34
FLIP 90-157C	1531	33	1030	31	412	22	2569	3	1710	17
FLIP 90-159C	848	48	1030	32	290	41	1688	36	1188	46
FLIP 90-161C	1006	45	1370	13	399	28	1639	39	1338	39
FLIP 90-162C	1623	30	541	49	106	49	1802	32	1322	40
FLIP 90-163C	1826	19	1133	23	536	14	2213	15	1724	15
FLIP 90-164C	2134	9	644	46	453	17	1282	48	1354	38
FLIP 90-165C	1642	27	867	39	569	12	1952	22	1487	31
FLIP 90-166C	1381	39	1430	9	801	2	2202	16	1671	22
FLIP 90-167C	1356	41	1104	26	221	47	2382	10	1614	24
FLIP 90-168C	1356	40	1148	22	421	20	1851	29	1452	33
FLIP 90-174C	823	49	1370	12	416	21	1639	38	1277	43
FLIP 90-176C	590	51	1193	19	277	43	1622	40	1135	48
FLIP 90-178C	1678	24	1267	16	397	29	1448	46	1464	32
FLIP 90-179C	2065	12	763	45	395	30	2488	6	1772	12
ILC 482	2569	3	1167	21	119	48	1873	28	1870	7
ILC 2566	2554	4	1067	30	275	44	2461	7	2027	4
Local check	2446	6	1478	8	469	16	1357	47	-	-
Location Mean	1810		1150		433		1920			
S.E. of Mean	327.68		264.78		58.33		154.01			
L.S.D. at 5%	1133.78		916.16		201.81		532.87			
T.E. in S.B.	2267.56		1832.33		403.62		1065.73			
T.E. in D.B.	2618.36		2115.79		466.06		1230.60			
Checks Vs T.E.	2070.31		1672.93		368.51		973.02			
C.V. %	36.21		46.03		28.88		16.04			
Error d.f.	6		6		6		6			
Test > Check	0		0		1		10			

(1) Cordoba was excluded from the overall mean, (2) Bandarawela was excluded from the overall mean.
T.E. = Test entries, S.B. = Same block, D.B. = Different blocks.

3.10. CHICKPEA INTERNATIONAL SCREENING NURSERY LATIN AMERICA (CISN-LA)

The Chickpea International Screening Nursery Latin America comprised 48 test entries and three checks, namely FLIP 85-5C, ILC 464, and one local check to be supplied by the cooperator.

Methods and Management

The entries were planted in single row plots of 4 m length. The three checks were repeatedly sown in blocks of 12 entries in an augmented block design. The spacing between and within rows were 45- and 10 cm, respectively. Twelve sets of nursery were distributed to cooperators in 10 countries and the results were received from 3 locations from 2 countries. The agronomic details received from the cooperators are presented in Table 3.10.1.

Results and Discussion:

The adjusted entry means for time to flowering (Table 3.10.2), time to maturity, plant height, 100-seed weight, and seed yield are given in Table 3.10.2. The five heaviest yielding entries at each of the three locations are given as under:

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Mexico (Hermosillo)	FLIP90-180C	FLIP90-32C	FLIP90-124C	FLIP90-42C	FLIP89-121C
Mexico (Sonora)	FLIP90-121C	FLIP90-17C	FLIP90-135C	FLIP85-15C	FLIP94-15C
Syria (Tel Hadya)	ILC4178	ILC3847	FLIP90-15C	FLIP90-120C	FLIP90-124C

Table 3.10.1. Agronomic data for different locations in the CISN-LA during 1991/92.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
			N	P	K			
Mexico								
Hermosillo	28.12.91	30.05.92	100	40	-	-	Nitragin, Nitrasan, Treflan	Surutato77
Sonora	21.12.91	15.05.92	150	40	-	2	-	Suritato 77
Syria								
Tel Hadya	26.11.91	-	-	50	-	-	Kerb, Igran	Ghab 1

Table 3.10.2. Adjusted time to flowering (days), time to maturity (days), plant height (cm), 100-seed Weight (g) and seed yield (Y=kg/ha) and rank (R) of entries at different locations in the CISN-IA during 1991/92.

Entry Name	Pedigree	Origin	Time to flowering		
			MEXICO	SYRIA	
			Hermosillo	Sonora	Tel Hadya
ILC 3367	-	Spain	71	69	151
ILC 3377	-	Spain	76	66	148
ILC 3808	Pch 9	Morocco	-	71	149
ILC 3847	Pch 106	Morocco	74	70	146
ILC 3930	-	Chile	72	65	148
ILC 4178	-	Tunisia	71	65	146
FLIP 84- 15C	X81 TH 199/ILC202(WH)XILC3355	ICARDA/ICRISAT	71	64	148
FLIP 85- 15C	X83 TH 19/FLIP 82-65CXFLIP 82-69C	ICARDA/ICRISAT	74	69	146
FLIP 86-110C	X82 TH 91/ILC 202XILC 464	ICARDA/ICRISAT	71	71	148
FLIP 89- 4C	X85 TH 179/ILC3683XFLIP 83-15C	ICARDA/ICRISAT	70	65	152
FLIP 89- 17C	X87 TH 216/ILC4296XFLIP 84-93C	ICARDA/ICRISAT	72	66	156
FLIP 89- 20C	X86 TH 214/ILC2319XFLIP 81-54W	ICARDA/ICRISAT	72	65	146
FLIP 89- 89C	X85 TH 178/ILC3683XFLIP 83-13C	ICARDA/ICRISAT	-	64	149
FLIP 89-116C	X85 TH 162/ILC3488XFLIP 83-13C	ICARDA/ICRISAT	70	63	146
FLIP 89-121C	X85 TH 230/ILC3395XFLIP 83-13C	ICARDA/ICRISAT	71	65	148
FLIP 90- 1C	X86 TH 271/(ILC482XFLIP83-15C)XFLIP84-19C	ICARDA/ICRISAT	75	73	154
FLIP 90- 2C	X86 TH 278/(ILC1919XFLIP82-144C)XFLIP84-18C	ICARDA/ICRISAT	72	71	152
FLIP 90- 15C	X87 TH 166/ILC1919XFLIP85- 4C	ICARDA/ICRISAT	-	77	149
FLIP 90- 16C	X87 TH 166/ILC1919XFLIP85- 4C	ICARDA/ICRISAT	75	78	154
FLIP 90- 17C	X87 TH 180/ICC14194XFLIP83-48C	ICARDA/ICRISAT	74	76	149
FLIP 90- 18C	X87 TH 271/(ILC136XFLIP84-18C)XFLIP84-78C	ICARDA/ICRISAT	71	74	151
FLIP 90- 19C	X87 TH 271/(ILC136XFLIP84-18C)XFLIP84-78C	ICARDA/ICRISAT	-	88	152
FLIP 90- 20C	X87 TH 271/(ILC136XFLIP84-18C)XFLIP84-78C	ICARDA/ICRISAT	75	76	150
FLIP 90- 22C	X87 TH 319/(Pl. Se. Be. 81-46XFLIP83-46C)X FLIP85-18C	ICARDA/ICRISAT	75	75	151
FLIP 90- 26C	X86 TH 98/FLIP84-19CXFLIP82-91C	ICARDA/ICRISAT	75	78	151
FLIP 90- 32C	X86 TH 271/(ILC482XFLIP83-15C)XFLIP84-19C	ICARDA/ICRISAT	73	76	151
FLIP 90- 35C	X86 TH 60/ILC 171XFLIP84-48C	ICARDA/ICRISAT	74	83	152
FLIP 90- 42C	X86 TH 267/(ILC480XFLIP82-144C)XFLIP82-64C	ICARDA/ICRISAT	71	81	153
FLIP 90- 46C	X86 TH 286/(FLIP81-54CXILC2506)XFLIP82-64C	ICARDA/ICRISAT	-	84	154
FLIP 90- 49C	X87 TH 229/FLIP 85-91CXILC2956	ICARDA/ICRISAT	72	82	153

Table 3.10.2. Cont'd. ...

Entry Name	Pedigree	Origin	Time to flowering		
			MEXICO		SYRIA
			Hermosillo	Sonora	Tel Hadya
FLIP 90- 50C	X87 TH 230/FLIP 85-91CXILC3279	ICARDA/ICRISAT	73	81	149
FLIP 90- 51C	X87 TH 282/(ILC237XFLIP84-18C)XFLIP84-99C	ICARDA/ICRISAT	-	83	152
FLIP 90- 52C	X87 TH 282/(ILC237XFLIP84-18C)XFLIP84-99C	ICARDA/ICRISAT	75	81	150
FLIP 90- 73C	X86 TH 231/ILC4296XFLIP81-293C	ICARDA/ICRISAT	73	69	148
FLIP 90- 87C	X86 TH 277/(ILC1919XFLIP82-130C)XFLIP84-18C	ICARDA/ICRISAT	75	83	151
FLIP 90- 89C	X87 TH 80/S 85091XFLIP85-4C	ICARDA/ICRISAT	75	71	149
FLIP 90- 92C	X87 TH 291/(ILC136XFLIP81-293C)XILC136	ICARDA/ICRISAT	74	69	146
FLIP 90-119C	X88 TH 311/(FLIP85-16CXILC 72)XFLIP85-16C	ICARDA/ICRISAT	74	70	148
FLIP 90-120C	X88 TH 311/(FLIP85-16CXILC 72)XFLIP85-16C	ICARDA/ICRISAT	74	70	146
FLIP 90-121C	X88 TH 312/(FLIP85-16CXILC3279)XFLIP85-16C	ICARDA/ICRISAT	76	82	149
FLIP 90-124C	X88 TH 346/(ICC14212XFLIP82-150C)XICC14212	ICARDA/ICRISAT	74	64	145
FLIP 90-129C	X86 TH 258/(ILC171XFLIP82-144C)XFLIP84-17C	ICARDA/ICRISAT	75	64	156
FLIP 90-130C	X86 TH 98/FLIP84-19CXFLIP82-91C	ICARDA/ICRISAT	75	64	150
FLIP 90-135C	X85 TH 238/ILC3397XFLIP81-293C	ICARDA/ICRISAT	75	71	152
FLIP 90-147C	X86 TH 275/(ILC482XFLIP82-93C)XFLIP84-19C	ICARDA/ICRISAT	73	69	151
FLIP 90-158C	X86 TH 175/ILC3843XILC3870	ICARDA/ICRISAT	70	64	147
FLIP 90-160C	X86 TH 271/(ILC482XFLIP83-15C)XFLIP84-19C	ICARDA/ICRISAT	71	70	151
FLIP 90-180C	X87 TH 216/ILC4296XFLIP84-93C	ICARDA/ICRISAT	65	59	141
FLIP 85- 5C	X81 TH 199/ILC 202(WH)XILC3355	ICARDA/ICRISAT	74	74	152
ILC 464	-	Turkey	73	69	148
Local check	-	-	65	55	149
Location Mean			73	71	150
S.E. of Mean			1.03	1.73	0.89
L.S.D. at 5% for Checks			3.57	5.97	3.07
L.S.D. at 5% for test entries in same block			7.13	11.94	6.13
L.S.D. at 5% for test entries in different blocks			8.24	13.79	7.08
L.S.D. at 5% for checks Vs test entries			6.51	10.91	5.60
C.V. %			-	4.89	1.18

Table 3.10.2. Cont'd. ...

Entry Name	Time to maturity			Plant height			100-seed weight		
	MEXICO		SYRIA	MEXICO		SYRIA	MEXICO		SYRIA
	Hermosillo	Sonora	Tel Hadya	Hermosillo	Sonora	Tel Hadya	Hermosillo	Sonora	Tel Hadya
ILC 3367	125	121	197	48	50	34	45	47	58
ILC 3377	123	121	197	57	53	36	43	41	46
ILC 3808	-	121	197	-	53	34	-	52	58
ILC 3847	123	121	197	47	56	40	53	50	63
ILC 3930	123	122	195	43	60	29	43	45	48
ILC 4178	124	120	195	44	54	38	50	48	52
FLIP 84- 15C	124	119	196	53	50	35	40	39	46
FLIP 85- 15C	125	121	196	43	64	40	41	40	46
FLIP 86-110C	125	122	196	44	61	40	45	45	49
FLIP 89- 4C	122	121	195	48	50	31	53	48	43
FLIP 89- 17C	121	121	196	38	60	37	47	44	46
FLIP 89- 20C	121	119	197	50	55	31	51	40	47
FLIP 89- 89C	-	118	198	-	57	32	-	44	46
FLIP 89-116C	123	118	197	39	54	35	49	42	51
FLIP 89-121C	125	121	197	39	48	28	48	40	48
FLIP 90- 1C	121	121	195	38	56	35	33	41	42
FLIP 90- 2C	123	122	196	43	56	35	49	41	47
FLIP 90- 15C	-	122	198	-	53	36	-	47	57
FLIP 90- 16C	122	122	196	46	56	34	44	38	42
FLIP 90- 17C	124	122	196	48	58	31	45	41	49
FLIP 90- 18C	123	122	196	48	67	38	46	37	48
FLIP 90- 19C	-	123	198	-	73	36	-	36	45
FLIP 90- 20C	126	122	196	51	63	41	51	43	57
FLIP 90- 22C	125	122	198	48	57	34	47	39	44
FLIP 90- 26C	123	122	196	55	40	37	27	41	41
FLIP 90- 32C	125	123	195	48	52	35	42	39	42
FLIP 90- 35C	123	125	197	48	68	44	36	35	41
FLIP 90- 42C	126	123	196	53	57	40	38	34	36
FLIP 90- 46C	-	123	197	-	53	37	-	34	39

Table 3.10.2. Cont'd. ...

Entry Name	Time to maturity			Plant height			100-seed weight		
	MEXICO		SYRIA	MEXICO		SYRIA	MEXICO		SYRIA
	Hermosillo	Sonora	Tel Hadya	Hermosillo	Sonora	Tel Hadya	Hermosillo	Sonora	Tel Hadya
FLIP 90- 49C	125	123	198	59	66	40	45	37	42
FLIP 90- 50C	124	122	195	53	57	40	37	33	37
FLIP 90- 51C	-	123	197	-	63	35	-	37	43
FLIP 90- 52C	123	119	196	50	65	36	40	39	42
FLIP 90- 73C	123	119	196	48	67	38	39	31	39
FLIP 90- 87C	124	122	196	34	58	40	40	30	42
FLIP 90- 89C	122	123	197	45	60	32	28	36	40
FLIP 90- 92C	125	119	195	53	60	41	45	39	45
FLIP 90-119C	126	119	196	44	71	40	46	37	43
FLIP 90-120C	124	119	196	54	68	40	39	36	46
FLIP 90-121C	121	121	196	38	80	37	-	40	44
FLIP 90-124C	125	121	195	34	58	32	51	44	53
FLIP 90-129C	123	120	196	43	70	29	44	38	43
FLIP 90-130C	123	121	196	50	67	46	46	71	47
FLIP 90-135C	121	121	195	40	63	37	32	32	31
FLIP 90-147C	124	121	195	51	57	37	44	39	50
FLIP 90-158C	124	119	192	46	58	27	45	43	45
FLIP 90-160C	124	119	196	39	58	32	46	37	46
FLIP 90-180C	123	119	197	48	44	33	44	36	42
FLIP 85- 5C	124	122	197	46	54	38	45	39	50
ILC 464	123	122	197	45	52	35	45	43	52
Local check	119	119	194	41	44	28	46	57	32
Location Mean	123	121	196	46	57	35	43	42	46
S.E. of Mean	0.98	0.00	0	2.72	1.6	1.15	3.62	2.14	1.00
L.S.D. at 5%	3.38	0.00	1	9.41	5.53	3.99	12.53	7.40	3.46
T.E. in S.B.	6.75	0.00	2	18.81	11.06	7.97	25.06	14.79	6.93
T.E. in D.B.	7.79	0.00	3	21.72	12.77	9.20	28.94	17.08	8.00
Checks Vs T.E.	6.16	0.00	2	17.17	10.10	7.28	22.88	13.51	6.33
C.V. %	17.79	0.00	0	-	5.63	6.49	-	10.25	4.40

Table 3.10.2. Cont'd. ...

Entry Name	Seed yield (kg/ha)					
	MEXICO				SYRIA	
	Hermosillo		Sonora		Tel Hadya	
	Y	R	Y	R	Y	R
ILC 3367	910	19	1339	47	1933	22
ILC 3377	738	24	2060	20	2761	7
ILC 3808	-	-	1387	44	2491	8
ILC 3847	243	37	1445	42	3068	2
ILC 3930	1410	9	2557	8	2263	13
ILC 4178	1743	6	2495	10	3688	1
FLIP 84- 15C	1510	8	2779	5	2260	14
FLIP 85- 15C	1010	16	2882	4	1884	24
FLIP 86-110C	843	21	2663	6	2268	12
FLIP 89- 4C	1010	16	1854	30	785	50
FLIP 89- 17C	410	33	2907	2	752	51
FLIP 89- 20C	-	-	2605	7	1805	27
FLIP 89- 89C	-	-	2183	16	2075	18
FLIP 89-116C	443	31	1917	26	1778	28
FLIP 89-121C	1943	5	1981	23	2782	6
FLIP 90- 1C	110	39	2357	15	1642	34
FLIP 90- 2C	510	29	2386	13	1667	32
FLIP 90- 15C	-	-	1937	24	3063	3
FLIP 90- 16C	610	28	1664	37	2050	20
FLIP 90- 17C	1310	10	1814	32	1773	29
FLIP 90- 18C	410	34	1421	43	1533	38
FLIP 90- 19C	-	-	1008	50	1454	40
FLIP 90- 20C	643	27	1581	40	2186	16
FLIP 90- 22C	910	20	1596	39	905	49
FLIP 90- 26C	-	-	1305	48	1814	26
FLIP 90- 32C	2310	2	1725	35	1737	31
FLIP 90- 35C	210	38	1668	36	1332	41
FLIP 90- 42C	2010	4	1239	49	1517	39
FLIP 90- 46C	-	-	880	51	1740	30

Table 3.10.3. Cont'd. ...

Entry Name	Seed yield (kg/ha)					
	MEXICO				SYRIA	
	Hermosillo		Sonora		Tel Hadya	
	Y	R	Y	R	Y	R
FLIP 90- 49C	443	30	1792	33	2235	15
FLIP 90- 50C	1110	12	2154	18	1648	33
FLIP 90- 51C	-	-	2394	12	1226	47
FLIP 90- 52C	-	-	1990	22	1316	42
FLIP 90- 73C	910	18	1896	28	1582	36
FLIP 90- 87C	443	32	1602	38	2309	11
FLIP 90- 89C	-	-	1501	41	1585	35
FLIP 90- 92C	1210	11	1779	34	2350	10
FLIP 90-119C	743	23	2160	17	1966	21
FLIP 90-120C	1043	14	2024	21	2905	4
FLIP 90-121C	-	-	3050	1	1291	44
FLIP 90-124C	2143	3	1902	27	2807	5
FLIP 90-129C	310	35	1821	31	1291	43
FLIP 90-130C	-	-	1383	45	2075	19
FLIP 90-135C	310	36	2896	3	1259	45
FLIP 90-147C	810	22	2093	19	1207	48
FLIP 90-158C	1110	13	2357	14	1234	46
FLIP 90-160C	1543	7	1931	25	2366	9
FLIP 90-180C	2410	1	2504	9	1901	23
FLIP 85- 5C	954	17	1886	29	1859	25
ILC 464	700	25	1381	46	2106	17
Local check	675	26	2429	11	1557	37
Location Mean	977		1961		1894	
S.E. of Mean	180.45		297.44		351.06	
L.S.D. at 5%	624.38		1029.16		1215.68	
T.E. in S.B.	1248.76		2058.32		2429.35	
T.E. in D.B.	1441.95		2376.75		2805.18	
Checks Vs T.E.	1140.13		1879.27		2218.02	
C.V. %	46.49		30.34		37.07	
Error d.f.	6		6		6	
Test > Check	5		0		0	

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

3.11. CHICKPEA INTERNATIONAL F₄ NURSERY

There were two Chickpea International F₄ Nurseries namely, Chickpea International F₄ Nursery - Mediterranean Region (CIF₄N-MR), and Chickpea International F₄ Nursery - Southerly Latitudes (CIF₄N-SL).

Material

The material for each of the two Chickpea International F₄ Nurseries comprised 22 F₄ populations which were derived from different crosses, and two checks, one supplied by ICARDA and the other to be added by the cooperator. The populations were assumed to provide a wide range of variation within which the cooperators were free to practice their own selection. The details of the Chickpea International F₄ Nursery are given in Tables 3.11.1 and 3.11.2.

Table 3.11.1. Details of Chickpea International F₄ Nursery - Mediterranean Region - 1992 (CIF₄N-MR-92)

Entry No.	Cross	Pedigree	Origin
1	X89TH 87	FLIP86-77C X FLIP82-22C	ICARDA/ICRISAT
2	X89TH118	FLIP85-4C X FLIP84-93C	ICARDA/ICRISAT
3	X89TH120	FLIP85-4C X FLIP82-150C	ICARDA/ICRISAT
4	X89TH166	ILC 1932 X FLIP85-122C	ICARDA/ICRISAT
5	X89TH168	ILC 1932 X FLIP85-11C	ICARDA/ICRISAT
6	X89TH170	ILC 1932 X FLIP84-92C	ICARDA/ICRISAT
7	X89TH174	UC 27 X FLIP85-122C	ICARDA/ICRISAT
8	X89TH215	FLIP85-122C X ILC 5901	ICARDA/ICRISAT
9	X89TH216	FLIP85-84C X ILC 5901	ICARDA/ICRISAT
10	X89TH218	FLIP83-97C X ILC 5901	ICARDA/ICRISAT
11	X89TH219	FLIP84-92C X ILC 5901	ICARDA/ICRISAT
12	X89TH256	(S86301 X FLIP82-150C) X FLIP86-50C	ICARDA/ICRISAT
13	X89TH257	(FLIP85-58C X FLIP82-150C) X FLIP86-70C	ICARDA/ICRISAT
14	X89TH266	(ILC191 X FLIP84-124C) X FLIP84-93C	ICARDA/ICRISAT
15	X89TH268	(ILC202 X FLIP85-105C) X FLIP81-293C	ICARDA/ICRISAT
16	X89TH277	(FLIP85-122C X ILC1254) X FLIP85-19C	ICARDA/ICRISAT
17	X89TH278	(FLIP85-122C X FLIP85-137C) X FLIP85-18C	ICARDA/ICRISAT
18	X89TH280	(FLIP83-72C X FLIP86-54C) X FLIP86-70C	ICARDA/ICRISAT
19	X89TH281	(FLIP83-79C X ILC4296) X FLIP86-77C	ICARDA/ICRISAT
20	X89TH351	ILC2378 X (ICC14197 X ILC2378)	ICARDA/ICRISAT
21	X89TH359	ILC2378 X (ILC149 X ILC2378)	ICARDA/ICRISAT
22	X89TH411	ILC2378 X [(ILC2407 X ILC2378) X ILC2378]	ICARDA/ICRISAT
23	ILC 3279		Erstwhile USSR
24	Local check		

Methods and Management

The nurseries were planted in augmented designs. The suggested plot size was 4 rows, 4 meter long with an inter- and intra- row spacings of 45 and 10 cm, respectively. Twenty five sets of CIF₄N-MR and 12 sets of CIF₄N-SL were distributed to cooperators in 13 and 6 countries, respectively. The results were, however, received back for 13 locations for CIF₄N-MR and three locations for CIF₄N-SL.

Results and Discussion

At some of the locations, the individual plant selections were made by some cooperators for use in breeding programs.

Table 3.11.2. Details of Chickpea International F₄ Nursery - Southerly Latitude - 1992 (CIF₄N-SL-92)

Entry No.	Cross no.	Pedigree	Origin
1	X89TH 52	ILC2593 X FLIP84-92C	ICARDA/ICRISAT
2	X89TH 66	ILC4635 X FLIP85-133C	ICARDA/ICRISAT
3	X89TH 76	FLIP85-44C X FLIP85-90C	ICARDA/ICRISAT
4	X89TH 88	FLIP85-19C X FLIP85-133C	ICARDA/ICRISAT
5	X89TH122	FLIP85-5C X FLIP84-92C	ICARDA/ICRISAT
6	X89TH124	FLIP85-5C X FLIP84-102C	ICARDA/ICRISAT
7	X89TH143	ILC1934 X FLIP82-11C	ICARDA/ICRISAT
8	X89TH151	ILC5342 X FLIP85-122C	ICARDA/ICRISAT
9	X89TH152	ILC5342 X FLIP85-135C	ICARDA/ICRISAT
10	X89TH161	UC 15 X FLIP85-122C	ICARDA/ICRISAT
11	X89TH177	ILC6055 X FLIP85-122C	ICARDA/ICRISAT
12	X89TH183	ILC860 X FLIP85-122C	ICARDA/ICRISAT
13	X89TH192	FLIP85-85C X FLIP85-122C	ICARDA/ICRISAT
14	X89TH212	FLIP85-90C X ILC5901	ICARDA/ICRISAT
15	X89TH272	(ILC3856 X FLIP85-82C) X FLIP83-73C	ICARDA/ICRISAT
16	X89TH274	(ILC5928 X FLIP85-140C) X FLIP85-44C	ICARDA/ICRISAT
17	X89TH276	(ILC2506 X S85094) X FLIP85-45C	ICARDA/ICRISAT
18	X89TH292	(ILC191 X FLIP84-22C) X FLIP85-44C	ICARDA/ICRISAT
19	X89TH296	(ILC5928 X FLIP85-62C) X FLIP85-19C	ICARDA/ICRISAT
20	X89TH297	(ILC5928 X FLIP85-58C) X FLIP85-18C	ICARDA/ICRISAT
21	X89TH298	(ILC2506 X FLIP85-112C) X FLIP86-50C	ICARDA/ICRISAT
22	X89TH300	(FLIP83-72C X FLIP85-91C) X FLIP86-77C	ICARDA/ICRISAT
23	ILC 482		Turkey
24	Local check		

3.12. 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 50 entries out of which 40 entries were same as that of CIABN-A and 10 entries were of desi types. In these nurseries 42 test entries were from the materials developed through hybridization at ICARDA. The repeated 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 accommodating 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 of ascochyta blight disease, 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 (where 1 = highly resistant, 3 = resistant, 5 = tolerant, 7 = susceptible, and 9 = highly susceptible) was recommended for scoring the disease severity at least at two times, first at the vegetative stage and the second at the podding stage.

Thirty three sets of CIABN-A and thirty sets of CIABN-B were distributed to cooperators in 15 countries each. The results were, however, received for 15 sets for CIABN-A and 8 sets for CIABN-B.

Results and Discussion

The disease scores of the entries in each location are presented in Table 3.12.1. and discussed as under:

Algeria: The nursery was conducted at Guelma, Khroub and Oued Smar. All the Kabuli entries at Guelma were rated at 6 or more except FLIP 84-112C and FLIP 84-145C which took rating of 3 or 5.

At Khroub, the susceptible check took rating of 9. Data for Ascochyta blight was reported for only 6 test entries and out of these five namely ILC 3279, FLIP 83-98C, FLIP 84-158C, FLIP 89-47C and FLIP 89-110C showed tolerant or resistant reaction.

At Oued Smar only one entry, FLIP 88-1C was tolerant and all others were susceptible.

Bulgaria: The nursery was conducted at Toshevo. The susceptible check took 9 rating. All the entries except FLIP 84-133C were resistant or tolerant.

Greece: The nursery was grown at Larissa. All the test entries showed resistant reaction and the susceptible check throughout the nursery was rated between 7 to 9.

Hungary: The nursery was conducted at Tapioszele. All the entries including the susceptible check were rated between 1 and 3.

India: The nursery was conducted at New Delhi. There was no natural infestation of ascochyta blight and data were not recorded.

Iran: The nursery was grown at Gonbad. The susceptible check was rated as susceptible. All the entries except FLIP 84-158C exhibited ratings between 1 and 5, and were resistant/tolerant to ascochyta blight.

Italy: The nursery was conducted at Catania. The data on ascochyta blight was not reported.

Libya: The nursery was sown at El Safsaf. Sixteen entries with ratings upto 5 were resistant or tolerant. The susceptible check was rated at 9.

Morocco: The nursery was conducted at Marchouch. All the entries, except FLIP 89-110C were tolerant or resistant. Susceptible check was rated at 9.

Pakistan: The nursery was sown at Islamabad. Only one entry, FLIP 87-507C showed tolerant reaction (rating 5).

Portugal: The nursery was sown at Elvas. All the test entries rated between 1 and 3 but the susceptible check was rated at 9.

Syria: The nursery was sown at Tel Hadya, Al Ghab, Gelline and Izra'a. There was no disease development at Al Ghab, Gelline and Izra'a. At Tel Hadya all the test entries except FLIP 85-118C and FLIP 89-38C were tolerant.

Turkey: The nursery was conducted at Adana, Ankara, Diyarbakir, Erzurum, and Haymana. There were no disease infestation at Adana, Diyarbakir, and Erzurum.

All the entries except the susceptible check took score between 3 and 5 at Haymana. The susceptible check was rated at 9. At Haymana, out of 40 test entries 32 took score upto 5 and were tolerant. The susceptible check took rating of 9.

On the basis of all the locations reporting ascochyta blight score, none of the kabuli types was tolerant across all locations but some of the entries including FLIP 84-112C and FLIP 84-145C were tolerant across 13 locations; ILC 3279, ILC 6090, FLIP 84-93C, FLIP 84-102C, FLIP 89-48C, and FLIP 90-112C were tolerant across 12 locations. Among desi types FLIP 87-507C was tolerant across all the six sites reporting the data whereas others were tolerant at 4 sites only.

3.13. CHICKPEA INTERNATIONAL FUSARIUM WILT NURSERY (CIFWN)

Material

The CIFWN included 30 test entries and one susceptible check (ILC1929) repeated after every two test entries (Table 3.13.1).

Methods and Management

The suggested experimental design was randomized complete block with two replications. The suggested plot size was one row 2 m long accommodating 20 plants. The susceptible check was repeatedly sown after two test entries/rows

Table 3.12.1. Reaction of chickpea entries to Ascochyta Blight in CIABN-92

Entry No.	Name	Pedigree	Origin	Hungary	Pakistan		Portugal	Syria
				Tapios-zele	Islam-abad	NARC	Elvas	Tel Hadya
1	ILC 3279	-	Erstwhile-USSR	1	6	9	3	3
2	ILC 6090	K - 980	Erstwhile-USSR	1	9	9	1	3
3	FLIP 83- 48C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	7	7	1	5
4	FLIP 83- 71C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	9	9	1	3
5	FLIP 83- 98C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	9	9	1	4
6	FLIP 84- 78C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	9	9	3	3
7	FLIP 84- 79C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	7	7	1	3
8	FLIP 84- 80C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	7	7	1	4
9	FLIP 84- 81C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	7	7	1	4
10	FLIP 84- 83C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	-	9	9	1	3
11	FLIP 84- 87C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	7	9	1	3
12	FLIP 84- 92C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	7	7	3	3
13	FLIP 84- 93C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	7	7	1	3
14	FLIP 84-102C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	9	9	1	3
15	FLIP 84-112C	X81TH 53/ILC1920XILC2506	ICARDA/ICRISAT	1	9	9	1	3
16	FLIP 84-133C	X81TH 129/ILC 202XILC 262	ICARDA/ICRISAT	1	8	8	1	3
17	FLIP 84-137C	X81TH 241/ILC 482XILC 201	ICARDA/ICRISAT	1	9	9	1	3
18	FLIP 84-145C	X81TH 105/ILC 72XILC 484	ICARDA/ICRISAT	1	9	9	1	3
19	FLIP 84-158C	X81TH 247/ILC 482XILC2956	ICARDA/ICRISAT	1	9	9	1	5
20	FLIP 84-182C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	7	7	3	3
21	FLIP 85- 86C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	9	9	1	4
22	FLIP 85- 99C	X81TH 49/ILC1920XILC 202	ICARDA/ICRISAT	-	7	7	1	4
23	FLIP 85-114C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	9	9	3	4
24	FLIP 85-118C	X82TH 146/ILC 72XILC 73	ICARDA/ICRISAT	1	8	8	1	6
25	FLIP 85-148C	X80TH 176/ILC 72XILC 215	ICARDA/ICRISAT	1	9	9	1	5
26	FLIP 88- 1C	X83TH 22/FLIP 81-65CXFLIP82-81C	ICARDA/ICRISAT	1	9	9	3	3
27	FLIP 88- 82C	X84TH 68/ILC 484XFLIP 82- 80C	ICARDA/ICRISAT	1	9	9	3	3
28	FLIP 88- 83C	X84TH 15/FLIP 82-100CXILC 200	ICARDA/ICRISAT	1	7	7	1	3
29	FLIP 88- 85C	X85TH 143/ILC 629XFLIP 82-144C	ICARDA/ICRISAT	1	9	9	1	3

Cont'd. ...

Entry No.	Name	Pedigree	Origin	<u>Hungary</u>	<u>Pakistan</u>		<u>Portugal</u>	<u>Syria</u>
				Tapios-zele	Islam-	NARC	Elvas	Tel Hadya
30	FLIP 88- 86C	X86TH 79/ILC 493XFLIP 82-150C	ICARDA/ICRISAT	1	7	7	3	3
31	FLIP 88- 87C	X86TH 79/ILC 493XFLIP 82-150C	ICARDA/ICRISAT	1	6	6	1	3
32	FLIP 89- 27C	X85TH 209/ILC2371XFLIP 82-127C	ICARDA/ICRISAT	1	9	9	1	3
33	FLIP 89- 38C	X86TH 279/(ILC1919XFLIP82-191C)X FLIP 84-18C	ICARDA/ICRISAT	1	9	9	1	6
34	FLIP 89- 47C	X87TH 57/FLIP83-104CXFLIP84-78C	ICARDA/ICRISAT	1	9	9	3	5
35	FLIP 89- 48C	X87TH 86/FLIP 84-78CXILC4921	ICARDA/ICRISAT	3	7	7	1	3
36	FLIP 89- 49C	X87TH 119/FLIP 85-4CXFLIP84-78C	ICARDA/ICRISAT	1	7	7	1	3
37	FLIP 89- 50C	X87TH 146/FLIP 85-62CXFLIP82-78C	ICARDA/ICRISAT	3	9	9	3	3
38	FLIP 89- 62C	X84TH 15/FLIP 82-100CXILC 200	ICARDA/ICRISAT	1	9	9	1	2
39	FLIP 89-110C	X85TH 67/(FLIP82-65CXFLIP81-3C)X ILC 3279	ICARDA/ICRISAT	1	7	7	1	3
40	FLIP 90-112C	X88TH 129/ILC3856XILC4296	ICARDA/ICRISAT	1	9	9	3	3
41	FLIP 87-503C	H208XE100Y-1	ICARDA/ICRISAT	3	9	9	1	4
42	FLIP 87-505C	H208XE100Y-1	ICARDA/ICRISAT	1	9	9	1	3
43	FLIP 87-506C	H208XE100Y-1	ICARDA/ICRISAT	1	9	9	1	4
44	FLIP 87-507C	H208XE100Y-2	ICARDA/ICRISAT	1	5	5	1	3
45	ICC 13269	-	-	1	9	9	1	3
46	ICC 13416	-	-	1	9	9	1	2
47	ICC 13497	-	-	1	9	9	1	3
48	ICC 13508	-	-	1	9	9	1	3
49	ICC 13555	-	-	1	9	9	1	3
50	ICC 13728	-	-	1	9	9	1	3
51	ILC 263 (Susceptible repeated check)		Turkey	3	9	9	9	9

Cont'd. ...

Table 3.12.1. Cont'd. ...

Entry Name No.	<u>Turkey</u>				<u>Bulgaria</u>	<u>Greece</u>	<u>Iran</u>	<u>Libya</u>	<u>Morocco</u>	<u>Syria</u>	<u>Turkey</u>	
	Haymana	Guelma	Khroub	Oued-Smar	Toshevo	Larissa	Gonbad	El Saf-saf	Marchouch	Izra'a	Erzurum	Izmir
1	ILC 3279	3	9	3	9	1	1	3	9	1	1	3
2	ILC 6090	3	9	-	9	1	1	5	5	1	1	4
3	FLIP 83- 48C	3	7	-	9	1	1	3	9	1	1	3
4	FLIP 83- 71C	3	9	-	9	1	1	3	7	1	1	4
5	FLIP 83- 98C	3	9	5	9	1	3	5	8	5	1	6
6	FLIP 84- 78C	5	9	-	9	5	1	3	7	1	1	4
7	FLIP 84- 79C	3	8	-	9	1	1	3	7	1	1	3
8	FLIP 84- 80C	3	9	-	9	1	1	1	8	1	1	5
9	FLIP 84- 81C	3	6	-	9	3	1	1	6	1	2	4
10	FLIP 84- 83C	3	9	-	9	1	1	3	7	1	1	4
11	FLIP 84- 87C	5	8	-	9	3	1	3	9	1	1	5
12	FLIP 84- 92C	3	9	-	9	1	1	1	7	1	1	4
13	FLIP 84- 93C	3	9	-	9	1	1	3	5	1	1	4
14	FLIP 84-102C	3	9	-	9	1	1	1	5	1	1	3
15	FLIP 84-112C	3	3	-	9	1	1	5	5	1	1	3
16	FLIP 84-133C	3	7	-	9	7	1	3	5	1	1	3
17	FLIP 84-137C	3	6	-	9	1	1	3	5	1	1	5
18	FLIP 84-145C	2	5	-	7	1	1	5	5	1	1	5
19	FLIP 84-158C	5	7	3	9	1	3	7	8	3	1	6
20	FLIP 84-182C	3	8	-	9	1	1	3	7	1	1	5
21	FLIP 85- 86C	3	9	-	9	1	1	3	9	1	1	4
22	FLIP 85- 99C	5	7	-	9	1	1	3	7	2	1	3
23	FLIP 85-114C	3	8	9	9	3	1	3	7	1	4	4
24	FLIP 85-118C	3	7	-	9	1	1	3	7	1	1	3
25	FLIP 85-148C	3	8	-	9	3	1	3	6	1	3	5
26	FLIP 88- 1C	3	9	-	5	1	1	3	7	1	1	4
27	FLIP 88- 82C	3	9	-	-	1	1	5	4	1	1	8
28	FLIP 88- 83C	3	6	-	-	1	3	5	4	3	1	5
29	FLIP 88- 85C	3	9	-	9	3	1	5	6	1	1	5

Cont'd. ...

Entry No.	Name	<u>Turkey</u>	<u>Algeria</u>			<u>Bulgaria</u>	<u>Greece</u>	<u>Iran</u>	<u>Libya</u>	<u>Morocco</u>	<u>Syria</u>	<u>Turkey</u>	
		Haymana	Guelma	Khroub	Oued-Smar	Toshevo	Larissa	Gonbad	El Saf-saf	Marchouch	Izra'a	Erzurum	Izmir
30	FLIP 88- 86C	3	9	-	9	1	1	3	4	1	1	1	7
31	FLIP 88- 87C	3	9	-	9	1	1	5	3	1	1	1	6
32	FLIP 89- 27C	3	9	-	9	1	1	3	5	1	1	1	5
33	FLIP 89- 38C	5	9	-	9	3	1	7	7	1	1	1	6
34	FLIP 89- 47C	3	8	3	7	1	1	1	6	4	1	1	4
35	FLIP 89- 48C	3	7	-	9	1	1	3	5	1	1	1	4
36	FLIP 89- 49C	3	9	-	9	3	1	1	7	1	1	1	4
37	FLIP 89- 50C	3	9	-	9	1	1	1	9	1	1	1	4
38	FLIP 89- 62C	3	7	-	9	3	1	3	3	2	1	1	6
39	FLIP 89-110C	3	6	5	9	1	1	3	4	6	1	1	6
40	FLIP 90-112C	3	9	-	-	3	1	3	3	1	1	1	5
41	FLIP 87-503C	5	-	-	-	-	-	-	-	-	-	-	-
42	FLIP 87-505C	3	-	-	-	-	-	-	-	-	-	-	-
43	FLIP 87-506C	3	-	-	-	-	-	-	-	-	-	-	-
44	FLIP 87-507C	3	-	-	-	-	-	-	-	-	-	-	-
45	ICC 13269	3	-	-	-	-	-	-	-	-	-	-	-
46	ICC 13416	3	-	-	-	-	-	-	-	-	-	-	-
47	ICC 13497	3	-	-	-	-	-	-	-	-	-	-	-
48	ICC 13508	3	-	-	-	-	-	-	-	-	-	-	-
49	ICC 13555	3	-	-	-	-	-	-	-	-	-	-	-
50	ICC 13728	3	-	-	-	-	-	-	-	-	-	-	-
51	ILC 263	9	9	9	9	9	9	9	9	5	1	2	9
(Susceptible repeated check)													

to serve as an indicator cum spreader row. A 1-9 scale was recommended for scoring disease severity. The scale recommended was 1=highly resistant; 3=resistant; 5=tolerant; 7=susceptible; and 9=highly susceptible.

Thirty three sets of nursery were sent to cooperators in 21 countries and the data were reported from 7 locations in 7 countries (Table 3.13.1.).

Results and Discussion

The susceptible check took 9 rating at all the locations except at Tapioszele (Hungary) where it was rated at 3. The scores indicated that 13, 29, 15, 4, 26, 3 and 5 entries, respectively, at Oued Smar (Algeria), Tapioszele (Hungary), New Delhi (India), Oroumieh (Iran), Sonora (Mexico), Al Gassim (Saudi Arabia) and Hudeiba (Sudan) were tolerant to *Fusarium* wilt reaction (rating ≤ 5). The entries FLIP 85-29C, FLIP 85-30C showed tolerant reaction at six sites.

3.14. CHICKPEA INTERNATIONAL LEAF MINER NURSERY (CILMN)

Material

The Chickpea International Leaf Miner Nursery comprised 30 test entries and one susceptible check, 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 accommodating 40 plants. The susceptible check was repeatedly sown after every two test entries to serve as an indicator row. A 1-9 scale (where 1 = highly resistant; 3 = resistant; 5 = tolerant; 7 = susceptible; and 9 = highly susceptible) was recommended for scoring the severity of infestation at the vegetative, flowering and mid podding stage.

Twelve sets of leaf miner nursery were distributed to cooperators in 7 countries and the results were received for 3 sets from 3 countries.

Results and Discussion

The results from 3 locations are presented in Table 3.14.1 and discussed below:

Lebanon: At Terbol, the susceptible check took 5 rating. So no inferences were drawn.

Syria: At Tel Hadya, the susceptible check was rated at 9. All other entries were rated between 2 and 5, and were tolerant.

Turkey: At Izmir, nine entries out of 30 took a score of 5 against susceptible check which was rated at 7.

Table 3.13.1. Reaction of chickpea entries to Fusarium wilt in CIFWN-92.

Entry no.	Name	Pedigree	Origin	Algeria Oued-Smar	Hungary Tapioszele	India New-Delhi	Iran Oroumieh	Mexico Sonora	Saudi Arabia Al Gassim	Sudan Hudeiba
1	ILC 211	-	India	9	3	7	9	9	9	7
2	ILC 240	-	Afghanistan	3	1	7	9	5	7	7
3	ILC 336	12-071-02574	Iran	7	1	1	9	5	7	7
4	ILC 837	RPIP (K) 12-071-03794	Iran	3	3	1	9	1	9	9
5	ILC 851	RPIP (K) 12-071-03810	Iran	9	3	1	9	5	9	7
6	ILC 858	RPIP (K) 12-071-03816	Iran	5	5	7	9	3	9	8
7	ILC 860	RPIP (K) 12-071-3819	Iran	9	1	1	9	3	5	9
8	ILC 871	RPIP (K) 12-071-3836	Iran	7	1	1	9	5	9	9
9	ILC 911	RPIP (K) 12-071-3884	Iran	9	1	9	9	3	9	9
10	ILC 6055	Sonora 80	USA	9	3	9	9	9	9	9
11	FLIP 82- 78C	X79 TH 219/ILC 201XILC3279	ICARDA/ICRISAT	3	7	1	9	5	5	6
12	FLIP 82-180C	X79 TH 220/ILC 72XILC 480	ICARDA/ICRISAT	9	1	9	9	3	9	8
13	FLIP 84- 32C	X81 TH 105/ILC 72XILC 484	ICARDA/ICRISAT	9	3	1	9	3	9	9
14	FLIP 84- 34C	X81 TH 9/ILC 480XILC 202	ICARDA/ICRISAT	7	1	7	9	5	9	8
15	FLIP 84- 43C	X81 TH 16/ILC 480XILC3279	ICARDA/ICRISAT	9	1	7	9	3	9	8
16	FLIP 84- 46C	X81 TH 55/ILC1920XILC2956	ICARDA/ICRISAT	9	3	1	9	1	9	8
17	FLIP 84- 65C	X79 TH 220/ILC 72XILC 480	ICARDA/ICRISAT	7	1	1	9	5	-	7
18	FLIP 84- 88C	X80 TH 177/ILC 195XILC 482	ICARDA/ICRISAT	9	1	9	9	5	9	9
19	FLIP 84- 97C	X80 TH 181/ILC3279XILC1108	ICARDA/ICRISAT	5	3	1	9	3	9	7
20	FLIP 85- 20C	BG 209 X ILC 72	ICARDA/ICRISAT	5	3	7	3	3	9	3
21	FLIP 85- 29C	X81 TH 106/ILC 72XIOCC4935	ICARDA/ICRISAT	3	1	1	3	5	9	3
22	FLIP 85- 30C	X81 TH 106/ILC 72XIOCC4935	ICARDA/ICRISAT	3	1	1	3	5	9	4
23	FLIP 85- 35C	X81 TH 114/ILC 191XIOCC4935	ICARDA/ICRISAT	3	3	1	3	3	9	7
24	FLIP 85-130C	IOCC 25 X ILC 202	ICARDA/ICRISAT	7	3	9	9	3	9	8
25	UC 15	-	USA	7	3	7	9	5	9	4
26	UC 27	-	USA	5	3	9	9	7	9	6
27	Be Sel 81-48	-	Tunisia	9	3	7	9	5	5	8
28	Be Sel 81-103	-	Tunisia	5	1	1	9	5	7	8
29	FTA (82) 29	-	NA	5	1	1	9	3	9	9
30	IOCV - 2	-	ICRISAT/India	3	3	7	9	9	9	4
31	ILC 1929	(Susceptible repeated check)	Syria	9	3	9	9	9	9	9

Table 3.14.1. Reaction of chickpea entries to leaf miner in CIIMN during 1991/92.

Entry no.	Name	Pedigree	Origin	<u>Lebanon</u> Terbol	<u>Syria</u> Tel Hadya	<u>Turkey</u> Izmir
1	ILC 316	-	Iran	3	4	5
2	ILC 394	-	Iran	3	3	5
3	ILC 655	-	Iran	3	4	5
4	ILC 822	-	Iran	3	4	7
5	ILC 992	-	Iran	3	3	7
6	ILC 1003	-	Iran	3	4	7
7	ILC 1009	-	Iran	5	4	5
8	ILC 1048	-	Iran	3	4	5
9	ILC 1216	-	Iran	2	2	5
10	ILC 3800	L-1852	Mexico	3	4	7
11	ILC 3828	Pch 65	Morocco	3	4	5
12	ILC 5351	PRT 82-A-140-B	Portugal	5	5	7
13	ILC 5580	ARI 00379	Cyprus	5	5	7
14	ILC 5600	PARC 1041-1	Pakistan	3	4	7
15	ILC 5609	PARC 1042-3	Pakistan	5	5	7
16	ILC 5614	PARC 1045-1	Pakistan	5	5	7
17	ILC 5615	PARC 1046-1	Pakistan	3	5	7
18	ILC 5641	PARC 1060-3	Pakistan	5	5	7
19	ILC 5648	PARC 1062-5	Pakistan	5	5	7
20	ILC 5664	PARC 1071-4	Pakistan	3	5	7
21	ILC 5665	PARC 1071-5	Pakistan	5	5	7
22	ILC 5682	PARC 1079-2	Pakistan	3	2	5
23	ILC 5901	K-1154	USSR	5	5	7
24	ILC 7510	ICC 9205	Iran	3	4	7
25	ILC 7534	ICC 9259	Iran	3	5	7
26	ILC 7618	ICC 9415	Iran	5	5	7
27	ILC 7647	ICC 9450	Iran	3	4	7
28	ILC 7831	ICC13130	India	3	4	7
29	ILC 7872	ICC13272	Iran	3	4	7
30	ILC 7974	ICC13527	Iran	5	9	7
31	ILC 3397		Mexico			

(Repeated susceptible check)

3.15. CHICKPEA INTERNATIONAL COLD TOLERANCE NURSERY (CICIN)

Material

The Chickpea International Cold Tolerance Nursery (CICIN) comprised 40 test entries and one susceptible check, ILC 533. These test entries were selected on the basis of their reaction to cold under Tel Hadya conditions.

Methods and Management

The suggested experimental design was randomized complete block with two replications. The suggested plot size was one row 2 m long accommodating 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 to the winter or autumn instead 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 before the onset of severe winter.

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

Thirty-nine sets of CICIN were distributed to cooperators in 17 countries, however, data were reported for 12 locations from 8 countries.

Results and Discussion

The results for cold tolerant reaction for these locations are presented in Table 3.15.1. At Setif in Algeria, Cordoba in Argentina, Terbol in Lebanon, and Diyarbakir and Hymana in Turkey, all the entries including the susceptible check showed susceptible reaction. The results for other locations are discussed below:

At Toshevo in Bulgaria, 4, 33, 2, and 1 entries exhibited cold reaction of 3,5,7 and 9 respectively. The four entries with 3 rating included ILC 5658, ILC 5683, ILC 5948, and FLIP 83-66C.

At Gorgan in Iran and Tolentino in Italy, the susceptible check took rating between 1 and 3 indicating that the season may not favourable for screening for cold tolerance at these sites.

At Breda in Syria 2, 21, 11, 3, 1 and 2 entries exhibited 3, 4, 5, 6, 7 and 8 rating. The lines ILC 8262 and ILC 482 mutant exhibited 3 rating. At Tel Hadya in Syria, the same two entries ILC 8262 and ILC 482 mutant exhibited 3 rating. The level of tolerance at Tel Hadya site was relatively low as compared to Breda.

At Amasya in Turkey, 31, 1 and 8 entries exhibited rating of 4,5 and 6 respectively.

Across locations, ILC 8262 was the best cold tolerant line.

Table 3.15.1. Reaction of chickpea entries to cold in CICTN-92.

Entry no.	Name	Pedigree	Origin	Algeria Setif	Argentina Cordoba	Bulgaria Toshevo	Iran Gorgan
1	ILC 668	-	Iran	9	8	5	1
2	ILC 1455	-	Afghanistan	9	7	5	1
3	ILC 1463	-	Afghanistan	9	7	5	1
4	ILC 1464	-	Afghanistan	9	7	5	1
5	ILC 2772	-	Afghanistan	9	7	5	1
6	ILC 3287	-	Pakistan	9	8	5	1
7	ILC 3465	-	Spain	9	7	9	1
8	ILC 3468	-	Spain	9	8	5	1
9	ILC 5600	-	Pakistan	9	8	5	1
10	ILC 5609	-	Pakistan	9	7	5	1
11	ILC 5615	-	Pakistan	9	8	5	1
12	ILC 5619	-	Pakistan	9	8	5	1
13	ILC 5638	-	Pakistan	9	8	5	1
14	ILC 5658	-	Pakistan	9	8	3	1
15	ILC 5662	-	Pakistan	9	8	5	1
16	ILC 5668	-	Pakistan	9	8	5	1
17	ILC 5671	-	Pakistan	9	8	5	1
18	ILC 5679	-	Pakistan	9	8	5	1
19	ILC 5683	-	Pakistan	9	7	3	1
20	ILC 5697	-	Pakistan	9	8	5	1
21	ILC 5702	-	Pakistan	9	8	5	1
22	ILC 5948	-	Pakistan	9	7	3	1
23	ILC 5950	-	Pakistan	9	7	5	1
24	ILC 5953	-	Pakistan	9	8	5	1
25	ILC 8262	ILC3470	Spain	9	7	5	1
26	ILC 482-205	ILC 482	ICARDA	7	8	5	1
27	ILC 482 (Mrt.)	ILC 482	ICARDA	9	8	5	1
28	FLIP 83- 66C	X80TH113/ILC1920XILC202	ICARDA/ICRISAT	9	8	3	1
29	FLIP 84-176C	X80TH199/ILC3279XIC78184	ICARDA/ICRISAT	7	8	7	1
30	FLIP 84-188C	X81TH 48/ILC1920XILC201	ICARDA/ICRISAT	7	8	5	1
31	FLIP 85- 81C	X83TH 81/ILC2593XFLIP81-67C	ICARDA/ICRISAT	9	8	5	1
32	FLIP 85- 83C	X80TH113/ILC1920XILC202	ICARDA/ICRISAT	9	8	5	1
33	FLIP 85- 84C	X80TH113/ILC1920XILC202	ICARDA/ICRISAT	7	8	5	1
34	FLIP 85-133C	X83TH 23/FLIP82-69CXFLIP82-72C	ICARDA/ICRISAT	9	8	5	1
35	FLIP 86- 85C	X83TH132/ILC195XFLIP82-78C	ICARDA/ICRISAT	7	8	5	1
36	FLIP 86- 86C	X83TH 18/FLIP81-57CXFLIP82-72C	ICARDA/ICRISAT	9	8	5	1
37	FLIP 87- 3C	X85TH184/ILC3853XFLIP82-127C	ICARDA/ICRISAT	9	8	7	1
38	FLIP 87- 41C	X84TH 64/ILC484XFLIP82-64C	ICARDA/ICRISAT	9	8	5	1
39	FLIP 87- 69C	X83TH 15/FLIP81-57WXFLIP82-69C	ICARDA/ICRISAT	9	8	5	1
40	FLIP 87- 82C	X84TH139/ILC3307XFLIP82-64C	ICARDA/ICRISAT	7	8	5	1
41	ILC 533 (Susceptible repeated check)		Egypt	9	9	9	1

Cont'd. ...

Table 3.15.1. Cont'd. ...

Entry	Name	Italy	Lebanon	Syria		Turkey			Haymana
		Tolentino	Terbol	Breda	Tel-Hadya	Amasya	Bozdag	Diyarbakir	
1	ILC 668	3	9	4	7	4	-	9	7
2	ILC 1455	2	9	5	8	4	3	8	8
3	ILC 1463	3	9	4	7	6	-	9	8
4	ILC 1464	1	9	4	6	4	2	9	8
5	ILC 2772	1	9	4	8	4	2	8	7
6	ILC 3287	3	9	5	8	4	1	8	7
7	ILC 3465	2	8	4	4	4	1	8	8
8	ILC 3468	1	9	4	4	6	-	9	8
9	ILC 5600	1	9	5	7	4	2	9	6
10	ILC 5609	2	9	6	7	4	-	9	8
11	ILC 5615	1	9	4	7	4	-	8	7
12	ILC 5619	4	9	4	7	4	5	8	8
13	ILC 5638	2	9	5	6	6	1	8	7
14	ILC 5658	2	9	4	9	6	1	8	6
15	ILC 5662	1	9	4	8	6	2	7	8
16	ILC 5668	2	9	5	8	4	2	8	7
17	ILC 5671	2	9	7	7	4	3	8	6
18	ILC 5679	4	9	4	7	4	2	8	8
19	ILC 5683	2	9	4	7	4	2	7	7
20	ILC 5697	2	9	4	8	4	-	8	6
21	ILC 5702	2	9	5	7	4	4	7	7
22	ILC 5948	1	9	5	5	4	-	9	7
23	ILC 5950	2	9	4	9	5	1	9	8
24	ILC 5953	2	9	5	8	4	2	8	6
25	ILC 8262	2	6	3	3	4	3	8	8
26	ILC 482-205	2	9	4	5	6	4	9	8
27	ILC 482 (Mrt.)	2	6	3	3	6	3	8	7
28	FLIP 83- 66C	1	9	6	7	6	2	8	9
29	FLIP 84-176C	1	8	4	8	4	-	8	8
30	FLIP 84-188C	1	9	8	7	4	-	9	8
31	FLIP 85- 81C	1	9	5	6	4	3	9	6
32	FLIP 85- 83C	1	9	4	7	4	2	8	8
33	FLIP 85- 84C	1	9	5	8	4	6	8	8
34	FLIP 85-133C	1	9	6	8	4	-	9	8
35	FLIP 86- 85C	3	9	5	8	4	2	9	8
36	FLIP 86- 86C	1	9	4	8	4	2	8	8
37	FLIP 87- 3C	2	9	8	9	4	2	8	8
38	FLIP 87- 41C	3	9	4	9	4	1	9	8
39	FLIP 87- 69C	2	9	4	9	4	4	9	9
40	FLIP 87- 82C	2	9	4	7	4	1	8	8
41	ILC 533	3	9	9	9	9	-	9	9

(Susceptible repeated check)

4. LENTIL INTERNATIONAL TRIALS AND NURSERIES

Fifteen lentil international trials and nurseries were available to cooperators in 1991/92 season. These included yield trials, screening nurseries, stress 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.

4.1. 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 added by the cooperator. The test entries were selections with seed size more than 4.5g/100-seed. The test entries were selected on the basis of their superior performance in international screening nursery.

Methods and Management

The suggested trial design 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.

Fifty four sets of the trial were sent to cooperators in 23 countries. The results were, however, returned from 28 trials from 16 countries. The agronomic information received from cooperators is given in Table 4.1.1.

Results and Discussion

The data on time to flowering, time to maturity and plant height are given in Tables 4.1.2, 4.1.3 and 4.1.4, respectively. The location means for time to flowering, time to maturity and plant height ranged from 37 days (for Karaj in Iran) to 187 days (for Setif in Algeria); 70 days (for Karaj and Zarghan in Iran) to 252 days (for Setif in Algeria); 18 cm (for Christchurch in New Zealand) to 49 cm (for Horsham in Australia), respectively.

The seed yields and rank of entries at different locations are given in Table 4.1.5. The ANOVA revealed that the differences among the entries were significant for 21 out of 25 locations reporting the yield data. The seed yields varied from 312 kg/ha at Al Gassim in Saudi Arabia to 2996 kg/ha at Gelline in Syria. Among significant locations, at 9 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 FLIP 87-16L, FLIP 88-7L, FLIP 90-11L, FLIP 87-17L, and FLIP 88-6L with seed yields of 1248, 1244, 1238, 1231, and 1216 kg/ha, respectively.

The five best entries at different locations are given in Table 4.1.6. Some of the lines, namely, FLIP 88-7L, FLIP 87-17L, FLIP 87-16L, FLIP 86-5L and FLIP 87-10L occurred most frequently among the top five heaviest yielders and were thus comparatively widely adapted.

Table 4.1.1. Agronomic details for LIYT-L-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Setif	04.11.91	20.07.92	-	100	-	-	Treflan	Setif 618
Algeria	Tiaret	23.12.91	24.06.92	-	-	-	-	Igran	-
Australia	Horsham	07.06.92	06.01.93	-	80	-	-	Lorsban, Trifluralin, Targa, Lexone	Laird
Australia	Turretfield	15.06.92	02.02.93	-	140	-	-	Omethoate, Benomyl, Sencor, Metribuzine	Laird
Bulgaria	Toshevo	02.04.92	21.07.92	-	60	-	-	Vastak, Galant E150	Naslada
Egypt	Sakha	16.11.91	-	-	38	75	-	-	Giza 370
Greece	Larissa	19.11.91	26.06.92	-	60	-	1	Thiodan	Thessalia
Iran	Qazvin	16.04.92	-	18	50	-	-	-	Qazvin
Iran	Karaj	14.04.92	22.07.92	24	70	-	-	-	Qazvin
Iran	Maragheh	15.04.92	-	10	60	-	-	Benomyl	Maragheh
Iran	Zanjan	09.05.92	-	-	-	-	1	-	Zanjan
Jordan	Maru	23.12.91	04.06.92	-	100	-	-	-	-
Lebanon	Terbol	28.11.91	08.06.92	-	50	-	-	Kerb + Fortrol	Lebanese Local
Mexico	Sonora	30.11.91	13.04.92	150	50	-	1	Sistone	Guanajuato
Morocco	Jema'a Shain	03.12.91	12.05.92	20	50	-	-	Kerb	L 56
New Zealand	Christchurch	NA	NA	NA	NA	NA	NA	NA	Lauriston
Pakistan	Quetta	28.11.91	25.05.92	20	20	-	1	-	Local Lentil
Saudi Arabia	Al Gassim	20.11.91	01.06.92	50	100	-	273mm*	-	Onezi Omer.
Syria	Breda	25.11.91	— .05.92	-	50	-	-	-	Kurdi 1
Syria	Gelline	09.12.91	24.05.92	-	-	-	-	-	ILL 2126
Syria	Heimo	26.11.91	06.06.92	-	50	-	-	-	ILL 2126
Syria	Idleb	22.12.91	-	-	60	-	-	Decis	ILL 2126
Syria	Izra'a	09.01.92	22.06.92	-	-	-	-	-	ILL 2126
Syria	Tel Hadya	05.12.91	— .05.92	-	5	-	-	-	Kurdi 1
Tunisia	Beja	NA	NA	NA	NA	NA	NA	NA	NA
Tunisia	El Kef	NA	NA	NA	NA	NA	NA	NA	NA
Turkey	Haymana	NA	NA	NA	NA	NA	NA	NA	Sultan

NA = Not available, * 7 mm each 39 times.

Table 4.1.2. Time to flowering (days) of entries at different locations in the LIYT-L during 1991/92.

Entry Name	Accession No. (ILL)	Parentage	Origin	ALGERIA		AUSTRALIA	BULGARIA
				Setif	Tiaret	Horsham	Toshevo
Local large	4400	-	Syria	190	131	122	64
78S26002	5582	-	Jordan	183	131	124	62
78S26033	5597	-	Syria	183	133	130	63
FLIP84-96L	5766	ILL 101 X ILL 321	ICARDA	189	133	130	65
FLIP86-5L	5991	ILL 466 X ILL 212	ICARDA	189	126	125	61
FLIP86-10L	5996	ILL 466 X ILL 212	ICARDA	189	126	124	62
FLIP87-2L	6192	ILL 262 X ILL 350	ICARDA	183	126	127	63
FLIP87-16L	6206	ILL 8 X ILL 212	ICARDA	184	127	125	60
FLIP87-17L	6207	ILL 8 X ILL 212	ICARDA	187	126	127	61
FLIP88-6L	6430	ILL4402 X ILL4400	ICARDA	183	126	123	60
FLIP88-7L	6431	ILL5582 X SH4901	ICARDA	181	126	127	62
FLIP88-13L	6437	ILL5564 X ILL5521	ICARDA	189	127	125	61
FLIP88-14L	6438	ILL5564 X ILL5521	ICARDA	191	131	129	63
FLIP88-32L	6456	ILL4404 X ILL4354	ICARDA	183	125	123	60
FLIP89-5L	6763	ILL5582 X ILL 253	ICARDA	185	128	125	61
FLIP89-7L	6765	ILL 262 X ILL5582	ICARDA	189	129	124	62
FLIP90-1L	6970	ILL1880 X ILL 500	ICARDA	182	125	128	62
FLIP90-3L	6972	ILL 28 X ILL 851	ICARDA	187	131	128	62
FLIP90-4L	6973	ILL 262 X ILL2126	ICARDA	189	125	129	63
FLIP90-8L	6977	ILL2587 X ILL 99	ICARDA	189	131	129	64
FLIP90-10L	6979	ILL4349 X ILL 15	ICARDA	192	131	125	63
FLIP90-11L	6980	ILL4400 X ILL5428	ICARDA	189	131	130	62
FLIP90-12L	6981	ILL4400 X ILL4349	ICARDA	186	127	124	61
Local check	-	-	-	189	134	114	69
Location Mean				187	129	126	62
S.E. of Mean				0.85		0.00	0.64
L.S.D. at 5%				2.43		0.00	1.83
C.V. %				0.79		0.00	1.79
Error d.f.				46		23	46
Significance				*		*	*

Cont'd. ...

Table 4.1.2. Cont'd. ...

Entry Name	EGYPT	GREECE	IRAN				JORDAN	LEBANON	MEXICO	MOROCCO
	Sakha	Larissa	Qazvin	Karaj-1	Karaj-2	Maragheh	Maru	Terbol	Sonora	Jema'a Shain
Local large	75	153	58	38	162	64	118	151	104	107
78S26002	80	150	51	35	160	60	115	147	99	105
78S26033	100	158	57	40	165	65	120	153	102	133
FLIP84-96L	95	157	58	40	165	67	119	153	103	127
FLIP86-5L	90	148	51	34	158	61	114	146	102	102
FLIP86-10L	90	148	51	38	157	60	114	146	96	97
FLIP87-2L	95	154	57	37	159	65	115	150	100	126
FLIP87-16L	82	148	50	39	159	60	116	147	98	88
FLIP87-17L	72	147	50	38	161	59	115	147	99	102
FLIP88-6L	82	149	50	37	159	59	115	147	96	97
FLIP88-7L	72	148	50	36	159	59	114	145	96	83
FLIP88-13L	72	152	52	37	161	61	113	145	103	119
FLIP88-14L	90	153	56	39	159	63	115	149	106	128
FLIP88-32L	80	148	50	36	159	59	114	145	102	99
FLIP89-5L	95	152	52	36	160	60	116	150	101	105
FLIP89-7L	90	147	51	38	158	61	114	146	99	97
FLIP90-1L	90	152	51	35	160	59	115	147	99	103
FLIP90-3L	93	153	58	38	161	62	116	149	104	118
FLIP90-4L	93	154	58	40	163	64	116	150	102	128
FLIP90-8L	95	154	58	38	160	62	116	148	104	119
FLIP90-10L	92	155	57	39	165	61	119	152	98	97
FLIP90-11L	100	157	58	39	162	61	117	152	102	117
FLIP90-12L	80	148	52	38	158	60	114	147	98	119
Local check	72	162	58	34	166	64	111	155	98	128
Location Mean	86	152	54	37	161	62	115	149	100	110
S.E. of Mean	0.93	1.42	0.49	0.52	1.23	0.67	1.44	0.39	1.83	0.27
L.S.D. at 5%	2.66	4.03	1.39	1.49	3.51	1.90	4.09	1.10	5.20	0.78
C.V. %	1.87	1.62	1.57	2.41	1.33	1.88	2.16	0.45	3.15	0.43
Error d.f.	46	46	46	46	46	46	46	46	46	46
Significance	*	*	*	*	*	*	*	*	*	*

Cont'd. ...

Table 4.1.2. Cont'd. ...

Entry Name	NEW ZEALAND			SAUDI ARABIA					SYRIA			TURKEY	Overall Mean
	Christchurch	Al Gassim	Breda	Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Haymana				
Local large	71	109	139	124	149	118	106	131	57	110			
78S26002	68	104	136	123	149	112	102	129	52	107			
78S26033	70	117	141	126	153	122	106	135	57	114			
FLIP84-96L	68	118	140	126	151	122	107	134	56	114			
FLIP86-5L	68	99	134	122	146	112	102	128	52	107			
FLIP86-10L	70	102	135	122	149	112	101	127	52	107			
FLIP87-2L	69	115	137	125	149	119	105	132	55	111			
FLIP87-16L	68	96	136	122	149	112	101	129	51	106			
FLIP87-17L	68	99	137	122	151	112	101	128	51	107			
FLIP88-6L	67	94	136	123	149	112	101	129	52	106			
FLIP88-7L	68	98	135	122	149	112	100	128	51	105			
FLIP88-13L	69	114	135	122	149	112	102	127	54	108			
FLIP88-14L	69	116	138	123	148	119	105	132	57	112			
FLIP88-32L	68	97	134	122	148	112	101	128	50	106			
FLIP89-5L	70	105	136	123	151	114	103	130	52	109			
FLIP89-7L	68	110	136	123	149	112	102	128	54	108			
FLIP90-1L	68	106	137	123	151	112	102	129	51	108			
FLIP90-3L	71	108	137	123	148	117	104	131	53	111			
FLIP90-4L	71	119	138	125	150	119	104	133	56	112			
FLIP90-8L	71	117	137	124	149	120	105	133	55	112			
FLIP90-10L	70	108	139	126	149	119	105	133	55	110			
FLIP90-11L	71	110	140	127	150	121	105	134	53	112			
FLIP90-12L	70	103	136	122	150	112	102	128	52	108			
Local check	70	116	139	125	152	117	107	133	55				
Location Mean	69	107	137	124	150	116	103	130	53				
S.E. of Mean	0.76	2.06	0.52	0.60	1.11	0.84	0.49	0.51	0.82				
L.S.D. at 5%	2.16	5.87	1.48	1.71	-	2.38	1.41	1.45	2.34				
C.V. %	1.90	3.32	0.66	0.84	1.29	1.25	0.83	0.68	2.66				
Error d.f.	46	46	46	46	46	46	46	46	46				
Significance	*	*	*	*	NS	*	*	*	*				

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

Table 4.1.3. Time to maturity (days) of entries at different locations in the LIYT-L during 1991/92.

Entry Name	ALGERIA		AUSTRALIA	BULGARIA	EGYPT	GREECE	IRAN				JORDAN	
	Setif	Tiaret	Horsham	Toshevo	Sakha	Larissa	Qazvin	Karaj-1	Karaj-2	Maragheh	Zanjan	Maru
Local large	252	173	207	98	148	206	79	73	205	92	86	157
78S26002	252	173	207	92	133	198	72	68	197	90	66	155
78S26033	252	176	209	99	148	206	79	72	205	93	79	157
FLIP84-96L	252	176	208	99	152	206	81	74	206	92	79	158
FLIP86-5L	252	167	208	95	135	206	72	65	195	91	65	155
FLIP86-10L	252	167	207	95	133	205	73	69	195	89	64	155
FLIP87-2L	252	167	207	98	135	205	76	69	203	91	73	155
FLIP87-16L	252	168	206	92	135	198	72	69	195	85	64	156
FLIP87-17L	252	167	207	93	135	198	72	68	197	88	68	155
FLIP88-6L	252	167	207	92	133	200	71	67	197	89	65	155
FLIP88-7L	252	167	206	93	130	198	71	66	195	88	73	155
FLIP88-13L	252	168	208	96	133	204	72	71	201	86	68	153
FLIP88-14L	252	173	208	97	135	206	75	73	200	88	73	156
FLIP88-32L	252	166	207	92	137	202	72	67	200	85	64	155
FLIP89-5L	252	168	208	94	135	205	73	68	201	88	63	157
FLIP89-7L	252	172	207	96	135	206	73	69	198	88	68	155
FLIP90-1L	252	166	206	92	137	201	73	69	196	88	65	156
FLIP90-3L	252	173	207	97	135	205	73	68	202	90	71	156
FLIP90-4L	252	166	206	98	138	204	76	71	203	90	71	156
FLIP90-8L	252	173	206	97	135	206	74	72	203	90	70	157
FLIP90-10L	252	173	203	96	137	205	79	74	204	88	71	156
FLIP90-11L	252	173	206	97	143	206	76	73	204	90	72	156
FLIP90-12L	252	168	206	95	135	206	75	71	201	89	69	155
Local check	252	177	207	99	143	206	78	68	206	90	73	153
Location Mean	252	170	207	96	137	204	74	70	200	89	70	156
S.E. of Mean			0.97	0.48	1.62	0.99	0.88	1.81	1.31	1.44	0.06	0.80
L.S.D. at 5%			-	1.36	4.61	2.83	2.50	5.15	3.72	4.10	0.17	2.28
C.V. %			0.67	0.86	2.04	0.85	2.05	4.49	1.13	2.80	0.15	0.89
Error d.f.			23	46	46	46	46	46	46	46	46	46
Significance			NS	*	*	*	*	*	*	*	*	*

Cont'd. ...

table 4.1.3. Cont'd. ...

Entry Name	LEBANON	MEXICO	MOROCCO	SAUDI ARABIA		SYRIA					Overall Mean
	Terbol	Sonora	Jema'a-Shain	Al Gassim	Breda	Gelline	Heimo	Idleb	Izra'a	Tel-Hadya	
Local large	193	134	168	146	179	167	177	154	160	177	156
78S26002	188	127	160	148	171	164	173	147	158	172	150
78S26033	196	132	178	147	181	168	181	157	160	179	156
FLIP84-96L	197	134	168	147	181	166	180	157	160	179	157
FLIP86-5L	191	129	160	148	171	164	174	150	157	172	151
FLIP86-10L	190	123	160	147	171	163	180	149	158	171	151
FLIP87-2L	190	132	168	148	177	164	174	151	157	172	153
FLIP87-16L	187	128	160	144	171	163	170	146	158	170	149
FLIP87-17L	188	123	160	147	171	163	171	148	157	170	150
FLIP88-6L	188	126	160	144	171	164	173	146	157	170	149
FLIP88-7L	188	121	154	145	171	165	170	149	159	170	149
FLIP88-13L	188	132	160	147	171	162	174	150	155	169	151
FLIP88-14L	189	132	168	148	173	164	176	152	158	174	153
FLIP88-32L	190	128	160	143	171	163	178	147	158	170	150
FLIP89-5L	191	130	168	148	173	164	175	152	160	172	152
FLIP89-7L	188	129	160	148	172	163	172	147	156	172	151
FLIP90-1L	189	129	163	147	171	164	174	150	158	171	151
FLIP90-3L	192	132	160	147	173	164	177	152	157	172	152
FLIP90-4L	192	135	168	149	177	166	174	154	156	176	153
FLIP90-8L	190	131	168	143	175	164	177	153	156	173	153
FLIP90-10L	190	129	160	149	176	165	178	152	157	174	153
FLIP90-11L	193	134	160	147	179	166	180	153	157	176	154
FLIP90-12L	192	129	168	149	172	164	177	153	159	176	152
Local check	194	121	168	147	181	166	176	152	162	177	
Location Mean	191	129	164	147	174	164	175	151	158	173	
S.E. of Mean	0.60	1.31	0.07	0.78	0.85	0.87	1.45	0.78	0.61	0.42	
L.S.D. at 5%	1.71	3.74	0.20	2.21	2.43	2.48	4.11	2.21	1.72	1.19	
C.V. %	0.55	1.76	0.08	0.92	0.85	0.92	1.43	0.89	0.66	0.42	
Error d.f.	46	46	46	46	46	46	46	46	46	46	
Significance	*	*	*	*	*	*	*	*	*	*	

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

Table 4.1.4 Plant height (cm) of entries at different locations in the LIYT-L during 1991/92.

	ALGERIA		AUSTRALIA	BULGARIA	IRAN					JORDAN	LEBANON	MEXICO
Entry Nmae	Setif	Tiaret	Horsham	Toshevo	Qazvin	Karaj-1	Karaj-2	Maragheh	Zanjan	Maru	Terbol	Sonora
Local large	31	28	50	37	29	25	22	22	19	25	33	47
78S26002	36	24	50	31	27	25	23	21	18	27	28	41
78S26033	30	24	47	37	27	29	24	20	18	24	31	46
FLIP84-96L	37	26	49	36	31	26	20	22	21	24	31	43
FLIP86-5L	30	26	48	34	27	27	24	21	20	28	29	42
FLIP86-10L	30	29	48	32	27	23	23	21	19	25	29	42
FLIP87-2L	32	25	51	33	30	26	21	23	19	25	30	43
FLIP87-16L	35	23	50	30	27	26	22	22	18	26	30	47
FLIP87-17L	33	24	55	31	27	26	24	22	19	27	30	41
FLIP88-6L	34	25	50	29	27	26	21	22	19	26	29	44
FLIP88-7L	38	27	44	30	27	25	23	23	19	26	28	43
FLIP88-13L	35	22	42	33	28	27	24	24	19	28	33	41
FLIP88-14L	32	26	54	37	32	28	24	21	21	27	31	42
FLIP88-32L	34	24	53	33	31	28	24	22	18	25	29	45
FLIP89-5L	30	27	54	34	29	24	21	21	17	24	33	46
FLIP89-7L	36	28	53	35	31	26	25	24	19	28	33	47
FLIP90-1L	31	26	44	32	29	23	23	23	17	26	28	43
FLIP90-3L	40	27	48	34	31	25	21	23	17	27	33	44
FLIP90-4L	33	24	43	35	31	31	25	21	19	24	30	47
FLIP90-8L	33	26	53	34	31	26	21	21	18	25	32	43
FLIP90-10L	31	27	59	35	32	26	24	21	18	27	32	45
FLIP90-11L	33	27	48	35	30	28	24	22	20	26	34	46
FLIP90-12L	32	23	52	29	28	23	20	20	18	23	28	45
Local check	38	34	43	64	34	25	27	23	16	28	38	39
Location Mean	34	26	49	35	29	26	23	22	19	26	31	44
S.E. of Mean	1.47		3.34	1.70	1.30	0.43	1.30	0.81	1.05	0.90	1.02	2.25
L.S.D. at 5%	4.18		-	4.83	3.69	1.23	3.70	-	-	2.55	2.91	-
C.V. %	7.57		9.59	8.51	7.68	2.89	9.81	6.40	9.77	5.99	5.72	8.87
Error d.f.	46		23	46	46	46	46	46	46	46	46	46
Significance	*		NS	*	*	*	*	NS	NS	*	*	NS

Cont'd. ...

Table 4.1.4 Cont'd. ..

Entry Name	MOROCCO NEW ZEALAND SAUDI ARABIA				SYRIA					Overall Mean
	Jema'a-Shain	Christ-church	Al Gassim	Breda	Gelline	Heimo	Idleb	Izra'a	Tel Hadya	
Local large	23	17	21	24	32	33	33	19	31	29
78S26002	30	19	18	23	31	28	33	20	29	28
78S26033	20	23	17	22	29	30	33	21	31	28
FLIP84-96L	30	16	18	24	30	31	35	17	31	29
FLIP86-5L	38	15	22	24	31	27	34	22	32	29
FLIP86-10L	38	18	22	22	30	29	32	22	31	28
FLIP87-2L	15	19	23	23	29	28	35	17	28	28
FLIP87-16L	43	17	23	24	30	29	33	20	30	29
FLIP87-17L	35	15	24	23	31	29	32	21	29	29
FLIP88-6L	30	18	23	24	29	30	32	20	30	28
FLIP88-7L	25	19	25	22	32	30	36	21	30	29
FLIP88-13L	15	20	25	24	31	33	34	20	33	28
FLIP88-14L	20	19	25	24	35	30	34	21	31	30
FLIP88-32L	40	13	26	24	31	32	30	22	32	30
FLIP89-5L	33	21	20	23	31	29	35	22	33	29
FLIP89-7L	37	12	23	24	32	31	33	22	32	30
FLIP90-1L	32	23	24	23	32	29	34	23	30	29
FLIP90-3L	35	20	27	23	32	31	35	22	31	30
FLIP90-4L	22	16	20	23	30	32	36	19	29	28
FLIP90-8L	25	15	23	25	29	32	33	21	29	29
FLIP90-10L	35	24	21	23	31	32	34	20	33	30
FLIP90-11L	30	18	20	25	32	29	36	21	29	29
FLIP90-12L	17	22	20	21	28	28	32	17	27	27
Local check	30	18	20	24	36	32	36	22	33	
Location Mean	29	18	22	23	31	30	34	21	31	
S.E. of Mean	1.04	2.94	1.92	0.91	1.43	1.57	1.49	0.67	1.38	
L.S.D. at 5%	2.96	-	5.46	-	-	-	-	1.90	-	
C.V. %	6.19	27.81	15.00	6.74	7.97	9.01	7.97	5.64	7.76	
Error d.f.	46	46	46	46	46	46	46	46	46	
Significance	*	NS	*	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 LIYT-L during 1991/92.

Entry Name	ALGERIA				AUSTRALIA		BULGARIA		EGYPT		GREECE		IRAN	
	Setif		Tiaret		Turretfield		Toshevo		Sakha		Larissa		Qazvin	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	1089	10	1312	1	333	12	700	11	1037	20	927	16	722	20
78S26002	1037	14	797	12	324	14	842	6	1352	7	913	17	1200	4
78S26033	643	24	726	19	257	18	250	24	1019	21	667	23	609	24
FLIP84-96L	871	21	965	5	114	22	758	8	944	23	910	18	622	23
FLIP86-5L	1088	11	904	8	1057	1	658	13	1352	8	753	22	1278	3
FLIP86-10L	984	19	999	4	886	2	650	14	1222	13	757	21	1467	1
FLIP87-2L	1097	9	795	13	638	5	1217	2	1759	2	983	11	844	17
FLIP87-16L	1227	3	780	14	181	21	725	9	1056	19	1053	6	1022	9
FLIP87-17L	1295	2	756	16	590	8	608	19	1278	11	1033	9	1189	5
FLIP88-6L	1161	6	750	18	267	17	642	16	1296	9	950	15	873	15
FLIP88-7L	1295	1	574	21	619	7	558	21	1389	6	1023	10	844	16
FLIP88-13L	740	23	264	24	314	15	808	7	907	24	963	12	967	11
FLIP88-14L	1213	4	755	17	400	11	633	17	1222	14	1087	3	689	21
FLIP88-32L	1039	12	609	20	410	10	425	23	963	22	623	24	1022	8
FLIP89-5L	800	22	1013	3	219	20	875	5	1278	12	890	19	1044	6
FLIP89-7L	989	18	491	22	238	19	700	10	1111	18	957	14	822	18
FLIP90-1L	1024	15	330	23	552	9	617	18	1111	17	1043	8	1400	2
FLIP90-3L	1100	8	886	9	105	24	600	20	1296	10	960	13	911	14
FLIP90-4L	945	20	952	6	705	4	1242	1	1685	4	1077	4	722	19
FLIP90-8L	1100	7	1027	2	286	16	658	12	1222	15	840	20	922	13
FLIP90-10L	1017	16	775	15	105	23	433	22	1185	16	1047	7	673	22
FLIP90-11L	999	17	869	10	629	6	1183	3	1907	1	1280	1	984	10
FLIP90-12L	1038	13	846	11	324	13	892	4	1407	5	1053	5	1038	7
Local check	1208	5	931	7	846	3	642	15	1685	3	1223	2	962	12
Location Mean	1042		796		433		722		1279		959		951	
S.E. of Mean	146.84		103.76		146.42		121.08		165.34		64.50		69.26	
L.S.D. at 5%	-		295.34		349.80		344.66		470.65		183.60		197.14	
C.V. %	24.42		22.57		47.79		29.07		22.40		11.65		12.61	
Error d.f.	46		46		23		46		46		46		46	
Significance	NS		*		*		*		*		*		*	
Entry > L. Check	-		1		0		3		0		0		5	

Cont'd. ...

Table 4.1.5. Cont'd. ...

Entry Name	IRAN								JORDAN		LEBANON		MEXICO		MOROCCO	
	Karaj-1		Karaj-2		Maragheh		Zanjan		Maru		Terbol		Sonora		Jema'a Shain	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	1606	12	1444	6	603	6	178	24	211	24	2511	3	337	18	458	24
78S26002	2674	1	800	16	444	17	453	7	689	11	2333	11	737	6	817	14
78S26033	1335	18	606	20	264	23	200	23	356	23	1933	23	317	20	583	20
FLIP84-96L	1239	19	206	24	563	9	211	22	400	22	2016	22	273	23	542	21
FLIP86-5L	1600	13	1313	8	443	18	464	6	833	5	2144	20	943	2	700	16
FLIP86-10L	1020	23	1069	13	723	1	511	3	684	13	2189	18	707	8	975	4
FLIP87-2L	2272	4	561	22	583	7	311	18	556	18	2300	13	573	10	667	18
FLIP87-16L	1717	11	920	15	651	3	489	4	684	14	2689	1	833	3	917	7
FLIP87-17L	2254	5	1183	10	660	2	520	2	844	4	2233	17	567	11	1025	2
FLIP88-6L	1939	7	648	19	540	10	400	11	678	15	2433	7	833	4	1150	1
FLIP88-7L	2207	6	1126	12	631	4	471	5	878	1	2378	10	733	7	958	5
FLIP88-13L	1889	9	570	21	414	19	360	15	878	2	2300	14	333	19	742	15
FLIP88-14L	1006	24	1631	3	447	16	300	20	667	17	2267	16	267	24	483	23
FLIP88-32L	1139	21	1283	9	458	15	360	14	689	9	1833	24	670	9	958	6
FLIP89-5L	1544	14	741	18	521	12	409	10	551	19	2478	5	310	21	842	11
FLIP89-7L	1374	15	1154	11	374	20	367	13	667	16	2278	15	393	16	525	22
FLIP90-1L	1046	22	989	14	522	11	444	8	856	3	2122	21	1087	1	900	9
FLIP90-3L	1343	17	411	23	349	21	300	19	689	10	2422	8	390	17	833	12
FLIP90-4L	1724	10	1409	7	581	8	382	12	544	20	2489	4	457	15	667	17
FLIP90-8L	1933	8	781	17	248	24	256	21	689	12	2378	9	293	22	983	3
FLIP90-10L	1356	16	1622	4	468	14	333	16	467	21	2311	12	743	5	817	13
FLIP90-11L	1172	20	1569	5	497	13	311	17	811	7	2611	2	473	14	900	8
FLIP90-12L	2643	2	1652	2	290	22	520	1	722	8	2189	19	560	13	625	19
Local check	2472	3	2478	1	620	5	422	9	822	6	2467	6	563	12	892	10
Location Mean	1688		1090		496		374		661		2304		558		790	
S.E. of Mean	208.76		336.93		67.34		46.70		126.44		113.59		52.00		108.59	
L.S.D. at 5%	594.23		959.08		191.69		132.93		359.91		323.34		148.02		309.12	
C.V. %	21.43		53.53		23.53		21.63		33.13		8.54		16.14		23.81	
Error d.f.	46		46		46		46		46		46		46		46	
Significance	*		*		*		*		*		*		*		*	
Entry > L. Check	0		0		0		0		0		0		7		0	

Cont'd. ...

Tavle 4.1.5. Cont'd. ...

Entry Name	NEW ZEALAND		PAKISTAN		SAUDI ARABIA		SYRIA					
	Christchurch		Quetta		Al Gassim		Breda		Gelline		Heimo	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	610	19	826	20	147	16	980	16	2505	22	2047	12
78S26002	750	12	938	14	406	9	1031	8	3414	4	2076	11
78S26033	563	21	304	24	58	20	668	24	1825	24	1482	24
FLIP84-96L	897	7	958	13	37	22	903	20	2483	23	2002	15
FLIP86-5L	760	11	1282	2	606	5	1084	3	2948	14	2007	14
FLIP86-10L	733	13	1304	1	601	6	1017	11	2863	18	2092	10
FLIP87-2L	1037	2	744	22	86	18	892	21	3114	10	2147	8
FLIP87-16L	990	3	1134	6	706	2	1078	4	3324	6	2364	6
FLIP87-17L	547	22	912	17	394	10	1064	5	3636	1	2306	7
FLIP88-6L	637	18	1192	4	633	4	999	13	3343	5	2096	9
FLIP88-7L	963	5	1212	3	690	3	1010	12	3456	2	2430	3
FLIP88-13L	860	8	1092	9	152	15	1046	6	2871	16	1917	19
FLIP88-14L	597	20	1016	12	50	21	982	14	3082	11	1812	21
FLIP88-32L	370	24	1030	11	803	1	1108	1	2725	21	1959	17
FLIP89-5L	940	6	904	19	243	11	1042	7	3140	9	1939	18
FLIP89-7L	700	15	928	15	189	14	954	17	3038	12	1679	23
FLIP90-1L	967	4	1106	8	229	13	981	15	2958	13	2372	5
FLIP90-3L	683	16	912	18	230	12	1022	10	3186	7	2008	13
FLIP90-4L	787	10	1036	10	68	19	880	22	2863	17	1999	16
FLIP90-8L	510	23	1130	7	21	24	929	18	2922	15	1888	20
FLIP90-10L	657	17	672	23	569	7	926	19	2799	20	1806	22
FLIP90-11L	1273	1	916	16	108	17	1092	2	3418	3	2394	4
FLIP90-12L	787	9	1144	5	439	8	1030	9	3160	8	2488	2
Local check	717	14	818	21	24	23	848	23	2831	19	2549	1
Location Mean	764		980		312		982		2996		2077	
S.E. of Mean	186.33		153.81		100.36		52.17		179.24		142.14	
L.S.D. at 5%	-		-		285.69		148.51		510.20		404.59	
C.V. %	42.25		22.21		55.72		9.20		10.36		11.85	
Error d.f.	46		23		46		46		46		46	
Significance	NS		NS		*		*		*		*	
Entry > L. Check	-		-		10		13		5		0	

Cont'd. ...

Tavle 4.1.5. Cont'd. ...

Entry Name	SYRIA						TUNISIA					
	Idleb		Izra'a		Tel Hadya		Beja		El Kef		Overall Mean	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	1006	24	888	22	1470	15	1808	14	1392	19	997	20
78S26002	1807	12	1296	4	1451	17	2358	3	1825	5	1191	9
78S26033	1138	23	1017	20	1369	21	1317	20	1208	21	757	23
FLIP84-96L	1200	22	1254	7	1187	23	1542	18	1750	8	898	22
FLIP86-5L	1806	13	1329	3	1722	7	2308	4	1342	20	1211	6
FLIP86-10L	1898	5	1546	1	1739	6	2183	6	1508	14	1194	7
FLIP87-2L	1852	9	945	21	1404	18	2117	7	1683	10	1141	11
FLIP87-16L	1847	10	1267	5	1972	1	-	-	-	-	1234	3
FLIP87-17L	1619	17	1217	10	1756	5	2225	5	1875	4	1229	4
FLIP88-6L	2162	1	1154	14	1831	4	1900	10	1767	6	1192	8
FLIP88-7L	1574	18	1058	18	1661	8	2525	1	1950	2	1239	2
FLIP88-13L	1878	8	1183	12	1580	11	1292	21	1750	9	1042	17
FLIP88-14L	1663	15	1433	2	1491	14	1775	16	1650	11	1049	16
FLIP88-32L	2137	2	1021	19	1848	3	1883	11	1508	13	1062	14
FLIP89-5L	1799	14	654	24	1542	13	1992	8	1542	12	1072	13
FLIP89-7L	1313	20	1092	16	1382	20	1842	13	1425	15	988	21
FLIP90-1L	2127	3	1250	8	1609	9	2442	2	1883	3	1152	10
FLIP90-3L	1414	19	1225	9	1459	16	1708	17	1417	16	1031	18
FLIP90-4L	1843	11	1067	17	1154	24	1792	15	1758	7	1137	12
FLIP90-8L	1273	21	821	23	1194	22	1975	9	1992	1	1013	19
FLIP90-10L	1882	7	1208	11	1581	10	1867	12	1392	17	1060	15
FLIP90-11L	1888	6	1175	13	1579	12	-	-	-	-	1252	1
FLIP90-12L	1622	16	1258	6	1398	19	-	-	-	-	1213	5
Local check	2077	4	1138	15	1918	2	1467	19	1392	18		
Location Mean	1701		1146		1554		1920		1619			
S.E. of Mean	182.21		119.57		107.70		143.09		198.58			
L.S.D. at 5%	518.66		340.36		306.56		408.96		-			
C.V. %	18.55		18.08		12.00		12.91		21.24			
Error d.f.	46		46		46		40		40			
Significance	*		*		*		*		NS			
Entry > L. Check	0		1		0		11		-			

(1) Beja and El Kef were excluded from the overall mean, * = 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 LYVT-L during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Setif	FLIP 88-7L	FLIP 87-17L	FLIP 87-16L	FLIP 88-14L	Setif 618
Algeria	Tiaret	Local small	FLIP 90-8L	FLIP 89-5L	FLIP 86-10L	FLIP 84-96L
Australia	Turretfield	FLIP 86-5L	FLIP 86-10L	Local check	FLIP 90-4L	FLIP 87-2L
Bulgaria	Toshevo	FLIP 90-4L	FLIP 87-2L	FLIP 90-11L	FLIP 90-12L	FLIP 89-5L
Egypt	Sakha	FLIP 90-11L	FLIP 87-2L	Local check	FLIP 90-4L	FLIP 90-12L
Greece	Larissa	FLIP 90-11L	Local check	FLIP 88-14L	FLIP 90-4L	FLIP 90-12L
Iran	Qazvin	FLIP 86-10L	FLIP 90-1L	FLIP 86-5L	78S26002	FLIP 87-17L
Iran	Karaj-1	78S26002	FLIP 90-12L	Local check	FLIP 87-2L	FLIP 87-17L
Iran	Karaj-2	Local Check	FLIP 90-12L	FLIP 88-14L	FLIP 90-10L	FLIP 90-11L
Iran	Maragheh	FLIP 86-10L	FLIP 87-17L	FLIP 87-16L	FLIP 88-7L	Local check
Iran	Zanjan	FLIP 90-12L	FLIP 87-17L	FLIP 86-10L	FLIP 87-16L	FLIP 88-7L
Jordan	Maru	FLIP 88-7L	FLIP 88-13L	FLIP 90-1L	FLIP 87-17L	FLIP 86-5L
Lebanon	Terbol	FLIP 87-16L	FLIP 90-11L	Local small	FLIP 90-4L	FLIP 89-5L
Mexico	Sonora	FLIP 90-1L	FLIP 86-5L	FLIP 87-16L	FLIP 88-6L	FLIP 90-10L
Morocco	Jema'a Shain	FLIP 88-6L	FLIP 87-17L	FLIP 90-8L	FLIP 86-10L	FLIP 88-7L
New Zealand	Christchurch	FLIP 90-11L	FLIP 87-2L	FLIP 87-16L	FLIP 90-1L	FLIP 88-7L
Pakistan	Quetta	FLIP 86-10L	FLIP 86-5L	FLIP 88-7L	FLIP 88-6L	FLIP 90-12L
Saudi Arabia	Al Gassim	FLIP 88-32L	FLIP 87-16L	FLIP 88-7L	FLIP 88-6L	FLIP 86-5L
Syria	Breda	FLIP 88-32L	FLIP 90-11L	FLIP 86-5L	FLIP 87-16L	FLIP 87-17L
Syria	Gelline	FLIP 87-17L	FLIP 88-7L	FLIP 90-11L	78S26002	FLIP 88-6L
Syria	Heimo	Local check	FLIP 90-12L	FLIP 88-7L	FLIP 90-11L	FLIP 90-1L
Syria	Idleb	FLIP 88-6L	FLIP 88-32L	FLIP 90-1L	Local check	FLIP 86-10L
Syria	Izra'a	FLIP 86-10L	FLIP 88-14L	FLIP 86-5L	78S26002	FLIP 87-16L
Syria	Tel Hadya	FLIP 87-16L	Local check	FLIP 88-32L	FLIP 88-6L	FLIP 87-17L
Tunisia	Beja	FLIP 88-7L	FLIP 90-1L	78S26002	FLIP 86-5L	FLIP 87-17L
Tunisia	El Kef	FLIP 90-8L	FLIP 88-7L	FLIP 90-1L	FLIP 87-17L	78S26002

On the basis of average over two years for the common entries (Table 4.1.7.), FLIP 86-10L ranked number 1 and was followed by 78S26002, FLIP 87-16L, FLIP 86-10L, and FLIP 89-5L, with seed yields of 1218, 1214, 1191, 1157, and 1082 kg/ha, respectively.

Table 4.1.7. The mean seed yield (Y=kg/ha) and rank (R) of the common entries in LIYT-L during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
ILL 4400	999	8	978	8	989	8
78S 26002	1219	1	1208	3	1214	2
FLIP 86-10L	1114	4	1199	4	1157	4
FLIP 87-16L	1187	2	1248	1	1218	1
FLIP 87-6L	1165	3	1216	2	1191	3
FLIP 88-6L	1080	6	1063	6	1072	6
FLIP 88-32L	1026	7	1052	7	1039	7
FLIP 89-5L	1078	5	1086	5	1082	5

4.2. 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, 22 were developed at ICARDA through hybridization.

Methods and Management

The trial design was a randomized complete block with three replications. The suggested plot size was four rows each 4 m long with an interrow spacing of 25 cm. Thirty eight sets of trial were distributed to cooperators in 17 countries. The results were received for 22 trials from 13 countries and are reported. The agronomic practices employed at different locations are given in Table 4.2.1.

Results and Discussion

The data on time to flowering, time to maturity and plant height are given in Tables 4.2.2, 4.2.3, and 4.2.4, respectively. The location means for time to flowering, time to maturity and plant height ranged from 73 days for Tolentino in Italy to 191 days for Setif in Algeria; 130 days for Sonora in Mexico to 252 days for Setif in Algeria; and 21 cm for Izra'a in Syria to 56 cm for Germiza in Egypt, respectively. The entry FLIP 87-26L with plant height of 34 cm was the tallest.

The seed yields and rank of entries at different locations are given in

Table 4.2.1. Agronomic details for LIYT-S-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Beni Slimane	06.10.91	24.06.92	-	100	-	-	-	Syrie 229
Algeria	Setif	04.10.91	20.06.92	-	100	-	-	Treflan	Syrie 229
Algeria	Tiaret	23.12.91	17.06.92	-	-	-	-	Igran	Metropole
Australia	Horsham	07.06.92	06.01.93	-	80	-	-	Lorsban, Trifluraline, Lexone	Kye
Australia	Turretfield	15.06.92	02.02.93	-	14	-	-	Omothoate, Benlate, Sencor, Quizalofop ethyl	ILL 5588
Egypt	Gemmiza	26.11.91	05.05.92	-	71	-	-	Gessagard 80%	Giza 370
Egypt	Mallawy	26.11.91	24.04.92	36	71	-	2	Pirimor	Giza 9
Italy	Tolentino	26.02.92	16.07.92	45	115	-	-	Trifluraline + Linuron	Lenticchia di
Lebanon	Terbol	28.11.91	12.06.92	-	50	-	-	Castelluccio	Lebanese Local
Libya	El Safsaf	25.11.91	07.06.92	-	-	-	-	Kerb + Fortrol	El Safsaf-3
Mexico	Sonora	30.11.91	13.04.92	150	50	-	1	-	Guanajuato
Morocco	Jema'a Shain	03.12.91	12.05.92	20	50	-	-	Sistone 1000	Nylon
New Zealand	Christchurch	17.09.92	20.01.93	NA	NA	NA	NA	Kerb + Tribunil	Titaren
Saudi Arabia	Riyadh	27.11.91	28.04.92	55	46	-	4	NA	Spanish (Large)
Syria	Breda	25.11.91	—05.92	-	50	-	-	-	Hurani 1
Syria	Gelline	09.12.91	24.05.92	50	20	-	-	-	Hurani 1
Syria	Heimo	26.11.91	06.06.92	-	50	-	-	-	Hurani 1
Syria	Idleb	22.12.91	-	-	60	-	-	Decis	Hurani 1
Syria	Izra'a	09.01.92	15.06.92	-	50	-	-	-	Hurani 1
Syria	Tel Hadya	05.12.91	—05.92	-	50	-	-	-	Hurani 1
Tunisia	El Kef	NA	NA	NA	NA	NA	NA	NA	NA
Turkey	Diyarbakir	19.11.91	22.07.92	30	60	-	-	Kerb + Fortrol	Yerli Kirmizi

NA = Not available

Table 4.2.2. Time to flowering (days) of entries at different locations in the LIYT-S during 1991/92.

Entry Name	Accession No. (ILL)	Parentage	Origin	ALGERIA			AUSTRALIA	EGYPT
				Beni Slimane	Setif	Tiaret	Horsham	Gemmiza
Local small	4401	-	Syria	163	192	129	126	109
FLIP84-29L	5700	ILL 20 X ILLWL1	ICARDA	163	191	125	128	108
FLIP84-51L	5722	ILL 883 X ILL 470	ICARDA	165	191	129	129	102
FLIP87-26L	6216	ILL 223 X ILL2669	ICARDA	161	193	133	129	117
FLIP87-43L	6233	ILL 223 X ILL2669	ICARDA	159	194	129	130	118
FLIP87-48L	6238	ILL4354 X ILL 922	ICARDA	164	191	128	125	108
FLIP87-49L	6239	ILL 24 X ILL1719	ICARDA	165	191	133	129	117
FLIP87-55L	6245	ILL4400 X ILL 703	ICARDA	165	183	135	128	116
FLIP87-57L	6247	ILL2129 X ILL 13	ICARDA	166	189	128	128	115
FLIP87-61L	6251	ILL2129 X ILL1744	ICARDA	161	191	123	130	110
FLIP89-15L	6773	ILL4403 X ILL4354	ICARDA	163	188	129	129	117
FLIP89-16L	6774	ILL3165 X ILL4400	ICARDA	159	193	124	125	107
FLIP89-20L	6778	ILL5588 X ILL5582	ICARDA	174	191	133	130	116
FLIP89-25L	6783	ILL 223 X ILL 193	ICARDA	163	188	129	128	116
FLIP89-26L	6784	ILL5588 X ILL 262	ICARDA	161	191	134	129	116
FLIP89-37L	6795	ILL3112 X ILL4354	ICARDA	165	193	133	129	118
FLIP90-16L	6985	ILL3112 X ILL1880	ICARDA	159	193	133	130	116
FLIP90-22L	6991	ILL5588 X ILL 223	ICARDA	164	191	133	130	116
FLIP90-30L	6999	ILL2578 X ILL 99	ICARDA	161	192	127	126	109
FLIP90-36L	7005	ILL 788 X ILL5588	ICARDA	174	193	130	131	117
FLIP90-40L	7009	80 80S42188 X ILL 223	ICARDA	159	191	129	128	107
FLIP90-41L	7010	80 80S42188 X ILL 223	ICARDA	164	193	123	123	107
FLIP90-43L	7012	ILL4354 X (ILL1880 x ILL 813)		174	192	133	130	117
Local check				165	193	135	120	86
Location Mean				164	191	130	128	112
S.E. of Mean				1.73	0.78		0.00	0.28
L.S.D. at 5%				4.94	2.22		0.00	0.81
C.V. %				1.83	0.71		0.00	0.44
Error d.f.				46	46		23	46
Significance				*	*		*	*

Cont'd. ...

Table 4.2.2. Cont'd. ...

Entry Name	EGYPT	IRAN	ITALY	LEBANON	LIBYA	MEXICO	MOROCCO	SAUDI ARABIA	SYRIA
	Mallawy	Karaj	Tolentino	Terbol	El safsaf	Sonora	Jema'a Shain	Riyadh	Breda
Local small	100	157	74	148	135	104	102	107	138
FLIP84-29L	91	154	70	146	134	97	83	109	135
FLIP84-51L	82	162	72	154	136	98	99	108	138
FLIP87-26L	102	153	73	147	135	106	102	102	136
FLIP87-43L	102	155	73	148	135	106	88	110	137
FLIP87-48L	100	155	71	149	137	99	88	104	137
FLIP87-49L	102	160	74	150	138	105	97	106	139
FLIP87-55L	104	157	73	149	135	104	88	108	137
FLIP87-57L	96	155	71	147	137	101	88	116	136
FLIP87-61L	102	155	74	147	135	101	88	109	135
FLIP89-15L	102	157	72	148	135	106	97	107	137
FLIP89-16L	98	161	73	147	134	98	87	112	135
FLIP89-20L	104	158	74	150	137	106	105	107	138
FLIP89-25L	101	157	71	145	135	103	99	106	135
FLIP89-26L	104	155	74	149	136	106	105	109	137
FLIP89-37L	103	157	74	150	135	107	97	109	137
FLIP90-16L	100	156	74	148	135	104	97	104	136
FLIP90-22L	102	157	73	151	138	105	102	107	138
FLIP90-30L	96	156	73	147	135	97	105	110	137
FLIP90-36L	104	156	73	150	137	105	97	111	138
FLIP90-40L	101	155	73	150	136	103	95	101	136
FLIP90-41L	98	157	74	147	134	100	83	106	134
FLIP90-43L	104	155	74	151	138	107	99	114	137
Local check	74	163	80	151	135	93	81	109	137
Loction Mean	99	157	73	149	136	103	95	108	137
S.E. of Mean	1.60	1.31	0.58	0.80	0.60	0.75	0.07	3.16	0.52
L.S.D. at 5%	4.57	3.74	1.64	2.28	1.71	2.15	0.21	-	1.48
C.V. %	2.82	1.45	1.36	0.93	0.77	1.27	0.14	5.08	0.66
Error d.f.	46	46	46	46	46	46	46	46	46
Significance	*	*	*	*	*	*	*	NS	*

Cont'd. ...

Table 4.2.2. Cont'd. ...

Entry Name	SYRIA					TURKEY	Overall Mean
	Gelline	Heimo	Idleb	Izra'a	Tel Hadya	Diyarbakir	
Local small	125	148	116	104	128	135	127
FLIP84-29L	121	148	112	102	127	127	124
FLIP84-51L	123	150	119	104	128	133	126
FLIP87-26L	122	146	120	104	128	135	127
FLIP87-43L	122	150	117	104	128	133	127
FLIP87-48L	125	150	120	103	133	128	126
FLIP87-49L	125	150	121	104	132	135	129
FLIP87-55L	125	151	120	104	131	132	128
FLIP87-57L	123	150	113	102	130	128	126
FLIP87-61L	124	147	114	103	127	128	126
FLIP89-15L	124	151	118	103	129	133	128
FLIP89-16L	121	150	115	104	127	134	125
FLIP89-20L	126	147	120	103	132	135	130
FLIP89-25L	120	147	115	103	127	134	126
FLIP89-26L	123	151	119	104	131	134	128
FLIP89-37L	125	148	119	103	132	134	129
FLIP90-16L	122	149	117	103	128	134	127
FLIP90-22L	126	147	119	104	134	135	129
FLIP90-30L	123	148	113	104	128	134	127
FLIP90-36L	125	150	117	104	134	134	129
FLIP90-40L	123	150	116	103	128	132	126
FLIP90-41L	121	148	117	103	127	135	125
FLIP90-43L	127	148	118	103	130	133	129
Local check	125	151	120	104	131	138	
Loction Mean	124	149	117	103	130	133	
S.E. of Mean	0.67	1.49	1.10	0.49	0.72	0.89	
L.S.D. at 5%	1.90	-	3.13	1.40	2.05	2.53	
C.V. %	0.94	1.73	1.62	0.82	0.96	1.16	
Error d.f.	46	46	46	46	46	46	
Significance	*	NS	*	*	*	*	

* = Significant at $P < 0.05$, NS = Not Significant.

Table 4.2.3. Time to maturity (days) of entries at different locations in the LIYT-S during 1991/92.

Entry Name	ALGERIA			AUSTRALIA		EGYPT		IRAN	LEBANON	LIBYA	MEXICO
	Beni Slimane	Setif	Tiaret	Horsham	Gemmiza	Mallawy	Karaj	Terbol	El Safsaf	Sonora	
Local small	218	252	171	205	156	135	195	188	172	131	
FLIP84-29L	222	252	167	207	156	137	195	192	172	125	
FLIP84-51L	218	252	169	207	155	136	205	196	172	128	
FLIP87-26L	222	252	172	200	155	-	192	188	172	131	
FLIP87-43L	218	252	168	206	154	141	191	188	172	131	
FLIP87-48L	221	252	170	206	153	137	196	189	172	129	
FLIP87-49L	218	252	173	203	155	137	195	188	172	131	
FLIP87-55L	221	252	174	208	156	139	194	190	172	131	
FLIP87-57L	219	252	170	207	157	137	194	188	172	131	
FLIP87-61L	221	252	169	208	153	-	195	188	172	131	
FLIP89-15L	221	252	175	206	155	-	198	186	172	131	
FLIP89-16L	217	252	166	204	154	-	199	190	172	127	
FLIP89-20L	222	252	173	204	154	-	194	188	172	131	
FLIP89-25L	222	252	169	204	154	-	196	188	172	131	
FLIP89-26L	222	252	173	206	154	135	196	188	172	131	
FLIP89-37L	218	252	173	207	156	137	194	190	172	131	
FLIP90-16L	218	252	175	204	155	137	198	188	172	131	
FLIP90-22L	221	252	173	204	154	-	195	188	172	131	
FLIP90-30L	221	252	167	206	155	136	198	190	172	128	
FLIP90-36L	221	252	172	205	157	139	194	188	172	131	
FLIP90-40L	217	252	169	206	151	138	196	188	172	131	
FLIP90-41L	218	252	165	206	152	137	197	188	172	131	
FLIP90-43L	221	252	173	205	157	-	192	189	172	131	
Local check	221	252	175	205	157	135	206	189	172	121	
Location Mean	220	252	171	205	155	137	196	189	172	130	
S.E. of Mean	0.31			1.57	1.33	0.38	1.33	0.92		0.74	
L.S.D. at 5%	0.88			-	-	1.09	3.79	2.60		2.100	
C.V. %	0.24			1.08	1.49	0.48	1.18	0.84		0.98	
Error d.f.	46			23	46	30	46	46		46	
Significance	*			NS	NS	*	*	*		*	

Cont'd. ...

Table 4.2.3. Cont'd. ...

Entry Name	MOROCCO		SAUDI ARABIA		SYRIA				(1) Overall Mean
	Jema'a Shain	Riyadh	Breda	Gelline	Heimo	Idleb	Izra'a	Tel Hadya	
Local small	160	150	173	163	176	152	157	172	176
FLIP84-29L	149	150	171	165	179	154	154	172	175
FLIP84-51L	160	143	176	168	182	157	158	177	178
FLIP87-26L	158	145	171	161	172	153	155	171	175
FLIP87-43L	150	143	171	163	175	150	155	170	174
FLIP87-48L	154	139	172	164	172	154	152	171	174
FLIP87-49L	154	144	171	164	176	152	151	171	174
FLIP87-55L	149	152	172	166	177	152	158	171	176
FLIP87-57L	149	149	171	163	174	151	155	170	175
FLIP87-61L	149	142	171	164	171	150	154	169	174
FLIP89-15L	158	141	171	164	171	153	155	172	175
FLIP89-16L	142	147	173	166	178	153	156	172	175
FLIP89-20L	160	149	172	164	174	154	155	171	176
FLIP89-25L	160	156	170	162	175	153	156	171	176
FLIP89-26L	160	143	171	163	175	152	155	171	175
FLIP89-37L	158	142	173	164	179	155	155	175	176
FLIP90-16L	154	137	172	164	172	152	154	170	174
FLIP90-22L	160	140	175	164	174	153	155	174	175
FLIP90-30L	160	143	171	166	179	153	158	172	176
FLIP90-36L	154	148	172	164	173	153	155	170	175
FLIP90-40L	158	139	171	163	172	152	156	170	174
FLIP90-41L	149	140	171	163	174	153	154	173	173
FLIP90-43L	158	143	171	165	173	152	156	171	175
Local check	149	145	172	165	181	155	155	174	
Loction Mean	155	145	172	164	175	153	155	172	
S.E. of Mean	0.09	4.63	0.71	0.90	2.16	0.95	0.38	0.71	
L.S.D. at 5%	0.25	-	2.01	2.55	6.16	2.69	1.08	2.01	
C.V. %	0.10	5.54	0.71	0.95	2.14	1.07	0.43	0.71	
Error d.f.	46	46	46	46	46	46	46	46	
Significance	*	NS	*	*	*	*	*	*	

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

Table 4.2.4. Plant height (cm) of entries at different locations in the LIYT-S during 1991/92.

Entry Name	ALGERIA			AUSTRALIA		EGYPT	IRAN	LEBANON	LIBYA	MEXICO
	Beni Slimane	Setif	Tiaret	Horsham	Gemmeza	Mallawy	Karaj	Terbol	El Safsaf	Sonora
Local small	36	34	28	48	51	23	19	30	23	35
FLIP84-29L	38	31	33	53	51	37	23	31	29	45
FLIP84-51L	35	39	26	51	55	35	27	35	32	41
FLIP87-26L	38	32	36	55	60	18	24	31	32	44
FLIP87-43L	37	35	31	48	59	22	23	31	30	38
FLIP87-48L	37	37	36	50	51	24	24	34	33	41
FLIP87-49L	38	40	28	47	54	30	20	29	34	44
FLIP87-55L	39	40	32	54	58	24	23	33	30	38
FLIP87-57L	40	37	32	48	50	33	22	31	28	41
FLIP87-61L	38	35	33	50	57	28	21	34	29	41
FLIP89-15L	37	34	35	50	63	25	22	32	28	41
FLIP89-16L	38	35	26	50	57	25	22	30	28	37
FLIP89-20L	38	31	29	48	57	17	20	30	26	39
FLIP89-25L	38	34	33	43	56	19	25	32	30	41
FLIP89-26L	37	36	30	53	58	20	24	33	28	42
FLIP89-37L	36	32	38	50	62	27	20	31	24	32
FLIP90-16L	39	35	33	51	52	33	26	32	31	43
FLIP90-22L	37	36	31	46	55	20	22	30	31	45
FLIP90-30L	45	40	36	53	56	34	21	30	28	42
FLIP90-36L	41	38	31	46	51	20	22	30	29	42
FLIP90-40L	39	38	25	50	53	31	26	34	31	40
FLIP90-41L	37	32	33	48	53	23	25	32	32	42
FLIP90-43L	38	37	30	50	56	18	21	31	29	39
Local check	39	39	37	48	58	37	27	36	32	41
Location Mean	38	36	32	49	56	26	23	32	29	41
S.E. of Mean	1.48	1.62		2.17	3.35	4.13	1.40	1.04	1.64	2.10
L.S.D. at 5%	4.22	4.60		-	-	11.75	3.99	2.96	4.66	5.97
C.V. %	6.74	7.85		6.21	10.43	27.63	10.63	5.69	9.64	8.94
Error d.f.	46	46		23	46	46	46	46	46	46
Significance	*	*		NS	NS	*	*	*	*	*

Cont'd. ...

Table 4.2.4. Cont'd. ...

Entry Name	MOROCCO		SAUDI ARABIA		SYRIA				Overall Mean
	Jema'a	Shain	Riyadh	Breda	Gelline	Heimo	Idleb	Izra'a	Tel Hadya
Local small	18	27	20	34	29	32	23	29	30
FLIP84-29L	43	25	23	34	28	35	20	32	33
FLIP84-51L	20	29	25	35	33	39	22	32	34
FLIP87-26L	28	24	23	31	31	35	22	30	33
FLIP87-43L	32	23	26	34	29	35	24	29	32
FLIP87-48L	42	25	26	32	31	36	20	32	33
FLIP87-49L	22	26	24	29	32	34	22	31	32
FLIP87-55L	32	23	24	34	32	31	21	34	33
FLIP87-57L	18	28	22	33	30	32	22	28	32
FLIP87-61L	27	24	24	33	29	36	24	32	33
FLIP89-15L	28	32	24	31	28	34	18	30	33
FLIP89-16L	42	24	22	32	29	31	19	27	31
FLIP89-20L	22	23	23	35	31	32	16	30	30
FLIP89-25L	27	24	25	32	29	34	25	34	33
FLIP89-26L	28	30	23	33	29	34	22	29	33
FLIP89-37L	30	36	22	27	30	33	15	27	31
FLIP90-16L	23	28	25	32	28	37	26	32	34
FLIP90-22L	22	22	22	31	28	31	20	26	31
FLIP90-30L	17	28	23	32	31	34	20	29	33
FLIP90-36L	25	21	23	29	28	32	21	29	31
FLIP90-40L	23	30	24	32	31	36	22	32	34
FLIP90-41L	42	27	23	31	28	32	22	31	33
FLIP90-43L	30	24	22	31	29	33	20	27	31
Local check	20	29	24	30	32	33	22	32	
Loction Mean	28	26	23	32	30	34	21	30	
S.E. of Mean	1.92	2.34	0.88	1.18	1.53	2.04	0.27	1.11	
L.S.D. at 5%	5.47	6.65	2.51	3.35	-	-	0.78	3.17	
C.V. %	12.11	15.36	6.52	6.39	8.85	10.45	2.23	6.40	
Error d.f.	46	46	46	46	46	46	46	46	
Significance	*	*	*	*	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 LIYT-S during 1991/92.

Entry Name	ALGERIA						AUSTRALIA		Egypt		IRAN		LEBANON	
	Beni Slimane		Setif		Tiaret		Turretfield		Gemeza		Karaj		Terbol	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local small	1739	24	896	24	1089	16	267	5	1674	19	629	21	1633	24
FLIP84-29L	2856	11	1299	5	1121	12	600	3	2250	12	801	13	2189	22
FLIP84-51L	2533	16	1090	20	1342	3	714	2	2910	4	942	11	2344	14
FLIP87-26L	2367	20	1173	15	1098	15	105	16	1840	18	1450	7	2600	1
FLIP87-43L	2617	14	1097	19	555	24	133	14	1521	23	1476	6	2356	11
FLIP87-48L	2300	21	1285	6	1782	1	95	17	1653	20	735	17	2233	19
FLIP87-49L	1928	23	1200	12	1068	17	57	23	1618	21	678	19	2400	9
FLIP87-55L	5756	1	1255	9	1186	7	764	1	3076	1	1652	3	2356	13
FLIP87-57L	2428	18	1284	7	1114	13	219	7	2500	8	769	15	2211	21
FLIP87-61L	2239	22	1007	22	1113	14	67	22	2285	11	85	24	2400	10
FLIP89-15L	3156	8	1183	13	828	22	143	12	1590	22	648	20	2533	3
FLIP89-16L	3467	5	1216	11	1314	5	67	21	1910	17	363	23	2333	15
FLIP89-20L	2722	12	1126	18	1173	8	162	11	2069	13	693	18	2422	8
FLIP89-25L	2917	10	1435	1	996	19	371	4	2465	9	1046	10	2567	2
FLIP89-26L	2639	13	1063	21	869	21	57	24	1438	24	1617	4	2478	6
FLIP89-37L	2494	17	992	23	806	23	238	6	1965	16	519	22	2100	23
FLIP90-16L	3867	3	1319	4	1289	6	95	18	2063	14	1502	5	2456	7
FLIP90-22L	3439	7	1179	14	1171	9	207	8	2319	10	1313	8	2267	17
FLIP90-30L	2544	15	1136	16	1029	18	171	10	2597	6	785	14	2222	20
FLIP90-36L	3444	6	1386	2	1168	10	86	19	2583	7	856	12	2244	18
FLIP90-40L	4911	2	1223	10	994	20	67	20	2632	5	2606	1	2522	4
FLIP90-41L	3500	4	1271	8	1526	2	178	9	3042	2	1293	9	2300	16
FLIP90-43L	3017	9	1134	17	1316	4	126	15	2042	15	743	16	2356	12
Local check	2400	19	1371	3	1123	11	137	13	2938	3	2476	2	2511	5
Loction Mean	2970		1193		1128		214		2207		1071		2335	
S.E. of Mean	502.35		97.58		52.33		178.80		333.01		378.13		106.54	
L.S.D. at 5%	1429.96		277.75		148.97		-		947.93		1076.37		303.26	
C.V. %	29.30		14.17		8.04		118.39		26.13		61.15		7.90	
Error d.f.	46		46		46		23		46		46		46	
Significance	*		*		*		NS		*		*		*	
Test > Check	3		0		6		-		0		0		0	

Cont'd. ...

Table 4.2.5. Cont'd. ...

Entry Name	LIBYA		MEXICO		MOROCCO		NEW ZEALAND		SAUDI ARABIA		SYRIA			
	El Safsaf		Sonora		Jema'a Shain		Christchurch		Riyadh		Breda		Gelline	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local small	2108	22	260	12	833	17	513	20	250	20	824	20	2445	24
FLIP84-29L	2100	23	473	3	1125	2	653	15	363	14	843	19	3002	4
FLIP84-51L	1783	24	653	2	1042	8	1047	3	558	6	1009	2	2906	7
FLIP87-26L	3042	6	143	21	792	21	730	12	456	9	950	5	3001	5
FLIP87-43L	2792	15	153	20	1000	12	460	24	338	15	866	16	2960	6
FLIP87-48L	3333	1	303	11	875	16	996	4	680	2	873	15	2592	19
FLIP87-49L	2942	8	163	17	833	19	713	13	513	7	903	13	2583	20
FLIP87-55L	3167	3	310	10	1083	5	1207	1	326	16	936	8	2856	10
FLIP87-57L	2833	12	400	6	1042	9	800	10	283	18	811	22	2763	14
FLIP87-61L	2225	21	230	16	1042	10	550	19	278	19	844	18	2844	12
FLIP89-15L	2833	13	160	18	750	22	487	21	437	12	817	21	2883	8
FLIP89-16L	2767	16	380	7	1000	13	620	17	188	24	909	12	2634	16
FLIP89-20L	2708	17	233	14	750	23	817	9	303	17	882	14	2595	18
FLIP89-25L	3308	2	370	8	1083	6	1177	2	221	22	1064	1	3173	2
FLIP89-26L	3075	5	153	19	833	18	695	14	588	5	930	9	3240	1
FLIP89-37L	2883	9	100	24	1125	3	567	18	471	8	979	4	2548	22
FLIP90-16L	2667	18	127	23	792	20	637	16	868	1	796	23	2616	17
FLIP90-22L	2817	14	230	15	1000	14	890	8	248	21	726	24	2549	21
FLIP90-30L	2633	19	410	5	1058	7	470	23	440	11	939	7	2533	23
FLIP90-36L	2992	7	243	13	1083	4	897	7	448	10	917	11	3167	3
FLIP90-40L	2850	11	310	9	917	15	487	22	610	3	991	3	2830	13
FLIP90-41L	3133	4	467	4	1250	1	953	6	201	23	925	10	2854	11
FLIP90-43L	2558	20	130	22	1025	11	767	11	407	13	942	6	2883	9
Local check	2883	10	670	1	542	24	990	5	602	4	858	17	2646	15
Loction Mean	2768		295		953		755		420		897		2796	
S.E. of Mean	203.50		59.74		118.28		73.13		153.57		53.13		180.76	
L.S.D. at 5%	579.27		170.04		336.69		208.16		-		151.25		-	
C.V. %	12.73		35.11		21.49		16.78		63.37		10.26		11.20	
Error d.f.	46		46		46		46		46		46		46	
Significance	*		*		*		*		NS		*		NS	
Test > Check	0		0		15		1		0		1		-	

Cont'd. ...

Table 4.2.5. Cont'd. ...

Entry Name	SYRIA								TUNISIA		TURKEY		(1) Overall Mean	
	Heimo		Idleb		Izra'a		Tel Hadya		El Kef		Diyarbakir			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local small	1633	22	1666	19	1283	21	1299	18	-	-	646	7	1142	23
FLIP84-29L	1742	19	1848	10	1450	13	1673	1	1567	20	754	3	1428	9
FLIP84-51L	1855	13	1407	23	1442	14	1317	17	1867	9	277	22	1430	8
FLIP87-26L	1709	21	1398	24	1437	15	1354	16	1842	13	492	17	1375	14
FLIP87-43L	1850	14	1761	11	1142	24	1358	15	1958	6	500	15	1312	18
FLIP87-48L	2132	3	1922	7	1571	5	1587	4	1817	14	688	5	1454	7
FLIP87-49L	1874	11	1853	9	1596	3	1248	20	1850	12	571	11	1302	19
FLIP87-55L	2497	1	1731	15	1525	10	1600	2	1667	18	877	2	1798	1
FLIP87-57L	1527	23	1963	4	1542	9	1399	11	1708	15	731	4	1401	13
FLIP87-61L	1924	8	1996	3	1254	22	1592	3	2075	5	538	12	1290	20
FLIP89-15L	1841	15	2091	1	1358	17	1504	7	2350	1	527	14	1357	15
FLIP89-16L	1911	9	1906	8	1567	6	1449	9	1600	19	683	6	1404	12
FLIP89-20L	1838	16	1712	17	1400	16	1391	13	2108	4	335	21	1333	17
FLIP89-25L	2409	2	1727	16	1805	1	1583	5	-	-	577	9	1595	4
FLIP89-26L	1954	6	1649	20	1546	8	1261	19	1850	11	608	8	1405	11
FLIP89-37L	1884	10	1609	21	1350	18	1002	24	-	-	383	18	1264	21
FLIP90-16L	1724	20	2074	2	1346	19	1396	12	1892	7	496	16	1480	6
FLIP90-22L	2002	4	1583	22	1708	2	1030	23	1850	10	233	24	1416	10
FLIP90-30L	1928	7	1760	12	1192	23	1419	10	1875	8	360	20	1349	16
FLIP90-36L	1778	17	1946	5	1508	12	1503	8	1683	17	577	10	1517	5
FLIP90-40L	2001	5	1733	14	1525	11	1370	14	2250	2	533	13	1638	3
FLIP90-41L	1870	12	1742	13	1317	20	1211	22	1533	21	277	23	1193	22
FLIP90-43L	1777	18	1699	18	1558	7	1510	6	2117	3	363	19	1738	2
Local check	1468	24	1942	6	1583	4	1241	21	1708	16	1035	1		
Loction Mean	1880		1780		1459		1387		1865		544			
S.E. of Mean	156.63		190.66		155.31		84.83		131.94		105.79			
L.S.D. at 5%	445.84		-		-		241.46		377.11		301.14			
C.V. %	14.43		18.56		18.44		10.59		12.25		33.67			
Error d.f.	46		46		46		46		40		46			
Significance	*		NS		NS		*		*		*			
Test > Check	8		-		-		8		4		0			

(1) El Kef was excluded from the overall mean, * = 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 LIYT-S during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Beni Slimane	FLIP 87-55L	FLIP 90-40L	FLIP 90-16L	FLIP 90-41L	FLIP 89-16L
Algeria	Setif	FLIP 89-25L	FLIP 90-36L	Local check	FLIP 90-16L	FLIP 84-29L
Algeria	Tiaret	FLIP 87-48L	FLIP 90-41L	FLIP 84-51L	FLIP 90-43L	FLIP 89-16L
Australia	Turretfield	FLIP 87-55L	FLIP 84-29L	FLIP 84-29L	FLIP 89-25L	Local small
Egypt	Gemmiza	FLIP 87-55L	FLIP 90-41L	Local check	FLIP 84-51L	FLIP 90-40L
Iran	Karaj	FLIP 90-40L	Local check	FLIP 87-55L	FLI 89-26L	FLIP90-16L
Lebanon	Terbol	FLIP 87-26L	FLIP 89-25L	FLIP 89-15L	FLIP 90-40L	Local check
Libya	El Safsaf	FLIP 87-48L	FLIP 89-25L	FLIP 87-55L	FLIP 90-41L	FLIP 89-26L
Mexico	Sonora	Local check	FLIP 84-51L	FLIP 84-29L	FLIP 90-41L	FLIP 90-30L
Morocco	Jema'a Shain	FLIP 90-41L	FLIP 84-29L	FLIP 89-37L	FLIP 90-36L	FLIP 87-55L
New Zealand	Christchurch	FLIP 87-55L	FLIP 89-25L	FLIP 84-51L	FLIP 87-48L	Local check
Saudi Arabia	Riyadh	FLIP 90-16L	FLIP 87-48L	FLIP 90-40L	Local check	FLIP 89-26L
Syria	Breda	FLIP 89-25L	FLIP 84-51L	FLIP 90-40L	FLIP 89-37L	FLIP 87-26L
Syria	Gelline	FLIP 89-26L	FLIP 89-25L	FLIP 90-36L	FLIP 84-29L	FLIP 87-26L
Syria	Heimo	FLIP 87-55L	FLIP 89-25L	FLIP 87-48L	FLIP 90-22L	FLIP 90-40L
Syria	Idleb	FLIP 89-15L	FLIP 90-16L	FLIP 87-61L	FLIP 87-57L	FLIP 90-36L
Syria	Izra'a	FLIP 89-25L	FLIP 90-22L	FLIP 87-49L	Local check	FLIP 87-48L
Syria	Tel Hadya	FLIP 84-29L	FLIP 87-55L	FLIP 87-61L	FLIP 87-48L	FLIP 89-25L
Tunisia	El Kef	FLIP 89-15L	FLIP 90-40L	FLIP 90-43L	FLIP 89-20L	FLIP 87-61L
Turkey	Diyarbakir	Local check	FLIP 87-55L	FLIP 84-29L	FLIP 87-57L	FLIP 87-48L

Table 4.2.5. The ANOVA revealed that the differences among the entries were significant for 14 out of 19 locations analyzed for seed yield. The seed yields were highest at Beni Slimane in Algeria (2970 kg/ha). At 8 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 FLIP 87-55L, FLIP 90-43L, FLIP 89-25L, FLIP 90-40L, and FLIP 90-36L with seed yield of 1806, 1793, 1625, 1584 and 1554 kg/ha, respectively.

The five best entries at different locations are given in Table 4.2.6. The lines, FLIP 89-25L, FLIP 87-55L, and FLIP 87-48L occurred most frequently than others among the top five and were thus more widely adapted.

On the basis of average over two years for the common entries (Table 4.2.7), FLIP 87-55L ranked number 1 and was closely followed by FLIP 89-25L, FLIP 87-48L, FLIP 87-57L, FLIP 89-20L, and FLIP 87-26L with seed yields of 1498, 1496, 1353, 1337 and 1334 kg/ha, respectively.

Table 4.2.7. The mean seed yield (Y=kg/ha) and rank (R) of the common entries in LIYT-S during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
ILL 4401	1038	13	1170	13	1104	13
FLIP 84- 29L	1175	6	1463	4	1319	7
FLIP 84- 51L	1211	4	1457	5	1334	5
FLIP 87- 26L	1066	12	1371	9	1334	5
FLIP 87- 43L	1128	9	1303	12	1216	12
FLIP 87- 48L	1159	8	1494	3	1327	6
FLIP 87- 49L	1121	10	1337	11	1229	10
FLIP 87- 55L	1189	5	1806	1	1498	1
FLIP 87- 57L	1269	3	1436	6	1353	3
FLIP 89- 15L	1086	11	1396	7	1241	9
FLIP 89- 20L	1304	2	1369	10	1337	4
FLIP 89- 25L	1367	1	1625	2	1496	2
FLIP 89- 26L	1175	6	1393	8	1284	8

4.3. LENTIL INTERNATIONAL YIELD TRIAL - EARLY (LIYT-E)

Material

The material for the Lentil International Yield Trial - Early comprised of 23 test entries and one local check to be supplied by the cooperator. The test entries were selections with earliness. These were selected from the international screening nurseries based on their superior yield performance. Out of 23 test entries, 18 were developed at ICARDA through hybridization.

Methods and Management

The trial design was a randomized complete block with 3 replications. The suggested plot size was four rows each 4 m long with an inter row spacing of 25 cm. Forty three sets of trials were distributed to cooperators in 21 countries. The results were received for 13 trials from 7 countries and are reported. The agronomic practices employed at different locations are given in Table 4.3.1.

Results and Discussion

The location means for time to flowering (Table 4.3.2), time to maturity (Table 4.3.3), and plant height (Table 4.3.4) ranged from 59 days for Shendi-2 in Sudan to 106 days for Faisalabad in Pakistan; 96 days for Shendi-2 in Sudan to 152 days for Jema'a Shain in Morocco; and 31 cm for Hudeiba in Sudan to 48 cm for Gemmiza in Egypt, respectively. On an average over locations, the entry means ranged from 72 to 97 cm for plant height. The highest seed yields (Table 4.3.5) were obtained at Gemmiza in Egypt (3208 kg/ha). The seed yield at Kalat in Pakistan was, however, very poor (320 kg/ha).

On an average over locations, the five best yielding entries included FLIP 86-39L, FLIP 88-43L, Pant L 406, L 1282, and FLIP 86-38L with respective seed yields of 1413, 1408, 1371, 1371, and 1347 kg/ha.

The ANOVA for seed yield revealed that at 5 locations the local check was excelled by some entries by a significant margin ($P \leq 0.05$). The five best entries in each of the locations are given in Table 4.3.6. The entries, L 1282, FLIP 86-39L, FLIP 88-43L, and FLIP 89-53L occurred most frequently among the five heaviest yielders and were thus comparatively better in adaptation.

On the basis of average performance of common entries over two years (Table 4.3.7), L 1282 ranked number 1 and was closely followed by FLIP 89-53L, FLIP 88-43L, Pant L 406, and FLIP 87-66L with seed yields of 1352, 1332, 1288, 1278, and 1270 kg/ha, respectively.

Table 4.3.1. Agronomic details for LIYT-E-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Australia	Horsham	07.06.92	06.01.93	-	80	-	-	Lorsban, Trifluralin, Targa, Lexone	Kye
Ecuador	Bolivar	10.03.92	30.07.92	27	69	-	-	Linuron	INIAP 406
Ecuador	Imbabund	29.01.92	13.06.92	18	46	-	-	Linuron	INIAP 406
Egypt	Gemmiza	26.11.91	02.05.92	-	71	-	-	Gessagard 80%	Giza 370
Egypt	Sakha	16.11.91	-	38	75	-	-	Pirimor, Gessagard 80%	Giza 370
India	New Delhi	25.11.91	20.04.92	20	40	-	2	Metasystox, Stomp	L-4076
Morocco	Jema'a Shain	03.12.91	12.05.92	20	50	-	-	Kerb + Tribunil	L-56
Pakistan	Faisalabad	11.11.91	25.04.92	20	60	-	1	-	Masoor 85
Pakistan	Quetta	02.02.92	10.06.92	20	20	-	-	-	Local Lentil
Pakistan	Kalat	21.02.92	07.06.92	20	20	-	-	-	Local Lentil
Sudan	Shendi-1?	04.12.91	02.04.92	40	-	-	10	Diazinon	Giza 9
Sudan	Shendi-2?	11.11.92	07.03.93	43	-	-	-	-	Seliam
Sudan	Hudeiba-1?	03.12.91	— .03.92	43	-	-	6	-	Seliam
Sudan	Hudeiba-2?	18.11.91	-	86	-	-	10	-	-
Syria	Tel Hadya	05.12.91	— .05.92	-	50	-	-	-	ILL 4401

Table 4.3.2. Time to flowering (days) of entries at different locations in the LIYT-E during 1991/92.

Entry Name	Acc. No. (ILL)	Pedigree	Origin	AUSTRALIA	ECUADOR		EGYPT	
				Horsham	Bolivar	Urcuqui- Imbabund	Gemmiza	Sakha
Pant L406	2501	-	India	126	66	75	101	70
L1278	2580	-	India	123	63	65	105	72
L1282	2581	-	India	-	57	70	99	70
LL1	2582	-	India	-	63	70	98	72
162	4403	-	Pakistan	121	63	65	98	70
FLIP86-16L	6002	ILL4349 X ILL4605	ICARDA	-	69	65	83	75
FLIP86-38L	6024	ILL 262 X ILL3458	ICARDA	-	70	65	99	68
FLIP86-39L	6025	ILL 1 X ILL 936	ICARDA	-	64	65	97	72
FLIP87-66L	6256	ILL4406 X ILL 262	ICARDA	120	68	70	102	70
FLIP87-70L	6260	ILL2526 X ILL 253	ICARDA	-	66	70	97	68
FLIP87-72L	6262	ILL2526 X ILL4354	ICARDA	120	68	76	95	75
FLIP88-34L	6458	ILL5584 X ILL2501	ICARDA	116	67	70	94	77
FLIP88-35L	6459	ILL5562 X ILL3493	ICARDA	-	61	65	93	70
FLIP88-43L	6467	ILL4605 X ILL2582	ICARDA	113	66	75	82	68
FLIP89-34L	6792	ILL 223 X ILL 9	ICARDA	-	80	80	118	77
FLIP89-48L	6806	ILL4605 X ILL2578	ICARDA	-	74	75	86	67
FLIP89-52L	6810	ILL2573 X ILL1861	ICARDA	121	72	80	105	70
FLIP89-53L	6811	ILL2578 X ILL5588	ICARDA	125	75	75	103	72
FLIP89-55L	6813	ILL3527 X ILL1744	ICARDA	-	74	60	99	68
FLIP89-58L	6816	ILL3527 X ILL5071	ICARDA	-	66	65	106	75
FLIP89-60L	6818	ILL4225 X ILL 353	ICARDA	120	57	65	95	70
FLIP89-61L	6819	ILL4225 X ILL 353	ICARDA	-	81	70	106	75
FLIP89-67L	6825	ILL4407 X ILL 99	ICARDA	-	69	70	99	72
Local check	-	-	-	121	65	75	85	70
Location Mean				121	68	70	98	71
S.E. of Mean				0.00	3.67		0.46	3.69
L.S.D. at 5%				0.00	10.44		1.31	-
C.V. %				0.00	9.38		0.81	8.95
Error d.f.				10	46		46	46
Significance				*	*		*	NS

Cont'd. ...

Table 4.3.2. Cont'd. ...

Entry Name	INDIA	MOROCCO	PAKISTAN	SUDAN				SYRIA	(1) Overall
	New Delhi	Jema'a Shain	Faisalabad	Hudeiba-1	Hudeiba-2	Shendi-1	Shendi-2	Tel Hadya	Mean
Pant L406	98	97	114	77	83	75	70	116	90
L1278	93	102	110	69	81	71	64	116	88
L1282	93	99	112	78	83	73	62	116	88
LL1	93	96	110	77	84	70	62	116	88
162	88	95	112	78	80	72	41	116	88
FLIP86-16L	71	69	79	61	57	57	58	115	77
FLIP86-38L	90	79	101	77	84	-	-	113	85
FLIP86-39L	92	85	108	73	84	69	-	112	85
FLIP87-66L	97	97	111	76	83	77	-	115	89
FLIP87-70L	91	88	106	78	85	69	-	115	87
FLIP87-72L	93	97	111	77	87	-	-	115	90
FLIP88-34L	94	97	113	77	86	71	70	112	89
FLIP88-35L	90	83	102	68	70	70	60	112	83
FLIP88-43L	76	75	74	63	56	61	49	114	77
FLIP89-34L	105	118	120	77	-	-	-	118	99
FLIP89-48L	71	69	80	64	59	64	-	115	78
FLIP89-52L	97	112	115	78	92	-	-	115	94
FLIP89-53L	97	107	112	77	85	77	74	116	93
FLIP89-55L	90	88	108	62	70	65	-	115	85
FLIP89-58L	97	95	116	76	90	73	-	115	90
FLIP89-60L	90	85	90	68	67	68	60	114	82
FLIP89-61L	97	69	113	77	87	76	65	115	89
FLIP89-67L	97	91	107	77	79	80	-	116	88
Local check	84	112	111	52	60	53	36	116	-
Loction Mean	91	92	106	72	78	70	59	115	
S.E. of Mean	2.59	2.24	0.40	0.39	0.26	1.38	2.98	0.34	
L.S.D. at 5%	7.36	6.39	1.13	0.93	0.62	3.96	8.69	0.97	
C.V. %	4.93	4.23	0.65	0.76	0.47	3.44	8.70	0.52	
Error d.f.	46	46	46	23	22	38	24	46	
Significance	*	*	*	*	*	*	*	*	

(1) Horsham, Shendi-1 and Shendi-2 were excluded from the overall mean. * = Significant at $P \leq 0.05$,
NS = Not significant.

Table 4.3.3. Time to maturity (days) of entries at different locations in the LIYT-E during 1991/92.

Entry Name	AUDTRALIA	EGYPT	MOROCCO	SUDAN			SYRIA	(1)
	Horsham	Gemmiza	Sakha	Jema'a Shain	Hudeiba-1	Shendi-1	Shendi-2	Tel Hadya Mean
Pant L406	204	153	133	153	103	109	99	135
L1278	204	149	142	158	97	110	99	136
L1282	-	148	137	156	105	107	97	136
LL1	-	146	138	154	104	108	97	135
162	209	148	137	153	105	107	96	135
FLIP86-16L	-	146	138	139	94	99	93	129
FLIP86-38L	-	150	140	149	103	109	-	135
FLIP86-39L	-	152	133	149	102	109	-	134
FLIP87-66L	206	150	133	156	104	107	-	134
FLIP87-70L	-	150	138	149	105	104	-	134
FLIP87-72L	207	144	138	156	105	117	-	137
FLIP88-34L	219	147	135	149	104	107	102	133
FLIP88-35L	-	144	140	149	97	108	96	134
FLIP88-43L	208	141	138	149	96	100	91	131
FLIP89-34L	-	153	137	160	103	124	-	140
FLIP89-48L	-	144	138	138	96	106	-	130
FLIP89-52L	208	151	133	160	104	133	-	139
FLIP89-53L	211	149	137	156	104	107	101	136
FLIP89-55L	-	144	137	149	96	99	-	131
FLIP89-58L	-	153	137	154	103	112	-	136
FLIP89-60L	208	148	135	149	97	105	95	132
FLIP89-61L	-	148	138	138	105	107	101	132
FLIP89-67L	-	150	137	153	103	108	-	135
Local check	205	155	142	168	99	98	87	-
Loction Mean	208	148	137	152	101	108	96	159
S.E. of Mean	3.26	1.67	2.60	0.27	0.48	1.27	0.00	0.86
L.S.D. at 5%	-	4.76	-	0.78	1.15	3.62	0.00	2.45
C.V. %	2.22	1.95	3.28	0.31	0.67	2.03	0.00	0.94
Error d.f.	10	46	46	46	23	46	24	46
Significance	NS	*	NS	*	*	*	*	*

(1) Horsham and Shendi-2 were excluded from the overall mean, * = Significant at $P \leq 0.05$, NS = Not significant.

Table 4.3.4. Plant height (cm) of entries at different locations in the LIYT-E during 1991/92.

Entry Name	AUSTRALIA	EGYPT	MOROCCO	SUDAN	SYRIA	(1) Overall Mean
	Horsham	Gemmiza	Jema'a Shain	Hudeiba-1	Tel Hadya	
Pant L406	50	48	37	20	28	33
L1278	47	46	35	26	23	33
L1282	-	48	42	42	22	39
LL1	-	45	43	32	25	36
162	48	48	28	26	26	32
FLIP86-16L	-	55	48	35	34	43
FLIP86-38L	-	50	32	41	27	38
FLIP86-39L	-	50	32	28	25	34
FLIP87-66L	44	47	33	27	27	34
FLIP87-70L	-	47	40	34	23	36
FLIP87-72L	45	47	45	45	28	42
FLIP88-34L	44	45	35	23	23	31
FLIP88-35L	-	41	45	46	24	39
FLIP88-43L	55	54	42	32	26	39
FLIP89-34L	-	54	40	18	29	35
FLIP89-48L	-	42	45	30	25	36
FLIP89-52L	43	57	43	28	26	39
FLIP89-53L	48	43	43	33	26	37
FLIP89-55L	-	44	32	34	25	34
FLIP89-58L	-	44	32	17	24	29
FLIP89-60L	45	41	40	26	21	32
FLIP89-61L	-	41	37	29	24	33
FLIP89-67L	-	50	35	32	27	36
Local check	45	68	38	47	30	-
Loction Mean	47	48	38	31	26	
S.E. of Mean	2.44	3.22	1.90	5.69	1.39	
L.S.D. at 5%	-	9.18	5.40	13.60	3.95	
C.V. %	7.42	11.60	8.56	25.99	9.36	
Error d.f.	10	46	46	23	46	
Significance	NS	*	*	*	*	

(1) Horsham was excluded from the overall mean, * = Significant at $P \leq 0.05$.

NS = Not significant.

Table 4.3.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LIYT-E during 1991/92.

Entry Name	ECUADOR				EGYPT				INDIA		MOROCCO	
	Bolivar		Urcuqui-Imbabund		Gemmiza		Sakha		New Delhi		Jema'a Shain	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Pant L406	1367	13	652	19	3979	1	1722	1	1959	7	908	10
L1278	1207	17	518	23	3458	9	1315	4	1284	20	825	21
L1282	1125	20	633	20	3333	10	1056	17	2275	3	850	16
LL1	1336	15	606	21	3021	17	1204	10	2027	6	842	19
162	1051	21	681	17	3188	14	1037	18	1644	16	867	13
FLIP86-16L	1758	7	1000	9	3736	4	907	21	698	23	842	18
FLIP86-38L	1947	4	1167	3	3514	6	1167	12	1779	14	1083	3
FLIP86-39L	1658	9	1379	1	3486	7	1370	3	2117	5	1175	1
FLIP87-66L	1336	14	908	13	3153	15	1241	6	1914	9	983	7
FLIP87-70L	958	22	1049	6	3458	8	870	23	1869	11	617	22
FLIP87-72L	1128	19	531	22	3799	3	1093	16	2320	2	850	15
FLIP88-34L	2007	3	1038	7	3535	5	1000	19	1464	18	1158	2
FLIP88-35L	1804	6	851	14	2444	23	1259	5	1396	19	983	6
FLIP88-43L	1504	11	669	18	3951	2	1148	13	1869	10	583	23
FLIP89-34L	328	24	-	-	2063	24	907	22	315	24	842	20
FLIP89-48L	2088	2	993	10	3007	19	722	24	1577	17	573	24
FLIP89-52L	1208	16	918	11	3021	18	1148	14	1712	15	900	11
FLIP89-53L	1374	12	1195	2	3257	12	1241	7	1847	12	1000	5
FLIP89-55L	1939	5	1159	4	2604	21	926	20	1126	21	892	12
FLIP89-58L	1542	10	691	16	2896	20	1167	11	1126	22	925	9
FLIP89-60L	1154	18	917	12	2507	22	1222	8	1959	8	967	8
FLIP89-61L	1701	8	1038	8	3042	16	1130	15	2117	4	1083	4
FLIP89-67L	611	23	788	15	3299	11	1222	9	1779	13	850	14
Local check	2246	1	1128	5	3243	13	1593	2	2500	1	842	17
Loction Mean	1432		892		3208		1153		1695		893	
S.E. of Mean	330.72		130.08		412.37		173.77		220.63		80.90	
L.S.D. at 5%	941.42		370.74		-		-		628.03		230.28	
C.V. %	39.99		25.27		22.26		26.11		22.55		15.69	
Error d.f.	46		44		46		46		46		46	
Significance	*		*		NS		NS		*		*	
Test > Check	0		0		-		-		0		4	

Cont'd. ...

Table 4.3.5. Cont'd. ...

Entry Name	PAKISTAN						SUDAN						SYRIA		Overall Mean		(1)
	Faisalabad		Kalat		Quetta		Hudeiba-1		Shendi-1		Shendi-2		Tel hadya				
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	
Pant L406	1410	15	323	12	638	7	37	20	524	11	306	12	1117		1346	4	
L1278	1688	7	293	16	325	24	818	5	1036	5	754	6	726		1194	16	
L1282	1924	3	245	20	492	18	1037	3	1199	2	1071	1	790		1313	5	
LL1	1632	9	300	15	577	12	622	7	1074	3	829	5	816		1238	9	
162	2063	1	365	10	385	22	230	14	988	6	659	7	999		1183	18	
FLIP86-16L	1486	12	353	11	564	13	765	6	604	9	885	3	906		1201	13	
FLIP86-38L	1285	20	397	4	590	8	358	12	-	-	-	-	1435		1356	3	
FLIP86-39L	1319	17	308	14	822	1	462	9	107	18	-	-	1327		1404	1	
FLIP87-66L	1222	22	481	2	765	2	17	22	152	16	-	-	1201		1232	10	
FLIP87-70L	1715	6	387	6	447	19	577	8	107	19	-	-	1115		1201	12	
FLIP87-72L	1681	8	379	8	543	15	97	16	-	-	-	-	1236		1313	6	
FLIP88-34L	1472	13	172	23	380	23	45	18	682	7	341	10	974		1221	11	
FLIP88-35L	1493	11	387	7	640	6	423	11	491	12	552	9	1042		1187	17	
FLIP88-43L	1806	5	143	24	418	21	1253	2	2238	1	841	4	1081		1375	2	
FLIP89-34L	792	24	180	22	539	16	0	23	-	-	-	-	1307		727	23	
FLIP89-48L	1313	18	268	19	438	20	888	4	262	14	-	-	1075		1195	15	
FLIP89-52L	1500	10	469	3	754	3	0	24	-	-	-	-	1301		1201	14	
FLIP89-53L	1993	2	395	5	746	4	40	19	360	13	310	11	1123		1301	7	
FLIP89-55L	1264	21	236	21	544	14	267	13	183	15	-	-	1016		1082	21	
FLIP89-58L	1306	19	293	17	589	9	32	21	111	17	-	-	1145		1102	20	
FLIP89-60L	1465	14	367	9	583	11	430	10	1065	4	1000	2	1094		1175	19	
FLIP89-61L	1326	16	560	1	668	5	68	17	565	10	206	13	1127		1282	8	
FLIP89-67L	1056	23	283	18	499	17	168	15	87	20	-	-	938		1070	22	
Local check	1910	4	316	13	588	10	1350	1	610	8	587	8	1531				
Loction Mean	1505		329		564		416		622		642		1101				
S.E. of Mean	71.07		68.60		69.82		184.94		112.99		162.04		81.52				
L.S.D. at 5%	202.29		195.28		198.75		441.84		323.52		473.00		232.06				
C.V. %	8.18		36.10		21.45		62.88		31.45		43.74		12.83				
Error d.f.	46		46		46		23		38		24		46				
Significance	*		*		*		*		*		*		*				
Test > Check	0		1		1		0		6		1		0				

(1) Urcuqui-Imbabund, Shendi-1 and Shendi-2 were excluded from the overall mean. * = Significant at $P \leq 0.05$,
NS = Not significant.

Table 4.3.6. The five heaviest seed yielding entries at the individual locations in the LIYT-E during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Sudan	Shendi-1	FLIP 88-43L	L 1282	ILL 2582	FLIP 89-60L	L 1278
Morocco	Jema'a Shain	FLIP 86-39C	FLIP 88-34L	FLIP 86-38L	FLIP 89-61L	FLIP 89-53L
Sudan	Hudeiba-1	Local check	FLIP 88-43L	L 1282	FLIP 89-48L	L 1278
Ecuador	Bolivar	Local check	FLIP 89-48L	FLIP 88-34L	FLIP 86-38L	FLIP 89-55L
Pakistan	Faisalabad	ILL 4403	FLIP 89-53L	L 1282	Local check	FLIP 88-43L
India	New Delhi	Local check	FLIP 87-72L	L 1282	FLIP 89-61L	FLIP 86-39C
Ecuador	Imbabund	FLIP 86-39C	FLIP 89-53L	FLIP 86-38L	FLIP 89-55L	Local check
Egypt	Gemmiza	Pant L406	FLIP 88-43L	FLIP 87-72L	FLIP 86-16L	FLIP 88-34L
Egypt	Sakha	Pant L406	Local check	FLIP 86-39C	L 1278	FLIP 88-35L
Pakistan	Kalat	FLIP 89-61L	FLIP 87-66L	FLIP 89-52L	FLIP 86-38L	FLIP 89-53L
Pakistan	Quetta	FLIP 86-39C	FLIP 87-66L	FLIP 89-52L	FLIP 89-53L	FLIP 89-61L
Sudan	Shendi-2	L 1282	FLIP 89-60L	FLIP 86-16L	FLIP 88-43L	ILL 2582

Table 4.3.7. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in LIYT-E during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
Pant L 406	1185	6	1371	2	1278	4
L 1282	1332	2	1371	2	1352	1
162	1150	9	1203	8	1177	9
FLIP 87-66L	1304	3	1235	7	1270	5
FLIP 87-72L	1043	10	1321	4	1182	8
FLIP 88-34L	1235	5	1248	6	1242	6
FLIP 88-43L	1168	7	1408	1	1288	3
FLIP 89-52L	1261	4	1190	9	1226	7
FLIP 89-53L	1342	1	1321	4	1332	2
FLIP 89-60L	1153	8	1184	10	1169	10

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

Material

The material for the Lentil International Screening Nursery-Large Seed comprised of 30 test entries and one local check which was to be used by the cooperator. Twenty six entries were selected from the materials developed through hybridization and tested at ICARDA sites in Syria and Lebanon.

Methods and Management

The material was sown in a randomized block design with two replications. The suggested plot size was single row 4 m long with interrow spacing of 25 cm. Thirty three sets of screening nursery were sent to cooperators in 17 countries and the results were received for 24 locations from 13 countries. The agronomic data received from cooperators are given in Table 4.4.1.

Results and Discussion

The data on time to flowering, time to maturity, and plant height are given in Tables 4.4.2, 4.4.3, and 4.4.4, respectively. The entry means across locations varied from 96 to 107 days for time to flowering, 136 to 146 days for time to maturity and 28 to 36 cm for plant height.

Seed yields of different entries at various locations are given in Table 4.4.5. The location mean was highest at Turretfield in Australia (5707 kg/ha) and lowest at Manitoba in Canada (223 kg/ha). The ANOVA of the experimental design revealed that at Beja and El Kef in Tunisia, and Erzurum-2 in Turkey 8, 3 and 9 entries, respectively, outyielded the local check by a significant margin. The five heaviest yielders across locations included FLIP 92-12, 78S 26002, FLIP 92-7L, FLIP 92-15L and FLIP 92-13L, and yielded 1731, 1667, 1620, 1483, and 1466 kg/ha, respectively. The five heaviest yielders at each location are given in Table 4.4.6.

Table 4.4.1. Agronomic details for LISN-L-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Khroub	24.12.91	04.07.92	17	45	-	-	Kerb + Maloran	Syrie 229
Australia	Horsham	05.06.92	09.01.93	-	80	-	-	Lorsban, Trifluralin, Targa, Lexone	Laird
Australia	Turretfield	-	-	-	-	-	-	-	Laird
Australia	Charlick	-	24.12.92	-	-	-	-	-	Laird
Bhutan	Khangma	20.12.91	— .06.92	-	25	25	-	-	-
Bhutan	Yayung	20.12.91	— .06.92	-	25	25	-	-	-
Canada	Portage	27.05.92	04.09.92	-	-	-	-	Prast/Merge + Sencor	Laird
Canada	Watrous	29.05.92	14.10.92	-	-	-	-	-	Laird
Hungary	Tapioszele	25.03.92	20.07.92	47	-	-	-	-	Diszkosz
Iran	Qazvin	16.04.92	-	18	50	-	-	-	Qazvin
Iran	Karaj	14.04.92	22.07.92	24	70	-	-	-	Qazvin
Iran	Maragheh	15.04.92	-	10	60	-	-	-	Local Check
Lebanon	Terbol	28.11.91	14.06.92	-	50	-	-	Kerb + Fortrol	Lebanese Local
Mexico	Sonora	30.11.91	03.04.92	150	50	-	1	Sistox	Guanajuato
New Zealand	Christchurch	NA	NA	NA	NA	NA	NA	NA	Lauriston
Pakistan	Quetta	26.11.91	25.05.92	20	20	-	1	-	Local lentil
Syria	Gelline	17.12.91	24.05.92	50	20	-	-	-	ILL 2126
Syria	Heimo	26.11.91	07.06.92	-	50	-	-	-	ILL 2126
Syria	Idleb	22.12.91	-	-	60	-	-	Decis	ILL 2126
Syria	Izra'a	11.01.92	17.06.92	-	50	-	-	-	ILL 2126
Syria	Tel Hadya	28.11.91	— .05.92	-	50	-	-	-	Kurdi 1
Tunisia	Beja	NA	NA	NA	NA	NA	NA	NA	NA
Tunisia	El Kef	NA	NA	NA	NA	NA	NA	NA	NA
Turkey	Ankara	30.03.92	-	22	60	-	-	-	Kislik Pull-11
Turkey	Erzurum	30.04.92	20.08.92	30	60	-	-	-	Erzurum-89
Turkey	Haymana	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not available

Table 4.4.2. Time to flowering (days) of entries at different locations in the LISN-L during 1991/92.

Entry Name	Accession	Parontage	Origin	ALGERIA	AUSTRALIA		HUNGARY
				Khroub	Horsham	Turretfield	Tapioszele
Local large	ILL4400	-	Syria	124	133	< 128	55
78S26002	ILL5582	-	Jordan	130	131	< 128	54
FLIP84-27L	ILL5699	ILL 20 X ILL1LWL1	ICARDA	126	129	< 128	54
FLIP90-6L	ILL6975	ILL 262 X ILL4606	ICARDA	124	129	< 128	59
FLIP90-13L	ILL6982	ILL4400 X ILL5582	ICARDA	123	132	< 128	59
FLIP91-3L	ILL7129	ILL 1 X ILL 784	ICARDA	121	132	128	55
FLIP91-5L	ILL7131	ILL 15 X ILL2126	ICARDA	124	121	128	57
FLIP91-6L	ILL7132	ILL 262 X ILL4515	ICARDA	126	133	128	59
FLIP91-8L	ILL7134	ILL5744 X ILL 262	ICARDA	130	134	128	59
FLIP91-9L	ILL7135	ILL5744 X ILL 262	ICARDA	121	130	< 128	58
FLIP91-10L	ILL7136	ILL5744 X ILL4605	ICARDA	128	135	128	60
FLIP91-11L	ILL7137	ILL5744 X ILL4605	ICARDA	129	133	128	59
FLIP91-12L	ILL7138	ILL5744 X ILL4605	ICARDA	123	133	128	58
Petrovskaja4/105	ILL7159	-	USSR	130	147	> 128	68
Petrovsk's	ILL7161	-	USSR	138	147	> 128	-
Glauc-sperma							
FLIP92-1L	ILL7166	ILL5741 X ILL1042	ICARDA	121	131	128	58
FLIP92-2L	ILL7167	ILL5815 X ILL5523	ICARDA	123	120	< 128	59
FLIP92-3L	ILL7168	ILL5676 X ILL4354	ICARDA	122	129	< 128	54
FLIP92-4L	ILL7169	ILL4605 X ILL5572	ICARDA	124	133	128	56
FLIP92-5L	ILL7170	ILL5582 X ILL5700	ICARDA	126	129	< 128	54
FLIP92-6L	ILL7171	ILL5582 X ILL5700	ICARDA	127	128	< 128	54
FLIP92-7L	ILL7172	ILL5582 X ILL5700	ICARDA	127	129	< 128	54
FLIP92-8L	ILL7173	ILL5582 X ILL 707	ICARDA	124	131	< 128	55
FLIP92-9L	ILL7174	ILL5582 X ILL 707	ICARDA	120	130	128	54
FLIP92-10L	ILL7175	ILL5582 X ILL 707	ICARDA	128	129	< 128	54
FLIP92-11L	ILL7176	ILL5582 X ILL 707	ICARDA	122	131	< 128	55
FLIP92-12L	ILL7177	ILL5582 X ILL 707	ICARDA	120	127	< 128	54
FLIP92-13L	ILL7178	ILL5507 X ILL5700	ICARDA	124	132	< 128	54
FLIP92-14L	ILL7179	ILL5743 X ILL5698	ICARDA	123	130	< 128	55
FLIP92-15L	ILL7180	ILL5588 X ILL5714	ICARDA	128	131	< 128	54
Local check	-	-	-	123	144	> 128	53
Location Mean				125	132	128	56
S.E. of Mean					1.83		
L.S.D. at 5%					5.28		
C.V. %					1.96		
Error d.f.					30		
Significance					*		

Cont'd. ...

Table 4.4.2. Cont'd. ...

Entry Name	IRAN			LEBANON	MEXICO	SYRIA	
	Qazvin	Karaj	Maragheh	Terbol	Sonora	Gelline	Heimo
Local large	56	40	63	152	100	124	153
78S26002	52	38	59	147	93	121	151
FLIP84-27L	54	39	60	145	93	121	148
FLIP90-6L	54	38	62	147	100	121	149
FLIP90-13L	54	38	63	152	97	124	153
FLIP91-3L	54	34	60	147	97	121	153
FLIP91-5L	55	42	62	144	97	121	152
FLIP91-6L	57	40	64	150	100	123	151
FLIP91-8L	58	40	64	150	100	123	153
FLIP91-9L	53	37	63	149	97	122	150
FLIP91-10L	58	43	62	151	104	123	150
FLIP91-11L	57	39	64	153	97	123	151
FLIP91-12L	54	40	63	151	97	122	152
Petrovskaja4/105	57	47	69	159	104	122	151
Petrovsk's Glauca- Sperma	58	44	69	167	100	125	155
FLIP92-1L	55	39	62	149	97	124	152
FLIP92-2L	54	38	64	149	97	121	152
FLIP92-3L	54	37	59	144	93	121	152
FLIP92-4L	54	38	60	150	97	124	151
FLIP92-5L	53	36	59	145	93	120	151
FLIP92-6L	53	39	60	147	93	121	153
FLIP92-7L	52	39	60	147	93	121	148
FLIP92-8L	53	37	59	147	93	121	153
FLIP92-9L	53	37	60	147	93	121	153
FLIP92-10L	52	39	60	146	93	120	154
FLIP92-11L	53	38	59	146	93	120	150
FLIP92-12L	53	35	59	144	93	120	148
FLIP92-13L	52	41	60	146	93	121	151
FLIP92-14L	52	40	60	149	97	122	150
FLIP92-15L	53	38	60	151	93	121	150
Local check	55	41	62	154	104	123	151
Location Mean	54	39	61	149	96	122	151
S.E. of Mean	0.51	1.37	0.66	0.73	0.00	0.66	1.51
L.S.D. at 5%	1.47	3.94	1.90	2.10	0.00	1.92	-
C.V. %	1.33	4.97	1.51	0.69	0.00	0.77	1.42
Error d.f.	30	30	30	30	30	30	30
Significance	*	*	*	*	*	*	NS

Cont'd. ...

Entry Name	SYRIA			TURKEY			(1) Overall Mean
	Idleb	Izra'a	Tel Hadya- NARS	Ankara	Erzurum-2	Haymana	
Local large	120	105	109	204	75	59	101
78S26002	116	97	103	204	79	52	98
FLIP84-27L	138	97	103	204	79	55	99
FLIP90-6L	136	98	105	203	82	55	100
FLIP90-13L	142	104	108	203	82	56	102
FLIP91-3L	136	100	104	204	74	56	99
FLIP91-5L	118	101	106	204	81	57	99
FLIP91-6L	142	104	106	204	76	58	102
FLIP91-8L	140	101	107	203	75	61	103
FLIP91-9L	113	98	104	204	75	55	98
FLIP91-10L	122	102	108	204	76	58	101
FLIP91-11L	119	103	108	202	82	58	101
FLIP91-12L	142	105	109	204	76	58	102
Petrovskaja4/105	144	105	113	201	79	63	106
Petrovsk's Glauca- Sperma	122	107	114	203	83	68	107
FLIP92-1L	141	103	107	204	83	55	101
FLIP92-2L	119	98	104	-	84	56	99
FLIP92-3L	137	98	103	202	86	53	99
FLIP92-4L	120	99	109	204	73	58	99
FLIP92-5L	112	96	103	203	78	50	97
FLIP92-6L	137	100	105	-	77	54	100
FLIP92-7L	137	98	105	203	77	53	99
FLIP92-8L	115	98	104	202	82	53	98
FLIP92-9L	113	98	105	-	78	55	97
FLIP92-10L	112	98	104	204	77	54	98
FLIP92-11L	112	97	102	-	82	56	97
FLIP92-12L	112	96	103	204	80	52	96
FLIP92-13L	136	97	104	204	79	55	99
FLIP92-14L	139	97	108	205	81	55	100
FLIP92-15L	115	100	104	203	75	54	98
Local check	121	105	108	204	82	55	
Location Mean	127	100	106	203	79	56	
S.E. of Mean	11.69	0.81	0.70		0.74	1.29	
L.S.D. at 5%	-	2.32	2.01		2.14	3.72	
C.V. %	13.06	1.14	0.93		1.32	3.26	
Error d.f.	30	30	30		30	30	
Significance	NS	*	*		*	*	

(1) Turretfield, Tapiozele and Ankara were excluded from the overall mean.

* = Significant at $P < 0.05$, NS = Not Significant.

Table 4.4.3. Time to maturity (days) of entries at different locations in the LISH-L during 1991/92.

Entry Name	ALGERIA	AUSTRALIA		BHUTAN	CANADA	HUNGARY	IRAN		
	Khroub	Horsham	Turrotfield	Khangma	Watrous	Tapioszele	Qazvin	Karaj	Maragahah
Local large	180	209	240	-	92	109	77	79	91
78S26002	183	208	240	-	98	107	72	69	86
FLIP84-27L	173	212	240	-	83	108	74	69	87
FLIP90-6L	181	208	240	168	89	111	75	69	91
FLIP90-13L	187	210	240	-	92	111	78	70	91
FLIP91-3L	182	207	240	-	84	113	75	72	88
FLIP91-5L	179	209	240	-	84	112	74	70	86
FLIP91-6L	186	210	240	173	98	117	78	72	91
FLIP91-8L	181	210	240	169	91	112	78	70	91
FLIP91-9L	185	210	240	-	106	113	74	73	91
FLIP91-10L	180	207	240	166	91	115	76	73	89
FLIP91-11L	183	206	240	167	98	113	76	70	89
FLIP91-12L	180	206	240	-	91	109	74	70	88
Petrovskaja4/105	196	214	240	168	98	118	81	88	99
Petrovsk's Glauca- sperma	198	212	240	-	99		81	85	101
FLIP92-1L	183	210	240	166	91	110	75	73	89
FLIP92-2L	181	210	240	-	92	111	76	69	90
FLIP92-3L	184	210	240	-	84	107	73	68	89
FLIP92-4L	181	211	240	168	98	108	76	76	87
FLIP92-5L	183	209	240	-	84	107	73	67	86
FLIP92-6L	185	210	240	171	84	111	72	68	87
FLIP92-7L	185	211	212	-	84	110	75	69	89
FLIP92-8L	183	210	240	-	91	114	73	67	87
FLIP92-9L	181	209	240	-	91	111	75	68	87
FLIP92-10L	184	209	212	166	84	105	73	69	85
FLIP92-11L	179	209	240	169	84	109	75	68	87
FLIP92-12L	181	210	240	-	113	112	73	66	87
FLIP92-13L	180	209	240	-	84	106	73	68	86
FLIP92-14L	184	206	240	167	84	112	74	70	88
FLIP92-15L	185	209	240	167	89	109	74	71	88
Local check	179	212	240	-	110	105	76	71	91
Location Mean	183	209	238	168	92	111	75	71	89
S.E. of Mean		0.99					1.08	2.32	0.60
L.S.D. at 5%		2.86					3.13	6.71	1.73
C.V. %		0.67					2.05	4.63	0.95
Error d.f.		30					30	30	30
Significance		*					*	*	*

Cont'd. ...

Table 4.4.3. Cont'd. ...

Entry Name	LEBANON	MEXICO	SYRIA				TURKEY		(1) Overall
	Terbol	Sonora	Gelline	Heimo	Idleb	Izra'a	Tel Hadya- NARS	Erzurum-2	Mean
Local large	194	128	163	181	161	158	148	110	141
78S26002	188	121	161	177	160	156	143	109	138
FLIP84-27L	190	121	159	179	163	155	142	110	137
FLIP90-6L	191	128	158	175	159	158	143	110	138
FLIP90-13L	194	127	165	176	163	160	148	110	141
FLIP91-3L	191	125	157	180	159	159	146	109	138
FLIP91-5L	190	125	162	181	158	156	145	110	138
FLIP91-6L	193	125	163	179	163	159	146	110	141
FLIP91-8L	191	128	163	175	159	157	145	109	139
FLIP91-9L	190	125	163	180	159	156	146	109	141
FLIP91-10L	191	128	157	176	159	155	146	110	138
FLIP91-11L	193	125	159	182	161	155	146	110	140
FLIP91-12L	188	125	159	177	160	155	146	109	138
Petrovskaja4/105	198	128	165	186	166	161	151	109	146
Petrovsk's Glauca- Sperma	199	128	167	189	168	160	151	110	146
FLIP92-1L	190	125	164	182	161	159	147	112	140
FLIP92-2L	191	125	164	175	159	158	145	110	139
FLIP92-3L	192	121	162	181	162	159	146	110	139
FLIP92-4L	192	125	161	180	161	158	145	110	140
FLIP92-5L	187	121	156	179	160	155	143	110	137
FLIP92-6L	190	121	156	179	161	156	144	109	137
FLIP92-7L	193	121	162	181	160	157	146	109	139
FLIP92-8L	191	121	160	180	161	159	145	109	138
FLIP92-9L	191	121	161	179	161	159	146	109	138
FLIP92-10L	188	121	157	183	157	159	142	109	137
FLIP92-11L	189	121	158	175	160	158	142	110	137
FLIP92-12L	187	121	157	176	160	156	145	110	139
FLIP92-13L	187	121	157	176	157	156	143	110	136
FLIP92-14L	191	125	162	179	160	155	146	109	138
FLIP92-15L	195	121	158	183	162	157	147	110	139
Local check	194	128	165	176	163	163	146	109	-
Location Mean	191	124	160	179	160	157	145	110	
S.E. of Mean	0.76	0.94	1.60	2.43	1.39	1.52	1.03	0.30	
L.S.D. at 5%	2.18	2.72	4.63	7.01	4.01	4.39	2.98	0.86	
C.V. %	0.56	1.08	1.41	1.92	1.23	1.37	1.01	0.39	
Error d.f.	30	30	30	30	30	30	30	30	
Significance	*	*	*	*	*	*	*	*	

(1) Turretfield, Khangma and Tapioszele were excluded from the overall mean. * = Significant at $P \leq 0.05$.

Table 4.4.4. Plant height (cm) of entries at different locations in the LISN-L during 1991/92.

	ALGERIA	AUSTRALIA	BHUTAN	CANADA	HUNGARY	IRAN		LEBANON	
Entry Name	Terbol	Horsham	Khangma	Watrous	Tapioszele	Qazvin	Karaj	Maragahah	Terbol
Local large	33	52	-	32	40	34	26	26	36
78S26002	33	50	-	25	31	25	26	23	30
FLIP84-27L	35	48	-	25	37	28	22	21	30
FLIP90-6L	35	47	39	25	33	31	23	22	31
FLIP90-13L	40	50	-	27	39	31	29	24	34
FLIP91-3L	-	54	-	23	42	30	27	21	34
FLIP91-5L	35	62	-	35	43	29	23	21	34
FLIP91-6L	37	48	39	35	39	33	31	25	32
FLIP91-8L	35	53	39	31	42	31	24	26	35
FLIP91-9L	35	48	-	35	38	24	28	22	31
FLIP91-10L	35	53	43	30	45	29	24	24	33
FLIP91-11L	35	45	33	30	40	29	26	21	32
FLIP91-12L	38	55	-	25	37	29	29	22	31
Petrovskaja4/105	42	65	43	35	53	40	36	28	49
Petrovsk's Glauca-Sperma	50	52	-	39	-	30	36	20	37
FLIP92-1L	-	50	43	25	34	27	22	21	32
FLIP92-2L	32	49	-	29	37	28	31	22	31
FLIP92-3L	40	53	-	20	32	26	22	21	33
FLIP92-4L	30	53	42	40	31	30	31	19	29
FLIP92-5L	30	47	-	25	37	25	25	22	31
FLIP92-6L	35	45	38	26	34	29	27	21	31
FLIP92-7L	40	50	-	25	35	29	33	22	29
FLIP92-8L	34	58	-	30	35	27	26	23	32
FLIP92-9L	38	47	-	32	33	29	27	23	32
FLIP92-10L	30	53	39	29	32	26	26	23	28
FLIP92-11L	36	53	42	25	34	29	26	24	31
FLIP92-12L	30	50	-	44	30	32	27	24	33
FLIP92-13L	40	53	-	30	34	27	28	24	31
FLIP92-14L	32	50	40	26	38	29	29	24	32
FLIP92-15L	40	52	37	30	45	29	25	23	37
Local check	34	65	-	42	30	31	27	24	38
Location Mean	36	52	40	30	37	29	27	22	33
S.E. of Mean		4.34				2.03	0.49	1.15	1.73
L.S.D. at 5%		-				5.86	1.41	3.31	4.99
C.V. %		11.89				9.89	2.59	7.24	7.49
Error d.f.		30				30	30	30	30
Significance		NS				*	*	*	*

Cont'd. ...

Table 4.4.4. Cont'd. ...

Entry Name	MEXICO		SYRIA				TURKEY		(1) Overall Mean
	Sonora	Gelline	Heimo	Idleb	Izra'a	Tel Hadya- HARS	Erzurum-2		
Local large	45	30	29	32	19	31	19	32	
78S26002	35	29	26	29	17	28	19	28	
FLIP84-27L	46	28	30	30	18	27	18	29	
FLIP90-6L	43	28	28	26	16	24	20	28	
FLIP90-13L	38	29	28	31	15	27	20	29	
FLIP91-3L	43	29	31	32	16	26	21	30	
FLIP91-5L	41	29	31	34	16	27	21	31	
FLIP91-6L	43	30	28	32	17	26	18	31	
FLIP91-8L	45	29	27	33	16	29	21	31	
FLIP91-9L	37	27	26	34	17	28	16	29	
FLIP91-10L	33	30	31	32	17	32	20	30	
FLIP91-11L	34	30	35	34	15	25	20	29	
FLIP91-12L	46	29	27	30	16	28	20	30	
Petrovskaja4/105	37	34	30	37	18	33	21	36	
Petrovsk's Glauca- Sperma	43	29	35	33	15	27	20	32	
FLIP92-1L	45	30	31	28	17	27	19	29	
FLIP92-2L	43	28	28	29	18	27	17	29	
FLIP92-3L	44	30	29	35	15	29	21	29	
FLIP92-4L	42	31	28	28	17	26	19	30	
FLIP92-5L	42	29	29	27	17	28	18	28	
FLIP92-6L	38	30	33	29	16	25	19	28	
FLIP92-7L	38	31	29	35	16	26	21	30	
FLIP92-8L	38	29	30	35	17	28	20	30	
FLIP92-9L	43	32	26	32	17	28	18	30	
FLIP92-10L	35	31	30	31	18	31	20	29	
FLIP92-11L	38	29	27	31	18	29	19	29	
FLIP92-12L	43	31	27	31	18	30	18	31	
FLIP92-13L	37	32	30	32	15	26	20	30	
FLIP92-14L	44	31	29	31	17	32	20	30	
FLIP92-15L	39	31	31	37	16	31	20	31	
Local check	39	33	30	37	17	30	18	-	
Location Mean	40	30	29	32	17	28	19		
S.E. of Mean	3.09	1.28	1.78	2.07	0.96	1.41	0.56		
L.S.D. at 5%	-	-	-	5.99	-	4.08	1.62		
C.V. %	10.84	6.08	8.63	9.27	8.25	7.19	4.16		
Error d.f.	30	30	30	30	30	30	30		
Significance	NS	NS	NS	*	NS	*	*		

(1) Khroub, Khangma and Tapioszele were excluded from the overall mean.

* = Significant at $P < 0.05$, NS = Not Significant.

Table 4.4.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LISA-L during 1991/92.

Entry Name	AUSTRALIA		BHUTAN		CANADA				IRAN					
	Turretfield		Khangma		Manitoba		Watrous		Qazvin		Karaaj		Maragha	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local large	2693	12	-	-	151	14	1187	12	733	28	472	27	880	3
78S26002	7280	1	-	-	55	24	1800	2	1233	17	1083	6	520	24
FLIP84-27L	1053	28	-	-	0	30	53	30	1433	7	728	14	600	18
FLIP90-6L	1900	19	2520	5	51	25	867	21	1300	13	461	28	407	29
FLIP90-13L	1613	25	-	-	301	7	1213	10	1067	22	867	12	780	7
FLIP91-3L	5573	9	-	-	172	13	653	24	900	26	622	18	553	21
FLIP91-5L	2000	18	-	-	1627	1	1253	8	933	25	711	16	387	30
FLIP91-6L	2227	17	1970	10	126	16	813	22	833	27	1494	3	773	8
FLIP91-8L	1053	28	2680	2	740	2	573	27	700	29	511	24	880	4
FLIP91-9L	693	31	-	-	317	6	1000	20	1267	16	517	22	573	20
FLIP91-10L	2307	15	2660	3	363	5	1213	10	1033	23	1061	7	640	15
FLIP91-11L	1187	27	1960	11	49	26	1120	14	1000	24	572	21	573	19
FLIP91-12L	1800	23	-	-	127	15	1507	6	1100	20	1522	2	513	25
Petrovskaja4/105	7053	2	2890	1	553	3	600	26	133	31	489	26	460	27
Petrovsk's Glauc-	3000	10	-	-	173	12	760	23	633	30	106	31	193	31
Sperma														
FLIP92-1L	4773	6	2580	4	87	21	547	28	1267	15	367	30	440	28
FLIP92-2L	1820	21	-	-	195	9	1387	7	1333	11	867	11	720	11
FLIP92-3L	5340	5	-	-	0	30	1547	5	1267	14	728	13	613	17
FLIP92-4L	2847	11	2240	8	96	19	600	26	1567	1	606	19	647	14
FLIP92-5L	987	30	-	-	245	8	1213	10	1467	5	589	20	467	26
FLIP92-6L	1813	22	1490	13	40	27	1160	13	1100	21	1011	9	540	22
FLIP92-7L	5687	4	-	-	83	22	1067	16	1200	18	1278	4	740	9
FLIP92-8L	2573	13	-	-	187	11	1080	15	1167	19	517	23	800	5
FLIP92-9L	2427	14	-	-	93	20	1720	3	1307	12	411	29	527	23
FLIP92-10L	2247	16	2170	9	0	30	1667	4	1400	9	667	17	647	13
FLIP92-11L	3600	8	2420	6	0	30	2227	1	1400	8	1239	5	1060	1
FLIP92-12L	1760	24	-	-	108	17	467	29	1533	2	944	10	670	12
FLIP92-13L	1887	20	-	-	73	23	1013	18	1500	3	506	25	640	16
FLIP92-14L	1353	26	2320	7	103	18	1000	20	1433	6	711	15	780	6
FLIP92-15L	4373	7	1940	12	397	4	1040	17	1367	10	1033	8	733	10
Local check	5707	3	-	-	189	10	0	31	1467	4	1667	1	1053	2
Location Mean	2859		2295		223		1043		1164		786		639	
S.E. of Mean									197.80		300.48		124.23	
L.S.D. at 5%									571.22		-		358.75	
C.V. %									24.04		54.09		27.49	
Error d.f.									30		30		30	
Significance									*		NS		*	
Test > Check									0		-		0	

Cont'd. ...

Table 4.4.5. Cont'd. ...

Entry Name	LEBANON		MEXICO		New Zealand		PAKISTAN		SYRIA					
	Torbol		Sonora		Christchurch		Quetta		Gelline		Heimo		Idleb	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local largo	3333	2	220	30	5063	8	1060	27	2380	20	1509	10	1840	9
78S26002	2400	23	770	6	-	-	1704	3	2575	14	1807	3	980	29
FLIP84-27L	2267	26	480	16	-	-	1276	15	2475	18	1144	26	1520	18
FLIP90-6L	2933	7	330	25	2813	18	1448	12	2650	13	1321	18	1435	21
FLIP90-13L	2933	5	705	8	5500	4	1460	11	2730	10	1619	5	1780	10
FLIP91-3L	2600	14	310	26	5438	5	1168	19	2219	26	1350	16	1140	25
FLIP91-5L	2667	13	360	22	5063	7	1488	10	2320	22	1473	12	2310	1
FLIP91-6L	2533	18	370	21	5000	9	1352	14	1960	28	1153	24	1895	8
FLIP91-8L	2933	6	350	23	3938	11	1092	25	2270	23	1524	9	2090	3
FLIP91-9L	3000	4	270	28	6438	3	1164	20	2430	19	1412	14	1545	17
FLIP91-10L	2733	12	280	27	-	-	1404	13	1850	29	1185	22	1715	12
FLIP91-11L	2533	16	335	24	7938	2	1164	21	2695	11	1228	21	1070	27
FLIP91-12L	2600	15	630	10	3375	15	876	29	2265	24	984	27	985	28
Petrovskaja4/105	1933	30	400	20	-	31	300	30	1750	31	459	30	655	30
Petrovsk's Glauca- Sperma	667	31	100	31	-	-	60	31	1805	30	265	31	565	31
FLIP92-1L	2533	17	445	18	-	-	972	28	3675	1	917	29	1455	20
FLIP92-2L	2800	10	735	7	5250	6	1156	22	2250	25	1615	6	1725	11
FLIP92-3L	2400	22	615	12	-	-	1068	26	3295	3	1323	17	1270	23
FLIP92-4L	2133	28	465	17	4875	10	1504	8	1990	27	1490	11	1680	13
FLIP92-5L	2333	24	780	5	3063	17	1544	7	2515	16	1254	20	2020	6
FLIP92-6L	2200	27	655	9	-	-	1148	23	2505	17	1145	25	1140	24
FLIP92-7L	2400	20	810	4	-	-	1240	17	2965	6	1939	1	1675	14
FLIP92-8L	2733	11	620	11	-	-	1108	24	2360	21	1581	8	1635	15
FLIP92-9L	2467	19	580	14	-	-	1492	9	3105	4	969	28	1505	19
FLIP92-10L	2400	21	510	15	3688	14	1824	2	2560	15	1737	4	2070	5
FLIP92-11L	3267	3	1135	1	-	-	1628	4	2770	9	1589	7	1995	7
FLIP92-12L	2933	8	860	3	-	-	1844	1	2810	8	1466	13	1590	16
FLIP92-13L	2067	29	440	19	3125	16	1252	16	2660	12	1356	15	1095	26
FLIP92-14L	2800	9	605	13	3813	12	1232	18	2850	7	1281	19	2090	4
FLIP92-15L	2267	25	250	29	3750	13	1616	5	2995	5	1165	23	1310	22
Local check	3400	1	915	2	9188	1	1600	6	3395	2	1843	2	2205	2
Location Mean	2555		527		4851		1266		2551		1326		1548	
S.E. of Mean	207.62		130.16		1099.64		238.16		409.85		197.53		390.01	
L.S.D. at 5%	599.57		375.88		3281.32		687.77		-		570.43		-	
C.V. %	11.49		34.94		32.52		26.61		22.72		21.07		35.63	
Error d.f.	30		30		17		30		30		30		30	
Significance	*		*		*		*		NS		*		NS	
Test > Check	0		0		0		0		-		0		-	

Cont'd. ...

Table 4.4.5. Cont'd. ...

Entry Name	SYRIA				TUNISIA				TURKEY				Overall Mean	
	Izra'a		Tel Hadya-HARS		Boja		El Kof		Ankara		Erzurum-2		Y	R
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R		
Local large	800	9	1425	3	1775	25	1900	11	-	-	106	23	1329	14
78S26002	550	21	1265	12	2375	11	1650	23	-	-	176	17	1667	2
FLIP84-27L	900	4	1010	24	2075	18	1800	15	-	-	96	26	1119	29
FLIP90-6L	550	20	1035	23	1725	26	1525	29	-	-	555	4	1212	24
FLIP90-13L	525	22	1175	17	2675	5	2175	3	1301	6	137	19	1404	8
FLIP91-3L	400	29	1115	21	1950	22	1900	12	1511	3	877	1	1271	19
FLIP91-5L	425	28	765	29	1850	23	2250	2	-	-	291	10	1371	11
FLIP91-6L	625	15	1295	9	2175	17	1800	17	1369	5	97	25	1273	18
FLIP91-8L	575	19	905	27	2000	20	2275	1	-	-	47	31	1214	23
FLIP91-9L	850	7	1370	5	2625	6	1875	13	-	-	198	15	1252	21
FLIP91-10L	450	26	1285	11	2000	19	1800	19	1020	7	53	30	1269	20
FLIP91-11L	350	31	1375	4	2275	14	2050	5	-	-	58	29	1162	28
FLIP91-12L	400	30	655	30	1950	21	1800	18	-	-	106	24	1172	27
Petrovskaja4/105	450	27	825	28	2400	9	1275	30	-	-	340	9	1188	26
Petrovsk's Glauca-Sperma	475	24	525	31	1250	29	450	31	-	-	185	16	666	30
FLIP92-1L	800	8	935	26	1175	30	1800	16	857	8	503	5	1330	13
FLIP92-2L	600	18	1205	16	2750	4	1625	26	-	-	201	14	1352	12
FLIP92-3L	725	11	1360	6	1000	31	1625	24	1500	4	95	27	1434	6
FLIP92-4L	650	14	1110	22	2250	15	1975	7	-	-	224	13	1296	16
FLIP92-5L	625	16	1225	14	2350	12	2050	4	286	9	64	28	1285	17
FLIP92-6L	875	5	1120	20	2625	7	1725	22	-	-	363	8	1250	22
FLIP92-7L	600	17	1710	1	2250	16	1600	27	-	-	115	21	1620	3
FLIP92-8L	700	12	1340	8	1825	24	1975	6	-	-	111	22	1314	15
FLIP92-9L	1250	1	1350	7	1675	27	1750	20	-	-	585	2	1372	10
FLIP92-10L	475	25	1290	10	2400	10	1625	25	-	-	490	6	1419	7
FLIP92-11L	750	10	1510	2	2750	3	1950	8	-	-	437	7	1731	1
FLIP92-12L	1050	3	1145	19	3425	1	1925	9	-	-	125	20	1466	5
FLIP92-13L	475	23	1145	18	2325	13	1750	21	-	-	291	11	1211	25
FLIP92-14L	850	6	1205	15	2550	8	1825	14	2449	2	571	3	1374	9
FLIP92-15L	675	13	995	25	2850	2	1900	10	-	-	145	18	1483	4
Local check	1100	2	1225	13	1650	28	1550	28	3673	1	235	12	-	-
Location Mean	662		1158		2160		1780		1552		254			
S.E. of Mean	87.91		204.08		281.50		199.65				22.51			
L.S.D. at 5%	253.87		-		812.91		576.56				65.00			
C.V. %	18.78		24.93		18.43		15.86				12.53			
Error d.f.	30		30		30		30				30			
Significance	*		NS		*		*				*			
Test > Check	0		-		8		3				9			

(1) Khangma, Christchurch and Ankara were excluded from the overall mean.

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

Table 4.4.6. The five heaviest seed yielding entries at the individual locations in the LISN-L during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Australia	Turretfield	78S26002	Petrovskaja4	FLIP 92-7L	FLIP 92-3L	FLIP 92-1L
Bhutan	Khangma	Petrovskaja4	FLIP 91-8L	FLIP 91-10L	FLIP 92-1L	FLIP 90-6L
Canada	Manitoba	FLIP 91-5L	FLIP 91-8L	Petrovskaja4	FLIP 92-15L	FLIP 91-10L
Canada	Saskatchewan	FLIP 92-11L	78S26002	FLIP 92-9L	FLIP 92-10L	FLIP 92-3L
Iran	Qazvin	FLIP 92-4L	FLIP 92-12L	FLIP 92-13L	Local check	FLIP 92-5L
Iran	Karaj	Local check	FLIP 91-12L	FLIP 91-6L	FLIP 92-7L	FLIP 92-11L
Iran	Maragheh	FLIP 92-11L	Local check	Local large	FLIP 91-8L	FLIP 92-8L
Lebanon	Terbol	Local check	Local large	FLIP 92-11L	FLIP 91-9L	FLIP 90-13L
Mexico	Sonora	FLIP 92-11L	Local check	FLIP 92-12L	FLIP 92-7L	FLIP 92-5L
New Zealand	Christchurch	Local check	FLIP 91-11L	FLIP 91-9L	FLIP 90-13L	FLIP 91-3L
Pakistan	Quetta	FLIP 92-12L	FLIP 92-10L	78S26002	FLIP 92-11L	FLIP 92-15L
Syria	Gelline	FLIP 92-1L	Local check	FLIP 92-3L	FLIP 92-9L	FLIP 92-15L
Syria	Heimo	FLIP 92-7L	Local check	78S26002	FLIP 92-10L	FLIP 90-13L
Syria	Idleb	FLIP 91-5L	Local check	FLIP 91-8L	FLIP 92-14L	FLIP 92-10L
Syria	Izra'a	FLIP 92-9L	Local check	FLIP 92-12L	FLIP 84-27L	FLIP 92-6L
Syria	Tel Hadya	FLIP 92-7L	FLIP 92-11L	Local large	FLIP 91-11L	FLIP 91-9L
Tunisia	Beja	FLIP 92-12L	FLIP 92-15L	FLIP 92-11L	FLIP 92-2L	FLIP 90-13L
Tunisia	El Kef	FLIP 91-8L	FLIP 91-5L	FLIP 90-13L	FLIP 92-5L	FLIP 91-11L
Turkey	Ankara	Local check	FLIP 92-14L	FLIP 91-3L	FLIP 92-3L	FLIP 91-6L
Turkey	Erzurum-2	FLIP 91-3L	FLIP 92-9L	FLIP 92-14L	FLIP 90-6L	FLIP 92-1L

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

Material

The Lentil International Screening Nursery-Small Seed comprised 48 test entries and one local check which was to be added by the cooperator. Forty seven 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 48 test entries and one check was sown in a 7x7 simple lattice design in two replications. The suggested plot size was single row 4 m long accommodating 200 plants with between-row spacing of 25 cm.

Twenty two sets of the nursery were supplied to different cooperators in 13 countries but the results were received from 14 locations in 9 countries. The agronomic data received from the cooperators are presented in Table 4.5.1.

Results and Discussion

The data on time to flowering, time to maturity and plant height are given in Tables 4.5.2, 4.5.3, 4.5.4, respectively.

The ANOVA for the experiment revealed that at 6 out of 10 locations analyzed for seed yield, some of the test entries, outyielded the respective local checks by significant margins. The entry means over all locations revealed that FLIP 89-32L was the top yielder with an average yield of 2294 kg/ha and was followed by FLIP 91-14L, FLIP 90-27L, FLIP 89-29L, and FLIP 91-18L with seed yield of 2189, 2149, 2090 and 2107 kg/ha, respectively (Table 4.5.5). The five heaviest seed yielding entries at different locations are given in Table 4.5.6.

4.6. LENTIL INTERNATIONAL SCREENING NURSERY - TALL (LISN-T)

Material

The Lentil International Screening Nursery - Tall, specifically meant for mechanical harvesting, comprised of 27 test entries and one local check which was to be added by the cooperator. Twenty two of the test entries supplied originated through the hybridization and were selected on the basis of their performance at ICARDA sites in Syria and Lebanon.

Methods and Management

The nursery was grown in a randomized block design with two replications. The suggested plot size was a single low plot, 4 m long. The cooperators were urged to use the locally recommended agronomic practices for the management of the nursery.

Table 4.5.1. Agronomic details for LISN-S-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Australia	Horsham	06.06.92	09.01.93	-	80	-	-	Lorsban, Trifluralin, Targa, Lexone	Kye
Australia	Turretfield	-	-	-	-	-	-	-	ILL 5588
Australia	Charlick	-	23.12.92	-	-	-	-	-	ILL 5588
Bhutan	Khangma	20.12.91	—06.92	-	25	25	-	-	-
Bhutan	Yayung	20.12.91	—06.92	-	25	25	-	-	-
Iran	Kaermanshah	29.03.92	-	20	100	-	-	Sevin	Ziba
Lebanon	Terbol	28.11.91	14.06.92	-	50	-	-	Kerb + Fortrol	Lebanese Local
Mexico	Sonora	NA	NA	NA	NA	NA	NA	NA	NA
New Zealand	Christchurch	17.09.92	20.01.93	-	-	-	-	-	Titare
Syria	Gelline	17.12.91	24.05.92	50	20	-	-	-	Hurani 1
Syria	Heimo	26.11.91	04.06.92	-	50	-	-	-	Hurani 1
Syria	Idleb	22.12.91	-	-	60	-	-	Decis	Hurani 1
Syria	Izra'a	11.01.92	17.06.92	-	50	-	-	-	Hurani 1
Syria	Tel Hadya	28.11.91	—05.92	-	50	-	-	-	Hurani 1
Tunisia	El Kef	NA	NA	NA	NA	NA	NA	NA	NA
Turkey	Diyarbakir	19.11.91	25.06.92	30	60	-	-	Kerb + Fortrol	Yerli Kirmizi

NA = Not available

Table 4.5.2. Time to flowering (days) of entries at different locations in the LISN-S during 1991/92.

Entry Name	Acc. No. (ILL)	Pedigree	Origin	AUSTRALIA		IRAN	LEBANON
				Horsham	Turret- field	Kaermanshah	Terbol
Local small	4401	-	Syria	127	< 98	50	147
FLIP89-29L	6787	ILL5582 X ILL4605	ICARDA	129	< 98	52	147
FLIP89-32L	6790	ILL 470 X ILL5582	ICARDA	130	< 98	51	145
FLIP90-17L	6986	ILL 1 X ILL2582	ICARDA	130	< 98	50	147
FLIP90-25L	6994	ILL5588 X ILL 99	ICARDA	126	< 98	49	147
FLIP90-26L	6995	ILL 19 X ILL 223	ICARDA	126	< 98	50	144
FLIP90-27L	6996	ILL 19 X ILL 223	ICARDA	124	98	50	144
FLIP90-31L	7000	ILL4403 X ILL5071	ICARDA	129	98	51	148
FLIP90-32L	7001	ILL4407 X ILL3527	ICARDA	126	< 98	50	145
FLIP90-33L	7002	ILL 784 X ILL 99	ICARDA	127	< 98	51	144
FLIP90-38L	7007	ILL 788 X ILL 223	ICARDA	131	98	51	147
FLIP90-39L	7008	ILL 788 X ILL 223	ICARDA	130	< 98	51	147
FLIP91-13L	7139	ILL 9 X ILL 19	ICARDA	129	< 98	49	149
FLIP91-14L	7140	ILL 9 X ILL 19	ICARDA	130	98	51	151
FLIP91-15L	7141	ILL 9 X ILL 19	ICARDA	129	98	51	149
FLIP91-16L	7142	ILL 9 X ILL 784	ICARDA	129	< 98	50	149
FLIP91-17L	7143	ILL5588 X ILL4401	ICARDA	131	< 98	54	149
FLIP91-18L	7144	ILL5588 X ILL880XILL4349	ICARDA	130	98	53	153
FLIP91-19L	7145	ILL5588 X ILL880XILL4349	ICARDA	130	98	50	149
FLIP91-20L	7146	ILL5676 X ILL4401	ICARDA	129	< 98	51	147
FLIP91-21L	7147	ILL5676 X ILL4401	ICARDA	129	98	51	148
FLIP91-22L	7148	ILL5827 X ILL 223	ICARDA	132	98	51	152
FLIP91-23L	7149	ILL 1 X ILL1861	ICARDA	127	< 98	51	147
FLIP91-24L	7150	ILL 1 X ILL1861	ICARDA	127	< 98	51	145
FLIP91-25L	7151	ILL5486 X ILL1861	ICARDA	130	< 98	51	152
FLIP92-16L	7181	ILL5684 X ILL4401	ICARDA	132	< 98	51	149
FLIP92-17L	7182	ILL5684 X ILL4401	ICARDA	134	98	51	148
FLIP92-18L	7183	ILL4354 X ILL4605XILL4349	ICARDA	130	98	51	148
FLIP92-19L	7184	ILL4354 X ILL4605XILL4349	ICARDA	130	98	51	147

Entry Name	Acc. No. (ILL)	Pedigree	Origin	AUSTRALIA		IRAN	LEBANON
				Horsham	Turret- field	Kaermanshah	Terbol
FLIP92-20L	7185	ILL4354 X ILL4606XILL4349	ICARDA	131	< 98	51	148
FLIP92-21L	7186	ILL4354 X ILL5753	ICARDA	126	< 98	51	144
FLIP92-22L	7187	ILL5743 X ILL5588	ICARDA	128	98	52	151
FLIP92-23L	7188	ILL5572 X ILL4401	ICARDA	129	< 98	51	145
FLIP92-24L	7189	ILL5572 X ILL5726	ICARDA	127	< 98	53	143
FLIP92-25L	7190	ILL5572 X ILL5883	ICARDA	129	98	52	146
FLIP92-26L	7191	ILL5583 X ILL5726	ICARDA	124	< 98	51	146
FLIP92-27L	7192	ILL5588 X ILL5883	ICARDA	130	< 98	51	149
FLIP92-28L	7193	ILL5588 X ILL5883	ICARDA	133	98	51	147
FLIP92-29L	7194	ILL1868 X ILL5726	ICARDA	129	< 98	51	144
FLIP92-30L	7195	ILL1868 X ILL5726	ICARDA	125	< 98	50	143
FLIP92-31L	7196	ILL1868 X ILL5726	ICARDA	127	< 98	51	143
FLIP92-32L	7197	ILL1868 X ILL5883	ICARDA	130	98	52	149
FLIP92-33L	7198	ILL1939 X ILL 975	ICARDA	127	98	51	146
FLIP92-34L	7199	ILL1939 X ILL5883	ICARDA	129	< 98	50	147
FLIP92-35L	7200	ILL5690 X ILL5722	ICARDA	128	< 98	49	150
FLIP92-36L	7201	ILL5879 X ILL5714	ICARDA	129	98	53	147
FLIP92-37L	7202	ILL5879 X ILL5722	ICARDA	125	< 98	52	147
FLIP92-38L	7203	ILL2578 X ILL2582	ICARDA	126	< 98	50	145
Local check	-	-	-	122	< 98	51	152
Location Mean				129	98	51	147
S.E. of Mean				0.00		0.07	0.55
L.S.D. at 5%				0.01		0.21	1.59
C.V. %				0.00		0.20	0.53
Error d.f.				36		36	36
Significance				*		*	*

Cont'd. ...

Table 4.5.2. Cont'd. ...

Entry Name	NEW ZEALAND MEXICO		SYRIA				TURKEY		(1) Overall
	Christchurch	Sonora	Gelline	Heimo	Idleb	Izra'a Tel Hadya- NARS	Diyarbakir	Mean	
Local small	68	104	117	148	114	103	135	134	111
FLIP89-29L	71	104	117	148	113	102	132	128	112
FLIP89-32L	65	100	115	150	112	101	132	128	110
FLIP90-17L	65	95	116	155	112	101	135	132	111
FLIP90-25L	65	94	116	154	112	100	134	134	110
FLIP90-26L	62	104	116	149	112	101	132	134	110
FLIP90-27L	64	100	115	149	112	100	130	128	109
FLIP90-31L	70	104	117	151	118	103	136	133	113
FLIP90-32L	63	102	116	152	114	101	132	130	110
FLIP90-33L	69	100	116	149	117	102	134	127	111
FLIP90-38L	67	104	117	150	117	103	134	132	112
FLIP90-39L	63	104	116	154	116	103	134	134	112
FLIP91-13L	65	94	117	155	119	103	135	134	112
FLIP91-14L	71	93	119	155	120	104	137	131	113
FLIP91-15L	71	97	118	152	119	104	140	134	113
FLIP91-16L	64	93	116	154	116	103	136	128	111
FLIP91-17L	68	104	118	145	118	102	135	128	112
FLIP91-18L	71	100	118	149	122	105	138	139	114
FLIP91-19L	69	100	117	151	120	104	137	134	113
FLIP91-20L	69	101	117	150	114	101	135	130	111
FLIP91-21L	65	100	117	149	114	102	135	128	111
FLIP91-22L	71	104	118	151	119	102	139	133	114
FLIP91-23L	64	93	116	150	112	101	132	128	109
FLIP91-24L	70	88	116	154	116	101	133	134	110
FLIP91-25L	64	97	118	147	119	103	141	130	112
FLIP92-16L	63	101	118	154	116	104	137	135	113
FLIP92-17L	69	104	117	156	120	102	137	133	114
FLIP92-18L	68	104	118	151	118	101	136	135	113
FLIP92-19L	69	104	118	152	117	100	137	128	113

Entry Name	NEW ZEALAND MEXICO		SYRIA				TURKEY		(1) Overall
	Christchurch	Sonora	Gelline	Heimo	Idleb	Izra'a Tel Hadya-NARS	Diyarbakir	Mean	
FLIP92-20L	65	104	118	151	118	102	137	134	113
FLIP92-21L	64	93	115	148	112	100	131	127	108
FLIP92-22L	69	95	117	153	118	104	140	133	113
FLIP92-23L	63	104	116	149	115	104	132	134	111
FLIP92-24L	69	102	115	150	113	101	131	132	110
FLIP92-25L	64	100	116	150	115	103	134	128	111
FLIP92-26L	64	95	115	149	113	100	132	132	109
FLIP92-27L	65	104	116	153	118	102	141	-	113
FLIP92-28L	65	100	117	149	116	101	137	127	112
FLIP92-29L	69	104	115	150	113	102	131	-	111
FLIP92-30L	65	100	115	152	113	100	132	135	110
FLIP92-31L	69	102	114	149	112	100	131	128	110
FLIP92-32L	65	99	117	154	117	103	138	135	112
FLIP92-33L	69	100	115	151	114	102	133	132	111
FLIP92-34L	68	100	116	152	113	101	135	135	111
FLIP92-35L	65	94	116	152	117	103	134	139	111
FLIP92-36L	65	100	117	148	113	102	133	139	111
FLIP92-37L	71	97	116	150	113	100	132	134	110
FLIP92-38L	65	95	115	151	112	100	132	134	109
Local check	71	93	117	139	118	104	138	139	-
Location Mean	67	99	116	150	115	102	135	132	
S.E. of Mean	0.63	0.88	0.60	0.93	1.40	0.63	0.87		
L.S.D. at 5%	1.82	2.49	1.71	2.63	3.99	1.80	2.47		
C.V. %	1.34	1.25	0.73	0.87	1.72	0.87	0.91		
Error d.f.	36	48	36	48	48	36	48		
Significance	*	*	*	*	*	*	*		

(1) Turretfield and Diyarbakir were excluded from the overall mean, * = Significant at $P \leq 0.05$.

Table 4.5.3. Time to maturity (days) of entries at different locations in the LISN-S during 1991/92.

Entry Name	AUSTRALIA		BHUTAN	IRAN	LEBANON	MEXICO	SYRIA
	Horsham	Turretfield	Khangma	Kaermanshah	Terbol	Sonora	Gelline
Local small	207	219	160	79	187	128	153
FLIP89-29L	206	210	-	79	189	128	156
FLIP89-32L	207	210	-	80	189	126	153
FLIP90-17L	209	219	-	81	187	121	153
FLIP90-25L	209	210	-	80	187	118	153
FLIP90-26L	204	210	167	80	188	128	153
FLIP90-27L	205	210	162	80	188	128	152
FLIP90-31L	206	219	-	80	188	128	154
FLIP90-32L	208	210	-	79	186	128	153
FLIP90-33L	209	210	173	82	185	128	151
FLIP90-38L	242	235	-	78	189	128	153
FLIP90-39L	207	235	-	79	188	128	152
FLIP91-13L	209	210	177	78	188	118	156
FLIP91-14L	208	235	-	78	190	120	159
FLIP91-15L	210	219	169	80	189	125	155
FLIP91-16L	207	235	-	79	188	120	152
FLIP91-17L	204	210	165	80	186	128	152
FLIP91-18L	208	219	167	81	191	128	160
FLIP91-19L	208	235	-	80	189	128	157
FLIP91-20L	210	-	-	80	188	127	154
FLIP91-21L	210	235	170	78	188	128	152
FLIP91-22L	207	210	-	81	189	128	153
FLIP91-23L	208	235	173	81	190	118	153
FLIP91-24L	209	210	-	80	188	115	156
FLIP91-25L	207	235	-	79	187	125	157
FLIP92-16L	207	-	165	82	188	127	151
FLIP92-17L	204	235	174	80	187	128	154
FLIP92-18L	205	235	-	81	187	128	152
FLIP92-19L	206	235	-	79	189	128	154

Entry Name	AUSTRALIA		BHUTAN	IRAN	LEBANON	MEXICO	SYRIA
	Horsham	Turretfield	Khangma	Kaermanshah	Terbol	Sonora	Gelline
FLIP92-20L	206	210	169	79	189	128	154
FLIP92-21L	209	210	165	81	189	118	152
FLIP92-22L	209	-	-	80	189	118	154
FLIP92-23L	205	235	-	79	186	128	151
FLIP92-24L	208	-	-	80	189	128	153
FLIP92-25L	208	235	171	79	188	128	152
FLIP92-26L	205	219	167	80	188	118	153
FLIP92-27L	204	210	-	79	188	128	151
FLIP92-28L	205	-	-	82	186	128	153
FLIP92-29L	208	210	167	78	189	128	151
FLIP92-30L	206	219	168	79	189	128	150
FLIP92-31L	204	219	173	79	187	128	152
FLIP92-32L	209	-	172	81	189	128	155
FLIP92-33L	208	219	-	81	189	128	152
FLIP92-34L	209	235	-	81	188	128	158
FLIP92-35L	207	210	-	81	192	120	155
FLIP92-36L	207	210	-	81	190	128	156
FLIP92-37L	207	235	167	79	189	125	154
FLIP92-38L	207	-	170	80	189	118	150
Local check	203	210	-	79	193	118	153
Location Mean	208	221	169	80	188	125	154
S.E. of Mean	5.50			0.21	0.64	0.52	1.70
L.S.D. at 5%	-			0.62	1.84	1.47	4.87
C.V. %	3.75			0.38	0.48	0.58	1.56
Error d.f.	48			36	36	48	36
Significance	NS			*	*	*	*

Cont'd. ...

Table 4.5.3. Cont'd. ...

Entry Name	SYRIA				TURKEY	(1) Overall Mean
	Heimo	Idleb	Izra'a	Tel Hadya- NARS	Diyarbakır	
Local small	170	157	149	171	173	156
FLIP89-29L	172	158	153	171	173	157
FLIP89-32L	179	155	152	172	174	157
FLIP90-17L	180	157	151	174	182	157
FLIP90-25L	174	158	151	172	181	156
FLIP90-26L	172	158	150	172	175	156
FLIP90-27L	170	155	151	172	175	156
FLIP90-31L	171	158	153	174	178	157
FLIP90-32L	176	156	152	172	182	157
FLIP90-33L	175	157	152	173	182	157
FLIP90-38L	180	157	154	174	177	162
FLIP90-39L	175	160	151	172	175	157
FLIP91-13L	172	159	153	172	173	156
FLIP91-14L	177	159	153	178	182	158
FLIP91-15L	171	159	152	175	179	157
FLIP91-16L	171	159	153	175	179	156
FLIP91-17L	180	156	154	174	182	157
FLIP91-18L	169	161	153	177	183	159
FLIP91-19L	176	159	153	178	184	159
FLIP91-20L	180	160	151	175	181	158
FLIP91-21L	169	160	151	174	177	157
FLIP91-22L	180	156	151	173	175	158
FLIP91-23L	179	158	154	175	179	157
FLIP91-24L	173	159	153	174	177	156
FLIP91-25L	173	160	154	177	183	158
FLIP92-16L	173	159	154	174	175	157
FLIP92-17L	169	159	151	172	179	156
FLIP92-18L	176	159	152	173	178	157
FLIP92-19L	176	158	150	175	175	157

Entry Name	SYRIA				TURKEY	(1) Overall Mean
	Heimo	Idleb	Izra'a	Tel Hadya-NARS	Diyarbakir	
FLIP92-20L	170	158	149	173	175	156
FLIP92-21L	181	157	153	171	181	157
FLIP92-22L	171	160	153	177	180	157
FLIP92-23L	170	157	150	171	175	155
FLIP92-24L	171	160	151	175	179	157
FLIP92-25L	169	160	151	173	178	156
FLIP92-26L	172	158	151	174	173	155
FLIP92-27L	172	157	151	174	-	156
FLIP92-28L	171	159	153	175	183	157
FLIP92-29L	178	160	152	174	-	158
FLIP92-30L	173	161	152	177	179	157
FLIP92-31L	179	160	152	174	177	157
FLIP92-32L	172	161	154	176	186	158
FLIP92-33L	169	158	152	175	182	157
FLIP92-34L	178	160	153	175	186	159
FLIP92-35L	168	160	155	175	176	157
FLIP92-36L	171	161	152	174	176	158
FLIP92-37L	169	159	152	176	174	157
FLIP92-38L	171	159	152	172	175	155
Local check	173	157	152	174	182	-
Location Mean	174	159	152	174	178	
S.E. of Mean	1.13	0.99	0.71	1.29		
L.S.D. at 5%	3.25	2.84	2.05	3.69		
C.V. %	0.92	0.88	0.66	1.05		
Error d.f.	36	36	36	36		
Significance	*	*	*	*		

(1) Turretfield, Khangma and Diyarbakir were excluded from the overall mean.

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

Table 4.5.4. Plant height (cm) of entries at different locations in the LISN-S during 1991/92.

Entry Name	AUSTRALIA	BHUTAN	IRAN	LEBANON	MEXICO	NEW ZEALAND	SYRIA
	Horsham	Khangma	Kaermanshah	Terbol	Sonora	Christchurch	Gelline
Local small	42	32	25	27	39	19	30
FLIP89-29L	45	-	26	30	41	19	30
FLIP89-32L	43	-	28	31	40	26	28
FLIP90-17L	43	-	23	30	42	18	27
FLIP90-25L	45	-	25	31	33	24	29
FLIP90-26L	50	33	29	29	41	17	32
FLIP90-27L	48	28	27	31	43	16	30
FLIP90-31L	45	-	28	29	43	32	30
FLIP90-32L	50	-	26	28	37	15	30
FLIP90-33L	50	34	26	28	38	16	32
FLIP90-38L	51	-	30	34	43	21	29
FLIP90-39L	42	-	30	30	45	19	28
FLIP91-13L	45	13	29	30	45	24	33
FLIP91-14L	58	-	26	30	43	34	31
FLIP91-15L	55	33	25	29	47	31	30
FLIP91-16L	50	-	25	29	41	19	28
FLIP91-17L	43	27	25	28	44	27	30
FLIP91-18L	48	31	23	32	46	30	33
FLIP91-19L	48	-	27	31	39	23	30
FLIP91-20L	50	-	25	28	41	23	29
FLIP91-21L	47	31	25	27	41	16	29
FLIP91-22L	46	-	26	29	43	24	28
FLIP91-23L	45	34	27	31	38	13	27
FLIP91-24L	48	-	22	29	40	18	28
FLIP91-25L	44	-	22	27	35	25	29
FLIP92-16L	51	33	30	28	36	21	27
FLIP92-17L	43	29	29	31	45	23	31
FLIP92-18L	43	-	24	29	42	23	30
FLIP92-19L	43	-	26	30	37	24	26

	AUSTRALIA	BHUTAN	IRAN	LEBANON	MEXICO	NEW ZEALAND	SYRIA
Entry Name	Horsham	Khangma	Kaermanshah	Terbol	Sonora	Christchurch	Gelline
FLIP92-20L	43	34	28	30	39	26	29
FLIP92-21L	50	53	22	27	40	21	30
FLIP92-22L	45	-	24	29	33	22	30
FLIP92-23L	43	-	37	29	43	25	26
FLIP92-24L	45	-	26	30	38	21	29
FLIP92-25L	48	38	25	29	35	17	31
FLIP92-26L	50	37	18	27	45	18	30
FLIP92-27L	38	-	24	30	45	20	28
FLIP92-28L	53	-	23	28	44	25	26
FLIP92-29L	48	30	27	30	41	22	29
FLIP92-30L	45	30	26	25	40	21	27
FLIP92-31L	50	31	28	29	33	22	28
FLIP92-32L	51	35	28	31	45	22	30
FLIP92-33L	48	-	25	30	44	28	28
FLIP92-34L	46	-	29	30	39	19	32
FLIP92-35L	51	-	26	30	45	16	30
FLIP92-36L	50	-	26	28	39	26	29
FLIP92-37L	48	33	27	28	38	28	29
FLIP92-38L	43	35	24	27	42	20	27
Local check	48	-	22	33	40	18	30
Location Mean	47	32	26	29	41	22	29
S.E. of Mean	2.97		0.22	1.73	2.52	2.32	1.38
L.S.D. at 5%	8.45		0.64	4.95	7.23	6.65	3.93
C.V. %	8.99		1.22	8.34	8.75	14.95	6.74
Error d.f.	48		48	36	36	36	48
Significance	*		*	*	*	*	*

Cont'd. ...

Table 4.5.4. Cont'd. ...

Entry Mean	SYRIA				TURKEY	(1) Overall Mean
	Heimo	Idleb	Izra'a	Tel Hadya- NARS	Diyarbakir	
Local small	29	33	18	29	27	29
FLIP89-29L	28	31	22	27	25	30
FLIP89-32L	31	26	20	27	32	30
FLIP90-17L	30	25	20	25	34	28
FLIP90-25L	24	31	19	26	32	29
FLIP90-26L	30	31	22	26	27	31
FLIP90-27L	25	31	22	30	25	30
FLIP90-31L	26	30	20	25	37	31
FLIP90-32L	25	22	17	26	30	29
FLIP90-33L	26	35	17	23	26	29
FLIP90-38L	30	30	20	26	35	31
FLIP90-39L	32	32	21	24	33	30
FLIP91-13L	33	31	22	26	29	32
FLIP91-14L	35	28	21	25	34	33
FLIP91-15L	30	29	21	26	32	32
FLIP91-16L	30	27	22	28	26	30
FLIP91-17L	30	30	20	28	36	31
FLIP91-18L	30	30	21	27	35	32
FLIP91-19L	25	32	22	28	40	31
FLIP91-20L	29	29	21	26	27	30
FLIP91-21L	30	30	19	23	33	29
FLIP91-22L	26	29	20	26	33	30
FLIP91-23L	30	25	20	26	33	28
FLIP91-24L	29	30	20	25	25	29
FLIP91-25L	29	30	18	23	32	28
FLIP92-16L	29	36	17	25	32	30
FLIP92-17L	34	26	21	23	30	31
FLIP92-18L	30	28	21	23	26	29
FLIP92-19L	30	26	19	23	30	28

Entry Mean	SYRIA				TURKEY	(1) Overall Mean
	Heimo	Idleb	Izra'a	Tel Hadya- NARS	Diyarbakir	
FLIP92-20L	31	28	16	25	38	30
FLIP92-21L	28	28	18	27	27	29
FLIP92-22L	26	30	20	22	31	28
FLIP92-23L	31	24	17	23	30	30
FLIP92-24L	35	28	14	26	36	29
FLIP92-25L	26	27	19	25	35	28
FLIP92-26L	34	33	21	26	29	30
FLIP92-27L	30	26	19	23	-	28
FLIP92-28L	28	28	20	26	28	30
FLIP92-29L	29	33	20	26	-	31
FLIP92-30L	31	30	18	25	34	29
FLIP92-31L	30	30	21	25	29	30
FLIP92-32L	29	32	20	24	30	31
FLIP92-33L	28	27	20	27	28	31
FLIP92-34L	29	33	21	27	37	31
FLIP92-35L	33	30	22	28	31	31
FLIP92-36L	29	32	17	25	27	30
FLIP92-37L	31	27	16	25	25	30
FLIP92-38L	31	30	18	25	33	29
Local check	27	34	18	24	46	-
Location Mean	29	29	20	26	31	
S.E. of Mean	0.92	2.19	0.10	1.39		
L.S.D. at 5%	2.64	-	0.29	3.98		
C.V. %	4.43	10.52	0.74	7.67		
Error d.f.	36	48	36	36		
Significance	*	NS	*	*		

(1) Khangma and Diyarbakir were excluded from the overall mean.

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

Table 4.5.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LISN-S during 1991/92.

Entry Name	AUSTRALIA				BHUTAN		IRAN		LEBANON		MEXICO		NEW SEALAND		SYRIA	
	Turretfield		Charlick		Khangma		Kaermanshah		Terbol		Sonora		Christchurch		Gelline	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local small	3380	18	3865	11%	2170	8	1301	30	2055	39	276	40	3183	30	2110	33
FLIP89-29L	0	49	615	19%	-	-	1450	14	2841	9	321	34	5918	3	2435	14
FLIP89-32L	60	46	-	-	-	-	1531	10	3105	4	526	19	7332	1	2435	13
FLIP90-17L	3390	17	-	-	-	-	1255	32	1701	47	924	10	2947	38	1945	41
FLIP90-25L	350	40	9430	2	-	-	1119	38	1766	44	278	39	3438	27	2145	32
FLIP90-26L	2030	29	1600	16	2370	7	1480	13	2404	19	259	44	3173	31	2510	11
FLIP90-27L	1710	33	-	-	2000	10	1600	9	2971	6	232	47	3471	25	3015	3
FLIP90-31L	7540	1	4815	9	-	-	1514	12	3948	1	358	29	2826	41	2320	19
FLIP90-32L	60	46	-	-	-	-	2024	1	2615	12	319	35	2745	42	2560	9
FLIP90-33L	910	37	-	-	1930	12	1763	5	2282	22	456	24	3659	22	2740	5
FLIP90-38L	4370	6	-	-	-	-	1324	26	3067	5	262	43	3029	36	2510	10
FLIP90-39L	5160	5	-	-	-	-	1397	22	2540	15	268	41	3519	24	2160	31
FLIP91-13L	60	46	-	-	1820	13	1393	23	2426	18	677	14	4246	12	2235	29
FLIP91-14L	1070	36	1260	17	-	-	1809	4	2937	7	1333	3	5788	5	2315	21
FLIP91-15L	1220	34	930	18	2800	2	1526	11	2204	28	932	9	2957	37	2220	30
FLIP91-16L	3440	16	-	-	-	-	1298	31	1941	41	502	21	2860	40	2245	28
FLIP91-17L	230	44	-	-	2660	4	1229	34	3293	2	329	32	3669	21	2650	6
FLIP91-18L	5730	3	-	-	2920	1	1423	16	2893	8	1044	8	3385	29	3015	2
FLIP91-19L	780	39	2770	14	-	-	1408	21	2537	16	344	31	3572	23	2265	26
FLIP91-20L	250	43	-	-	-	-	1303	29	1904	42	512	20	2928	39	1565	48
FLIP91-21L	3750	14	-	-	2640	5	1950	2	2229	26	760	13	2288	49	2270	25
FLIP91-22L	270	41	-	-	-	-	885	44	2678	10	224	48	5284	7	2300	22
FLIP91-23L	2900	20	225	21	1460	19	1646	7	2563	13	1060	5	3082	34	3085	1
FLIP91-24L	260	42	340	20	-	-	839	46	2248	24	346	30	2375	48	2030	36
FLIP91-25L	1790	32	-	-	-	-	710	48	1606	48	315	36	3408	28	1405	49
FLIP92-16L	1940	30	8440	3	2010	9	1915	3	2126	35	285	38	2625	45	2590	8
FLIP92-17L	2620	25	-	-	1960	11	1050	41	2256	23	156	49	2500	47	2050	35
FLIP92-18L	2310	27	-	-	-	-	1660	6	2163	34	303	37	5851	4	2465	12
FLIP92-19L	5600	4	10615	1	-	-	1153	37	2168	32	542	17	2731	43	2025	37

Entry Name	AUSTRALIA				BHUTAN		IRAN		LEBANON		MEXICO		NEW SEALAND		SYRIA	
	Turretfield		Charlick		Khangma		Kaermanshah		Terbol		Sonora		Christchurch		Gelline	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-20L	0	49	-	-	1690	16	1342	25	2189	29	243	46	3461	26	2260	27
FLIP92-21L	810	38	-	-	1330	22	1638	8	2163	33	1159	4	3991	14	2015	39
FLIP92-22L	1900	31	3340	13	-	-	1252	33	2185	30	479	22	2673	44	1745	47
FLIP92-23L	2800	24	5620	8	-	-	386	49	1704	46	537	18	5505	6	1845	44
FLIP92-24L	2510	26	-	-	-	-	1319	27	2547	14	325	33	3735	19	2625	7
FLIP92-25L	6020	2	8380	4	1700	15	1105	39	2647	11	413	25	3856	18	2320	20
FLIP92-26L	4610	7	5495	7	1560	17	863	45	1734	45	402	26	3135	33	2025	38
FLIP92-27L	2810	23	6300	6	-	-	824	47	2078	36	249	45	2504	46	1920	42
FLIP92-28L	3700	15	-	-	-	-	1000	43	2004	40	597	16	3034	35	2085	34
FLIP92-29L	4260	10	-	-	1400	21	1408	19	2307	21	267	42	4265	11	2345	18
FLIP92-30L	3800	13	-	-	2760	3	1432	15	2241	25	626	15	4101	13	2360	17
FLIP92-31L	4130	11	3985	10	1820	13	1223	35	2329	20	390	27	4505	9	2375	16
FLIP92-32L	2810	23	-	-	1520	18	1307	28	2223	27	789	12	3909	17	2385	15
FLIP92-33L	4390	8	7075	5	-	-	1043	42	2078	37	474	23	3726	20	2300	23
FLIP92-34L	3370	19	-	-	-	-	1421	17	2465	17	359	28	4442	10	2870	4
FLIP92-35L	1080	35	-	-	-	-	1361	24	2178	31	1690	1	3938	15	1825	45
FLIP92-36L	4290	9	-	-	-	-	1202	36	1821	43	863	11	3914	16	2010	40
FLIP92-37L	4120	12	-	-	1460	19	1417	18	2067	38	1050	7	4726	8	1785	46
FLIP92-38L	2890	21	1758	15	2610	6	1093	40	1585	49	1427	2	3139	32	1905	43
Local check	2040	28	3425	12	-	-	1408	20	3255	3	1056	6	7028	2	2275	24
Location Mean	2570		4251		2027		1327		2352		562		3763		2263	
S.E. of Mean							200.72		255.76		118.91		510.52		213.98	
L.S.D. at 5%							575.64		733.47		341.02		1464.10		608.29	
C.V. %							21.40		15.38		29.92		19.19		13.37	
Error d.f.							36		36		36		36		48	
Significance							*		*		*		*		*	
Efficiency							102.25		105.50		101.91		113.90		-	
Test > Check							1		0		2		0		3	

Cont'd. ...

Table 4.5.5. Cont'd. ...

Entry Name	SYRIA								TUNISIA		TURKEY		(1)	
	Heimo		Idleb		Izra'a		Tel Hadya-NARS		El Kef		Diyarbakir		Overall Mean	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
Local small	1443	19	2085	1	1750	27	1353	9	1217	48	1400	8	1677	31
FLIP89-29L	1663	7	960	36	1550	40	1318	11	2442	2	733	26	2090	4
FLIP89-32L	1148	38	1160	29	2125	11	1506	5	2073	9	1767	4	2294	1
FLIP90-17L	1297	27	1405	16	1750	28	787	40	2348	4	1467	7	1636	34
FLIP90-25L	1146	39	1470	12	1550	43	1053	25	2362	3	433	34	1633	35
FLIP90-26L	2157	1	1375	17	1775	26	1025	29	1463	47	633	31	1762	27
FLIP90-27L	1833	4	1445	14	2650	2	1629	2	2642	1	700	29	2149	3
FLIP90-31L	1812	6	1225	27	1700	30	906	34	2288	6	1067	14	1890	12
FLIP90-32L	1499	17	1645	5	1950	18	1526	4	1615	39	1300	9	1850	14
FLIP90-33L	1169	36	1550	9	1850	23	1182	19	1678	34	700	30	1833	19
FLIP90-38L	1254	28	1305	22	2425	5	803	39	1886	17	967	18	1787	23
FLIP90-39L	1490	18	1075	34	2500	4	1170	20	1934	13	1300	10	1805	21
FLIP91-13L	1652	9	935	37	2150	9	1250	14	1565	43	1267	11	1853	13
FLIP91-14L	1895	2	1120	31	1875	21	925	32	1893	16	2100	1	2189	2
FLIP91-15L	1499	16	850	40	1550	42	1232	16	1804	23	400	37	1677	30
FLIP91-16L	1437	21	520	49	1700	29	1108	23	1692	32	1267	12	1530	41
FLIP91-17L	1661	8	925	39	1600	37	1297	13	1833	19	800	24	1849	16
FLIP91-18L	1851	3	1440	15	2300	6	1241	15	1580	41	133	47	2017	5
FLIP91-19L	1432	22	1120	30	1675	34	1791	1	1720	30	833	21	1786	24
FLIP91-20L	1645	11	1300	24	2000	16	1437	8	1815	21	1900	3	1641	32
FLIP91-21L	1178	35	1480	11	1800	25	1439	7	1674	35	1700	5	1707	28
FLIP91-22L	1167	37	1285	26	1600	38	1324	10	1746	27	767	25	1849	15
FLIP91-23L	1417	23	1340	19	2200	7	1590	3	1755	26	467	33	1974	6
FLIP91-24L	1231	31	690	45	1350	46	816	37	1016	49	367	39	1294	47
FLIP91-25L	595	48	780	42	1125	48	426	49	1633	37	167	46	1200	48
FLIP92-16L	963	44	1745	4	1550	41	805	38	1765	24	800	23	1637	33
FLIP92-17L	961	45	670	46	2125	12	1062	24	1560	45	567	32	1439	44
FLIP92-18L	1187	33	985	35	1900	20	1041	27	1618	38	233	45	1917	10
FLIP92-19L	1239	30	1610	7	2000	15	589	48	1826	20	733	27	1588	38

Entry Name	SYRIA								TUNISIA		TURKEY		(1)	
	Helmo		Idleb		Izra'a		Tel Hadya-NARS		El Kef		Diyarbakir		Overall Mean	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-20L	1043	41	740	44	1700	33	1051	26	1901	15	1033	15	1593	37
FLIP92-21L	1564	14	1290	25	1850	24	1231	17	1547	46	333	40	1845	17
FLIP92-22L	514	49	745	43	1525	44	724	42	1729	29	267	43	1357	46
FLIP92-23L	1208	32	1340	20	850	49	851	36	1595	40	433	35	1582	39
FLIP92-24L	1574	12	1610	8	1850	22	1317	12	2305	5	833	22	1921	9
FLIP92-25L	1319	26	825	41	1975	17	1142	21	2096	7	1633	6	1770	26
FLIP92-26L	1180	34	1300	23	1650	36	778	41	1991	11	967	17	1506	42
FLIP92-27L	1055	40	1545	10	1250	47	672	44	1764	25	-	-	1386	45
FLIP92-28L	1437	20	1105	32	1650	35	872	35	1653	36	333	41	1544	40
FLIP92-29L	1549	15	1760	3	2200	8	1209	18	1834	18	-	-	1914	11
FLIP92-30L	1019	43	930	38	2750	1	953	30	1574	42	400	36	1799	22
FLIP92-31L	1647	10	1640	6	2100	13	1041	28	1983	12	1000	16	1923	8
FLIP92-32L	1245	29	1765	2	2150	10	918	33	1746	28	900	20	1844	18
FLIP92-33L	1019	42	1100	33	1700	32	1464	6	1916	14	933	19	1682	29
FLIP92-34L	1817	5	1350	18	1925	19	1124	22	1812	22	1100	13	1959	7
FLIP92-35L	1572	13	660	47	2600	3	943	31	1561	44	300	42	1833	20
FLIP92-36L	805	47	1315	21	1550	39	720	43	2075	8	267	44	1628	36
FLIP92-37L	1391	25	1225	28	1400	45	646	45	2013	10	367	38	1772	25
FLIP92-38L	870	46	590	48	1700	31	633	46	1701	31	733	28	1464	43
Local check	1408	24	1460	13	2100	14	619	47	1686	33	2067	2	-	-
Location Mean	1350		1220		1848		1072		1815		870			
S.E. of Mean	221.98		312.61		245.05		180.65		199.53					
L.S.D. at 5%	636.60		-		696.59		518.08		572.22					
C.V. %	23.25		36.23		18.75		23.83		15.55					
Error d.f.	36		48		48		36		36					
Significance	*		NS		*		*		*					
Efficiency	102.08		-		-		104.74		107.91					
Test > Check	1		-		0		21		6					

(1) Turretfield (some parts of field were waterlogged leading to biased results), Khangma and Diyarbakir were excluded from the overall mean, * = Significant at $P \leq 0.05$, NS = Not significant.

Table 4.5.6. The five heaviest seed yielding entries at the individual locations in the LISN-S during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Australia	Charlick	FLIP 92-19L	FLIP 90-25L	FLIP 92-16L	FLIP 92-25L	FLIP 92-33L
Australia	Turretfield	FLIP 90-31L	FLIP 92-25L	FLIP 91-18L	FLIP 92-19L	FLIP 90-39L
Bhutan	Khangma	FLIP 91-18L	FLIP 91-15L	FLIP 92-30L	FLIP 91-17L	FLIP 91-21L
Iran	Kaermanshah	FLIP 90-32L	FLIP 91-21L	FLIP 92-16L	FLIP 91-14L	FLIP 90-33L
Lebanon	Terbol	FLIP 90-31L	FLIP 91-17L	Local check	FLIP 89-32L	FLIP 90-38L
Mexico	Sonora	FLIP 92-35L	FLIP 92-38L	FLIP 91-14L	FLIP 92-21L	FLIP 91-23L
New Zealand	Christchurch	FLIP 89-32L	Local check	FLIP 89-29L	FLIP 92-18L	FLIP 91-14L
Syria	Gelline	FLIP 91-23L	FLIP 91-18L	FLIP 90-27L	FLIP 92-34L	FLIP 90-33L
Syria	Heimo	FLIP 90-26L	FLIP 91-14L	FLIP 91-18L	FLIP 90-27L	FLIP 92-34L
Syria	Idleb	Local small	FLIP 92-32L	FLIP 92-29L	FLIP 92-16L	FLIP 90-32L
Syria	Izra'a	FLIP 92-30L	FLIP 90-27L	FLIP 92-35L	FLIP 90-39L	FLIP 90-38L
Syria	Tel Hadya-NARS	FLIP 91-19L	FLIP 90-27L	FLIP 91-23L	FLIP 90-32L	FLIP 89-32L
Tunisia	El Kef	FLIP 90-27L	FLIP 89-29L	FLIP 90-25L	FLIP 90-17L	FLIP 92-24L
Turkey	Diyarbakir	FLIP 91-14L	Local Check	FLIP 91-20L	FLIP 89-32L	FLIP 91-21L

Forty sets of nursery were distributed to cooperators in 19 countries and the data were received for 29 sets from 13 countries. The data on agronomic characters received from the cooperators are presented in Table 4.6.1.

Results and Discussion

The time to flowering and time to maturity for different entries at different locations are given in Tables 4.6.2 and 4.6.3, respectively. The plant height data (Table 4.6.4) revealed that the entries ILL 468, ILL 1939, Syrian Local Small, FLIP 85-33L and FLIP 89-33L were the tallest with average plant height of 33 cm over all the locations.

The location mean for seed yield (Table 4.6.5) was highest at Turretfield in Australia (2845 Kg/ha) and was followed by Terbol (2474 kg/ha) in Lebanon and Gelline (2377 kg/ha) in Syria. Among the entries, FLIP 84-59L gave the highest seed yield of 1739 kg/ha which was closely followed by FLIP 87-45L, FLIP 87-12L, FLIP 87-35L and FLIP 88-51L, with seed yields of 1739, 1674, 1649, 1617 and 1553 kg/ha, respectively. The ANOVA for the design revealed that at Tiaret in Algeria, Toshevo in Bulgaria, Kaermanshah in Iran, Gelline, and Idleb in Syria; Beja in Tunisia, and Erzurum in Turkey, 1, 2, 1, 1, 2, 4, and 2 entries, respectively, outyielded the respective local check by a significant margin. The list of top five high yielding lines at each location is given in Table 4.6.6.

4.7. LENTIL INTERNATIONAL SCREENING NURSERY - EARLY (LISN-E)

Material

The material for the Lentil International Screening Nursery - Early comprised of 30 test entries and a local check which was to be added by the cooperator. Twenty seven of the test entries originated from the hybridization and were the selections from the progenies developed at ICARDA.

Methods and Management

The material comprising 31 entries was suggested to be sown in an randomized block design with two replications. Each entry was sown in single row plots of 4 m length. The spacings between the rows were suggested to be 25 cm.

Forty one sets of nursery were distributed to cooperators in 18 countries and data were returned from 20 locations in 8 countries. The details of the agronomic practices supplied by the cooperators are given in Table 4.7.1.

Results and Discussion

The location means for entries for time to flowering, time to maturity, and plant height are given in Tables 4.7.2, 4.7.3 and 4.7.4, respectively. The entries FLIP 92-43L, FLIP 92-45L, and FLIP 92-53L took least time to flower (85 days), and the entries FLIP 92-52L, FLIP 92-44L, and FLIP 88-42L took least time to mature (126-127 days).

Table 4.6.1. Agronomic details for LISN-T-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Guelma	07.12.91	10.09.92	-	200	-	-	-	Syrie 229
Algeria	Khroub	24.12.91	04.07.92	17	45	-	-	Kerb + Maloran	Syrie 229
Algeria	Setif	04.11.91	20.07.92	-	-	-	-	Treflan	Syrie 229
Algeria	Tiaret	23.12.91	25.06.92	-	-	-	-	Igran	-
Australia	Horsham	06.06.92	09.01.93	-	80	-	-	Lorsban, Trifluralin, Targa	Laird
								Lexone	
Australia	Turretfield	15.06.92	-	-	-	-	-	-	Laird
Australia	Charlick	28.05.92	24.12.92	-	-	-	-	-	Laird
Bhutan	Khangma	20.12.91	— .06.92	-	25	25	-	-	-
Bhutan	Yayung	20.12.91	— .06.92	-	25	25	-	-	-
Bulgaria	Toshevo	02.04.92	21.07.92	-	60	-	-	Vastak, Ealant	Tadjikskaya95
Canada	Watrous	NA	NA	NA	NA	NA	NA	NA	Estor
Hungary	Tapioszele	25.03.92	20.07.92	47	-	-	-	-	Diszkosz
Iran	Qazvin	16.04.92	-	18	50	-	-	-	Qazvin
Iran	Kaemanshah	29.03.92	-	20	100	-	-	Sevin	Qazvin
Iran	Maragheh	15.04.92	-	10	60	-	-	-	Maragheh Local
Iran	Nishabour	06.11.91	05.07.92	27	69	-	-	Metasystox	Nishabour and Qazvin
Lebanon	Terbol	28.11.91	14.06.92	-	50	-	-	Kerb + Fortrol	Lebanese Local
New Zealand	Christchurch	17.09.92	20.01.93	-	-	-	-	-	Lauriston
Portugal	Elvas	21.11.91	14.05.92	-	-	-	-	Promotrine + Propizamide	L 187
Syria	Gelline	12.12.91	24.05.92	50	20	-	-	-	Idleb 1
Syria	Heimo	26.11.91	07.06.92	-	50	-	-	-	Idleb 1
Syria	Idleb	22.12.91	-	-	60	-	-	Decis	Idleb 1
Syria	Izra'a	11.01.92	17.06.92	-	50	-	-	-	Idleb 1
Syria	Tel Hadya	28.11.91	— .05.12	-	50	-	-	-	Hurani 1
Tunisia	Beja	NA	NA	NA	NA	NA	NA	NA	NA
Tunisia	El Kef	NA	NA	NA	NA	NA	NA	NA	NA
Turkey	Ankara	30.03.92	-	22	60	-	-	-	Kislik Pull-11
Turkey	Diyarbakir	19.11.91	26.06.92	30	60	-	-	Kerb + Fortrol	Yerli Kirmizi
Turkey	Erzurum-2	30.04.92	15.08.92	30	60	-	-	-	Erzurum-89
Turkey	Haymana	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not available

Table 4.6.2. Time to flowering (days) of entries at different locations in the LISN-T during 1991/92.

Entry Name	Accession No. (ILL)	Parentage	Origin	ALGERIA				AUSTRALIA
				Guelma	Khroub	Setif	Tiaret	Horshan
ILL 468	468	-	Chile	132	125	189	142	133
ILL1939	1939	-	Morocco	134	126	189	135	130
LAIRD	4349	-	Canada	136	127	191	128	128
Syrian Local small	4401	-	Syria	134	123	191	125	128
78S26052	5604	-	Turkey	129	124	183	135	132
FLIP84-51L	5722	ILL 883 X ILL 470	ICARDA	124	124	189	135	130
FLIP84-58L	5728	ILL 39 X ILL 479	ICARDA	132	127	185	129	130
FLIP84-59L	5729	ILL 39 X ILL 784	ICARDA	129	127	191	135	133
FLIP84-60L	5730	ILL 500 X ILL 254	ICARDA	132	121	191	133	126
FLIP85-33L	5871	ILL 176 X ILL 35	ICARDA	134	126	183	133	132
FLIP86-16L	6002	ILL4349 X ILL4605	ICARDA	134	123	183	125	117
FLIP86-24L	6010	ILL 101 X ILL1334	ICARDA	134	126	189	133	130
FLIP86-35L	6021	ILL4354 X ILL 922	ICARDA	129	123	189	128	129
FLIP87-12L	6202	ILL 1 X ILL 262	ICARDA	132	122	186	133	131
FLIP87-21L	6211	ILL4349 X ILL4605	ICARDA	132	124	183	126	117
FLIP87-45L	6235	ILL 223 X ILL2669	ICARDA	136	123	183	135	130
FLIP87-49L	6239	ILL 24 X ILL1719	ICARDA	134	123	189	128	130
FLIP87-52L	6242	ILL 28 X ILL 789	ICARDA	132	121	183	128	129
FLIP88-21L	6445	ILL4403 X ILL 784	ICARDA	134	120	191	128	131
FLIP88-50L	6474	ILL5582 X ILL5520	ICARDA	132	122	198	125	128
FLIP88-51L	6475	ILL5564 X ILL5527	ICARDA	132	121	183	142	129
FLIP89-30L	6788	ILL 99 X ILL 468	ICARDA	129	125	193	128	129
FLIP89-31L	6789	ILL5588 X ILL5582	ICARDA	129	126	189	134	131
FLIP89-39L	6797	ILL 223 X 79SH4901	ICARDA	136	125	191	129	131
FLIP89-40L	6798	ILL 468 X ILL 193	ICARDA	136	126	189	135	133
FLIP89-44L	6802	ILL 784 X ILL 223	ICARDA	132	125	193	133	127
FLIP91-16L	7142	ILL 9 X ILL 784	ICARDA	129	123	189	127	127
Local check	-	-	-	134	126	189	142	142
Location Mean				132	124	188	132	129
S.E. of Mean				0.10		0.57		0.28
L.S.D. at 5%				0.30		1.65		0.82
C.V. %				0.11		0.43		0.31
Error d.f.				27		27		27
Significance				*		*		*

Cont'd. ...

Table 4.6.2. Cont'd. ...

Entry Name	AUSTRALIA	BULGARIA	HUNGARY	IRAN				LEBANON	PORTUGAL	SYRIA
	Turretfield	Toshovo	Tapioszelo	Qazvin	Kaormanshah	Maraghoi	Nishabour	Terbol	Elvas	Gelline
ILL 468	128	69	62	58	57	66	67	155	129	124
ILL1939	128	64	57	58	58	62	62	149	124	123
LAIRD	118	61	55	57	57	61	55	147	124	122
Syrian Local Small	128	60	54	55	61	60	54	147	123	121
78S26052	128	65	57	57	57	62	59	151	124	121
FLIP84-51L	118	57	54	53	57	59	52	153	122	123
FLIP84-58L	118	59	54	54	56	59	53	149	120	120
FLIP84-59L	133	64	60	58	57	63	63	152	128	125
FLIP84-60L	118	60	57	55	57	60	54	147	121	121
FLIP85-33L	128	60	56	55	57	61	55	153	129	124
FLIP86-16L	118	60	54	53	57	60	53	143	117	117
FLIP86-24L	118	61	58	57	62	62	57	151	127	124
FLIP86-35L	128	62	57	56	57	61	58	150	124	123
FLIP87-12L	118	61	58	56	57	62	57	149	123	121
FLIP87-21L	118	61	61	56	58	62	55	147	117	118
FLIP87-21L	118	61	61	56	58	61	57	147	121	120
FLIP87-45L	133	62	55	56	58	61	57	148	122	123
FLIP87-49L	128	64	60	58	57	61	63	148	122	123
FLIP87-52L	118	60	57	55	57	62	58	147	119	119
FLIP88-21L	128	60	55	54	57	60	54	148	123	121
FLIP88-50L	118	60	54	53	59	60	54	145	123	120
FLIP88-51L	128	60	54	54	57	65	54	144	120	118
FLIP89-30L	128	61	58	56	58	62	58	150	123	122
FLIP89-31L	118	62	57	57	58	61	56	148	123	124
FLIP89-39L	128	57	54	54	57	59	52	145	122	120
FLIP89-40L	128	67	61	58	57	65	64	152	127	124
FLIP89-44L	118	59	55	58	58	61	57	149	119	122
FLIP91-16L	118	60	55	56	57	60	56	149	123	122
Local check	128	63	53	56	57	62	65	153	121	120
Location Mean	124	61	57	56	57	61	57	149	123	121
S.E. of Mean		0.76		0.49	1.02	0.95	0.76	0.81	0.97	0.78
L.S.D. at 5%		2.22		1.43	-	2.75	2.21	2.35	2.81	2.27
C.V. %		1.76		1.25	2.52	2.19	1.89	0.77	1.12	0.91
Error d.f.		27		27	27	27	27	27	27	27
Significance		*		*	NS	*	*	*	*	*

Cont'd. ...

Table 4.6.2. Cont'd. ...

Entry Name	SYRIA				TURKEY				(1) Overall Mean
	Heimo	Idleb	Izra'a	Tel Hadya NARS	Ankara	Diyarbakir	Erzurum-2	Haymana	
ILL 468	145	122	105	143	203	128	79	62	110
ILL1939	146	119	101	138	-	133	80	57	108
LAIRD	145	116	99	135	204	125	78	55	105
Syrian Local Small	145	115	99	135	204	125	81	60	106
78S26052	149	119	101	138	-	134	80	56	107
FLIP84-51L	149	117	102	135	-	129	77	53	105
FLIP84-58L	152	119	100	134	203	134	79	53	105
FLIP84-59L	153	122	104	142	203	134	80	60	110
FLIP84-60L	147	115	100	134	-	126	79	57	105
FLIP85-33L	151	120	104	139	-	135	79	54	108
FLIP86-16L	148	120	101	135	-	128	78	54	104
FLIP86-24L	144	118	106	142	204	133	76	59	108
FLIP86-35L	145	117	101	140	203	125	75	55	106
FLIP87-12L	150	115	103	135	204	126	79	56	106
FLIP87-21L	145	119	99	134	204	132	77	58	105
FLIP87-45L	149	116	100	134	204	125	79	58	106
FLIP87-49L	146	120	102	139	-	134	78	56	107
FLIP87-52L	147	112	99	133	204	130	76	57	105
FLIP88-21L	146	114	100	136	-	126	81	55	106
FLIP88-50L	149	118	99	132	203	125	77	57	105
FLIP88-51L	144	116	98	132	203	125	80	56	105
FLIP89-30L	145	119	103	138	204	127	77	58	107
FLIP89-31L	145	117	103	138	-	132	75	57	106
FLIP89-39L	155	116	101	135	-	133	76	55	106
FLIP89-40L	148	117	102	140	204	129	81	60	109
FLIP89-44L	152	119	100	136	204	133	76	58	106
FLIP91-16L	148	115	98	135	204	125	79	57	105
Local check	141	115	103	134	203	136	76	57	-
Location Mean	147	117	101	136	204	130	78	57	
S.E. of Mean	3.51	2.81	1.01	0.76			0.93	1.00	
L.S.D. at 5%	-	-	2.92	2.20			2.71	2.91	
C.V. %	3.37	3.39	1.41	0.79			1.69	2.51	
Error d.f.	27	27	27	27			27	27	
Significance	NS	NS	*	*			*	*	

(1) Ankara was excluded from the overall mean. * = Significant at $P < 0.05$, NS = Not significant.

Table 4.6.3. Time to maturity (days) of entries at different locations in the LISN-T during 1991/92.

Entry Name	ALGERIA		AUSTRALIA		BHUTAN		BULGARIA	CANADA
	Khroub	Tiarot	Horsham	Turretfield	Khangma	Yayung	Toshevo	Watrous
ILL 468	181	184	204	230	-	-	104	91
ILL1939	187	177	209	230	168	-	97	84
LAIRD	183	170	205	230	-	-	96	93
Syrian Local Small	187	167	210	230	-	-	97	98
78S26052	184	177	207	230	173	-	97	84
FLIP84-51L	183	177	205	230	174	-	97	89
FLIP84-58L	182	171	205	-	-	-	96	84
FLIP84-59L	183	177	206	230	170	-	97	89
FLIP84-60L	185	175	204	212	-	-	95	84
FLIP85-33L	187	175	212	230	171	-	97	84
FLIP86-16L	183	167	207	211	-	-	95	89
FLIP86-24L	179	175	209	212	169	-	95	83
FLIP86-35L	187	170	209	230	171	-	96	84
FLIP87-12L	177	175	205	212	-	-	97	91
FLIP87-21L	186	168	208	212	167	124	97	98
FLIP87-45L	187	177	204	230	170	133	96	84
FLIP87-49L	185	170	205	230	-	133	97	91
FLIP87-52L	183	170	208	212	170	-	97	91
FLIP88-21L	183	170	207	212	172	-	95	88
FLIP88-50L	186	167	204	230	-	-	95	83
FLIP88-51L	183	184	205	211	-	-	95	77
FLIP89-30L	183	170	207	230	168	-	96	83
FLIP89-31L	185	176	206	230	170	-	97	77
FLIP89-39L	184	171	207	230	176	-	95	89
FLIP89-40L	184	177	208	230	-	-	102	90
FLIP89-44L	182	175	203	212	172	-	97	91
FLIP91-16L	183	169	204	230	172	133	95	84
Local check	182	184	207	230	-	-	97	91
Location Mean	184	174	206	221	171	131	97	88
S.E. of Mean			1.43				0.43	
L.S.D. at 5%			4.16				1.24	
C.V. %			0.98				0.63	
Error d.f.			27				27	
Significance			*				*	

Cont'd. ...

Table 4.6.3. Cont'd. ...

Entry Name	HUNGARY	IRAN				LEBANON	PORTUGAL	SYRIA
	Tapioszole	Qazvin	Kaermansheh	Maragahah	Nishabour	Terbol	Elvas	Gelline
ILL 468	114	80	85	91	93	195	173	164
ILL1939	107	79	79	87	93	191	171	160
LAIRD	112	76	79	87	88	189	167	159
Syrian Local Small	112	75	86	94	96	191	170	163
78S26052	108	76	84	90	90	191	169	162
FLIP84-51L	111	72	84	88	94	194	165	163
FLIP84-58L	107	74	79	87	92	191	168	161
FLIP84-59L	109	78	83	87	93	190	170	162
FLIP84-60L	108	76	79	87	90	192	168	160
FLIP85-33L	117	74	78	91	93	195	171	163
FLIP86-16L	116	72	78	85	85	189	167	160
FLIP86-24L	112	76	86	87	90	191	169	162
FLIP86-35L	111	76	79	85	91	189	168	161
FLIP87-12L	110	75	78	90	92	192	169	162
FLIP87-21L	115	74	79	86	88	188	168	160
FLIP87-45L	110	75	78	87	93	188	167	158
FLIP87-49L	113	80	79	85	92	188	168	161
FLIP87-52L	114	75	79	88	92	190	168	160
FLIP88-21L	110	74	83	85	87	190	169	161
FLIP88-50L	106	74	79	86	88	187	171	160
FLIP88-51L	110	72	79	85	88	187	168	159
FLIP89-30L	114	76	79	89	88	189	167	160
FLIP89-31L	113	76	79	84	90	188	168	161
FLIP89-39L	112	72	83	84	93	191	171	161
FLIP89-40L	113	80	78	88	92	191	169	162
FLIP89-44L	110	75	79	86	93	188	167	160
FLIP91-16L	109	75	78	88	90	189	168	160
Local check	105	77	78	91	94	193	167	161
Location Mean	111	75	80	87	91	190	169	161
S.E. of Mean		1.01	1.97	1.51	1.17	0.64	1.20	0.72
L.S.D. at 5%		2.92	5.70	4.37	3.38	1.85	3.47	2.09
C.V. %		1.89	3.47	2.44	1.82	0.47	1.00	0.63
Error d.f.		27	27	27	27	27	27	27
Significance		*	*	*	*	*	*	*

Cont'd. ...

Table 3.6.3. Cont'd. ...

Entry Name	SYRIA				TURKEY		(1) Overall Mean
	Heimo	Idlib	Izra'a	Tel Hadya NARS	Diyarbakir	Erzurum-2	
ILL 468	181	165	152	179	177	103	150
ILL1939	176	160	151	174	181	106	147
LAIRD	170	160	151	173	173	106	146
Syrian Local Small	179	161	153	176	176	107	149
78S26052	177	163	150	177	185	105	148
FLIP84-51L	182	167	157	179	183	103	149
FLIP84-58L	180	162	155	177	178	106	129
FLIP84-59L	180	164	151	178	183	106	148
FLIP84-60L	176	161	152	175	187	106	146
FLIP85-33L	179	163	151	178	185	105	149
FLIP86-16L	178	160	152	175	182	106	145
FLIP86-24L	179	161	148	175	175	103	146
FLIP86-35L	174	161	150	175	176	103	146
FLIP87-12L	179	165	152	177	177	105	146
FLIP87-21L	177	164	151	174	186	106	147
FLIP87-45L	175	158	151	172	175	106	146
FLIP87-49L	175	162	148	174	176	105	147
FLIP87-52L	175	165	152	175	183	106	147
FLIP88-21L	176	158	153	176	172	106	145
FLIP88-50L	175	158	153	172	178	104	145
FLIP88-51L	176	162	149	172	172	105	144
FLIP89-30L	170	161	151	174	180	105	146
FLIP89-31L	177	159	158	173	176	104	146
FLIP89-39L	177	166	151	178	176	103	147
FLIP89-40L	172	160	150	175	174	106	147
FLIP89-44L	179	161	150	173	176	106	146
FLIP91-16L	173	160	149	174	175	105	145
Local check	170	161	157	173	184	104	-
Location Mean	176	161	151	175	179	105	
S.E. of Mean	2.27	2.05	0.57	0.67		0.46	
L.S.D. at 5%	6.60	-	1.64	1.95		1.33	
C.V. %	1.83	1.80	0.53	0.55		0.62	
Error d.f.	27	27	27	27		27	
Significance	*	NS	*	*		*	

(1) Turretfield, Khangma and Yayung were excluded from the overall mean.

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

Table 4.6.4. Plant height (cm) of entries at different locations in the LISH-T during 1991/92.

Entry Name	ALGERIA			AUSTRALIA	BHUTAN		BULGARIA	CANADA
	Khroub	Setif	Tiaret	Horsham	Khangma	Yayung	Toshevo	Watrous
ILL 468	40	39	36	53	-	-	39	30
ILL1939	35	35	31	53	38	-	33	27
LAIRD	37	38	28	48	-	-	32	25
Syrian Local Small	37	28	38	53	-	-	47	36
78S26052	37	30	30	53	46	-	35	30
FLIP84-51L	40	33	34	50	37	-	36	25
FLIP84-58L	40	39	28	50	-	-	33	24
FLIP84-59L	36	32	30	50	40	-	33	30
FLIP84-60L	38	37	31	50	-	-	34	20
FLIP85-33L	43	32	37	55	38	-	41	29
FLIP86-16L	40	36	31	45	-	-	38	31
FLIP86-24L	38	32	32	45	41	-	39	22
FLIP86-35L	34	35	33	48	35	-	32	26
FLIP87-12L	36	37	31	45	-	-	35	30
FLIP87-21L	38	31	26	43	37	30	39	30
FLIP87-45L	30	32	27	50	41	30	32	20
FLIP87-49L	35	33	33	43	-	20	33	25
FLIP87-52L	42	34	36	50	40	-	36	35
FLIP88-21L	35	38	32	53	39	-	33	25
FLIP88-50L	35	33	28	48	-	-	31	18
FLIP88-51L	35	31	33	43	-	-	32	28
FLIP89-30L	40	35	32	48	35	-	38	23
FLIP89-31L	37	38	33	45	35	-	31	22
FLIP89-39L	39	36	32	50	36	-	41	35
FLIP89-40L	38	29	35	55	-	-	40	27
FLIP89-44L	35	36	30	48	43	-	33	25
FLIP91-16L	32	32	29	45	30	25	32	25
Local check	33	38	36	50	-	-	46	30
Location Mean	37	34	32	49	38	26	36	27
S.E. of Mean		0.67		3.67			1.61	
L.S.D. at 5%		1.93		-			4.66	
C.V. %		2.76		10.64			6.39	
Error d.f.		27		27			27	
Significance		*		NS			*	

Cont'd. ...

Table 4.6.4. Cont'd. ...

Entry Name	HUNGARY	IRAN				LEBANON	PORTUGAL	SYRIA
	Tapioszele	Qazvin	Kaermanshah	Maragheh	Nishabour	Terbol	Elvas	Gelline
ILL 468	45	31	25	26	40	38	37	35
ILL1939	38	33	28	24	33	38	33	31
LAIRD	33	26	29	19	29	33	29	30
Syrian Local Small	53	36	28	24	38	35	35	33
78S26052	35	30	27	24	31	35	31	32
FLIP84-51L	36	27	24	19	31	31	30	30
FLIP84-58L	39	25	25	21	32	35	30	33
FLIP84-59L	42	30	25	21	32	32	30	30
FLIP84-60L	34	32	29	20	31	34	31	27
FLIP85-33L	45	30	28	21	28	36	33	34
FLIP86-16L	49	34	27	24	33	32	30	31
FLIP86-24L	37	30	27	22	32	34	32	29
FLIP86-35L	33	28	27	23	32	38	31	32
FLIP87-12L	38	33	28	24	26	33	31	28
FLIP87-21L	42	31	25	22	27	36	26	27
FLIP87-45L	42	28	27	23	30	30	27	29
FLIP87-49L	33	28	26	19	26	31	30	27
FLIP87-52L	38	33	28	22	31	33	29	30
FLIP88-21L	34	31	28	22	31	32	29	29
FLIP88-50L	32	25	30	23	26	34	29	30
FLIP88-51L	33	31	28	23	33	32	31	30
FLIP89-30L	40	31	29	24	33	34	31	32
FLIP89-31L	30	29	26	22	27	35	30	30
FLIP89-39L	48	29	26	21	29	34	31	30
FLIP89-40L	43	35	27	22	34	34	31	34
FLIP89-44L	41	29	27	22	32	32	29	29
FLIP91-16L	34	26	26	22	31	33	28	27
Local check	30	32	26	22	31	33	30	27
Location Mean	38	30	27	22	31	34	30	30
S.E. of Mean		1.80	0.19	0.79	0.63	1.80	1.45	1.17
L.S.D. at 5%		5.21	0.55	2.31	1.82	-	4.22	3.38
C.V. %		8.51	0.99	5.13	2.90	7.57	6.79	5.48
Error d.f.		27	27	27	27	27	27	27
Significance		*	*	*	*	NS	*	*

Cont'd. ...

Table 4.6.4. Cont'd. ...

Entry Name	SYRIA				TURKEY		(1) Overall Mean
	Heimo	Idleb	Isra'a	Tel Hadya NARS	Diyarbakir	Erzurum-2	
ILL 468	32	41	22	27	40	22	33
ILL1939	29	39	20	27	35	24	33
LAIRD	30	34	17	27	35	22	28
Syrian Local Small	36	37	23	29	32	22	33
78S26052	35	36	20	26	33	22	32
FLIP84-51L	33	36	21	29	32	21	31
FLIP84-58L	30	39	20	27	25	21	29
FLIP84-59L	29	31	20	28	31	20	31
FLIP84-60L	30	36	19	24	32	22	29
FLIP85-33L	29	36	23	26	34	21	33
FLIP86-16L	35	31	21	30	37	21	31
FLIP86-24L	34	37	21	25	38	21	31
FLIP86-35L	33	34	21	28	29	19	31
FLIP87-12L	30	33	21	28	36	21	29
FLIP87-21L	33	37	23	22	33	21	31
FLIP87-45L	30	34	19	28	35	22	30
FLIP87-49L	27	35	20	25	31	20	27
FLIP87-52L	28	36	19	26	35	23	32
FLIP88-21L	28	31	21	27	32	22	31
FLIP88-50L	30	33	20	28	29	22	28
FLIP88-51L	33	37	19	23	33	20	29
FLIP89-30L	24	36	21	28	37	19	32
FLIP89-31L	29	32	22	27	30	21	30
FLIP89-39L	30	38	21	28	38	22	33
FLIP89-40L	27	39	22	28	37	20	31
FLIP89-44L	36	33	20	23	31	22	31
FLIP91-16L	33	31	21	25	30	21	29
Local check	24	34	23	24	45	21	-
Location Mean	30	35	21	26	34	21	
S.E. of Mean	2.77	2.60	0.74	1.59		0.48	
L.S.D. at 5%	-	-	2.16	-		1.40	
C.V. %	12.89	10.54	5.12	8.58		3.26	
Error d.f.	27	27	27	27		27	
Significance	NS	NS	*	NS		*	

(1) Khangma and Yayung were excluded from the overall mean, * = Significant at $P < 0.05$,
NS= Not significant.

Table 4.6.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LISN-T during 1991/92.

Entry Name	ALGERIA		AUSTRALIA				BHUTAN				BULGARIA	
	Tiaret		Turretfield		Charlick		Khangma		Yayung		Toshevo	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 468	1833	9	2820	12	55	6	-	-	-	-	875	16
ILL1939	1908	8	2550	16	-	-	1690	10	-	-	700	24
LAIRD	1425	15	3200	9	-	-	-	-	-	-	650	25
Syrian Local Small	1767	10	2495	19	30	8	-	-	-	-	525	28
78S26052	858	23	2170	20	-	-	1530	15	-	-	1000	12
FLIP84-51L	2121	2	1985	21	225	5	2330	5	-	-	1450	4
FLIP84-58L	221	28	2495	18	-	-	-	-	-	-	1100	8
FLIP84-59L	454	26	7715	1	-	-	3200	1	-	-	1100	7
FLIP84-60L	1058	21	1255	23	50	7	-	-	-	-	1050	10
FLIP85-33L	1229	19	445	25	1600	3	2370	4	-	-	1775	1
FLIP86-16L	1266	18	240	27	-	-	-	-	-	-	850	17
FLIP86-24L	2037	5	170	28	-	-	2200	6	-	-	1100	6
FLIP86-35L	875	22	4395	6	-	-	2610	3	-	-	1550	2
FLIP87-12L	1967	7	5525	2	-	-	-	-	-	-	850	19
FLIP87-21L	1275	17	365	26	-	-	1540	14	660	1	1350	5
FLIP87-45L	1767	11	4320	7	-	-	1770	7	480	2	750	21
FLIP87-49L	1300	16	2745	14	1345	4	-	-	410	3	1050	9
FLIP87-52L	2050	4	645	24	-	-	1760	8	-	-	850	18
FLIP88-21L	1096	20	5200	3	1975	2	1580	12	-	-	700	22
FLIP88-50L	842	24	3165	10	-	-	-	-	-	-	575	26
FLIP88-51L	783	25	5075	4	-	-	-	-	-	-	1050	11
FLIP89-30L	2849	1	2530	17	-	-	1320	16	-	-	800	20
FLIP89-31L	2079	3	1940	22	-	-	2980	2	-	-	950	15
FLIP89-39L	251	27	3270	8	-	-	1570	13	-	-	950	13
FLIP89-40L	1491	14	2930	11	-	-	-	-	-	-	1450	3
FLIP89-44L	2021	6	2700	15	25	9	1740	9	-	-	575	27
FLIP91-16L	1737	12	2750	13	-	-	1600	11	340	4	700	23
Local check	1596	13	4565	5	2640	1	-	-	-	-	950	14
Location Mean	1434		2845		883		1987		473		974	
S.E. of Mean	339.92										186.59	
L.S.D. at 5%	986.44										541.49	
C.V. %	33.53										27.09	
Error d.f.	27										27	
Significance	*										*	
Entry > L. Check	1										2	

Cont'd. ...

Table 4.6.5. Cont'd. ...

Entry Name	CANADA		IRAN								LEBANON	
	Watrous		Qazvin		Kaermanshah		Maragheh		Nishabour		Terbol	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 468	898	5	600	28	800	26	693	4	1134	12	2667	10
ILL1939	196	25	1300	9	1173	15	160	27	1114	16	2800	6
LAIRD	219	24	1333	7	1227	11	507	14	815	28	2067	24
Syrian Local Small	598	9	1033	21	800	27	333	22	977	23	2533	14
78S26052	323	19	1100	19	1253	8	440	18	951	25	2467	16
FLIP84-51L	586	10	1333	8	1260	7	240	26	1308	1	2400	18
FLIP84-58L	1243	2	1500	2	1540	3	693	4	1144	10	2333	20
FLIP84-59L	307	20	933	24	1553	2	320	23	1249	2	3200	1
FLIP84-60L	169	28	1233	15	1313	4	653	9	1233	3	2533	15
FLIP85-33L	437	16	1467	3	1087	20	120	28	1130	13	2867	5
FLIP86-16L	859	6	1267	14	1153	17	600	10	1019	19	1867	26
FLIP86-24L	471	12	1433	4	1213	12	467	15	1187	7	1533	28
FLIP86-35L	367	18	1000	22	1153	16	440	18	919	26	2733	8
FLIP87-12L	471	13	1267	12	1247	9	867	2	1123	15	3000	4
FLIP87-21L	602	8	900	25	1007	25	400	20	1021	18	1933	25
FLIP87-45L	267	22	1000	23	1193	13	920	1	1077	17	3133	2
FLIP87-49L	227	23	787	27	1007	24	467	15	1144	9	2133	21
FLIP87-52L	524	11	1287	11	1673	1	280	25	1127	14	2667	11
FLIP88-21L	446	15	1600	1	1153	18	533	11	1013	20	2133	22
FLIP88-50L	460	14	1340	6	1180	14	533	11	1004	21	2133	23
FLIP88-51L	416	17	1133	18	1087	19	760	3	1221	4	2800	7
FLIP89-30L	1171	3	1033	20	1067	22	307	24	1167	8	2400	17
FLIP89-31L	295	21	1300	10	1020	23	453	17	1140	11	2600	12
FLIP89-39L	937	4	1267	13	1300	5	693	4	1198	5	2600	13
FLIP89-40L	663	7	840	26	760	28	360	21	1194	6	2733	9
FLIP89-44L	194	26	1200	16	1240	10	693	4	854	27	1600	27
FLIP91-16L	191	27	1167	17	1080	21	520	13	967	24	2333	19
Local check	1496	1	1367	5	1287	6	693	6	979	22	3067	3
Location Mean	537		1179		1172		505		1086		2474	
S.E. of Mean	357.61		213.88		125.12				103.67		240.06	
L.S.D. at 5%	-		-		363.09				-		696.66	
C.V. %	94.20		25.65		15.09				13.50		13.72	
Error d.f.	27		27		27				27		27	
Significance	NS		NS		*				NS		*	
Entry > L. Check	-		-		1				-		0	

Cont'd. ...

Table 4.6.5. Cont'd. ...

Entry Name	PORTUGAL		SYRIA									
	Elvas		Gellino		Hoimo		Idleb		Izra'a		Tel Hadya-HARS	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILL 468	1446	3	2415	13	1507	10	2315	7	1250	21	1035	4
ILL1939	1433	5	2565	8	1360	15	1710	18	1225	22	785	17
LAIRD	604	27	1725	27	1430	13	1535	23	1275	17	960	7
Syrian Local Small	1083	13	2570	7	1569	9	1980	15	1425	11	880	10
78S26052	1342	6	2515	10	1026	24	830	27	1350	13	730	21
FLIP84-51L	1517	1	2415	12	994	25	1655	19	1150	24	825	16
FLIP84-58L	1042	15	2490	11	1238	18	2420	6	1525	7	850	13
FLIP84-59L	1292	9	2345	15	1711	6	2840	1	1900	2	1125	2
FLIP84-60L	1000	18	2120	22	1327	16	1630	22	1250	19	715	22
FLIP85-33L	842	23	2805	4	1228	21	2465	4	1275	18	750	18
FLIP86-16L	821	24	1890	25	948	26	670	28	825	28	735	20
FLIP86-24L	1000	17	2335	17	1231	19	1855	17	1400	12	745	19
FLIP86-35L	1167	12	2850	2	1705	7	1925	16	1475	8	610	25
FLIP87-12L	1438	4	2710	6	1123	23	1440	24	1800	3	920	8
FLIP87-21L	533	28	1380	28	763	28	1080	25	850	27	580	26
FLIP87-45L	1313	8	2345	16	1723	5	2280	8	1600	4	1000	6
FLIP87-49L	871	21	2270	18	1230	20	2450	5	1925	1	560	27
FLIP87-52L	1000	19	2105	23	1493	11	2050	14	950	25	685	24
FLIP88-21L	1313	7	2235	19	1579	8	2265	9	875	26	1015	5
FLIP88-50L	854	22	2370	14	1830	2	2490	3	1325	15	835	14
FLIP88-51L	817	25	2830	3	1762	4	2080	13	1550	5	1130	1
FLIP89-30L	817	26	2045	24	1799	3	2255	10	1425	10	855	11
FLIP89-31L	1042	14	2795	5	1274	17	2245	11	1550	6	1085	3
FLIP89-39L	979	20	2205	20	1199	22	1640	20	1350	14	695	23
FLIP89-40L	1513	2	2520	9	1861	1	2165	12	1300	16	890	9
FLIP89-44L	1225	11	1750	26	902	27	910	26	1250	20	465	28
FLIP91-16L	1042	16	3805	1	1467	12	2690	2	1450	9	830	15
Local check	1250	10	2140	21	1410	14	1630	21	1175	23	855	12
Location Mean	1093		2377		1382		1911		1346		827	
S.E. of Mean	247.69		287.38		175.82		354.30		221.47		159.84	
L.S.D. at 5%	-		833.98		510.21		1028.16		-		-	
C.V. %	32.06		17.10		18.00		26.22		23.26		27.35	
Error d.f.	27		27		27		27		27		27	
Significance	NS		*		*		*		NS		NS	
Entry > L. Chec	-		1		0		2		-		-	

Cont'd. ...

Table 4.6.5. Cont'd. ...

Entry Name	TUNISIA				TURKEY				(1) Overall Mean	
	Beja		El Kef		Ankara		Erzurum-2		Y	R
	Y	R	Y	R	Y	R	Y	R		
ILL 468	1500	23	1575	22	20	16	62	28	1413	14
ILL1939	2625	5	1675	17	-	-	178	16	1414	13
LAIRD	1700	20	1150	27	89	6	73	24	1216	22
Syrian Local Small	1775	17	1575	23	22	15	318	9	1346	17
78S26052	2375	8	1875	8	-	-	112	19	1262	21
FLIP84-51L	1925	16	1650	18	-	-	862	1	1426	12
FLIP84-58L	1500	24	2000	6	29	12	400	6	1430	11
FLIP84-59L	1325	27	1650	19	143	2	269	12	1739	1
FLIP84-60L	1425	25	1825	10	-	-	91	22	1216	23
FLIP85-33L	2250	11	1475	24	-	-	210	15	1325	19
FLIP86-16L	2400	7	1800	12	-	-	100	21	1073	27
FLIP86-24L	1675	21	1725	15	143	2	64	27	1203	25
FLIP86-35L	3900	1	1925	7	51	10	114	18	1617	4
FLIP87-12L	2275	10	1375	26	106	5	291	11	1649	3
FLIP87-21L	2825	3	2125	3	81	7	520	2	1084	26
FLIP87-45L	2575	6	2375	1	14	17	496	4	1674	2
FLIP87-49L	2025	14	1800	13	-	-	215	13	1344	18
FLIP87-52L	1725	19	2175	2	23	14	71	26	1297	20
FLIP88-21L	1975	15	1825	11	-	-	214	14	1510	8
FLIP88-50L	2375	9	1725	16	114	4	72	25	1395	15
FLIP88-51L	2200	12	950	28	14	17	314	10	1553	5
FLIP89-30L	2750	4	2100	4	81	7	100	20	1526	6
FLIP89-31L	3400	2	1850	9	-	-	155	17	1510	7
FLIP89-39L	1650	22	1750	14	-	-	380	7	1350	16
FLIP89-40L	1375	26	1425	25	49	11	497	3	1442	10
FLIP89-44L	2150	13	1625	20	57	9	409	5	1209	24
FLIP91-16L	1325	28	2000	5	29	12	77	23	1452	9
Local check	1750	18	1575	21	214	1	331	8		
Location Mean	2098		1735		71		250			
S.E. of Mean	331.30		224.69				131.23			
L.S.D. at 5%	961.43		-				380.82			
C.V. %	22.33		18.32				74.30			
Error d.f.	27		27				27			
Significance	*		NS				*			
Entry > L. Check	4		-				1			

(1) Charlick, Khangma, Yayung, and Ankara were excluded from the overall mean.

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

Table 4.6.6. The five heaviest seed yielding entries at the individual locations in the LISN-T during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Tiaret	FLIP 89-30L	FLIP 84-51L	FLIP 89-31L	FLIP 87-52L	FLIP 86-24L
Australia	Turretfield	FLIP 84-59L	FLIP 87-12L	FLIP 88-21L	FLIP 88-51L	Local check
Bhutan	Khangma	FLIP 84-59L	FLIP 89-31L	FLIP 86-35L	FLIP 85-33L	FLIP 84-51L
Bulgaria	Toshevo	FLIP 85-33L	FLIP 86-35L	FLIP 89-40L	FLIP 84-51L	FLIP 87-21L
Canada	Watrous	Local check	FLIP 84-58L	FLIP 89-30L	FLIP 89-39L	ILL 468
Iran	Qazvin	FLIP 88-21L	FLIP 84-58L	FLIP 85-33L	FLIP 86-24L	Local check
Iran	Kaermanshah	FLIP 87-52L	FLIP 84-59L	FLIP 84-58L	FLIP 84-60L	FLIP 89-39L
Iran	Maragheh	FLIP 87-45L	FLIP 87-12L	FLIP 88-51L	FLIP 89-39L, FLIP 84-58L, ILL 468, FLIP 89-44L	
Iran	Nishabour	FLIP 84-51L	FLIP 84-59L	FLIP 84-60L	FLIP 88-55L	FLIP 89-39L
Lebanon	Terbol	FLIP 84-59L	FLIP 87-45L	Local check	FLIP 87-12L	FLIP 85-33L
Portugal	Elvas	FLIP 84-51L	FLIP 89-40L	ILL 468	FLIP 87-12L	ILL 1939
Syria	Gelline	FLIP 91-16L	FLIP 86-35L	FLIP 88-55L	FLIP 85-33L	FLIP 89-31L
Syria	Heimo	FLIP 89-40L	FLIP 88-50L	FLIP 89-30L	FLIP 88-55L	FLIP 87-45L
Syria	Idleb	FLIP 84-59L	FLIP 91-16L	FLIP 88-50L	FLIP 85-33L	FLIP 87-49L
Syria	Izra'a	FLIP 87-49L	FLIP 84-59L	FLIP 87-12L	FLIP 87-45L	FLIP 88-55L
Syria	Tel Hadya	FLIP 88-55L	FLIP 84-59L	FLIP 89-31L	ILL 468	FLIP 88-21L
Tunisia	Beja	FLIP 86-35L	FLIP 89-31L	FLIP 87-21L	FLIP 89-30L	ILL 1939
Tunisia	El Kef	FLIP 87-45L	FLIP 87-52L	FLIP 87-21L	FLIP 89-30L	FLIP 91-16L
Turkey	Ankara	Local check	FLIP 84-59L	FLIP 86-24L	FLIP 88-50L	FLIP 87-12L
Turkey	Erzurum-2	FLIP 84-51L	FLIP 87-21L	FLIP 89-40L	FLIP 87-45L	FLIP 89-44L

Table 4.7.1. Agronomic details for LISN-E-92 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Australia	Horsham	05.06.92	08.01.93	-	80	-	-	Lorsban, Trifluralin, Targa, Lexone	Kye
Australia	Turretfield	15.06.92	-	-	-	-	-	-	Invincible
Australia	Charlick	-	24.12.92	-	-	-	-	-	Invincible
Bhutan	Khangma	20.12.91	— .06.92	-	25	25	-	-	-
Bhutan	Yayung	20.12.91	— .06.92	-	25	25	-	-	-
Iran	Qazvin	16.04.92	-	18	50	-	-	-	Qazvin
Iran	Karaj	14.04.92	22.07.92	24	70	-	-	-	Qazvin
Iran	Kaermanshah	29.03.92	-	20	100	-	-	Sevin	Qazvin
Iran	Maragheh	15.04.92	-	10	60	-	-	-	Maragheh Local
Myanmar	Aungban	07.11.92	-	50	100	-	-	-	Local brown seed
Pakistan	Islamabad	10.11.91	07.04.92	14	28	-	-	-	-
Pakistan	Faisalabad	10.11.91	24.04.92	20	60	-	1	-	Masoor 85
Pakistan	Kalat	21.02.92	07.06.92	20	20	-	1	-	Local lentil
Saudi Arabia	Al Gassim	20.11.91	02.06.92	50	100	-	273mm [*]	-	Onaizi Omer
Syria	Gelline	17.12.91	24.05.92	50	20	-	-	-	Hurani 1
Syria	Heimo	26.11.91	07.06.92	-	50	-	-	-	Hurani 1
Syria	Idleb	22.12.91	-	-	60	-	-	Decis	Hurani 1
Syria	Izra'a	11.01.92	17.06.92	-	50	-	-	-	Hurani 1
Syria	Tel Hadya	28.11.91	— .05.92	-	50	-	-	-	Precoz
Syria	Tel Hadya-NARS	28.11.91	— .05.92	-	50	-	-	-	Hurani 1
Tunisia	El Kef	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not available, * 7 mm each, 39 times.

Table 4.7.2. Time to flowering (days) of entries at different locations in the LISN-2 during 1991/92.

Entry Name	Accession No. (ILL)	Pedigree	Origin	AUSTRALIA		
				Horsham	Charlick	Turretfield
FLIP86-50L	6036	ILL4349 X ILL4605	ICARDA	115	>90<137	84
FLIP87-75L	6265	ILL4380 X ILL 99	ICARDA	121	137	84
FLIP88-41L	6465	ILL4400 X ILL4605	ICARDA	120	>90<137	74
FLIP88-42L	6466	ILL4605 X ILL5506	ICARDA	115	-	74
FLIP89-45L	6803	ILL4605 X ILL 15	ICARDA	119	>90<137	74
FLIP89-56L	6814	ILL3527 X ILL1744	ICARDA	127	137	>84
FLIP89-62L	6820	ILL4225 X ILL1744	ICARDA	123	137	84
FLIP89-71L	6829	ILL4407 X ILL4605	ICARDA	123	137	>84
FLIP91-1L	7127	ILL5582 X ILL 574	ICARDA	122	>90<137	84
87515	7162	ILL 340 X ILL2501	Pakistan/ICARDA	115	-	>84
87519	7163	ILL 1 X ILL2573	Pakistan/ICARDA	120	137	84
86591	7164	ILL4354 X ILL 101	Pakistan/ICARDA	124	137	84
74TA441XPantL639	7165	ILL5538 X ILL2573	Pakistan/ICARDA	123	137	>84
FLIP92-39L	7204	ILL5676 X ILL1880	ICARDA	122	137	84
FLIP92-40L	7205	ILL5582 X ILL5700	ICARDA	128	-	84
FLIP92-41L	7206	ILL5582 X ILL5700	ICARDA	123	137	84
FLIP92-42L	7207	ILL5507 X ILL5698	ICARDA	127	137	>84
FLIP92-43L	7208	ILL6003 X ILL5698	ICARDA	124	85	74
FLIP92-44L	7209	ILL6003 X ILL5700	ICARDA	122	>90<137	74
FLIP92-45L	7210	ILL6003 X ILL5745	ICARDA	119	85	74
FLIP92-46L	7211	ILL6005 X ILL5753	ICARDA	121	137	84
FLIP92-47L	7212	ILL4354 X ILL6003	ICARDA	116	90	84
FLIP92-48L	7213	ILL5583 X ILL5726	ICARDA	124	>90<137	84
FLIP92-49L	7214	ILL5690 X ILL5673	ICARDA	124	137	>84
FLIP92-50L	7215	ILL5737 X ILL5726	ICARDA	124	-	84
FLIP92-51L	7216	ILL2578 X ILL2581	ICARDA	129	>90<137	>84
FLIP92-52L	7217	ILL3527 X ILL5732	ICARDA	115	>90<137	84
FLIP92-53L	7218	ILL3527 X ILL4403	ICARDA	116	85	74
FLIP92-54L	7219	ILL4605 X ILL2581	ICARDA	122	>90<137	84
FLIP92-55L	7220	ILL5486 X ILL4403	ICARDA	-	90	74
Local check				124	85	74
Location Mean				122		
S.E. of Mean				1.00		
L.S.D. at 5%				2.90		
C.V. %				1.17		
Error d.f.				29		
Significance				*		

Cont'd. ...

Table 4.7.2. Cont'd. ...

Entry Name	IRAN				MYANMAR	PAKISTAN	
	Qazvin	Karaj	Kaermanshah	Maragheh	Aungban	Faisalabad	Islamabad
FLIP86-50L	56	37	59	64	76	80	80
FLIP87-75L	55	36	63	61	74	113	89
FLIP88-41L	54	37	62	62	71	75	72
FLIP88-42L	55	35	61	64	71	76	76
FLIP89-45L	56	39	59	66	70	75	73
FLIP89-56L	54	37	61	60	74	111	88
FLIP89-62L	55	34	60	61	71	112	90
FLIP89-71L	54	33	64	60	71	112	86
FLIP91-1L	54	34	56	60	71	109	80
87515	54	36	62	61	71	114	94
87519	54	35	59	61	76	112	88
86591	54	35	63	61	76	112	91
74TA441XPantL639	55	38	62	61	71	112	86
FLIP92-39L	55	36	62	60	76	113	94
FLIP92-40L	55	36	60	61	75	114	98
FLIP92-41L	55	34	62	62	76	113	96
FLIP92-42L	54	37	60	61	77	114	100
FLIP92-43L	56	37	58	60	66	56	81
FLIP92-44L	54	40	61	62	69	69	81
FLIP92-45L	55	39	63	60	68	68	71
FLIP92-46L	55	36	59	61	76	113	100
FLIP92-47L	55	37	62	61	71	72	84
FLIP92-48L	54	39	63	61	76	113	88
FLIP92-49L	56	33	63	61	76	113	98
FLIP92-50L	57	38	62	61	76	112	95
FLIP92-51L	54	37	64	60	75	114	100
FLIP92-52L	55	34	63	63	73	75	83
FLIP92-53L	54	40	60	62	66	56	71
FLIP92-54L	55	39	61	61	71	75	79
FLIP92-55L	54	38	62	61	71	79	75
Local check	57	38	62	65	68	112	81
Location Mean	55	36	61	61	72	96	86
S.E. of Mean	0.49	1.90	1.28	0.72	1.76	0.88	5.36
L.S.D. at 5%	1.42	-	-	2.07	5.09	2.55	15.47
C.V. %	1.27	7.40	2.96	1.65	3.44	1.30	8.83
Error d.f.	30	30	30	30	30	30	30
Significance	*	NS	NS	*	*	*	*

Cont'd. ...

Tablo 4.7.2. Cont'd. ...

Entry Name	SAUDI ARABIA			SYRIA			(1) Overall Mean
	Al Gassim	Gelline	Heimo	Idleb	Izra'a Tel	Hadya-Allepo	
FLIP86-50L	85	121	149	114	94	135	88
FLIP87-75L	85	120	152	113	95	134	92
FLIP88-41L	84	120	146	114	94	132	86
FLIP88-42L	79	121	148	115	97	133	87
FLIP89-45L	81	121	152	117	95	135	88
FLIP89-56L	97	120	149	112	92	135	92
FLIP89-62L	92	121	151	115	92	134	91
FLIP89-71L	96	120	152	114	92	136	92
FLIP91-1L	90	121	150	112	92	132	89
87515	106	120	153	115	94	134	93
87519	100	120	153	112	93	133	92
86591	97	120	153	113	93	135	93
74TA441XPantL639	102	121	151	119	93	135	93
FLIP92-39L	100	121	153	113	94	133	93
FLIP92-40L	102	121	153	114	94	133	94
FLIP92-41L	104	121	152	113	94	133	93
FLIP92-42L	100	120	149	114	93	132	93
FLIP92-43L	79	121	152	114	93	132	85
FLIP92-44L	79	121	151	113	97	133	87
FLIP92-45L	73	121	150	112	94	131	85
FLIP92-46L	98	121	151	114	93	133	93
FLIP92-47L	74	121	152	112	94	132	87
FLIP92-48L	102	120	152	112	98	132	93
FLIP92-49L	113	120	151	112	95	133	94
FLIP92-50L	101	121	152	114	93	135	94
FLIP92-51L	110	120	148	112	92	132	94
FLIP92-52L	78	120	149	112	96	133	87
FLIP92-53L	86	120	148	112	92	133	85
FLIP92-54L	79	120	155	116	94	134	88
FLIP92-55L	79	121	153	112	93	133	87
Local check	93	123	151	119	103	137	
Location Mean	91	120	151	113	94	133	
S.E. of Mean	3.10	0.35	1.27	0.83	1.06	0.66	
L.S.D. at 5%	8.94	1.02	3.66	2.39	3.05	1.90	
C.V. %	4.79	0.41	1.19	1.03	1.59	0.70	
Error d.f.	30	30	30	30	30	30	
Significance	*	*	*	*	*	*	

(1) Horsham and Turretfield were excluded from the overall mean.

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

Table 4.7.3. Time to maturity (days) of entries at different locations in the LISH-E during 1991/92.

Entry Name	AUSTRALIA		BHUTAN		IRAN			MYANMAR	
	Horsham	Turretfield	Khangma	Yayung	Qazvin	Karaj	Kaermanshah	Maragheh	Aungban
FLIP86-50L	208	240	-	-	76	70	89	88	120
FLIP87-75L	206	240	161	107	73	69	92	84	122
FLIP88-41L	206	221	-	-	72	68	92	88	118
FLIP88-42L	195	221	-	-	73	68	91	88	115
FLIP89-45L	208	240	-	-	73	71	91	91	120
FLIP89-56L	199	221	170	-	70	70	90	82	122
FLIP89-62L	207	221	160	-	72	67	90	83	124
FLIP89-71L	-	240	162	-	71	68	91	83	120
FLIP91-1L	197	235	-	-	70	69	91	87	122
87515	205	240	162	-	71	69	90	82	118
87519	197	240	-	117	71	71	92	83	125
86591	201	240	-	117	71	68	91	85	118
74TA441XPantL639	202	240	172	117	71	71	90	84	120
FLIP92-39L	205	235	-	-	72	70	93	87	126
FLIP92-40L	205	221	-	-	72	69	92	87	128
FLIP92-41L	200	240	-	-	75	67	90	88	127
FLIP92-42L	204	240	168	123	75	69	91	87	128
FLIP92-43L	209	235	-	114	71	68	89	87	120
FLIP92-44L	208	240	-	108	72	73	90	86	115
FLIP92-45L	199	240	-	108	73	73	89	87	120
FLIP92-46L	210	235	160	124	76	70	90	88	127
FLIP92-47L	209	235	170	-	75	67	89	90	120
FLIP92-48L	204	221	174	-	73	73	91	88	126
FLIP92-49L	202	240	-	124	73	66	90	87	128
FLIP92-50L	202	235	-	-	75	70	89	87	126
FLIP92-51L	205	240	-	121	72	66	92	83	125
FLIP92-52L	201	240	-	105	73	68	89	84	118
FLIP92-53L	197	240	-	103	71	70	92	88	124
FLIP92-54L	195	240	-	-	73	72	89	85	120
FLIP92-55L	207	240	161	-	71	72	91	85	118
Local check	204	221	-	-	78	72	90	91	116
Location Mean	203	235	165	114	72	69	91	86	122
S.E. of Mean	3.40				1.02	2.55	0.10	1.26	1.75
L.S.D. at 5%	-				2.96	-	0.27	3.64	5.05
C.V. %	2.36				2.00	5.20	0.15	2.08	2.03
Error d.f.	29				30	30	30	30	30
Significance	NS				*	NS	*	*	*

Cont'd. ...

table 4.7.3. Cont'd. ...

Entry Name	PAKISTAN		SYRIA				(1) Overall Mean
	Faisalabad	Islamabad	Golline	Heimo	Idleb	Izra'a Tel Hadya-NARS	
FLIP86-50L	137	147	157	181	165	151	174
FLIP87-75L	165	143	156	181	162	154	176
FLIP88-41L	137	148	155	177	160	150	173
FLIP88-42L	137	139	158	177	162	147	172
FLIP89-45L	138	144	158	183	161	150	174
FLIP89-56L	154	142	154	180	161	147	173
FLIP89-62L	164	144	154	177	162	152	171
FLIP89-71L	162	138	155	177	161	145	169
FLIP91-1L	163	148	154	180	157	148	173
87515	163	144	154	176	163	147	169
87519	165	143	154	179	162	152	172
86591	163	138	154	179	159	148	172
74TA441XPantL639	165	137	155	180	162	145	173
FLIP92-39L	164	144	157	181	162	151	173
FLIP92-40L	166	148	159	177	163	151	175
FLIP92-41L	162	147	157	181	160	148	177
FLIP92-42L	167	144	157	177	160	152	175
FLIP92-43L	138	143	155	177	164	143	175
FLIP92-44L	136	143	155	162	163	150	173
FLIP92-45L	136	139	156	177	160	149	173
FLIP92-46L	167	148	158	180	162	152	176
FLIP92-47L	138	143	158	181	165	153	175
FLIP92-48L	163	143	158	177	164	149	173
FLIP92-49L	162	143	155	174	157	148	172
FLIP92-50L	162	144	156	179	159	149	174
FLIP92-51L	165	144	155	180	159	145	173
FLIP92-52L	137	141	154	172	159	147	172
FLIP92-53L	138	140	158	180	158	154	174
FLIP92-54L	136	146	155	179	162	150	175
FLIP92-55L	150	147	154	181	160	157	171
Local check	163	137	162	177	163	152	178
Location Mean	153	143	156	178	161	150	173
S.E. of Mean	2.40	2.51	1.25	3.65	1.62	0.00	1.24
L.S.D. at 5%	6.93	-	3.61	-	-	0.00	3.59
C.V. %	2.22	2.48	1.14	2.90	1.43	0.00	1.02
Error d.f.	30	30	30	30	30	30	30
Significance	*	NS	*	NS	NS	*	*

Table 4.7.4. Plant height (cm) of entries at different locations in the LISH-E during 1991/92.

Entry Name	AUSTRALIA	BHUTAN		IRAN				MYANMAR	PAKISTAN
	Horsham	Khangma	Yayung	Qazvin	Karaj	Kaermanshah	Maragheh	Aungban	Faisalabad
FLIP86-50L	35	-	-	30	16	26	22	23	44
FLIP87-75L	33	37	20	27	26	22	19	19	42
FLIP88-41L	37	-	-	30	24	21	20	21	37
FLIP88-42L	43	-	-	27	21	23	18	15	44
FLIP89-45L	37	-	-	24	27	25	19	22	38
FLIP89-56L	35	28	-	23	16	22	17	17	31
FLIP89-62L	35	35	-	25	22	25	20	18	31
FLIP89-71L	-	30	-	22	23	24	17	16	44
FLIP91-1L	35	-	-	27	22	28	21	25	38
87515	34	37	-	23	19	21	15	18	44
87519	37	-	20	25	29	24	18	16	41
86591	35	-	20	22	23	21	18	18	39
74TA441XPantL639	33	33	20	24	18	23	17	16	41
FLIP92-39L	37	-	-	27	26	23	19	18	41
FLIP92-40L	47	-	-	27	26	27	20	17	44
FLIP92-41L	43	-	-	28	25	26	22	18	41
FLIP92-42L	33	37	20	28	24	25	19	16	31
FLIP92-43L	37	-	20	31	21	27	23	20	39
FLIP92-44L	38	-	20	29	26	26	21	22	37
FLIP92-45L	28	-	20	28	24	27	19	19	39
FLIP92-46L	35	33	20	27	25	26	19	22	38
FLIP92-47L	38	52	-	33	30	30	21	21	37
FLIP92-48L	33	37	-	31	23	25	21	18	42
FLIP92-49L	31	-	20	22	23	24	16	17	49
FLIP92-50L	38	-	-	27	23	26	20	18	43
FLIP92-51L	38	-	20	23	22	21	17	16	58
FLIP92-52L	35	-	20	29	19	23	19	16	41
FLIP92-53L	45	-	20	28	26	29	23	18	45
FLIP92-54L	40	-	-	27	25	29	18	22	35
FLIP92-55L	38	31	-	24	24	22	14	17	38
Local check	38	-	-	32	34	24	22	20	56
Location Mean	36	35	20	27	23	25	19	19	41
S.E. of Mean	3.07			2.16	0.93	0.11	1.06	1.96	0.89
L.S.D. at 5%	-			6.23	2.68	0.31	3.05	-	2.57
C.V. %	11.91			11.48	5.65	0.60	7.90	14.88	3.09
Error d.f.	29			30	30	30	30	30	30
Significance	NS			*	*	*	*	NS	*

Cont'd. ...

Table 4.7.4. Cont'd. ...

Entry Name	PAKISTAN	SAUDI ARABIA	SYRIA					(1) Overall mean
	Islamabad	Al Gassin	Gelline	Heimo	Idleb	Isra'a	Tel Hadya- HARS	
FLIP86-50L	55	25	27	30	27	17	15	27
FLIP87-75L	49	18	27	21	27	14	20	25
FLIP88-41L	43	20	26	25	22	19	14	25
FLIP88-42L	36	18	24	23	24	14	11	23
FLIP89-45L	42	20	30	26	27	13	12	25
FLIP89-56L	51	18	25	30	24	14	19	24
FLIP89-62L	49	19	27	29	27	14	10	24
FLIP89-71L	46	22	23	29	27	14	17	25
FLIP91-1L	52	22	29	25	25	16	11	26
87515	45	20	26	23	22	11	10	23
87519	56	19	27	26	27	13	20	26
86591	47	22	25	28	28	12	21	25
74TA441XPantL639	41	21	22	30	25	15	23	24
FLIP92-39L	46	20	28	30	30	14	23	27
FLIP92-40L	42	18	30	27	29	14	14	26
FLIP92-41L	51	19	28	31	24	17	26	27
FLIP92-42L	46	19	24	29	27	15	22	25
FLIP92-43L	45	23	31	24	27	19	10	26
FLIP92-44L	43	25	31	26	25	18	12	26
FLIP92-45L	46	19	28	30	25	17	23	26
FLIP92-46L	47	23	30	30	23	15	12	26
FLIP92-47L	43	24	31	31	30	17	14	28
FLIP92-48L	32	21	31	31	33	17	15	26
FLIP92-49L	42	21	27	29	30	16	22	26
FLIP92-50L	52	25	30	28	27	13	10	26
FLIP92-51L	53	16	23	26	27	17	22	26
FLIP92-52L	40	21	28	22	30	15	21	25
FLIP92-53L	42	21	23	25	28	19	13	26
FLIP92-54L	50	18	31	28	25	13	24	27
FLIP92-55L	39	19	26	27	23	14	11	23
Local check	53	18	28	29	29	22	27	-
Location Mean	46	20	27	27	26	15	17	
S.E. of Mean	5.29	2.04		3.04	1.64	0.00	5.99	
L.S.D. at 5%	-	-		-	4.74	0.00	-	
C.V. %	16.30	14.34		15.80	8.81	0.00	50.90	
Error d.f.	30	30		30	30	30	30	
Significance	NS	NS		NS	*	*	NS	

(1) Horsham, Khangma and Yayung were excluded from the overall mean.

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

Table 4.7.5.: Seed yield (Y=kg/ha) and rank (R) of entries at different locations in the LISN-E during 1991/92.

Entry Name	AUSTRALIA				BHUTAN				IRAN							
	Charlick		Turretfield		Khangma		yayung		Qazvin		Karaj		Kaermanshah		Maragheh	
	Y	R	Y	R	Y	R	Y	R	Y	r	Y	R	Y	R	Y	R
FLIP86-50L	1120	15	580	21	-	-	-	-	547	29	417	23	760	25	313	7
FLIP87-75L	365	22	705	21	1580	7	530	9	820	22	628	13	1047	20	353	4
FLIP88-41L	585	19	445	24	-	-	-	-	1013	15	356	25	1147	18	200	23
FLIP88-42L	-	-	860	19	-	-	-	-	467	31	678	9	1307	13	267	11
FLIP89-45L	2245	10	2230	4	-	-	-	-	700	28	456	20	1407	10	200	21
FLIP89-56L	2555	8	365	26	1930	5	-	-	767	25	289	29	487	31	267	12
FLIP89-62L	2385	9	1165	16	2320	3	-	-	533	30	322	27	500	30	233	14
FLIP89-71L	145	25	290	28	2240	4	-	-	1233	6	217	30	740	28	200	22
FLIP91-1L	3785	3	2010	5	-	-	-	-	820	23	639	12	933	23	167	26
87515	-	-	95	31	1330	10	-	-	967	21	433	22	827	24	140	29
87519	100	26	230	29	-	-	620	7	733	26	1011	5	1227	14	193	25
86591	515	20	325	27	-	-	940	1	1193	7	328	26	747	26	233	15
74TA441X																
PantL639	850	17	1370	13	2690	2	820	2	1433	3	533	16	1220	15	567	2
FLIP92-39L	3785	3	1330	14	-	-	-	-	967	20	450	21	747	27	120	30
FLIP92-40L	-	-	370	25	-	-	-	-	1100	11	528	17	1720	1	307	8
FLIP92-41L	260	24	515	22	-	-	-	-	1033	13	1011	4	1007	21	307	10
FLIP92-42L	2205	12	1475	10	1800	6	640	6	1553	1	1139	3	1333	12	320	6
FLIP92-43L	75	27	225	30	-	-	530	9	1000	17	372	24	1500	6	207	19
FLIP92-44L	1410	14	1705	8	-	-	750	3	1013	14	522	18	1493	7	307	9
FLIP92-45L	755	18	1145	17	-	-	580	8	1533	2	1183	2	1420	9	240	13
FLIP92-46L	3310	6	3695	2	2770	1	680	5	1133	8	761	7	1520	5	207	20
FLIP92-47L	885	16	1295	15	1490	8	-	-	1100	9	856	6	1460	8	227	17
FLIP92-48L	4745	2	2530	3	1480	9	-	-	1333	5	300	28	1353	11	213	18
FLIP92-49L	5220	1	1965	6	-	-	740	4	1000	18	200	31	1167	17	147	28
FLIP92-50L	-	-	4060	1	-	-	-	-	800	24	461	19	960	22	233	16
FLIP92-51L	1430	13	1385	12	-	-	530	9	1000	16	739	8	507	29	387	3
FLIP92-52L	3430	5	1420	11	-	-	580	8	1367	4	622	14	1720	2	200	24
FLIP92-53L	320	23	465	23	-	-	680	5	1067	12	672	10	1567	4	347	5
FLIP92-54L	470	21	895	18	-	-	-	-	1000	19	617	15	1193	16	153	27
FLIP92-55L	2230	11	1755	7	1930	5	-	-	1100	10	661	11	1060	19	113	31
Local check	2859	7	1515	9	-	-	-	-	700	27	1917	1	1633	3	593	1
Location Mean	1179		1239		1960		663		1001		623		1152		257	
S.E. of Mean									136.94		302.15		170.25		82.06	
L.S.D. at 5%									395.46		-		491.67		-	
C.V. %									19.35		68.58		20.90		45.20	
Error d.f.									30		30		30		30	
Significance									*		NS		*		NS	
Test > L. Check									11		-		0		-	

Cont'd. ...

Table 4.7.5. Cont'd. ...

Entry Name	MYANMAR		PAKISTAN								SAUDI ARABIA		SYRIA	
	Aungban		Faisalabad		Islamabad		Kalat		Quetta		Al Gassim		Gelline	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP86-50L	100	15	875	23	1417	31	224	31	472	7	355	29	133	25
FLIP87-75L	120	13	1031	16	1771	3	464	18	343	24	823	17	179	18
FLIP88-41L	243	3	969	19	1633	9	504	15	386	17	998	10	139	23
FLIP88-42L	62	24	906	22	1417	30	344	27	343	23	538	25	144	21
FLIP89-45L	213	5	1000	18	1467	27	360	26	337	25	846	16	193	16
FLIP89-56L	93	16	750	29	1654	6	288	30	274	30	1112	7	115	29
FLIP89-62L	90	19	594	30	1629	10	308	28	301	29	788	19	92	31
FLIP89-71L	100	14	1625	4	1796	2	552	10	485	4	1305	3	117	28
FLIP91-1L	300	1	781	26	1613	11	516	12	551	1	1212	5	200	14
87515	173	8	1875	2	1542	20	508	14	317	27	1069	9	105	30
87519	153	9	1719	3	1608	13	464	19	393	16	984	11	121	26
86591	140	11	1875	1	1546	16	432	22	337	26	1191	6	121	27
74TA441XPantL639	90	20	1313	9	1638	8	644	3	486	3	1314	2	194	15
FLIP92-39L	57	26	1094	14	1613	12	412	23	347	22	539	24	203	12
FLIP92-40L	7	30	1031	15	1542	18	436	21	419	13	426	27	251	6
FLIP92-41L	71	21	1500	7	1542	17	452	20	436	12	712	21	300	2
FLIP92-42L	27	27	1313	8	1854	1	716	1	502	2	937	13	289	3
FLIP92-43L	147	10	906	21	1533	21	300	29	473	6	664	22	231	10
FLIP92-44L	63	23	938	20	1604	14	548	11	363	19	1220	4	205	11
FLIP92-45L	230	4	875	24	1667	5	588	9	383	18	911	14	246	9
FLIP92-46L	92	17	1188	12	1583	15	644	4	409	15	813	18	366	1
FLIP92-47L	120	12	750	27	1504	24	612	7	363	21	946	12	248	8
FLIP92-48L	27	28	1281	11	1446	28	504	16	363	20	773	20	275	4
FLIP92-49L	0	31	1563	5	1504	23	632	5	416	14	554	23	202	13
FLIP92-50L	20	29	750	28	1763	4	392	24	304	28	905	15	165	19
FLIP92-51L	59	25	1125	13	1471	26	600	8	456	11	426	28	181	17
FLIP92-52L	70	22	1281	10	1483	25	516	13	482	5	1491	1	153	20
FLIP92-53L	174	6	563	31	1542	19	656	2	462	8	282	30	249	7
FLIP92-54L	297	2	781	25	1438	29	628	6	459	10	496	26	141	22
FLIP92-55L	90	18	1031	17	1513	22	392	25	268	31	1080	8	137	24
Local check	173	7	1500	6	1650	7	496	17	462	9	28	31	272	5
Location Mean	116		1122		1580		488		400		830		192	
S.E. of Mean	72.44		48.78		88.58		106.69		83.00		208.94		21.85	
L.S.D. at 5%	-		140.87		-		-		-		603.38		63.09	
C.V. %	88.19		6.15		7.93		30.91		29.38		35.60		16.08	
Error d.f.	30		30		30		30		30		30		30	
Significance	NS		*		NS		NS		NS		*		*	
Test > L. Check	-		3		-		-		-		22		1	

Cont'd. ...

Table 4.7.5. Cont'd. ...

Entry Name	SYRIA								TUNISIA		(1)	
	Heimo		Idleb		Isra'a		Tel Hadya-HARS		El Kef		Overall Mean	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP86-50L	94	15	87	21	600	12	685	20	1350	22	530	28
FLIP87-75L	77	25	102	17	375	26	435	27	1425	18	629	22
FLIP88-41L	104	12	83	22	500	19	745	16	1250	24	630	20
FLIP88-42L	91	16	138	7	375	25	720	19	1150	27	577	27
FLIP89-45L	62	27	115	12	300	29	720	18	1250	23	697	15
FLIP89-56L	84	19	43	29	375	24	405	29	1625	16	529	29
FLIP89-62L	74	26	35	31	250	30	760	15	625	31	488	30
FLIP89-71L	57	28	65	24	450	22	340	31	1200	26	634	19
FLIP91-1L	98	14	138	8	700	10	855	11	1350	21	758	11
87515	47	31	38	30	225	31	415	28	1075	28	579	26
87519	78	22	61	26	575	13	355	30	1825	9	690	16
86591	54	29	63	25	350	27	575	23	900	30	612	24
74TA441XPantL639	113	8	97	18	900	6	865	10	1800	10	857	5
FLIP92-39L	82	20	53	28	550	14	520	24	1625	15	630	21
FLIP92-40L	110	9	133	9	825	9	1235	1	2375	3	754	12
FLIP92-41L	154	2	151	3	1100	3	1060	4	2600	1	821	7
FLIP92-42L	134	4	162	1	975	5	1125	3	1600	17	909	2
FLIP92-43L	103	13	142	6	700	11	800	13	1375	20	628	23
FLIP92-44L	121	6	106	16	525	18	880	7	1800	12	789	9
FLIP92-45L	117	7	150	4	1250	2	625	22	1950	7	854	6
FLIP92-46L	108	10	110	15	850	7	825	12	2200	5	971	1
FLIP92-47L	106	11	148	5	825	8	875	9	1200	25	743	13
FLIP92-48L	141	3	111	14	1000	4	1160	2	1950	8	868	4
FLIP92-49L	132	5	119	10	475	20	925	5	1950	6	762	10
FLIP92-50L	78	21	72	23	400	23	490	25	1725	13	799	8
FLIP92-51L	85	18	88	20	550	17	725	17	1425	19	659	17
FLIP92-52L	77	24	113	13	550	16	910	6	2400	2	874	3
FLIP92-53L	78	23	115	11	450	21	785	14	1700	14	657	18
FLIP92-54L	50	30	58	27	300	28	450	26	950	29	583	25
FLIP92-55L	87	17	91	19	550	15	660	21	1800	11	729	14
Local check	156	1	159	2	1400	1	880	8	2300	4	-	-
Location Mean	95		101		621		736		1605			
S.E. of Mean	19.43		24.56		127.43		159.11		247.60			
L.S.D. at 5%	56.10		70.94		367.99		459.49		715.04			
C.V. %	28.85		34.32		29.02		30.59		21.82			
Error d.f.	30		30		30		30		30			
Significance	*		*		*		*		*			
Test > L. Check	0		0		0		0		0			

(1) Charlick, Khangma and Yayung were excluded from the overall mean.

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

Table 4.7.6. The five heaviest seed yielding entries at the individual locations in the LISN-E during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Australia	Charlick	FLIP 92-49L	FLIP 92-48L	FLIP 91-1L	FLIP 92-39L	FLIP 92-52L
Australia	Turretfield	FLIP 92-50L	FLIP 92-46L	FLIP 92-48L	FLIP 92-45L	FLIP 91-1L
Iran	Qazvin	FLIP 92-42L	FLIP 92-45L	ILL 7165	FLIP 92-52L	FLIP 92-48L
Iran	Karaj	Local check	FLIP 92-45L	FLIP 92-42L	FLIP 92-41L	ILL 7163
Iran	Kaermanshah	FLIP 92-40L	FLIP 92-52L	Local check	FLIP 92-53L	FLIP 92-46L
Iran	Maragheh	Local check	ILL 7165	FLIP 92-51L	FLIP 87-75L	FLIP 92-53L
Myanmar	Aungban	FLIP 91-1L	FLIP 92-54L	FLIP 88-41L	FLIP 92-45L	FLIP 89-45L
Pakistan	Islamabad-NARC	FLIP 92-42L	FLIP 89-71L	FLIP 87-75L	FLIP 92-50L	FLIP 92-45L
Pakistan	Faisalabad	ILL 7164	ILL 7162	ILL 7163	FLIP 89-71L	FLIP 92-49L
Pakistan	Kalat	FLIP 92-42L	FLIP 92-53L	ILL 7165	FLIP 92-46L	FLIP 92-49L
Pakistan	Quetta	FLIP 91-1L	FLIP 92-42L	ILL 7165	FLIP 89-71L	FLIP 92-52L
Saudi Arabia	Al Gassim	FLIP 92-52L	ILL 7165	FLIP 89-71L	FLIP 92-44L	FLIP 91-1L
Syria	Gelline	FLIP 92-46L	FLIP 92-41L	FLIP 92-42L	FLIP 92-48L	Local check
Syria	Heimo	Local check	FLIP 92-41L	FLIP 92-48L	FLIP 92-42L	FLIP 92-49L
Syria	Idleb	FLIP 92-42L	Local check	FLIP 92-41L	FLIP 92-45L	FLIP 92-47L
Syria	Izra'a	Local check	FLIP 92-45L	FLIP 92-41L	FLIP 92-48L	FLIP 92-42L
Syria	Tel Hadya	FLIP 92-40L	FLIP 92-48L	FLIP 92-42L	FLIP 92-41L	FLIP 92-49L
Tunisia	El Kef	FLIP 92-41L	FLIP 92-52L	FLIP 92-40L	Local check	FLIP 92-46L

The ANOVA for seed yields based on the design is given in Table 4.7.5. The highest mean yield was recorded at El Kef in Tunisia (1605 kg/ha) and was followed by Islamabad in Pakistan (1580 kg/ha), Karmanshah in Iran (1152 kg/ha) and Faisalabad in Pakistan (1122 kg/ha). The LSD estimates revealed that at four out of 16 locations analyzed for seed yield, some of the test entries, outyielded the respective local check by a significant margin. The five heaviest yielding lines across the locations included FLIP 92-46L, FLIP 92-42L, FLIP 92-52L, FLIP 92-48L, and ILL 7165 and gave seed yields of 971, 909, 874, 868, and 857 kg/ha, respectively. The five heaviest yielding entries at individual locations are given in Table 4.7.6.

4.8. LENTIL INTERNATIONAL F₃ NURSERY - (LIF₃N)

There were four different segregating populations nurseries namely, Lentil International F₃ Nursery - Large (LIF₃N-L), Lentil International F₃ Nursery - Small (LIF₃N-S), and Lentil International F₃ Nursery - Early (LIF₃N-E) and Lentil International F₃ Nursery - Cold Tolerance (LIF₃N-CT).

Material

The material for LIF₃N-CT, LIF₃N-L, LIF₃N-S, and LIF₃N-E included 6, 23, 12, and 14 populations, respectively, and two checks, one supplied and the other (local check) to be added by the cooperator. The details of these nurseries are given in Tables 4.8.1, 4.8.2, 4.8.3 and 4.8.4. 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 conditions.

Table 4.8.1. Details of Lentil International F₃ Nursery - Cold Tolerance - 92 (LIF₃N-CT-92).

Entry No.	Cross No.		Pedigree	Origin
1	1989X	82	ILL39 X ILL2130	ICARDA
2	1989X	106	ILL854 X ILL5588	ICARDA
3	1989X	117	ILL1878 X ILL2130	ICARDA
4	1989X	134	SPS669 X ILL5588	ICARDA
5	1990X	105	WA 8649014 X ILL39	ICARDA
6	1990X	227	ILL 4400 X ILL4738	ICARDA
7	Local large		(ILL4400)	Syria
8	Local check		-	-

Methods and Management

The augmented block design was suggested. The plot size was 4 rows each 4 m long, accommodating 640 seeds per plot. The between row spacing was

suggested to be 25 cm. Five, 16, 10, and 18 nurseries were supplied to cooperators in various countries for LIF₃N-CT, LIF₃N-L, LIF₃N-S, and LIF₃N-E, respectively.

Results and Discussion

Some of the cooperators have reported the plant selections made out of these populations which will be used for their breeding programs.

Table 4.8.2. Details of Lentil International F₃ Nursery - Large seeded - 92 (LIF₃N-L-92).

Entry No.	Cross No.	Pedigree	Origin
1	90X142	ILL5883 X ILL5842	ICARDA
2	90X147	ILL5883 X UJ84 377L	ICARDA
3	90X148	UJ88-286L X UJ86 1498L	ICARDA
4	90X149	UJ88-286L X 4349	ICARDA
5	90X150	UJ88-286L X UJ84 377L	ICARDA
6	90X151	UJ88-286L X 4605	ICARDA
7	90X152	UJ88-286L X 6205	ICARDA
8	90X166	ILL4605 X ILL298	ICARDA
9	90X167	ILL4605 X ILL5845	ICARDA
10	90X173	ILL5582 X ILL5845	ICARDA
11	90X174	ILL5582 X ILL6435	ICARDA
12	90X175	ILL5773 X ILL298	ICARDA
13	90X176	ILL5773 X ILL5845	ICARDA
14	90X177	ILL5773 X ILL6435	ICARDA
15	90X178	ILL6212 X ILL298	ICARDA
16	90X182	ILL5668 X ILL5845	ICARDA
17	90X188	ILL5873 X ILL5845	ICARDA
18	90X193	ILL5989 X ILL298	ICARDA
19	90X196	ILL6002 X ILL298	ICARDA
20	90X197	ILL6002 X ILL5845	ICARDA
21	90X198	ILL6002 X ILL6435	ICARDA
22	90X214	ILL6432 X ILL298	ICARDA
23	90X230	ILL4734 X ILL6155	ICARDA
24	Local large		Syria
25	Local check		

Table 4.8.3. Details of Lentil International F₃ Nursery -
Small seeded - 92 (LIF₃N-S-92).

Entry No.	Cross No.	Pedigree	Origin
1	1989X 39	ILL3517 X ILL5604	ICARDA
2	1989X 78	ILL5486 X ILL5888	ICARDA
3	1989X115	ILL1878 X ILL 467	ICARDA
4	1989X120	ILL1878 X ILL5588	ICARDA
5	1989X208	ILL5700 X ILL5722	ICARDA
6	1990X 33	ILL 358 X ILL1677	ICARDA
7	1990X 36	ILL 358 X ILL6024	ICARDA
8	1990X 37	ILL 358 X ILL6025	ICARDA
9	1990X 38	ILL 358 X ILL6258	ICARDA
10	1990X 39	ILL 358 X ILL6472	ICARDA
11	1990X 67	ILL4404 X ILL6025	ICARDA
12	1990X 90	ILL5888 X ILL5748	ICARDA
13	Local small	(ILL4401)	Syria
14	Local check	-	-

Table 4.8.4. Details of Lentil International F₃ Nursery -
Early - 92 (LIF₃N-E-92).

Entry No.	Cross No.	Pedigree	Origin
1	1990 X 15	ILL5888 X ILL2501	ICARDA
2	1990 X 16	ILL5888 X ILL2526	ICARDA
3	1990 X 17	ILL5888 X ILL2527	ICARDA
4	1990 X 18	ILL5888 X ILL3512	ICARDA
5	1990 X 19	ILL5888 X ILL4374	ICARDA
6	1990 X 30	ILL5888 X ILL6024	ICARDA
7	1990 X 31	ILL5888 X ILL6238	ICARDA
8	1990 X 32	ILL5888 X ILL6264	ICARDA
9	1990 X 41	ILL2500 X ILL3614	ICARDA
10	1990 X 55	ILL2578 X ILL6472	ICARDA
11	1990 X 57	ILL2580 X ILL3614	ICARDA
12	1990 X 70	ILL4405 X ILL1677	ICARDA
13	1990 X 76	ILL4605 X ILL3614	ICARDA
14	1990 X 78	ILL4605 X ILL6024	ICARDA
15	ILL 2580		India
16	Local check	-	-

4.9. LENTIL INTERNATIONAL ASCOCHYTA BLIGHT NURSERY (LIABN)

Material

The LIABN included 14 test entries, one local susceptible check to be added by the cooperator and one repeated susceptible check. The test entries have been selected on the basis of their reaction to Ascochyta blight tested at Tel Hadya in Syria and Islamabad in Pakistan.

Methods and Management

The suggested experimental design was randomized complete block with two replications. The suggested plot size was one row 4 m long accommodating 200 seeds. 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 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 recommended 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.

Thirteen sets of LIABN were distributed to cooperators in 8 countries, and the data were, however, received for 3 sets from 3 countries.

Results and Discussion

At Guelma in Algeria all entries including the susceptible check took 1 rating (Table 4.9.1).

At Mundulla in Australia, the susceptible check was rated 5. Among the test entries, 5, 3, 4, 2, 1 entries took a rating of 1, 3, 5, 7 and 9, respectively (Table 4.9.1).

At Islamabad in Pakistan, the susceptible check took rating of 7. All other entries except the entry FLIP 84-60L and local check (which took rating of 9 and 7, respectively, were rated as tolerant with 1 to 5 rating.

4.10. LENTIL INTERNATIONAL FUSARIUM WILT NURSERY (LIFWN)

Material

The LIFWN included 6 test entries, one repeated susceptible check and one susceptible local check to be added by the cooperator. The test

Table 4.9.1. Reaction of lentil entries to *Ascochyta* blight (1 = highly resistant, 9 = highly susceptible) in LIABN-92.

Entry No.	Entry Name	Accession No. (ILL)	Parentage	Origin	Algeria Guelma	Australia Mundulla	Pakistan Islam-abad
1	ILL 358	358	-	Mexico	1	3	1
2	ILL2439	2439	-	Ethiopia	1	5	3
3	Lenka	5480	-	Czechoslovakia	1	1	1
4	78S26013	5588	-	Jordan	1	3	3
5	78S26038	5599	-	Syria	1	7	1
6	FLIP84-11L	5684	ILL 253 X ILL 470	ICARDA	1	1	3
7	FLIP84-43L	5714	ILL 500 X ILL1719	ICARDA	1	1	1
8	FLIP84-55L	5725	ILL 610 X ILL 784	ICARDA	1	1	1
9	FLIP84-60L	5730	ILL 500 X ILL 254	ICARDA	1	7	9
10	FLIP85-33L	5871	ILL 176 X ILL 35	ICARDA	1	5	1
11	FLIP88-41L	6465	ILL4400 X ILL4605	ICARDA	1	9	5
12	FLIP89-45L	6803	ILL4605 X ILL 15	ICARDA	1	5	5
13	FLIP89-52L	6810	ILL2573 X ILL1861	ICARDA	1	5	5
14	FLIP89-66L	6824	ILL4407 X ILL 99	ICARDA	1	3	5
15	Local check	-	-	-	1	1	7
16	Susceptible check	2580		India	1	5	7

Table 4.10.1. Reaction of lentil entries to Fusarium wilt in LIFWN-92.

Entry No.	Entry Name	Accession No. (ILL)	Parentage	Origin	<u>Algeria</u>	<u>Mexico</u>	<u>Syria</u>	
					Beni-Slimane	Sonora	Hama	Izra'a
1	ILL 241	241	-	Syria	1	8	1	1
2	ILL 813	813	-	Egypt	1	2	1	1
3	EL42	1712	-	Ethiopia	1	2	1	1
4	FLIP88-37L	6461	ILL1744 X ILL2573	ICARDA	1	2	1	1
5	FLIP90-22L	6991	ILL5588 X ILL 223	ICARDA	1	9	1	1
6	FLIP90-26L	6995	ILL 19 X ILL 223	ICARDA	1	9	1	1
7	Local check	-	-	-	1	3	1	1
8	Susceptible check	6031			1	9	1	1

entries have been selected on the basis of their reaction to Fusarium wilt in Addis Abbaba in Ethiopia and Tel Hadya in Syria.

Methods and Management

The suggested experimental design was randomized complete block with two replications. The suggested plot size was one row 4m long accommodating 200 plants. The susceptible check was repeatedly sown after two test entries/rows to serve as an indicator cum spreader row. A 1-9 scale was recommended for scoring disease severity. The scale recommended was 1 = highly resistant; 3 = resistant; 5 = tolerant; 7 = susceptible; and 9 = highly susceptible.

Twenty five sets of LIFWN were distributed to cooperators in 11 countries and the data were received from 8 locations in 4 countries but the disease infestation was reported at one location only.

Results and Discussion

Disease infestation was only reported at Sonora in Mexico (Table 4.10.1). The susceptible check took the score as 9 on 1-9 scale (1=free, 9=killed). Four entries namely, ILL 813, ILL 1712, FLIP 88-37L and Local check were rated as resistant (with rating 2 or 3).

4.11. LENTIL INTERNATIONAL RUST NURSERY (LIRN)

Materials

The LIRN included 10 test entries, one susceptible check and one repeated susceptible check to be added by the cooperator. The test entries have been selected on the basis of their reaction to Rust.

Methods and Management

The suggested experimental design was randomized complete block with two replications. The suggested plot size was one row 4m long accommodating 40 plants. The susceptible check was repeatedly sown after two test entries/rows to serve as an indicator cum spreader row. A 1-9 scale was recommended for scoring disease severity. The scale recommended was 1 = highly resistant; 3 = resistant; 5 = tolerant; 7 = susceptible; and 9 = highly susceptible.

Eight sets of LIRN were distributed to cooperators in 6 countries and one of the cooperators sent back the results.

Results and Discussion

The details of entries and the score reported from Domaine at Morocco are given in Table 4.11.1. All the entries including the susceptible check were rated as 1.

Table 4.11.1. Reaction of lentil entries to rust (LIRN-92).

Entry No.	Entry Name	Accession No. (ILL)	Parentage	Origin	Morocco Domaine
1	ILL 358	358	-	Mexico	1
2	EL42	1712	-	Ethiopia	1
3	FLIP84-112L	5782	ILL 883 X ILL 470	ICARDA	1
4	81S15	5883	-	Jordan	1
5	FLIP86-16L	6002	ILL4349 X ILL4605	ICARDA	1
6	FLIP86-38L	6024	ILL 262 X ILL3458	ICARDA	1
7	FLIP87-17L	6207	ILL 8 X ILL 212	ICARDA	1
8	FLIP87-19L	6209	ILL4349 X ILL4605	ICARDA	1
9	FLIP87-60L	6250	ILL 28 X ILL1853	ICARDA	1
10	FLIP87-74L	6264	ILL4353 X ILL4400	ICARDA	1
11	Local check	-	-	-	1
12	Susceptible check	4401			1

4.12. LENTIL INTERNATIONAL COLD TOLERANCE NURSERY (LICIN)

Material

The LICIN included 13 test entries, one local check and one susceptible repeated check. The test entries have been selected on the basis of their reaction to cold in Italy and Turkey at high elevation.

Methods and Management

The suggested experimental design was randomized complete block with two replications. The suggested plot size was two rows each 4 m long accommodating 400 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 into the winter 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 before the onset of severe winter.

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

Nineteen sets of LICIN were distributed to cooperators in 12 countries, however, evaluation were done at 5 locations from 3 countries.

At Qazvin in Iran, two entries namely ILC 52 and L 21 were rated at 5 and the susceptible check took rating of 8.

At Maragahah, all entries including the susceptible check were rated between 6 and 7.

At Zanzan, only one entry, ILL 759 was tolerant (rated 5) and the susceptible check was rated at 8. At Hymana in Turkey all the entries rated between 7 and 9. None of the entries across locations was tolerant.

The cold tolerance scores are given in Table 4.12.1. AT Toshevo in Bulgaria, the susceptible check and local were rated at 7. All other entries were rated between 1 and 5. The entries with 1 and 3 rating included, ILL 759, ILL 52, ILL 323, ILL 780 and L 21.

Table 4.12.1. Reaction of lentil entries to cold (1 = free, 9 = killed) in LICIN during 1991/92.

Entry Name	Acc. No. (ILL)	Origin	Bulgaria	Iran		Turkey	
			Toshevo	Ghaz- vin	Mara- gheh	Zanzan	Haymana
ILL 52	52	Iraq	3	5	6	6	8
ILL 323	323	Yugoslavia	3	7	6	6	7
ILL 465	465	Chile	5	8	6	8	8
ILL 468	468	Chile	5	8	6	8	8
ILL 590	590	Turkey	5	8	6	9	9
ILL 759	759	Iran	1	6	6	5	7
ILL 780	780	Syria	3	8	6	8	8
ILL 857	857	Algeria	5	8	6	8	9
ILL 975	975	Chile	5	8	7	7	9
L21	1878	Turkey	3	5	7	6	7
ILL1918	1918	Australia	5	8	6	8	9
Local small	4400	Syria	5	8	6	7	8
1066-1	7155	Turkey	5	8	6	8	9
Local check	-	-	7	7	6	6	8
Susceptible Check	2580	India	7	8	7	8	9

5. DRY PEA AND FORAGE LEGUMES

Introduction

The Pea International Adaptation Trial was planned to study the adaptation of elite materials (developed in various countries) in various environments especially in West Asia and North Africa region. The cooperators were free to use these materials in their breeding programs or for release as cultivars.

Forage legume international nurseries were initiated for the second time in 1991/92. One adaptation trial each for chickling and vetch was made available to cooperators for the first time for 1990/91 season. Cooperators could use these material directly or indirectly for the improvement of forage legumes in their own national programs.

5.1. PEA INTERNATIONAL ADAPTATION TRIAL (PIAT)

Material

The material for the Pea International Adaptation Trial comprised 23 test entries, and one local check to be supplied by the cooperator. The test entries were selected from the local and regional yield trials based on their superior yield performance.

Methods and Management

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

Forty nine sets of trial were distributed to cooperators in 27 countries and the results were returned from 15 sets covering 11 countries. The agronomic practices employed at different locations are shown in Table 5.1.1.

Results and Discussion

Mean for time to flowering, time to maturity, plant height, and 100-seed weight are compiled in Tables 5.1.2, 5.1.3, and 5.1.4, respectively. Time to flowering ranged from 83 days for PS 210688 to 99 days for Maitland. The location means for time to flowering varied from 55 days at Shendi-1 in Sudan to 152 days at Terbol in Lebanon. The entries ILP 56, PS 510203 and PS 510699 matured earliest in 148 days.

The plant height data revealed that the Maitland was the tallest (96 cm) and entries SV 51741, Ballet, Frisson, MG102583 and PS210713 were among the shortest (46-57 cm).

The mean seed yield at different locations (Table 5.1.5) revealed that highest seed yield per hectare was obtained at Cambridge in U.K. (7791 kg/ha) and was followed by Catania in Italy (2645 kg/ha), Shendi-2 in Sudan (2637 kg/ha) and Beja on Tunisia (2477 kg/ha). The ANOVA of the seed yield

Table 5.1.1. Agronomic details for different locations in PIAT-92.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Tiaret	23.12.91	25.06.92	-	-	-	-	-	-
Bolivia	Cochabamba	08.08.92	30.12.93	18	46	-	5	-	Tarata-2
Bulgaria	Toshevo	27.03.92	21.07.92	-	60	-	-	Vastak	Neosoupanshtiisya 1
Italy	Catania	16.12.91	12.06.92	-	120	-	-	-	Stehgolt
Lebanon	Terbol	28.11.91	15.06.92	-	50	-	-	Kerb + Igran	Television
Portugal	Oeiras	25.11.91	14.05.92	21	63	63	-	Delta metrine	e.v. Finale
Sudan	Hudeiba	18.11.91	26.02.92	43	-	-	11	Fenitrothion	Karima
Sudan	Shendi 1	05.12.91	30.03.92	40	-	-	9	Diazinon	Karima
Sudan	Shendi 2	10.11.92	20.03.93	-	-	-	-	-	Karima
Syria	Jindiress	26.12.91	04.06.92	-	-	-	-	-	-
Syria	Tel Hadya	04.12.91	01.06.92	-	50	-	-	-	-
Tunisia	Beja	NA	NA	NA	NA	NA	NA	NA	Lincoln, Dindole
Tunisia	El Kef	NA	NA	NA	NA	NA	NA	NA	Lincoln, Dindole
Turkey	Diyarbakir	21.11.91	01.07.92	-	-	-	-	-	D 651
U.K.	Cambridge	07.04.92	14.08.92	-	60	-	-	Perdimethalin+Prometrin	Solara
								MCPA+MCPB+Cyanazine	
								Metalaxyl+Thiabendazole+Thiram	
								Pirimicab, Benvalerate,	
								Deltametrin + Heptenophos	

NA = Not available

Table 5.1.2. Time to flowering (days) of entries at different locations in PIAT-92.

Entry Name	Acc. No.	Origin	ALGERIA	BOLIVIA	BULGARIA	ITALY
			Tiaret	Cochabamba	Toshevo	Catania
S.L. ALEPPO	8	Syria	133	59	70	127
L. S. 1690	21	Syria	131	58	69	127
FRISSON	22	France	124	45	62	117
SV 51741	30	Sweden	130	54	68	126
BALLET	62	U.K.	130	52	67	122
JI 238	101	Ethiopia	123	54	66	126
MG 101197	125	Egypt	129	55	67	126
MG 102369	154	Poland	123	47	67	123
MG 102583	167	Turkey	126	55	66	123
MG 102623	169	India	133	54	67	124
MG 102702	173	India	133	54	67	126
MATLAND	215	Australia	133	61	75	128
COLLEGIAN	216	Australia	126	54	67	122
DERRIMUT	217	Australia	132	49	65	115
WIRREGA	221	Australia	126	56	67	124
EARLY DUN	222	Australia	132	61	69	128
ILP 56	248	ICARDA	125	47	63	120
LE 25	252	India	132	53	66	121
PS 210713	267	U.S.A.	129	52	66	122
PS 210688	278	U.S.A.	122	46	62	116
PS 510203	286	U.S.A.	123	46	63	116
PS 510699	291	U.S.A.	122	46	62	116
SHANXI P. A 292	295	China	133	53	66	127
Local Check	-	-	144	61	66	126
Location Mean			129	53	66	123
S.E. of Mean				1.21	0.71	1.44
L.S.D. at 5%				3.45	2.02	4.10
C.V. %				3.96	1.85	2.03
Error d.f.				46	46	46
Significance				0	*	*

Cont'd. ...

Table 5.1.2. Cont'd. ...

	LEBANON	PORTUGAL	SUDAN		SYRIA		U.K.	(1)	
Entry Name	Terbol	Oeiras	Hudeiba	Shendi-1	Shendi-2	Jindiress Tel	Hadya	Cambridge	Overall Mean
S.L. ALEPPO	158	87	70	66	70	120	137	65	97
L. S. 1690	158	86	60	66	74	120	137	66	96
FRISSON	146	82	54	45	62	109	130	59	86
SV 51741	152	83	60	58	59	111	135	63	92
BALLET	150	86	54	55	49	108	131	60	89
JI 238	152	83	59	58	75	115	134	62	92
MG 101197	157	85	67	61	60	119	137	63	94
MG 102369	149	84	52	41	62	111	131	60	88
MG 102583	150	85	66	61	58	112	135	62	92
MG 102623	153	85	68	61	62	116	136	64	94
MG 102702	159	84	71	61	71	118	140	63	96
MAITLAND	158	84	79	67	77	120	141	65	99
COLLEGLAN	149	86	65	63	58	113	132	63	92
DERRIMUT	146	82	55	45	52	109	131	60	87
WIRREGA	154	83	63	62	62	115	137	62	93
EARLY DUN	157	85	80	66	78	118	139	66	98
ILP 56	148	82	53	45	50	109	130	60	86
LE 25	149	85	57	45	57	110	131	60	89
PS 210713	149	84	55	57	51	112	132	60	89
PS 210688	143	83	48	41	42	108	128	60	83
PS 510203	146	84	53	45	47	108	130	60	85
PS 510699	141	83	52	41	47	107	127	59	84
SHANXI P. A 292	156	84	85	77	80	119	137	60	98
LOCAL CHECK	156	86	52	41	48	112	138	60	-
Location Mean	152	84	62	55	60	113	134	62	
S.E. of Mean	0.44	1.33	3.09	0.64	4.08	0.89	0.94	0.45	
L.S.D. at 5%	1.25	3.80	8.78	1.83	9.74	2.54	2.67	1.27	
C.V. %	0.50	2.75	8.68	2.02	9.58	1.36	1.21	1.25	
Error d.f.	46	46	46	46	23	46	46	46	
Significance	*	NS	*	*	*	*	*	*	

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

Table 5.1.3. Time to maturity (days) of entries at different locations in PIAT-92.

Entry Name	ALGERIA	BOLIVIA	BULGARIA	ITALY	LEBANON	PORTUGAL	SUDAN		SYRIA		(1) Overall Mean
	Tiaret	Cocha- bamba	Toshevo	Catania	Terbol	Oeiras	Shendi-1	Shendi-2	Jindi- ress	Tel- Hadya	
S.L. ALEPPO	177	104	103	173	199	125	107	111	151	177	139
L. S. 1690	171	106	103	176	199	124	107	118	150	177	140
FRISSON	168	94	100	172	195	119	101	106	143	171	133
SV 51741	174	94	101	175	193	120	101	109	141	174	134
BALLET	174	97	102	174	199	124	98	106	145	171	135
JT 238	167	106	102	173	198	121	107	114	156	178	139
MG 101197	173	110	103	177	203	123	112	113	155	178	142
MG 102369	167	101	102	176	201	122	103	117	148	177	139
MG 102583	170	97	102	173	194	123	108	107	146	170	136
MG 102623	177	106	103	173	198	123	106	107	154	178	139
MG 102702	177	103	103	174	200	122	109	113	152	178	139
MAITLAND	177	109	107	174	196	122	111	115	146	178	140
COLLEGIAN	170	90	103	172	193	124	104	113	145	178	136
DERRIMUT	176	89	103	172	194	119	102	117	148	178	136
WIRREGA	170	107	103	174	200	120	103	106	147	177	137
EARLY DUN	176	103	107	174	194	123	110	116	148	178	139
ILP 56	169	87	101	173	196	119	101	111	143	171	134
LE 25	174	89	102	173	198	123	101	100	147	178	135
PS 210713	173	89	101	173	195	122	101	92	144	171	132
PS 210688	176	87	101	174	196	122	100	102	146	171	133
PS 510203	167	93	102	172	193	122	100	95	143	169	132
PS 510699	-	88	101	170	196	121	99	96	142	169	131
SHANXI P. A 292	177	99	103	172	196	122	111	115	148	178	138
LOCAL CHECK	188	106	101	174	202	124	101	95	151	185	-
Location Mean	173	98	102	174	197	122	104	108	147	175	
S.E. of Mean		2.26	0.38	0.79	0.85	1.53	1.16	1.10	0.73	0.68	
L.S.D. at 5%		6.43	1.09	2.25	2.43	-	3.29	7.41	2.08	1.93	
C.V. %		3.99	0.65	0.79	0.75	2.18	1.92	4.07	0.86	0.67	
Error d.f.		46	46	46	46	46	46	23	46	46	
Significance		*	*	*	*	NS	*	*	*	*	

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

Table 5.1.4. Plant height (cm) of entries at different locations in PIAT-92.

Entry Name	ALGERIA	BOLIVIA	BULGARIA	ITALY	LEBANON	PORTUGAL
	Tiaret	Cochabamba	Toshevo	Catania	Terbol	Oeiras
S.L. ALEPPO	70	95	100	105	83	130
L. S. 1690	59	98	101	107	92	120
FRISSON	37	53	68	80	46	83
SV 51741	34	41	40	82	37	78
BALLET	33	47	43	83	41	82
JI 238	64	115	100	75	82	90
MG 101197	60	113	92	113	93	115
MG 102369	60	110	100	92	75	108
MG 102583	62	50	56	100	44	100
MG 102623	57	98	102	75	73	95
MG 102702	64	85	97	65	78	129
MAITLAND	80	112	110	101	87	103
COLLEGIAN	76	105	106	96	78	130
DERRIMUT	56	88	87	98	65	108
WIRREGA	62	88	95	93	70	107
EARLY DUN	75	75	115	66	87	132
ILP 56	64	77	82	103	63	82
LE 25	37	38	55	93	55	100
PS 210713	34	39	49	87	45	82
PS 210688	54	95	88	76	68	104
PS 510203	60	70	77	62	58	107
PS 510699	60	71	81	106	62	102
SHANXI P. A 292	62	71	72	70	73	110
LOCAL CHECK	39	104	79	83	58	107
Location Mean	57	81	83	88	67	104
S.E. of Mean		6.77	8.74	13.41	5.56	16.71
L.S.D. at 5%		19.26	24.88	-	15.83	-
C.V. %		14.52	18.21	26.39	14.32	27.77
Error d.f.		46	46	46	46	46
Significance		0	*	NS	*	NS

Cont'd. ...

Table 5.1.4. Cont'd. ...

Entry Name	SUDAN		SYRIA		U.K.	Overall Mean
	Hudeiba	Shendi-1	Jindiress	Tel Hadya	Cambridge	
S.L. ALEPPO	132	143	25	55	97	94
L. S. 1690	133	113	26	51	107	92
FRISSON	74	80	14	33	68	58
SV 51741	67	52	17	27	67	49
BALLET	71	54	16	28	72	52
JI 238	112	129	24	44	97	85
MG 101197	105	105	25	46	108	89
MG 102369	131	86	19	52	118	86
MG 102583	56	94	13	36	77	63
MG 102623	116	100	25	53	110	82
MG 102702	126	134	26	34	112	86
MAITLAND	148	135	26	53	178	103
COLLEGLAN	146	130	22	52	127	97
DERRIMUT	134	102	18	38	93	81
WIRREGA	105	112	20	45	115	83
EARLY DUN	128	118	23	44	113	89
ILP 56	92	100	21	50	103	76
LE 25	66	77	16	33	72	58
PS 210713	67	72	17	33	83	55
PS 210688	91	86	19	46	95	75
PS 510203	89	96	20	42	113	72
PS 510699	114	109	17	47	97	79
SHANXI P. A 292	78	118	25	35	95	74
LOCAL CHECK	81	81	14	25	65	-
Location Mean	103	101	20	42	99	
S.E. of Mean	8.92	17.02	1.68	4.73	4.47	
L.S.D. at 5%	25.40	40.66	4.79	13.45	12.73	
C.V. %	15.07	23.84	14.35	19.60	7.80	
Error d.f.	46	23	46	46	46	
Significance	*	*	*	*	*	

* = 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 PIAT-92.

Entry Name	ALGERIA		BOLIVIA		BULGARIA		ITALY		LEBANON		PORTUGAL		SUDAN			
	Tiaret		Cochabamba		Toshevo		Catania		Terbol		Oeiras		Hudeiba		Shendi-1	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
S.L. ALEPPO	1254	7	1321	6	1194	13	3467	2	3111	1	1794	16	940	10	1848	16
L. S. 1690	1187	9	1390	5	1729	3	3056	5	2540	7	3968	1	606	17	1646	19
FRISSON	1378	4	642	22	771	22	2627	12	2429	10	786	24	865	11	3393	5
SV 51741	1026	19	912	14	806	21	2514	17	1746	19	2381	6	788	13	2283	11
BALLET	1029	18	628	24	375	24	1646	24	1317	23	1159	22	1246	6	1866	15
JI 238	859	23	1668	2	1063	17	2660	11	2619	6	2381	8	285	20	1310	20
MG 101197	1072	16	1093	10	1250	12	2543	15	2857	4	2127	9	169	23	839	22
MG 102369	1146	13	1167	9	1333	8	2265	22	1571	21	1841	14	1000	9	1872	14
MG 102583	895	22	1191	8	1139	15	3079	4	2143	14	1762	17	222	21	1789	17
MG 102623	1360	5	1671	1	1333	7	2527	16	2476	9	1730	19	401	19	1679	18
MG 102702	1482	1	1085	11	1347	6	2660	10	2508	8	1635	20	703	16	2726	7
MAITLAND	1022	20	670	17	1264	10	2617	13	2238	12	3000	4	464	18	908	21
COLLEGIAN	1148	11	938	12	1465	5	2724	7	2984	2	3635	2	1200	7	1991	13
DERRIMUT	1354	6	1614	3	1618	4	2603	14	2238	13	3524	3	2231	2	2143	12
WIRREGA	1213	8	1194	7	1771	2	2500	18	1841	18	1937	13	721	15	2351	9
EARLY DUN	1147	12	639	23	1806	1	3521	1	2619	5	1730	18	199	22	774	23
ILP 56	1141	14	667	18	1104	16	2486	19	1651	20	2381	7	735	14	2741	6
LE 25	1400	3	718	16	840	20	2702	8	2317	11	2540	5	1182	8	3464	3
PS 210713	1166	10	650	20	1257	11	3411	3	2968	3	1794	15	1305	5	3429	4
PS 210688	932	21	925	13	1049	18	2444	20	1968	17	2127	10	795	12	2357	8
PS 510203	1088	15	649	21	896	19	2667	9	1476	22	2040	12	1474	4	2295	10
PS 510699	1054	17	908	15	1285	9	2270	21	1968	16	1357	21	3136	1	3774	1
SHANKI P. A 292	1422	2	665	19	757	23	2814	6	2032	15	944	23	37	24	485	24
LOCAL CHECK	266	24	1599	4	1188	14	1687	23	968	24	2127	11	1857	3	3586	2
Location Mean	1127		1025		1193		2645		2191		2112		940		2148	
S.E. of Mean	134.40		90.85		201.27		230.60		371.17		587.38		266.45		333.95	
L.S.D. at 5%	382.56		258.60		572.91		656.42		1056.55		1672.00		758.47		950.59	
C.V. %	20.66		15.35		29.21		15.10		29.34		48.16		49.10		26.93	
Error d.f.	46		46		46		46		46		46		46		46	
Significance	*		*		*		*		*		*		*		*	
Entry > L. Check	23		0		2		20		15		1		1		0	

Cont'd. ...

Table 5.1.5. Cont'd. ...

Entry Name	SUDAN		SYRIA		TUNISIA		TURKEY		U.K		Overall Mean					
	Shendi-2		Jindiress		Tel Hadya		Beja		El Kef		Diyarbakir		Cambridge			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
S.L. ALEPPO	2988	12	306	11	2157	1	2050	22	1624	13	1843	1	8465	8	2291	5
L. S. 1690	2137	16	352	7	1981	2	3192	3	1506	19	1753	2	8950	4	2400	1
FRISSON	3512	6	185	22	1111	17	2175	18	1746	9	860	19	7323	16	1987	13
SV 51741	5756	1	204	18	926	21	2083	19	1275	24	723	21	9983	1	2227	8
BALLET	4982	2	222	16	741	24	2008	23	1474	20	593	24	9110	3	1893	19
JI 238	804	23	269	13	1648	3	2325	15	1708	10	1340	12	5660	23	1773	22
MG 101197	2577	14	454	3	1269	14	2283	16	1310	23	1237	14	7953	10	1936	15
MG 102369	2708	13	194	21	1352	11	1875	24	1827	8	697	23	7158	18	1867	20
MG 102583	3548	4	324	10	1481	8	2767	6	1559	16	820	20	8865	5	2106	10
MG 102623	1649	19	407	4	1630	4	2342	13	1654	12	1480	5	7253	17	1973	14
MG 102702	1827	18	389	6	1519	7	2342	12	1873	7	1230	15	7832	12	2077	12
MAITLAND	1321	20	500	2	1472	9	2550	10	1452	21	1377	8	7077	20	1862	21
COLLEGIAN	2988	11	259	15	1556	5	3233	2	2268	1	1423	6	7848	11	2377	2
DERRIMUT	3054	9	176	23	1019	19	2675	8	1523	18	1077	16	7665	14	2301	4
WIRREGA	3542	5	343	8	1556	6	2067	21	1371	22	1417	7	7732	13	2104	11
EARLY DUN	970	22	528	1	1093	18	2075	20	1590	14	1630	3	8172	9	1900	17
ILP 56	3030	10	287	12	1324	12	2817	5	1903	5	963	17	8863	6	2140	9
LE 25	3202	7	269	14	1222	15	2233	17	1889	6	1333	13	9822	2	2342	3
PS 210713	1244	21	343	9	1278	13	3500	1	1703	11	1347	11	8745	7	2276	6
PS 210688	1929	17	194	20	963	20	2817	4	2109	3	1363	9	6657	22	1909	16
PS 510203	2560	15	194	19	870	22	2392	11	2113	2	917	18	6860	21	1899	18
PS 510699	3625	3	213	17	1176	16	2675	7	1582	15	1500	4	7135	19	2244	7
SHANXI P. A 292	167	24	389	5	1361	10	2625	9	2005	4	720	22	4275	24	1380	23
LOCAL CHECK	3161	8	148	24	759	23	2342	14	1532	17	1360	10	7592	15	-	-
Location Mean	2637		298		1311		2477		1691		1208		7791			
S.E. of Mean	586.13		58.77		202.96		341.13		203.46		105.72		364.85			
L.S.D. at 5%	1400.32		167.28		577.73		-		-		300.95		1038.54			
C.V. %	31.44		34.18		26.82		23.86		20.83		15.15		8.11			
Error d.f.	23		46		46		46		46		46		46			
Significance	*		*		*		NS		NS		*		*			
Entry > L. Check	2		10		11		-		-		2		7			

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

Table 5.1.7. The five heaviest seed yielding entries at the individual locations in the PIAT during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Tiaret	MG 102702	Shanxi Prov. A 292	Le 25	Frisson	MG 102623
Bulgaria	Toshevo	Early dun	Wirrega	Local Sel 1690	Derrimut	Collegian
Italy	Catania	Early dun	Syrian L., Aleppo	PS 210713	MG 102583	Local Sel 1690
Lebanon	Terbol	Syrian L., Aleppo	Collegian	PS 210713	MG 101197	Early dun
Portugal	oeiras	Local Sel 1690	Collegian	Derrimut	Maitland	Le 25
Sudan	Shendi-1	PS 510699	Local check	Le 25	PS 210713	Frisson
Sudan	Hudeiba	PS 510699	Derrimut	Local check	PS 510203	PS 210713
Sudan	Shendi-2	SV 51741	Ballet	PS 510699	MG 102583	Wirrega
Syria	Jindiress	Early dun	Maitland	MG 101197	MG 102623	Shanxi Prov. A 292
Syria	Tel Hadya	Syrian L., Aleppo	Local Sel 1690	JI 238	MG 102623	Collegian
Tunisia	Beja	PS 210713	Collegian	Local Sel 1690	PS 210688	IIP 56
Tunisia	El Kef	Collegian	PS 510203	PS 210688	Shanxi Prov. A 292	IIP 56
Turkey	Diyarbakir	Syrian L., Aleppo	Local Sel 1690	Early dun	PS 510699	MG 102623
U.K.	Cambridge	SV 51741	Le 25	Ballet	Local Sel 1690	MG 102583
Bolivia	Cochabamba	MG 102623	JI 238	Derrimut	Local check	Local Sel 1690

revealed that 23, 2, 20, 15, 1, 1, 2, 10, 11, 2 and 7 test entries, respectively, at Tiaret in Algeria, Toshevo in Bulgaria, Catania in Italy, Terbol in Lebanon, Oeiras in Portugal, Hudeiba and Shendi-1 in Sudan, Jindiress and Tel Hadya in Syria, Diyarbakir in Turkey, and Cambridge in U.K. outyielded the respective local check by a significant margin. The five heaviest yielders at different locations are given in Table 5.1.6. The entries, Local Selection 1690, Collegian, M102623, Early Dun, and PS 210713 occurred most frequently among the top five heaviest yielders and were comparatively more stable.

On the basis of average over two years for the common entries (Table 5.1.7), the five best entries included LS 1690 (1739 kg/ha), PS 210713 (1600 kg/ha), S.L. Aleppo (1583 kg/ha), Collegian (1513 kg/ha), and Early Dun (1490 kg/ha).

Table 5.1.7. The mean seed yield (Y=kg/ha) and rank(R) of the common entries in PIAT during 1990/91 and 1991/92.

Entry Name	1990/91		1991/92		Mean	
	Y	R	Y	R	Y	R
Syrian Local	1583	3	2291	5	1937	4
Local Sel 1690	1739	1	2400	1	2070	1
Frisson	1281	16	1987	13	1634	15
SV 51741	1273	17	2227	8	1750	9
Ballet	1183	19	1893	19	1538	21
LI 238	1178	22	1773	22	1476	22
MG 101197	1484	7	1936	15	1710	12
MG 102369	1321	14	1867	20	1594	19
MG 102583	1116	23	2106	10	1611	16
MG 102623	1222	18	1973	14	1598	17
MG 102702	1487	6	2077	12	1782	8
Maitland	1333	12	1862	21	1598	17
Collegian	1513	4	2377	2	1945	2
Derrimut	1330	13	2301	4	1816	7
Wirrega	1357	11	2104	11	1731	10
Early Dun	1490	5	1900	17	1695	13
ILP 56	1291	15	2140	9	1716	11
LE 25	1388	10	2342	3	1865	5
PS 210713	1600	2	2276	6	1938	3
PS 210688	1437	8	1909	16	1673	14
PS 510203	1178	21	1899	18	1539	20
PS 510699	1392	9	2244	7	1818	6
Shanxi P.A 292	1183	20	1380	23	1282	23

5.2. INTERNATIONAL LATHYRUS ADAPTATION TRIAL (ILAT)

Material

The International Lathyrus Adaptation Trial comprised 23 test entries which were supplied and one local check to be added by the cooperator. The test entries included 13 selections from Lathyrus sativus and 10 selections from Lathyrus cicera. The test entries were selected on the basis of their superior performance in earlier seasons.

Methods and Management

The suggested trial design was a randomized complete block design with 3 replications. The recommended plot size was four rows, each 4 m long with interrow spacing of 30 cm. Eight hundred seeds per plot were supplied.

Fourteen seven of the trial were sent to cooperators in 21 countries. The results were, however, returned for 18 trials from 12 countries. The agronomic information received from cooperators is 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 seed yields and biological yields and rank of entries at different locations are given in Tables 5.2.5, and 5.2.6. respectively. The ANOVA revealed that the differences among the entries for seed yield were significant for all the 4 locations reporting the yield data.

On the basis of average over locations, the Lathyrus sativus entries yield between 760- and 1260 kg/ha. The five best seed yielding entries included, IFLA 206 Sel 463, IFLA 188 Sel 38, IFLA 178 Sel 29, IFLA 277 Sel 476 and IFLA 3 Sel 311 with 1260, 1246, 1216, 1208 and 1197 kg/ha, respectively.

The five highest seed yielding entries from Lathyrus cicera included IFLA 127 Sel 492, IFLA 116 Sel 488, IFLA 327 Sel 500, and IFLA 136 Sel 495 and IFLA 134 Sel 493 with seed yields of 1233, 1190, 1167 and 1129 kg/ha respectively. In general, the biological yield of entries from Lathyrus sativus were more when compared to entries from Lathyrus cicera. Under irrigation conditions one of the Lathyrus sativus entries IFLA 273 gave as high biomass as 9.58 tons at Shambat in Sudan (Table 5.2.6).

Table 5.2.1. Agronomic details for different locations in IIAT-92.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irri-	Insecticide/Fungicide/	Local Check gationHerbicide
				N	P	K			
Algeria	Beni Slimane	06.11.91	18.07.92	-	100	-	-	-	Makla
Algeria	Setif	07.12.91	21.07.92	-	100	-	-	-	Vesce Languedoc
Algeria	Khroub	17.11.91	10.07.92	20	150	-	-	-	Wesser
Chile	Hidango	29.07.92	20.12.92	20	35	-	-	-	Quila-blanco
China	Qinghai	07.04.92	25.08.92	50	35	-	-	-	-
Cyprus	Dromolaxia	20.11.91	25.04.92	70	200	-	-	-	Lathyrus Local
Hungary	Tapioszele	12.03.92	01.07.92	35	-	-	-	-	Kunsag
Lebanon	Kfardan	28.11.91	25.07.92	-	-	-	-	Kerb + Fortrol	-
Portugal	Elvas	07.11.91	17.04.92	-	60	-	-	Propizamide+Terbutrine, Thiram+Carbendazime	<u>Lathyrus cicera</u> 8617
Saudi Arabia	Al Gassim	20.11.91	10.06.92	50	100	-	39	-	Local Commercial
Sudan	Shambat	18.11.91	12.04.92	13	-	-	-	-	-
Syria	Breda	15.11.91	-	-	40	-	-	-	-
Syria	Tel Hadya	22.12.91	09.07.92	-	40	-	-	Decis	Local Lathyrus 347/587
Turkey	Diyarbakir	20.11.91	01.07.92	-	-	-	-	-	D-405
Turkey	Tokat	20.03.92	08.09.92	30	30	-	-	-	-
Turkey	Van	05.05.92	19.08.92	40	80	-	-	-	-
Yemen	Dhamar	13.02.92	11.07.92	30	50	-	4	-	-

Table 5.2.2. Time to flowering (days) of entries at different locations in ILAT-92.

Accession No. (IFLA)	Selection	Origin	ALGERIA			CHINA	CYPRUS
			Beni Slimane	Khroub	Setif	Xining	Dromolaxia
A. <i>Lathyrus sativus</i>							
347	Local	ICARDA	159	162	147	80	129
3	311	ICARDA	159	164	148	81	138
170	439	ICARDA	176	164	157	77	130
205	459	ICARDA	167	170	171	85	130
232	471	ICARDA	173	163	155	84	137
178	29	ICARDA	160	164	147	82	132
188	38	ICARDA	165	163	147	76	131
199	452	ICARDA	167	164	169	85	137
200	453	ICARDA	159	164	154	80	133
201	455	ICARDA	167	167	170	79	133
206	463	ICARDA	176	160	159	82	133
277	476	ICARDA	167	160	150	83	134
273	481	ICARDA	160	164	172	80	139
B. <i>Lathyrus cicera</i>							
536	Local	ICARDA	162	157	157	78	130
116	488	ICARDA	176	151	161	81	130
119	489	ICARDA	169	151	161	79	131
121	491	ICARDA	159	151	154	79	132
127	492	ICARDA	167	151	154	81	132
134	493	ICARDA	159	151	152	81	132
135	494	ICARDA	168	151	155	77	130
136	495	ICARDA	167	151	160	80	137
142	496	ICARDA	165	154	150	79	133
327	500	ICARDA	176	150	160	80	130
Local Check	-	-	176	167	160	80	133
Location Mean			167	159	157	80	133
S.E. of Mean			0.90		0.34	2.79	1.62
L.S.D. at 5%			2.56		0.96	-	4.62
C.V. %			0.94		0.37	6.01	2.12
Error d.f.			46		46	46	46
Significance			*		*	NS	*

Cont'd. ...

Table 5.2.2. Cont'd. ...

Accession No. (IFLA)	HUNGARY	LEBANON	PORTUGAL	SAUDI ARABIA	SUDAN	SYRIA		TURKEY	YEMEN	(1) Overall
	Tapioszele	Terbol	Elvas	Al Gassim	Shambat	Breda	Tel Hadya	Van	Dhamar	Mean
<u>A. <i>Lathyrus sativus</i></u>										
347	60	150	130	74	42	133	117	64	61	108
3	63	152	130	76	48	133	118	64	61	110
170	66	159	133	91	52	139	119	69	67	114
205	67	164	132	90	57	145	127	69	67	117
232	67	161	133	89	54	139	125	69	67	115
178	66	159	134	88	51	139	125	69	67	113
188	67	159	134	86	51	137	120	69	67	112
199	67	158	137	91	62	139	123	69	70	117
200	66	159	133	89	55	139	123	69	68	114
201	67	163	135	92	54	145	125	69	71	117
206	67	157	132	89	53	139	124	69	67	115
277	66	157	131	88	52	137	120	69	67	113
273	67	164	137	92	68	145	127	69	69	118
<u>B. <i>Lathyrus cicera</i></u>										
536	62	157	136	124	-	139	125	69	108	123
116	60	155	126	109	-	133	118	64	95	120
119	58	153	128	107	-	133	130	97	90	122
121	56	148	127	108	-	134	120	64	90	117
127	60	153	127	107	-	133	116	66	90	118
134	58	154	127	109	-	134	116	64	90	117
135	58	158	126	108	-	133	120	64	90	118
136	56	153	126	109	-	133	118	64	90	119
142	58	148	128	110	-	133	121	66	90	118
327	60	154	127	108	-	133	120	69	97	120
Local Check	67	148	131	-	-	133	116	64	-	
Location Mean	63	156	131	97	54	137	121	68	78	
S.E. of Mean		1.12	0.98	1.12	1.88	0.54	2.58	0.42	1.71	
L.S.D. at 5%		3.20	2.80	3.19	5.50	1.54	7.33	1.21	4.86	
C.V. %		1.25	1.30	1.99	6.07	0.68	3.67	1.07	3.78	
Error d.f.		46	46	44	24	46	46	46	44	
Significance		*	*	*	*	*	*	*	*	

(1) Shambat was exclude from overall mean in *Lathyrus cicera*.* = Significant at $P \leq 0,05$, NS = Not significant.

Table 5.2.3. Time to maturity (days) of entries at different locations in ILAT-92.

Accession No. (IFLA)	ALGERIA		CHILE	CHINA	HUNGARY	LEBANON	PORTUGAL
	Beni Slimane	Khroub	Hidango	Xining	Tapioszele	Terbol	Elvas
A. <i>Lathyrus sativus</i>							
347	215	189	144	126	127	197	189
3	215	188	144	139	110	206	191
170	226	187	151	127	127	207	197
205	156	189	155	142	119	214	197
232	225	187	144	137	121	211	197
178	215	188	151	132	116	207	196
188	222	188	151	123	120	210	196
199	222	188	155	135	125	210	197
200	215	189	151	128	118	210	196
201	222	187	155	132	125	213	197
206	226	189	151	144	122	205	197
277	222	187	151	134	119	205	197
273	215	189	155	130	124	212	195
B. <i>Lathyrus cicera</i>							
536	215	188	139	135	105	199	189
116	226	187	139	132	103	195	189
119	222	187	139	129	105	194	189
121	215	189	139	127	103	195	189
127	222	187	139	138	103	195	189
134	215	188	139	135	103	199	189
135	222	187	139	124	105	204	189
136	222	189	139	130	103	202	189
142	222	188	139	129	103	196	192
327	226	187	139	128	103	201	189
Local Check	226	189	155	129	122	197	189
Location Mean	218	188	146	132	114	203	193
S.E. of Mean	13.60			6.02		2.05	0.97
L.S.D. at 5%	-			-		5.84	2.75
C.V. %	10.81			7.91		1.75	0.87
Error d.f.	46			46		46	46
Significance	NS			NS		*	*

Cont'd. ...

Table 5.2.3. Cont'd. ...

Accession No. (IFLA)	SAUDI ARABIA	SUDAN	SYRIA		TURKEY	YEMEN	Overall Mean
	Al Gassim	Shambat	Breda	Tel Hadya	Van	Dhamar	
<u>A. <i>Lathyrus sativus</i></u>							
347	154	110	165	162	98	133	154
3	161	113	165	163	102	130	156
170	161	116	170	173	101	137	160
205	162	120	173	175	106	137	157
232	161	120	170	172	102	137	160
178	162	118	170	170	106	136	159
188	160	118	168	171	102	134	159
199	162	120	170	173	103	137	161
200	163	120	170	172	106	137	160
201	163	120	173	174	102	137	162
206	162	121	170	170	106	137	162
277	159	124	168	173	106	135	160
273	163	128	173	174	98	137	161
<u>B. <i>Lathyrus cicera</i></u>							
536	156	-	170	167	98	142	159
116	155	-	165	166	101	135	158
119	155	-	165	166	98	132	157
121	155	-	167	168	98	136	157
127	156	-	165	169	98	133	158
134	154	-	165	167	98	132	157
135	158	-	165	168	98	134	158
136	155	-	165	168	98	133	158
142	155	-	165	167	98	134	157
327	155	-	165	168	98	134	158
Local Check	-	-	165	163	98	-	
Location Mean	159	119	168	169	101	135	
S.E. of Mean	0.71	1.83	0.57	0.95	1.35	1.32	
L.S.D. at 5%	2.02	5.34	1.63	2.69	3.86	3.78	
C.V. %	0.78	2.66	0.59	0.97	2.33	1.70	
Error d.f.	44	24	46	46	46	44	
Significance	*	*	*	*	*	*	

(1) Shambat was excluded from the overall mean in *Lathyrus cicera*.

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

Table 5.2.4. plant height (cm) of entries at different locations in ILAT-92.

Accession No. (IFLA)	ALGERIA		CHILE	CYPRUS	HUNGARY	LEBANON	PORTUGAL
	Beni Slimane	Khroub	Hidango	Dromolaxia	Tapioszele	Terbol	Elvas
<u>A. Lathyrus sastivus</u>							
347	66	70	49	38	24	36	52
3	72	75	88	47	23	39	62
170	71	100	70	52	74	40	68
205	69	90	86	57	70	39	52
232	80	85	99	65	91	38	66
178	66	100	92	52	77	39	70
188	75	90	62	42	65	36	57
199	81	80	104	53	92	42	65
200	65	105	73	58	75	41	59
201	75	95	94	40	121	38	67
206	82	90	133	45	83	41	70
277	76	110	74	38	82	42	77
273	77	100	93	57	87	42	61
<u>B. Lathyrus cicera</u>							
536	75	65	88	53	21	33	46
116	81	70	93	40	25	35	54
119	78	65	88	38	24	38	55
121	76	70	64	40	20	33	65
127	69	65	114	52	27	41	49
134	78	70	83	40	23	35	52
135	76	60	46	42	23	38	62
136	78	70	63	62	26	38	63
142	75	60	92	62	22	38	52
327	93	70	73	37	23	33	63
Local Check	77	100	61	42	79	28	68
Location Mean	75	81	83	48	53	38	61
S.E. of Mean	5.11		18.15	6.70		2.14	6.85
L.S.D. at 5%	-		-	-		6.10	-
C.V. %	11.72		38.07	24.20		9.85	19.61
Error d.f.	46		46	46		46	46
Significance	NS		NS	NS		*	NS
Entry > L. Check	-		2	-		20	-

Cont'd. ...

Table 5.2.4. Cont'd. ...

Accession No. (IFLA)	SAUDI ARABIA	SUDAN	SYRIA		TURKEY	YEMEN	Overall Mean ⁽¹⁾
	Al Gassim	Shambat	Breda	Tel Hadya	Van	Dhamar	
<u>A. Lathyrus sativus</u>							
347	39	68	30	35	34	62	46
3	38	70	28	38	49	59	53
170	45	84	30	27	46	61	59
205	45	96	25	20	47	74	59
232	48	97	33	25	47	61	64
178	45	95	25	28	49	66	62
188	43	97	28	27	43	69	56
199	43	105	35	27	43	73	65
200	43	88	28	32	44	84	61
201	47	101	30	25	40	69	65
206	42	101	33	32	41	64	66
277	43	100	30	32	44	68	63
273	44	109	30	30	36	74	65
<u>B. Lathyrus cicera</u>							
536	24	26	27	22	34	41	43
116	40	34	27	23	43	50	48
119	37	39	30	22	-	57	48
121	40	38	30	23	47	45	45
127	42	47	28	25	41	57	51
134	35	43	28	22	36	37	45
135	34	42	35	20	47	46	44
136	39	46	30	22	44	56	49
142	36	34	28	22	42	53	48
327	32	25	28	22	45	44	45
Local Check	-	-	30	35	44	-	
Location Mean	40	69	30	26	43	59	
S.E. of Mean	2.83	5.57	1.15	1.90	3.10	6.44	
L.S.D. at 5%	8.06	15.88	3.28	5.40	8.84	18.34	
C.V. %	12.18	14.00	6.75	12.46	12.56	18.76	
Error d.f.	44	44	46	46	44	44	
Significance	*	*	*	*	*	*	

(1) Van was excluded from the overall mean, * = 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 ILAT-92.

Accession No. (IFLA)	ALGERIA						CHILE		CHINA		CYPRUS		LEBANON	
	Beni Slimane		Khroub		Setif		Hidango		Xining		Dromolaxia		Terbol	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
A. <i>Lathyrus sativus</i>														
347	183	23	688	24	1913	5	418	23	418	23	-	-	1774	3
3	207	21	1040	12	1363	12	440	21	1498	3	436	12	2370	1
170	263	15	785	23	2207	1	783	8	988	11	866	3	1292	11
205	240	18	1005	14	713	22	419	22	544	21	973	1	811	21
232	240	19	1122	8	1923	4	779	9	588	20	563	10	1172	14
178	350	7	1285	5	1840	7	852	5	1131	7	812	5	1422	9
188	333	8	1233	6	1647	10	723	12	1234	5	-	-	1156	15
199	200	22	1368	2	1673	9	997	3	1107	8	929	2	1543	6
200	327	10	1325	3	1697	8	737	11	1168	6	599	9	1489	7
201	320	12	930	17	1470	11	802	6	1408	4	-	-	778	22
206	317	13	1222	7	2043	3	999	2	971	13	-	-	1756	4
277	400	2	1292	4	2193	2	969	4	521	22	-	-	1133	16
273	483	1	1062	11	1140	13	746	10	954	14	546	11	1659	5
B. <i>Lathyrus cicera</i>														
536	217	20	1483	1	1907	6	652	14	984	12	781	6	1222	12
116	333	9	863	19	1077	17	573	17	1749	1	-	-	963	17
119	350	6	827	21	900	18	404	24	1073	9	-	-	1381	10
121	323	11	945	16	1100	14	501	19	848	17	-	-	761	23
127	160	24	957	15	1083	16	786	7	1743	2	866	4	811	20
134	383	3	877	18	857	19	626	16	861	16	-	-	1189	13
135	260	16	1103	10	823	20	660	13	1005	10	-	-	611	24
136	350	5	855	20	770	21	544	18	731	19	646	8	1481	8
142	360	4	1035	13	1083	15	652	15	913	15	750	7	963	18
327	300	14	1117	9	520	24	468	20	753	18	-	-	837	19
Local Check	240	17	810	22	583	23	1204	1	202	24	-	-	1894	2
Location Mean	298		1051		1355		697		975		731		1270	
S.E. of Mean	57.96		135.65		230.92		106.04		278.54		93.43		294	
L.S.D. at 5%	162.13		386.12		657.32		301.84		792.87		274.03		836	
C.V. %	33.16		22.35		29.51		26.34		49.50		22.15		40	
Error d.f.	46		46		46		46		46		22		46	
Significance	*		*		*		*		*		*		0	
Entry > L. Check	1		7		12		0		10		-		0	

Cont'd. ...

Table 5.2.5. Cont'd. ...

Accession No. (IFLA)	PORTUGAL		SAUDI ARABIA		SUDAN		SYRIA				TURKEY		YEMEN		(1) Overall Mean	
	Elvas		Al Gassim		Shambat		Breda		Tel Hadya		Van		Dhamar			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
A. <i>Lathyrus sativus</i>																
347	1427	11	3252	3	422	10	1259	6	1176	7	-	-	1333	2	1189	9
3	1259	12	2467	10	259	13	1189	8	1319	3	3859	8	952	9	1197	6
170	508	20	2501	8	650	7	1319	4	1187	6	4512	5	1083	4	1130	13
205	455	21	2021	15	357	12	1104	14	733	15	6348	1	711	16	760	23
232	855	14	2960	5	674	6	1128	13	1230	5	3798	9	1006	8	1140	11
178	443	22	2736	6	713	5	1380	2	1041	10	5476	3	1396	1	1216	4
188	380	24	3743	1	1024	3	1322	3	1039	11	2197	18	1117	3	1246	3
199	571	18	1752	19	907	4	1280	5	1143	8	3243	11	1017	7	1130	14
200	607	17	3319	2	630	8	1183	9	961	12	3145	12	881	13	1194	7
201	717	16	1615	21	630	9	961	19	917	13	5345	4	900	10	954	21
206	413	23	2456	11	1113	1	1574	1	1380	2	3420	10	881	14	1260	1
277	563	19	3094	4	1059	2	1174	11	1389	1	5798	2	709	17	1208	5
273	774	15	1363	22	378	11	1180	10	1080	9	4303	6	889	12	976	20
B. <i>Lathyrus cicera</i>																
536	1563	10	1228	23	-	-	957	21	828	14	1085	23	144	23	1023	19
116	2080	5	1920	17	-	-	928	22	537	21	2673	13	583	21	1190	9
119	2578	1	2205	13	-	-	891	23	615	18	1419	21	630	19	1106	16
121	2008	7	1728	20	-	-	1039	17	541	20	1309	22	530	22	969	21
127	1905	9	2257	12	-	-	856	24	606	19	2582	14	1048	6	1233	2
134	2306	3	1985	16	-	-	1091	15	667	16	1643	20	1057	5	1129	15
135	2052	6	2492	9	-	-	1006	18	472	22	1736	19	830	15	1087	18
136	2213	4	1759	18	-	-	1141	12	637	17	2261	17	891	11	1136	12
142	1046	13	2675	7	-	-	959	20	254	24	2567	15	652	18	1097	17
327	1987	8	2146	14	-	-	1087	16	270	23	3933	7	583	20	1167	10
Local Check	2532	2	-	-	-	-	1191	7	1300	4	2264	16	-	-		
Location Mean	1302		2334		678		1133		888		3257		862			
S.E. of Mean	285.51		397.58		166.98		105.10		121.84		402.75		192.09			
L.S.D. at 5%	812.70		1133.19		487.41		299.17		346.82		1147.91		547.49			
C.V. %	37.99		29.51		42.65		16.06		23.76		21.42		38.60			
Error d.f.	46		44		24		46		46		44		44			
Significance	*		*		*		*		*		*		*			
Entry > L. Check	0		-		4		1		0		10		-			

(1) Dromolaxia and Van were excluded from overall mean in *Lathyrus sativus* and Dromolaxia and Shambat from *cicera*

Table 5.2.6. Biological yield (Y=kg/ha) and rank (R) of entries at different locations in ILAT-92.

Accession No. (IFLA)	ALGERIA						LEBANON		PORTUGAL	
	Beni Slimane		Khroub		Setif		Terbol		Elvas	
	Y	R	Y	R	Y	R	Y	R	Y	R
A. <i>Lathyrus sativus</i>										
347	2812	4	1700	24	5963	12	3848	6	5750	19
3	2247	13	2433	16	5473	14	6083	1	5917	18
170	3264	2	2900	13	7560	4	3567	8	6333	10
205	2326	11	3533	6	6423	9	2722	15	3167	24
232	1533	22	3333	10	6597	8	3017	13	7583	3
178	3541	1	3400	9	8157	2	3489	10	6500	9
188	1532	23	3500	8	7710	3	3022	12	4000	23
199	2221	14	3900	2	7383	7	4605	3	6917	8
200	2723	7	4033	1	6020	11	4167	5	6250	11
201	1972	16	3300	11	7473	6	2533	16	8250	1
206	1230	24	3533	7	5053	15	4233	4	5917	17
277	2326	12	3700	5	7557	5	3511	9	7083	6
273	1867	18	3800	4	8663	1	5528	2	7583	4
B. <i>Lathyrus cicera</i>										
536	2330	10	2900	12	5020	16	2456	18	5083	20
116	2545	8	2767	14	3933	20	2196	20	6000	14
119	1775	20	1833	22	4583	17	3031	11	6917	7
121	2759	6	2033	19	4183	19	2056	21	7417	5
127	1954	17	2000	20	6100	10	1993	23	6083	13
134	2185	15	1867	21	4537	18	2533	17	6083	12
135	2775	5	2267	18	3277	22	1544	24	6000	15
136	1578	21	1733	23	3470	21	2813	14	5917	16
142	2862	3	2267	17	5877	13	2019	22	4083	22
327	2459	9	2567	15	3070	24	2430	19	4833	21
Local Check	1788	19	3800	3	3137	23	3600	7	7750	2
Location Mean	2275		2879		5718		3208		6142	
S.E. of Mean	204.42		412.74		1069.30		727.23		869.76	
L.S.D. at 5%	581.88		1174.88		3043.78		2070.09		2475.79	
C.V. %	15.56		24.83		32.39		39.26		24.53	
Error d.f.	46		46		46		46		46	
Significance	*		*		*		*		*	
Entry > L. Check	9		0		9		1		0	

Cont'd. ...

Table 5.2.6. Cont'd. ...

Accession No. (IFLA)	SUDAN		SYRIA				YEMEN		(1) Overall Mean	
	Shambat		Breda		Tel Hadya		Dhamar			
	Y	R	Y	R	Y	R	Y	R	Y	R
A. <i>Lathyrus sativus</i>										
347	4861	12	2781	12	2446	13	889	23	3450	13
3	4583	13	2883	10	2674	9	3122	16	3935	11
170	6250	9	3176	6	2894	7	3824	9	4419	7
205	6528	8	2781	13	2220	14	2807	20	3612	12
232	5833	11	2541	15	3065	5	3161	15	4074	10
178	6806	7	3420	3	2652	10	4807	3	4752	4
188	9028	5	3074	7	2678	8	3328	13	4208	9
199	9444	2	3369	4	3061	6	2965	18	4874	3
200	6111	10	3057	8	2550	12	3285	14	4244	8
201	8194	6	2980	9	3083	4	4563	4	4705	5
206	9167	3	3657	1	3674	1	3470	12	4437	6
277	9583	1	3250	5	3594	2	4476	5	5009	2
273	9028	4	3457	2	3280	3	4944	2	5350	1
B. <i>Lathyrus cicera</i>										
536	-		2256	21	2043	17	2633	21	3090	19
116	-		2276	20	1798	18	3954	8	3184	17
119	-		2067	24	1706	20	2889	19	3100	18
121	-		2424	19	1683	21	3544	11	3262	15
127	-		2122	23	2157	15	4415	6	3353	14
134	-		2565	14	1743	19	3017	17	3066	20
135	-		2519	17	1548	22	4165	7	3012	21
136	-		2798	11	2074	16	3554	10	2992	22
142	-		2250	22	1187	24	4996	1	3193	16
327	-		2498	18	1526	23	2102	22	2686	23
Local Check	-		2526	16	2565	11	-	-		
Location Mean	7340		2780		2413		3518			
S.E. of Mean	963.92		254.68		289.27		570.22			
L.S.D. at 5%	2813.62		724.95		823.42		1625.25			
C.V. %	22.75		15.87		20.77		28.08			
Error d.f.	24		46		46		44			
Significance	*		*		*		*			
Entry > L. Check	0		4		2		-			

(1) Shambat was excluded from the overall mean in *Lathyrus cicera*.

Table 5.3.7. The five heaviest seed yielding entries at the individual locations in the ILAT during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Beni Slimane	Acc. 273	Acc. 277LS	Acc. 134LC	Acc. 142LC	Acc. 136LC
Algeria	Khroub	Acc. 536LC	Acc. 199LS	Acc. 200LS	Acc. 277LS	Acc. 178LS
Algeria	Setif	Acc. 170LS	Acc. 277LS	Acc. 206LS	Acc. 232LS	Acc. 347LS
Chile	Hidango	Local check	Acc. 206LS	Acc. 199LS	Acc. 277LS	Acc. 178LS
China	Xining	Acc. 116LC	Acc. 127LC	Acc. 3LS	Acc. 201LS	Acc. 188LS
Cyprus	Dromolaxia	Acc. 205LS	Acc. 199LS	Acc. 170LS	Acc. 127LC	Acc. 178LS
Lebanon	Terbol	Acc. 3LS	Local check	Acc. 347LS	Acc. 206LS	Acc. 273
Portugal	Elvas	Acc. 119LC	Local check	Acc. 134LC	Acc. 136LC	Acc. 116LC
Saudi Arabia	Al Gassim	Acc. 188LS	Acc. 200LS	Acc. 347LS	Acc. 277LS	Acc. 232LS
Sudan	Shambat	Acc. 206LS	Acc. 277LS	Acc. 188LS	Acc. 199LS	Acc. 178LS
Syria	Breda	Acc. 206LS	Acc. 178LS	Acc. 188LS	Acc. 170LS	Acc. 199LS
Syria	Tel Hadya	Acc. 277LS	Acc. 206LS	Acc. 3LS	Local check	Acc. 232LS
Turkey	Van	Acc. 205LS	Acc. 277LS	Acc. 178LS	Acc. 201LS	Acc. 170LS
Yemen	Dhamar	Acc. 178LS	Acc. 347LS	Acc. 188LS	Acc. 170LS	Acc. 134LC

5.3. INTERNATIONAL VETCH ADAPTATION TRIAL (IVAT)

Material

The material for the International Vetch Adaptation Trial comprised 23 test entries and one local check to be supplied by the cooperator. The test entries included, 17 selections of Vicia sativa and 6 selection of Vicia narbonensis. These entries were selected based on their superior yield performance.

Methods and Management

The trial design was a randomized complete block with three replications. The suggested plot size was four rows each 4 m long with an interrow spacing of 30 cm. Forty five sets of trial were distributed to cooperators in 22 countries. The results were received for 17 trials from 12 countries and are reported. The agronomic practices employed at different locations are given in Table 5.3.1.

Results and Discussion

The data on time to flowering, time to maturity, plant height, seed yield and biological yield are given in Tables 5.3.2, 5.3.3, 5.3.4, 5.3.5, and 5.3.6, respectively.

The ANOVA revealed that the differences among the entries were significant at 12 out of 13 locations for seed yield and at 5 out of 6 locations for biological yield. The seed yield varied from 326 kg/ha at Tapioszele in Hungary to 2526 kg/ha at Cordoba in Spain. At 10 locations some of the entries exceeded the local check by a significant margin. On the basis of average over locations the top five entries in Vicia sativa included IFVI 705 Sel 2556, IFVI 384 Sel 2062, IFVI 2541 Sel Local, IFVI 709 and IFVI 716 with seed yields of 1220, 1063, 1006, 926 and 906 kg/ha, respectively. Among Vicia narbonensis entries IFVI 565 Sel 2380, IFVI 574 Sel 2388, IFVI 577 Sel 2391, IFVI 568 Sel 2383, IFVI 573 Sel 2387 were the high yielding entries in order of their merit.

Table 5.3.1. Agronomic details for different locations in IVAT-92.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
Algeria	Beni Slimane	06.11.91	18.07.92	-	100	-	-	-	Languedoc
Algeria	Khroub	17.11.91	10.07.92	20	100	-	-	-	Languedoc
Chile	Hidango	29.07.92	15.12.92	20	35	-	-	-	V. <u>atropurpurea</u>
Cyprus	Dromolaxia	20.11.91	25.04.92	70	200	-	-	-	V. <u>sativa</u> Local
Hungary	Tapioszele	24.03.92	27.07.92	48	-	-	-	Azodrin, Fendona	-
Lebanon	Kfardan	28.11.91	25.07.92	-	-	-	-	Kerb + Fortrol	V. <u>sativa</u> 2541
Pakistan	Quetta	26.11.91	25.05.92	20	20	-	1	-	V. <u>dasycarpa</u> 683
Portugal	Elvas	08.11.91	26.05.92	-	60	-	-	Thiram + Carbendazime	V. <u>sativa</u> 8616
								Propizamide+Terbutrine	Ervillance da Piedade
Saudi Arabia	Riyadh	27.11.91	28.04.92	55	46	-	4	-	Lathyrus var.
Spain	Cordoba	19.11.91	22.05.92	-	-	-	1	-	V. <u>narbonensis</u> Loc
Syria	Breda	15.11.91	-	-	40	-	-	-	V. <u>sativa</u> 2541
Syria	Tel Hadya	22.12.91	02.07.92	-	40	-	-	Decis, Pirimor	V. <u>sativa</u> 2541/2561
Turkey	Diyarbakir	20.11.91	08.07.92	-	-	-	-	-	D-27
Turkey	Van	29.04.92	03.08.92	40	80	-	-	-	-
Yemen	Dhamar	13.02.92	11.07.92	30	50	-	4	-	-

Table 5.3.2. Time to flowering (days) of entries at different locations in IVAT-92.

Accession No. (IFVI)	Selection	Origin	ALGERIA		CHILE	CYPRUS
			Beni Slimane	Khroub	Hidango	Dromolaxia
<u>A. <i>Vicia sativa</i></u>						
2	845	ICARDA	167	167	93	-
2	1134	ICARDA	167	167	93	127
4	2057	ICARDA	167	168	75	128
7	1135	ICARDA	167	169	89	121
7	1136	ICARDA	167	167	93	-
384	2062	ICARDA	162	163	93	179
482	2096	ICARDA	167	163	100	139
507	2019	ICARDA	165	159	98	126
534	2065	ICARDA	167	167	105	129
708	2037	ICARDA	167	165	105	129
709	-	ICARDA	165	160	93	137
705	2556	ICARDA	164	160	93	131
716	-	ICARDA	162	152	93	134
1331	1437	ICARDA	167	164	99	137
1361	1448	ICARDA	164	167	105	132
1416	2557	ICARDA	167	167	105	125
2541	Local	ICARDA	162	157	98	121
<u>B. <i>Vicia narbonensis</i></u>						
67	Local	ICARDA	158	157	86	129
574	2388	ICARDA	158	158	83	124
565	2380	ICARDA	156	157	83	124
573	2387	ICARDA	156	157	83	121
577	2391	ICARDA	159	157	83	126
568	2383	ICARDA	159	157	83	-
Local Check	-	-	162	161	105	-
Location Mean			164	162	93	131
S.E. of Mean			1.33			1.84
L.S.D. at 5%			3.79			5.26
C.V. %			1.41			2.43
Error d.f.			46			38
Significance			*			*

Cont'd. ...

Table 5.3.2. Cont'd. ...

Accession No. (IFVI)	HUNGARY	LEBANON	PORTUGAL	SAUDI ARABIA	SPAIN	SYRIA		TURKEY	YEMEN	(1) Overall Mean
	Tapioszele	Terbol	Elvas	Riyadh	Cordoba	Breda	Tel Hadya	Van	Dhamar	
A. <i>Vicia sativa</i>										
2	66	166	136	113	131	145	129	66	76	128
2	70	172	136	109	129	145	128	68	80	127
4	66	164	136	106	131	142	128	65	74	124
7	66	160	137	107	129	145	129	65	75	126
7	69	159	138	109	132	144	129	66	72	128
384	72	155	136	105	130	139	120	69	88	125
482	69	152	135	103	128	145	122	68	93	126
507	74	157	132	104	129	136	123	68	87	124
534	77	-	152	106	132	145	129	69	-	131
708	78	-	143	108	130	139	123	68	-	129
709	73	156	132	117	127	136	117	65	88	124
705	73	155	136	106	129	145	122	68	93	125
716	76	151	136	111	127	133	119	69	89	123
1331	71	162	136	109	128	145	124	66	90	127
1361	78	-	161	106	132	144	130	68	-	132
1416	78	-	158	110	128	145	131	68	-	132
2541	68	155	131	113	128	133	118	65	82	123
B. <i>Vicia narbonensis</i>										
67	64	149	132	103	127	129	114	-	75	119
574	60	146	130	118	126	129	114	-	67	120
565	61	146	129	111	126	126	111	-	67	118
573	59	151	130	110	126	126	110	-	67	118
577	59	145	129	102	126	129	113	-	69	117
568	61	149	131	106	126	132	117	-	68	119
Local Check	-	147	129	114	131	136	117	-	-	
Location Mean	69	155	137	109	129	138	122	67	79	
S.E. of Mean	1.39	2.77	2.17	4.36	0.96	0.91	1.95	1.05	2.96	
L.S.D. at 5%	3.96	7.93	6.19	-	2.72	2.58	5.55	-	8.48	
C.V. %	3.49	3.10	2.76	6.95	1.29	1.14	2.78	2.72	6.49	
Error d.f.	44	38	46	46	46	46	46	32	36	
Significance	*	*	*	NS	*	*	*	NS	*	

(1) Dromolaxia, Terbol, Van and Dhamar were excluded from the overall mean.

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

Table 5.3.3. Time to maturity (days) of entries at different locations in IVAT-92.

Accession No. (IFVI)	ALGERIA		HUNGARY	LEBANON	PORTUGAL	SAUDI ARABIA
	Beni Slimane	Khroub	Tapioszele	Terbol	Elvas	Riyadh
<u>A. <i>Vicia sativa</i></u>						
2	217	184	120	207	188	138
2	217	184	123	205	191	143
4	217	183	116	204	190	139
7	217	180	117	206	194	141
7	217	181	121	201	195	144
384	216	180	124	205	188	139
482	217	185	120	203	195	142
507	216	185	125	205	190	137
534	217	184	130	-	193	140
708	217	183	132	-	191	141
709	217	179	125	201	188	150
705	217	183	124	202	188	140
716	215	179	130	196	188	144
1331	217	180	122	206	192	141
1361	216	181	130	-	190	140
1416	217	183	133	-	191	143
2541	214	179	119	198	188	146
<u>B. <i>Vicia narbonensis</i></u>						
67	213	179	108	195	188	138
574	213	179	104	194	188	150
565	212	179	104	192	188	144
573	212	179	102	194	190	153
577	214	179	101	193	188	137
568	213	179	103	195	188	146
Local Check	215	184	-	192	188	142
Location Mean	216	181	119	200	190	142
S.E. of Mean	0.55		2.10	1.47	1.04	4.43
L.S.D. at 5%	1.55		5.97	4.21	2.95	-
C.V. %	0.44		3.05	1.28	0.94	5.39
Error d.f.	46		44	38	46	46
Significance	*		*	*	*	NS

Cont'd. ...

Table 5.3.3. Cont'd. ...

Accession No. (IFVA)	SPAIN	SYRIA		TURKEY	YEMEN	(1) Overall Mean
	Cordoba	Breda	Tel Hadya	Van	Dhamar	
<u>A. Vicia sativa</u>						
2	175	175	168	91	134	167
2	176	175	169	90	134	168
4	174	169	168	90	139	166
7	177	175	169	90	130	167
7	175	171	168	90	134	167
384	182	168	168	93	142	167
482	178	175	168	92	140	169
507	178	171	169	97	137	168
534	178	175	165	93	148	170
708	177	172	165	97	148	170
709	172	171	162	90	140	167
705	175	175	164	92	139	167
716	173	170	163	90	136	166
1331	176	175	168	90	137	168
1361	173	174	164	90	148	168
1416	179	175	165	90	148	171
2541	174	170	161	90	130	165
<u>B. Vicia narbonensis</u>						
67	170	167	149	-	128	160
574	171	162	145	-	119	159
565	169	160	144	-	116	157
573	172	159	142	-	116	158
577	171	163	147	-	116	157
568	173	169	150	-	125	161
Local Check	182	170	159	-	-	
Location Mean	175	170	161	91	134	
S.E. of Mean	1.79	1.29	1.45	0.56	2.72	
L.S.D. at 5%	5.10	3.67	4.12	1.61	7.76	
C.V. %	1.77	1.31	1.56	1.06	3.52	
Error d.f.	46	46	46	32	44	
Significance	*	*	*	*	*	

(1) Terbol and Van were excluded from the overall mean.

* = Significant at $P \leq 0,05$, NS = Not significant.

Table 5.3.4. Plant height (cm) of entries at different locations in IVAT-92.

Accession No. (IFVA)	ALGERIA		CYPRUS	HUNGARY	LEBANON	SAUDI ARABIA
	Beni Slimane	Khroub	Dromolaxia	Tapioszele	Terbol	Riyadh
<u>A. Vicia sativa</u>						
2	42	75	43	26	37	25
2	55	100	38	33	30	30
4	37	100	58	37	37	30
7	74	80	50	34	37	30
7	59	115	38	38	40	37
384	46	85	40	43	33	32
482	45	110	40	39	31	29
507	47	100	50	58	36	30
534	51	120	47	36	-	25
708	44	110	47	35	-	25
709	44	85	42	33	29	31
705	52	125	45	36	41	30
716	52	80	38	48	28	26
1331	53	130	38	46	42	23
1361	54	60	38	33	-	27
1416	38	110	55	50	-	28
2541	56	100	45	49	32	27
<u>B. Vicia narbonensis</u>						
67	48	110	48	81	43	26
574	60	80	37	66	36	26
565	70	60	38	75	35	28
573	49	60	37	62	37	27
577	60	90	60	71	35	28
568	47	95	40	82	49	35
Local Check	37	105	38	-	29	30
Location Mean	51	95	44	48	36	29
S.E. of Mean	7.30		7.73	2.38	2.88	3.58
L.S.D. at 5%	-		-	6.78	8.24	-
C.V. %	24.85		30.56	8.52	13.91	21.72
Error d.f.	46		46	44	38	46
Significance	NS		NS	*	*	NS

Cont'd. ...

Table 5.3.4. Cont'd. ...

Accession No. (IFVI)	SPAIN	SYRIA		TURKEY	YEMEN	(1) Overall Mean
	Cordoba	Breda	Tel Hadya	Van	Dhamar	
<u>A. Vicia sativa</u>						
2	39	20	27	38	68	40
2	40	20	27	35	56	44
4	35	28	22	32	72	47
7	37	20	30	35	62	46
7	42	27	27	45	55	49
384	30	25	28	44	67	44
482	34	20	28	41	51	44
507	44	30	27	39	58	49
534	37	20	17	22	36	43
708	38	27	20	32	41	43
709	33	28	32	35	50	42
705	41	20	32	46	54	48
716	34	28	27	35	50	43
1331	37	20	27	38	55	48
1361	47	20	15	18	26	36
1416	38	20	17	18	33	43
2541	38	30	32	36	51	48
<u>B. Vicia narbonensis</u>						
67	50	28	38	-	70	55
574	38	30	35	-	49	47
565	36	30	30	-	46	46
573	50	28	33	-	46	44
577	33	35	43	-	48	52
568	49	35	47	-	66	55
Local Check	43	27	37	-	-	
Location Mean	39	26	29	35	53	
S.E. of Mean	4.01	1.12	2.49	1.50	5.17	
L.S.D. at 5%	11.43	3.18	7.07	4.33	14.73	
C.V. %	17.72	7.53	14.86	7.50	17.01	
Error d.f.	46	46	46	32	44	
Significance	*	*	*	*	*	

(1) Terbol and Van were excluded from the overall mean.

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

Table 5.3.5. Seed yield (Y=kg/ha) and rank (R) of entries at different locations in IVAY-92.

Accession No. (IFVA)	ALGERIA				CHILE		CYPRUS		HUNGARY		LEBANON		PAKISTAN	
	Beni Slimane		Khroub		Hidango		Dromolaxia		Tapioszele		Terbol		Quetta	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
A. <i>Vicia sativa</i>														
2	193	22	960	22	1026	11	-	-	125	14	647	17	634	17
2	300	14	1190	16	1351	3	-	-	167	12	1031	14	334	21
4	233	19	1150	19	1263	5	972	3	153	13	276	19	722	14
7	517	3	1228	13	1036	10	346	10	49	19	612	18	270	24
7	400	9	1185	17	1130	9	-	-	35	20	720	16	792	13
384	307	13	1643	7	1546	1	-	-	28	23	1265	13	1170	8
482	307	12	1057	21	780	13	-	-	104	17	228	20	318	22
507	257	17	1342	11	946	12	868	6	194	9	1395	9	706	16
534	540	2	1078	20	409	20	911	5	31	22	-	-	1000	9
708	400	8	1210	15	457	19	953	4	31	21	-	-	394	20
709	377	10	1512	8	1295	4	-	-	63	18	2209	7	886	11
705	267	16	1162	18	1501	2	867	7	222	8	1715	8	1688	6
716	267	15	1407	10	1146	7	-	-	111	16	804	15	909	10
1331	333	11	1228	14	1174	6	-	-	111	15	1307	12	272	23
1361	217	21	1247	12	280	24	-	-	174	11	-	-	1302	7
1416	217	20	917	24	370	21	1076	1	177	10	-	-	538	18
2541	500	5	1977	2	1138	8	763	9	229	7	1352	11	720	15
B. <i>Vicia narbonensis</i>														
67	167	23	1797	5	300	23	973	2	688	5	2649	5	826	12
574	450	7	1918	3	477	18	-	-	653	6	2637	6	2720	1
565	240	18	1743	6	485	17	-	-	1465	1	2692	4	2696	2
573	917	1	1475	9	310	22	-	-	979	3	3233	1	1814	5
577	500	4	1888	4	524	16	848	8	694	4	3138	3	2206	4
568	490	6	2220	1	562	15	-	-	1021	2	3208	2	2220	3
Local Check	167	24	953	23	640	14	-	-	-	-	1394	10	468	19
Location Mean	357		1395		839		858		326		1626		1067	
S.E. of Mean	53.51		147.54		127.06				121.40		231.46		499.05	
L.S.D. at 5%	152.31		419.97		361.67				346.00		662.71		1192.26	
C.V. %	25.98		18.32		26.22				64.45		24.66		66.15	
Error d.f.	46		46		46				44		38		23	
Significance	*		*		*				*		*		*	
Entry > L. Check	11		10		11				1		7		6	

Cont'd. ...

Table 5.3.5. Cont'd. ...

Accession No. (IFVI)	PORTUGAL		SAUDI ARABIA		SPAIN		SYRIA		TURKEY		YEMEN		(1) Overall Mean	
	Elvas		Riyadh		Cordoba		Breda		Tel Hadya		Van		Dhamar	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
A. <i>Vicia sativa</i>														
2	708	16	220	22	1630	20	493	20	619	14	1352	4	720	10
2	675	17	329	15	2248	13	652	15	424	19	2592	1	689	11
4	1002	11	235	21	1717	19	530	18	204	22	1268	5	615	13
7	88	24	256	18	1286	23	824	9	611	15	890	10	622	12
7	378	21	484	6	1344	22	583	16	517	16	1353	3	370	17
384	1248	8	557	3	2954	7	676	13	672	12	914	9	889	7
482	198	23	613	1	2102	15	517	19	487	18	1364	2	511	14
507	630	18	393	11	2857	8	713	12	504	17	885	11	424	16
534	718	15	214	23	2449	12	348	21	61	24	-	-	0	20
708	903	13	458	9	2506	11	319	22	265	20	-	-	0	21
709	1624	7	168	24	2027	17	741	11	1030	10	1201	6	467	15
705	946	12	562	2	4286	2	996	7	1043	9	-	-	754	9
716	1011	10	251	19	3308	6	667	14	633	13	934	8	254	19
1331	246	22	296	16	1044	24	565	17	737	11	202	12	354	18
1361	734	14	383	12	2140	14	306	23	91	23	-	-	0	22
1416	606	20	373	13	1476	21	287	24	230	21	-	-	0	23
2541	1107	9	476	7	2092	16	885	8	1189	8	991	7	757	8
B. <i>Vicia narbonensis</i>														
67	2383	6	288	17	1779	18	1172	6	1815	5	-	-	1213	6
574	3427	1	557	4	3956	4	1663	5	1746	6	-	-	1687	5
565	2759	3	539	5	4875	1	1974	1	1867	4	-	-	1707	4
573	2533	5	350	14	3311	5	1683	4	1896	3	-	-	1724	3
577	2543	4	476	8	4105	3	1870	2	1950	2	-	-	1839	2
568	3077	2	423	10	2583	9	1739	3	2357	1	-	-	1844	1
Local Check	626	19	237	20	2560	10	819	10	1243	7	-	-	-	-
Location Mean	1257		381		2526		876		925		1162		758	
S.E. of Mean	208.79		136.05		432.31		128.42		159.53		561.03		267.60	
L.S.D. at 5%	594.33		-		1230.59		365.54		454.09		1616.36		762.72	
C.V. %	28.77		61.90		29.64		25.40		29.89		132.11		61.12	
Error d.f.	46		46		46		46		46		32		44	
Significance	*		NS		*		*		*		*		*	
Entry > L. Check	8		-		4		5		6		0		0	

(1) Dromolaxia, Terbol and Van were excluded from the overall mean.

Table 5.3.6. Biological yield (Y=kg/ha) and rank (R) of entries at different locations in IVAT-92.

Accession No. (IFVI)	ALGERIA		LEBANON		PAKISTAN		PORTUGAL		YEMEN		(1) Overall Mean	
	Beni Slimane		Khroub		Terbol		Quetta		Elvas		Dhamar	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
A. <i>Vicia sativa</i>												
2	3117	20	3067	21	1273	18	3400	19	2698	19	5020	9
2	4577	15	3500	12	1385	16	4800	13	-	-	4033	14
4	4660	14	3100	20	596	20	6600	4	4750	6	5681	3
7	3323	19	3833	9	1953	15	3200	20	2250	21	5304	8
7	6273	7	3500	13	1293	17	4000	16	2474	20	5370	7
384	4237	16	3700	10	2516	14	6400	7	6083	4	5407	5
482	1980	24	3133	18	618	19	2800	22	2000	22	3656	17
507	3117	21	3300	16	3020	9	5600	10	3500	13	4641	12
534	3817	18	3067	22	-	-	4800	11	2724	18	2593	20
708	2423	22	3133	19	-	-	2000	24	3802	11	2407	21
709	2047	23	4583	4	3850	7	4200	15	6577	2	3052	19
705	6177	8	3400	14	2628	13	6600	6	3327	15	3413	18
716	5007	12	3210	17	2634	12	3800	17	4202	9	3728	16
1331	5027	11	3333	15	3796	8	3600	18	3552	12	5378	6
1361	5560	10	2950	23	-	-	4800	12	4083	10	0	23
1416	3927	17	2933	24	-	-	2600	23	2750	17	2222	22
2541	8083	1	4967	3	2759	11	3000	21	4474	8	4428	13
B. <i>Vicia narbonensis</i>												
67	6337	5	6867	1	5361	5	6600	5	3345	14	4898	10
574	6857	4	4233	5	5556	3	5600	9	-	-	3869	15
565	7533	3	4067	7	5008	6	7800	3	4845	5	5978	2
573	5653	9	3833	8	5948	2	4200	14	4595	7	4865	11
577	4867	13	4133	6	6025	1	5800	8	6198	3	6907	1
568	6277	6	5950	2	5451	4	8600	2	7353	1	5656	4
Local Check	8030	2	3667	11	2931	10	9200	1	3000	16	-	-
Location Mean	4954		3811		3230		5000		4027		4283	
S.E. of Mean	333.19		342.32		462.95		1582.15		369.14		877.86	
L.S.D. at 5%	948.42		974.42		1325.53		-		1053.58		2502.09	
C.V. %	11.65		15.56		24.83		44.75		15.88		35.50	
Error d.f.	46		46		38		23		42		44	
Significance	*		*		*		NS		*		*	
Entry > L. Check	0		3		6		-		10		-	

(1) Terbol and Elvas were excluded from the overall mean, * = Significant at $P \leq 0.05$, NS = Not significant.

Table 5.2.7. The five heaviest seed yielding entries at the individual locations in the IVAT during 1991/92.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria	Beni Slimane	Acc. 573VN	Acc. 534VS	Acc. 7VS	Acc. 577VN	Acc. 2541VS
Algeria	Khroub	Acc. 568VN	Acc. 2541VS	Acc. 574VN	Acc. 577VN	Acc. 67VN
Chile	Hidango	Acc. 384VS	Acc. 705VS	Acc. 2VS	Acc. 709VS	Acc. 4VS
Cyprus	Dromolaxia	Acc. 1416VS	Acc. 67VN	Acc. 4VS	Acc. 708VS	Acc. 534VS
Hungary	Tapioszele	Acc. 565VN	Acc. 568VN	Acc. 573VN	Acc. 577VN	Acc. 67VN
Lebanon	Terbol	Acc. 573VN	Acc. 568VN	Acc. 577VN	Acc. 565VN	Acc. 67VN
Pakistan	Quetta	Acc. 574VN	Acc. 565VN	Acc. 568VN	Acc. 577VN	Acc. 573VN
Portugal	Elvas	Acc. 574VN	Acc. 568VN	Acc. 565VN	Acc. 577VN	Acc. 573VN
Saudi Arabia	Riyadh	Acc. 482VS	Acc. 705VS	Acc. 384VS	Acc. 574VN	Acc. 565VN
Spain	Córdoba	Acc. 565VN	Acc. 705VS	Acc. 577VN	Acc. 574VN	Acc. 573VN
Syria	Breda	Acc. 565VN	Acc. 577VN	Acc. 568VN	Acc. 573VN	Acc. 574VN
Syria	Tel Hadya	Acc. 568VN	Acc. 577VN	Acc. 573VN	Acc. 565VN	Acc. 67VN
Turkey	Van	Acc. 2VS	Acc. 482VS	Acc. 7VS	Acc. 2VS	Acc. 4VS
Yemen	Dhamar	Acc. 568VN	Acc. 577VN	Acc. 573VN	Acc. 565VN	Acc. 574VN

APPENDIX I

Distribution of Legume International Nurseries and Trials during 1991/92

Country	C I Y T - S P	C I Y T - W - M R	C I Y T - S L 1	C I Y T - S L 2	C I Y T - L A	C I S N - W	C I S N - S P	C I S N - S L 1	C I S N - S L 2	C I S N - L A	C I F 4 N - M R	C I F 4 N - S L	C I A B N - A	C I A B N - B	C I F W N	C I L M N	C I C T N	T O T A L
Afghanistan	1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	4
Algeria	1	12	0	0	1	1	1	0	0	0	3	0	9	1	3	4	2	38
Argentina	0	0	1	0	0	0	0	0	1	0	0	1	0	0	1	0	1	5
Australia	1	1	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	9
Bangladesh	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	9
Bhutan	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Brazil	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
Bulgaria	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
Canada	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	7
Chile	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	0	4
China	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Cyprus	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Ecuador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Egypt	0	0	2	1	0	0	0	1	0	0	1	2	0	0	2	0	0	9
Ethiopia	0	0	1	1	0	0	1	1	2	0	0	2	0	1	0	0	2	8
France	1	1	0	0	0	1	1	0	0	0	1	0	2	0	0	0	1	5
Greece	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Guatemala	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	4
Hungary	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	17
India	0	0	3	2	0	1	0	1	1	0	0	2	0	3	2	0	2	24
Iran	5	4	0	0	0	3	4	0	0	0	0	0	1	0	2	0	5	12
Iraq	3	3	0	0	0	2	1	0	0	0	0	0	0	0	2	0	1	18
Italy	0	6	0	0	0	4	0	0	0	0	1	0	1	0	0	0	0	10
Jordan	2	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Kenya	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	5
Lebanon	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0	1	0	5

Cont'd. ...

APPENDIX I (Cont'd.)

Country	C I Y T - S P	C I Y T - W R	C I Y T - S L	C I Y T - S L	C I Y T - L A	C I S N - W	C I S N - S P	C I S N - L 1	C I S N - L 2	C I S N - L A	C I F 4 N - M R	C I F 4 N - S L	C I A B N - A	C I A B N - B	C I F W N	C I L M N	C I C T N	T O T A L
Libya	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5
Mexico	0	0	0	0	1	0	1	0	0	2	0	0	0	0	2	0	0	6
Morocco	0	3	0	0	0	2	0	0	0	0	2	0	2	0	1	1	0	11
Myanmar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Nepal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
New Zealand	1	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	5
Oman	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Pakistan	0	0	0	0	0	0	0	6	1	0	0	0	0	8	3	0	6	24
Peru	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	4
Portugal	0	1	0	0	0	2	0	1	0	0	1	0	0	1	0	0	0	6
Qatar	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Saudi Arabia	1	0	2	2	0	0	1	1	0	0	1	0	0	0	2	0	0	10
Spain	2	3	0	0	2	3	0	0	0	1	2	0	0	0	0	0	0	14
Sri Lanka	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
Sudan	1	0	2	2	0	0	0	0	0	0	0	3	0	0	1	0	0	9
Syria	6	8	0	0	0	8	8	0	0	0	3	0	4	0	0	0	2	39
Thailand	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Tunisia	3	0	0	0	1	9	9	0	1	1	1	0	1	6	2	1	6	35
Turkey	10	9	0	0	0	8	9	1	0	0	4	0	0	0	1	1	0	56
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	-
U.S.A.	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	4
Former U.S.S.R.	1	1	0	0	0	0	1	0	0	0	0	2	0	1	1	0	0	7
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Yemen	0	0	0	1	0	1	1	0	0	0	1	0	0	0	1	0	0	4
Yugoslavia	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	4
ICARDA - Lebanon	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	6
ICARDA - Syria	2	2	1	2	2	2	2	1	1	1	0	0	0	1	0	2	2	21
Total	50	67	18	15	15	56	46	15	14	12	25	12	33	30	33	12	39	492

Cont'd. ...

APPENDIX I (Cont'd.)

Country	L I Y T - L	L I Y T - S	L I Y T - E	L I S N - L	L I S N - S	L I S N - E	L I S N - T	L I F 3 N - L	L I F 3 N - S	L I F 3 N - C T	L I F 3 N - E	L I C T N	L I A B N	L I F W N	L I R N	P I A T	I V A T	I L A T	T O T A L
Afghanistan	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Algeria	7	8	2	2	0	1	6	1	0	1	1	1	2	3	1	6	6	6	54
Argentina	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	1	3
Australia	2	2	0	2	2	2	2	1	1	0	1	2	1	0	0	1	0	0	20
Bangladesh	0	0	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	4
Bhutan	1	3	2	1	2	2	1	0	2	0	1	0	0	0	0	1	0	2	18
Bolivia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Brazil	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Bulgaria	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	5
Canada	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Chile	3	0	0	0	0	0	0	1	0	0	0	0	2	0	0	1	1	1	9
China	1	0	3	0	0	1	0	0	0	0	0	0	0	0	0	3	3	4	15
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Ecuador	0	0	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	4
Egypt	3	3	3	1	2	2	2	1	2	0	2	0	0	2	0	2	2	2	29
Ethiopia	0	0	1	0	0	1	1	0	1	0	1	1	2	0	3	0	1	2	14
France	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Greece	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3
Guatemala	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Hungary	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	1	1	1	6
India	0	0	1	0	0	0	0	2	0	0	1	0	0	1	0	1	0	0	6
Iran	5	1	0	3	1	5	4	0	0	0	0	4	0	0	0	0	1	1	25
Iraq	2	2	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	7
Italy	0	1	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	5
Jordan	3	0	0	3	0	0	2	1	0	0	0	0	0	0	0	3	2	2	16
Kenya	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Lebanon	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	5

Cont'd. ...

APPENDIX I

Country	L I Y T - L	L I Y T - S	L I Y T - E	L I S N - L	L I S N - S	L I S N - E	L I S N - T	L I F 3 N - L	L I F 3 N - S	L I F 3 N - C T	L I F 3 N - E	L I C T N	L I A B N	L I F W N	L I R N	P I A T	I V A T	I L A T	T O T A L
Libya	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	8
Mexico	1	2	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	9
Morocco	1	1	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	14
Myanmar	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
Nepal	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
New Zealand	1	1	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	7
Oman	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Pakistan	4	0	11	2	2	8	0	0	0	0	2	3	3	3	1	1	3	0	43
Peru	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	0	0	5
Portugal	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	4
Qatar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Saudi Arabia	2	2	1	0	0	1	2	0	0	0	0	0	0	0	0	3	3	5	19
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
Sri Lanka	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	3
Sudan	0	0	4	0	0	0	0	0	0	0	2	0	0	5	0	0	2	2	13
Syria	4	4	0	5	5	5	5	2	0	0	0	0	0	0	0	0	0	0	41
Thailand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Tunisia	2	1	1	2	1	2	2	0	0	0	0	0	0	1	0	2	0	0	14
Turkey	2	1	0	3	1	0	4	1	1	1	0	2	0	0	0	1	6	4	27
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
U.S.A.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Former U.S.S.R.	1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	4
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Yemen	2	1	2	0	1	1	0	0	0	0	1	0	0	0	0	1	1	2	12
Yugoslavia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
ICARDA - Lebanon	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	8
ICARDA - Syria	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	24
Total	54	38	43	33	22	41	40	16	11	5	18	19	13	25	8	49	45	47	527

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-

APPENDIX IV

Geographical Details for the Locations

COUNTRY	LOCATION	LATITUDE	LONGITUDE	ALTITUDE (m)	RAINFALL (mm)
ALGERIA	Beni-Slimane	36.14N	03.18E	550	379
ALGERIA	Guelma	36.29N	07.29E	300	599
ALGERIA	Khroub	36.16N	06.42E	640	510
ALGERIA	Oued Smar	36.43N	03.15E	24	621
ALGERIA	Setif	36.09N	05.21E	1023	449
ALGERIA	Tiaret	34.36N	00.12W	980	323
ARGENTINA	Cordoba	31.19S	64.13W	474	799
AUSTRALIA	Horsham	36.44S	142.01E	200	493
AUSTRALIA	Turretfield	34.33S	138.50E	100	813
BOLIVIA	Cochabamba	17.21N	66.19W	2584	732
BRAZIL	Vicosa	20.50S	42.53W	649	306
BULGARIA	Toshevo	43.40N	28.02E	236	425
CANADA	Watrous-1	49.54N	98.16W	295	264
CANADA	Watrous-2	51.41N	105.22W	519	NA
CHILE	Hidango	34.07S	71.44W	304	275
CHINA	Qinghai	36.45N	101.38E	2309	468
CYPRUS	Athalassa	35.08N	33.24E	142	321
CYPRUS	Dromolaxia	34.52N	33.36E	25	315
ECUADOR	Bolivar	01.35S	80.28W	2650	NA
ECUADOR	Imbabund	00.21S	78.07W	3000	NA
ETHIOPIA	Ghinchie	09.03N	38.30E	2200	980
GREECE	Larissa	39.07N	22.05E	70	287
HUNGARY	Tapioszele	47.22N	19.53E	112	207
INDIA	New Delhi	28.40N	77.10E	227	NA
INDIA	New Delhi (IARI)	28.08N	77.12E	229	NA
IRAN	Qazvin	36.15N	49.30E	1330	401
IRAN	Gorgan	36.55N	54.20E	15	559
IRAN	Hamadan	34.47N	48.30E	1877	362
IRAN	Karaj	35.48N	51.20E	1321	298
IRAN	Kaermanshah	34.19N	47.07E	1356	520
IRAN	Maragheh	37.15N	46.15E	1650	544
IRAN	Mashhad	36.16N	59.38E	985	158
IRAN	Nishabour	36.37N	58.06E	1350	433
IRAN	Oroumieh	37.55N	45.01E	133	396
IRAN	Zanjan	36.43N	48.27E	1666	336
IRAN	Zarghan	29.46N	52.43E	1603	239
IRAQ	Mosul (Rabia)	NA	NA	NA	322
ITALY	Catania	37.23N	14.14E	600	470
ITALY	Papiano	42.57N	12.22E	164	422
ITALY	Tarquinoa	46.09N	13.08E	80	331
ITALY	Tolentino	43.15N	13.30E	250	551
JORDAN	Maru	32.33N	35.51E	580	NA
LEBANON	Terbol	33.49N	35.59E	890	860
LIBYA	El Safsaf	32.49N	21.54E	641	894
MEXICO	Hermosillo	28.45N	111.30W	70	180
MEXICO	Sonora	26.20N	108.26W	29	52
MOROCCO	Jema'a Shain	32.10N	10.00W	170	217
MOROCCO	Marchouch	33.33N	06.42W	430	265
MYANMAR	Aungban	20.35N	96.35E	1285	108
NEW ZEALAND	Christchurch	NA	NA	NA	318
OMAN	Jimah	22.00N	57.30E	23	NA
OMAN	Rumais	23.41N	58.00E	23	59

Cont'd. ...

Cont'd. ...

COUNTRY	LOCATION	LATITUDE	LONGITUDE	ALTITUDE	RAINFALL
				(m)	(mm)
PAKISTAN	Faisalabad	31.30N	73.10E	181	NA
PAKISTAN	Islamabad (NARC)	33.43N	73.07E	578	438
PAKISTAN	Islamabad (Dokri)	27.50N	68.10E	NA	81
PAKISTAN	Kalat	29.07N	66.24E	1850	279
PAKISTAN	Quetta	30.07N	66.58E	1690	301
PORTUGAL	Elvas	38.53N	07.09E	208	2165
PORTUGAL	Oeiras	38.40N	09.19W	50	277
QATAR	Doha	25.48N	51.18E	50	51
SAUDI ARABIA	Al Kharj	24.10N	47.10E	430	NA
SAUDI ARABIA	Al-Gassim	26.09N	43.59E	724	50
SAUDI ARABIA	Riyadh	24.25N	46.36E	635	NA
SPAIN	Alcala del Rio	37.32N	05.58E	18	330
SPAIN	Badajoz	38.49N	06.39W	237	287
SPAIN	Carmona	37.38N	05.38W	72	326
SPAIN	Cordoba	37.51N	04.51W	110	557
SRI LANKA	Bandarawela	6.45N	81.00E	1259	240
SUDAN	Ed-Damer	17.34N	33.56E	350	NA
SUDAN	Shambat	15.36N	32.31E	381	NA
SUDAN	Shendi	16.42N	33.26E	361	NA
SYRIA	Al Ghab	36.23N	35.23E	170	870
SYRIA	Breda	35.56N	37.10E	300	263
SYRIA	Gelline	32.50N	36.00E	421	NA
SYRIA	Hama	35.08N	36.45E	316	382
SYRIA	Hemo	37.30N	41.13E	425	444
SYRIA	Homs	34.45N	36.43E	485	587
SYRIA	Idleb	36.45N	36.39E	446	480
SYRIA	Izra'a	32.51N	36.15E	757	478
SYRIA	Jindiress	36.24N	36.44E	210	424
SYRIA	Tel Hadya	36.01N	36.56E	284	352
THAILAND	Phu Rhuer	NA	NA	950	NA
TUNISIA	Beja	36.50N	09.13E	NA	NA
TUNISIA	El Kef	36.10N	08.40E	NA	NA
TUNISIA	Oued Meliz	37.55N	09.00E	NA	NA
TURKEY	Adana	37.23N	35.05E	35	NA
TURKEY	Altinova	38.05N	27.34E	10	NA
TURKEY	Ankara	39.55N	32.40E	860	335
TURKEY	Amasya	40.30N	36.10E	855	NA
TURKEY	Antalya	36.52N	30.50E	20	1264
TURKEY	Diyarbakir	37.55N	40.12E	660	541
TURKEY	Erzurum	39.55N	41.16E	1850	381
TURKEY	Eskisehir	40.00N	30.05E	790	269
TURKEY	Haymana	39.36N	32.36E	1055	310
TURKEY	Izmir-1 (Menemen)	38.39N	27.00E	20	104
TURKEY	Izmir-2 (Menemen)	38.05N	27.34E	10	180
TURKEY	Samsun-1	40.08N	36.50E	440	NA
TURKEY	Samsun-2	40.50N	35.50E	460	177
TURKEY	Tokat	40.18N	36.34E	585	223
TURKEY	Van	38.28N	43.21E	1725	319
U.K.	Cambridge	50.12N	00.07E	15	191
YEMEN	Dhamar	14.35N	NA	2350	168

NA = Not available

APPENDIX V

Meterological Details for the Locations

