

INTERNATIONAL NURSERY REPORT NO. 18

LEGUME NURSERIES

1993/94



**INTERNATIONAL CENTER FOR AGRICULTURAL
RESEARCH IN THE DRY AREAS**

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ICARDA serves the entire developing world for the improvement of lentil, barley and faba bean; all dry-area developing countries for the improvement of on-farm water-use efficiency, rangeland and small-ruminant production; and the West and Central Asia and North Africa region for the improvement of bread and durum wheats, chickpea, and farming systems. ICARDA's research provides global benefits of poverty alleviation through productivity improvements integrated with sustainable natural-resource management practices. ICARDA meets this challenge through research, training, and dissemination of information in partnership with the national agricultural research and development systems.

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LEGUME NURSERIES 1993/94

**GERMPLASM PROGRAM
THE INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH
IN THE DRY AREAS
(ICARDA)
P.O. BOX 5466, ALEPPO - SYRIA**



APRIL 1998

PREFACE

A number of trials and nurseries were supplied by the erstwhile, Legume Improvement Program to cooperating scientists within and outside the ICARDA region for the 1993/94 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 report has been prepared by Dr. R.S. Malhotra, International Trials Scientist (Legumes). The assistance of Ms. Suhaila Arslan 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.

W. Erskine
Leader
Germplasm Program
ICARDA, P.O. Box 5466
Aleppo - Syria

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INTRODUCTION

The International Cooperative Testing Program on Legumes namely 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 1993/94 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.

During 1993/94 there were no large-seeded and small seeded trials of lentil. 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 America) 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 trials on forage legumes, International Lathyrus Adaptation Trial (ILAT) and International Vetch Adaptation Trial (IVAT), were split into 7 trials. These included

ILAT-LS, ILAT-LC, ILAT-LO, IVAT-VS, IVAT-VN, IVAT-VE and IVAT-VD. These were supplied to a large number of cooperators.

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_5/F_6) and elite germplasm, encompassing a wide range of genetic diversity, in non-replicated trials in the environments utilized for the IYTs. The results thus provide to the national programs the opportunity to practice selection in a greater range of material than provided in the IYTs and to ICARDA provide a basis on which genotypes can be advanced to the IYTs.

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. 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.

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_4/F_6 NURSERIES (IF_4/F_6N)

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 F_4 Nursery - Southerly Latitudes (CIF_4N -SL). Similarly in lentils, four F_6 nurseries, namely F_6 Nursery Large Seed (LIF_6N -L), F_6 Nursery Small Seed (LIF_6N -S), F_6 Nursery Early Type (LIF_6N -E) and F_6 Nursery Cold Tolerance (LIF_6N -CT) were available this year.

2.1.4. INTERNATIONAL STRESS NURSERIES (I-N)

The development of cultivars resistant to biotic and abiotic stresses prevalent in the main legume growing areas is essential if stable seed yields are to be achieved. However, there is presently little information available on the incidence and severity of various stresses in different areas. The International Disease and Insect-Pest Nurseries and Cold Tolerance Nursery have been formulated to rectify this situation. The aim of these nurseries is to test a relatively large number of genotypes, in replicated design, in a range of locations covering a number of countries. The nursery results thus furnish information on the incidence and severity of the stress in differing geographic areas, and provide a means for the identification of resistant genotypes. These together should greatly assist the plant breeder in developing genotypes that combine high 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 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, 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, 1195 sets of trials were distributed to the cooperators in 55 countries. Data were returned for 430 trials and nurseries, representing 36% 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. 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 at $P = 0.05$ 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 T.E. > L. check were used for number of test entries significantly greater than the local check.

2.3.2. MANAGEMENT

For almost all the trials it was emphasized that the material should be planted at the farmer's normal planting date (except where other dates specified), 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 stand), 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 1993/94 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. Forty eight sets were sent to cooperators in 15 countries. The results were, however, received for 25 trials from 12 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 63 to 77 days for time to flowering (Table 3.1.2), 110 to 127 days for time to maturity (Table 3.1.3), and 36 to 47 cm for plant height (Table 3.1.4). The overall mean for the entries for 100-seed weight varied from 27 to 39 g, and the entries FLIP 90-136C, FLIP 89-118C, and FLIP 91-209C had the largest seed size (Table 3.1.5). The location means for 100-seed weight varied from 28 g for Tel Hadya in Syria to 43 g for Erzurum in Turkey.

The highest mean seed yield (Table 3.1.6) was obtained at Saskatoon in Canada (4895 kg/ha) and was followed by Tolentino in Italy (2241 kg/ha), Erzurum in Turkey (1779 kg/ha), and Badajoz in Spain (1602 kg/ha). The seed yields at Hebei (China), Zahra (Libya), Izra'a and Al Jammasah (Syria), and Ankara (Turkey) were very poor (< 332 kg/ha). On an average over locations FLIP 91-203C gave the highest seed yield (1291 kg/ha) and was closely followed by FLIP 91-186C, ILC 482, FLIP 82-150C and FLIP 88-70C with seed yields of 1257, 1247, 1208 and 1200 kg/ha, respectively.

The ANOVA for seed yield revealed that the local check was excelled by 2, 3, 23, 2, 1, 1 and 7 entries by a significant margin at Khroub in Algeria; Toshevo in Bulgaria; Saskatoon in Canada; Hebei in China; Terbol in Lebanon; Hama in Syria; and Erzurum in Turkey.

The five heaviest seed yielders at each location are given in Table 3.1.7. The entries FLIP 91-186C, ILC 482, FLIP 91-203C, and FLIP 88-70C, occurred most frequently among the top five and seemed more adaptable than others.

Table 3.1.1. Agronomic details of entries in the CIYT-SP-94 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
ALGERIA	Khroub	29-JAN-94	09-JUL-94	-	45	-	-	Igran, Kerb	ILC 3279
BULGARIA	Toshevo	04-APR-94	10-AUG-94	-	60	-	-	-	Stepnoy 1
CANADA	Saskatoon	14-MAY-94	21-OCT-94	-	-	-	-	-	UC - 27
CHINA	Hebei	08-MAY-94	30-SEP-94	-	-	-	-	-	L 69
CHINA	Shanxi	05-APR-94	20-OCT-94	750	-	-	-	-	A 256
ETHIOPIA	Debre Zeit	14-SEP-94	31-JAN-95	-	-	-	-	-	DZ-10-4
IRAN	Karaj	15-APR-94	15-JUL-94	-	-	-	-	-	-
IRAN	Maragheh	05-APR-94	28-JUL-94	30	60	-	-	Tecto-Actellic	Jam
IRAN	Mashhad	19-APR-94	01-AUG-94	-	90	-	-	-	JAM
IRAN	Oroumieh	28-APR-94	30-JUL-94	18	46	-	-	-	JAM
ITALY	Tolentino	04-APR-94	04-OCT-94	-	-	-	-	-	Calia
LEBANON	Terbol	05-MAR-94	07-JUL-94	-	50	-	-	-	Leb. Local
LIBYA	Zahra	23-MAR-94	23-JUL-94	30	50	-	-	-	-
SPAIN	Badajoz	17-NOV-93	17-JUN-94	-	-	-	-	Terbutrina, Propizamida	Caudil
SYRIA	Al Ghab	03-MAR-94	15-JUL-94	-	-	-	-	-	-
SYRIA	Al Jammassah	20-MAR-94	06-JUL-94	-	-	-	-	-	-
SYRIA	Gelline	20-MAR-94	12-JUL-94	2	5	-	-	-	-
SYRIA	Hama	20-FEB-94	05-JUN-94	-	50	-	-	-	Local
SYRIA	Homs	03-MAR-94	07-JUL-94	-	50	-	-	-	-
SYRIA	Izra'a	17-MAR-94	04-JUL-94	-	50	-	-	-	-
SYRIA	Jindiresa	15-MAR-94	15-JUL-94	-	-	-	-	-	-
SYRIA	Tel Hadya	03-MAR-94	29-JUN-94	-	50	-	-	-	ILC 1929
TURKEY	Ankara	24-MAR-94	23-JUN-96	22	60	-	-	-	Eser (FLIP 84-150C)
TURKEY	Erzurum	18-APR-94	25-AUG-94	30	60	-	-	-	Canitez-87
TURKEY	Izmir-1 (Menemen)	27-JAN-94	15-JUL-94	30	60	-	-	-	Canitez

Table 3.1.2 Time to flowering (days) of entries in the CIYT-SP-94 conducted at different locations.

Entry Name	Pedigree	Origin	ALGERIA	BULGARIA	CHINA	
			Khroub	Toshevo	Hebei	Shanxi
FLIP 88- 24C	X85TH214/ILC2375XFLIP 83-13C	ICARDA/ICRISAT	94	52	57	50
FLIP 88- 68C	X85TH262/ILC3777XFLIP 83-13C	ICARDA/ICRISAT	94	52	56	54
FLIP 88- 70C	X85TH262/ILC3777XFLIP 83-13C	ICARDA/ICRISAT	93	51	56	54
FLIP 89- 24C	X87TH271/(ILC136XFLIP 84-18C) X FLIP84-78C	ICARDA/ICRISAT	100	53	57	55
FLIP 89- 67C	X86TH 78/ILC 493XFLIP 81- 65C	ICARDA/ICRISAT	97	54	56	54
FLIP 89-118C	X85TH262/ILC3777XFLIP 83-13C	ICARDA/ICRISAT	96	55	58	57
FLIP 90-136C	X87TH 67/FLIP 82- 87CXFLIP 85- 46C	ICARDA/ICRISAT	101	52	56	57
FLIP 90-137C	X87TH216/ILC4296XFLIP 84-93C	ICARDA/ICRISAT	94	52	56	59
FLIP 90-173C	X87TH 68/FLIP 82-87CXFLIP 85-180C	ICARDA/ICRISAT	97	55	57	58
FLIP 91- 48C	X88TH 21/FLIP 84-124CXFLIP 83-48C	ICARDA/ICRISAT	99	56	57	58
FLIP 91- 72C	X87TH216/ILC4296XFLIP 84-93C	ICARDA/ICRISAT	93	53	56	54
FLIP 91-107C	X88TH 19/ICC14218XFLIP 84-93C	ICARDA/ICRISAT	98	51	57	55
FLIP 91-131C	X88TH 32/FLIP 85-142CXFLIP 82-150C	ICARDA/ICRISAT	105	63	58	57
FLIP 91-181C	X87TH 57/FLIP 83-104CXFLIP 84- 78C	ICARDA/ICRISAT	100	55	57	58
FLIP 91-186C	X87TH 36/FLIP 83- 47CXFLIP 84-145C	ICARDA/ICRISAT	101	57	57	57
FLIP 91-187C	X87TH 39/FLIP 83- 98CXFLIP 84-145C	ICARDA/ICRISAT	102	56	60	57
FLIP 91-188C	X87TH 39/FLIP 83- 98CXFLIP 84-145C	ICARDA/ICRISAT	97	55	60	59
FLIP 91-195C	X87TH 9/FLIP 81-293CXFLIP 84-79C	ICARDA/ICRISAT	102	61	60	57
FLIP 91-202C	X87TH 36/FLIP 83- 47CXFLIP 84-145C	ICARDA/ICRISAT	96	53	57	59
FLIP 91-203C	X87TH 36/FLIP 83- 47CXFLIP 84-145C	ICARDA/ICRISAT	97	54	56	55
FLIP 91-209C	X88TH 89/FLIP 83- 98CXFLIP 86- 93C	ICARDA/ICRISAT	97	55	57	59
FLIP 82-150C	X79TH 101/ILC 523XILC 183	ICARDA/ICRISAT	97	55	59	58
ILC 482			95	52	56	54
Local Check			104	59	56	45
Location Mean			98	55	57	56
S.E. of Mean			One Rep.	1	1	One Rep.
Prob. of Significance				.00	.02	
L.S.D. at 5%				2	3	
C.V. %				2	3	

Cont'd. ...

Table 3.1.2 Cont'd. ...

Entry Name	ETHIOPIA		IRAN			ITALY	LEBANON	LIBYA
	Debre Zeit	Karaj	Maragheh	Mashhad	Oroumieh	Tolentino	Terbol	Zahra
FLIP 88- 24C	76	75	58	33	65	82	61	73
FLIP 88- 68C	56	74	58	35	-	80	57	72
FLIP 88- 70C	54	72	59	35	64	79	55	70
FLIP 89- 24C	79	84	58	38	66	86	65	76
FLIP 89- 67C	87	75	64	40	65	83	69	77
FLIP 89-118C	64	82	59	40	52	85	63	72
FLIP 90-136C	80	75	59	38	67	84	65	76
FLIP 90-137C	52	81	58	35	62	80	54	70
FLIP 90-173C	82	80	61	42	66	84	65	77
FLIP 91- 48C	85	84	65	37	65	84	70	76
FLIP 91- 72C	48	75	61	37	67	72	59	67
FLIP 91-107C	65	77	59	33	64	83	57	71
FLIP 91-131C	91	86	65	42	62	85	76	84
FLIP 91-181C	90	85	65	47	66	86	67	76
FLIP 91-186C	83	82	65	42	64	84	67	75
FLIP 91-187C	84	88	63	48	65	86	70	77
FLIP 91-188C	81	80	64	37	64	84	69	77
FLIP 91-195C	87	87	70	45	68	85	71	85
FLIP 91-202C	77	79	63	39	63	82	64	74
FLIP 91-203C	78	75	60	38	66	82	63	74
FLIP 91-209C	82	79	60	42	66	81	64	74
FLIP 82-150C	89	77	61	48	66	84	72	78
ILC 482	75	74	58	36	66	80	62	72
Local Check	61	80	60	36	62	-	64	71
Location Mean	75	79	61	39	65	83	65	75
S.E. of Mean	2	2	1	3	3	1	1	1
Prob. of Significance	.00	.00	.00	.00	.97	.00	.00	.00
L.S.D. at 5%	7	5	3	8	NS	3	4	2
C.V. %	4	4	3	12	6	2	4	2

Cont'd. ...

Table 3.1.2 Cont'd. ...

Entry Name	SPAIN	SYRIA						
	Badajoz	Al Ghab	Al Jammasah	Gelline	Hama	Homs	Izra'a	Jindiress
FLIP 88- 24C	114	55	59	63	62	63	63	54
FLIP 88- 68C	111	52	54	60	58	51	57	47
FLIP 88- 70C	109	53	50	60	57	51	56	45
FLIP 89- 24C	119	59	63	66	64	69	65	59
FLIP 89- 67C	117	61	63	65	65	71	-	66
FLIP 89-118C	119	56	55	64	60	53	58	49
FLIP 90-136C	118	61	61	60	66	71	65	61
FLIP 90-137C	111	53	55	58	55	51	56	46
FLIP 90-173C	116	61	60	63	67	73	64	64
FLIP 91- 48C	118	62	62	66	67	69	66	65
FLIP 91- 72C	105	49	49	58	54	51	56	45
FLIP 91-107C	117	52	49	61	57	57	59	47
FLIP 91-131C	120	75	66	65	74	76	-	71
FLIP 91-181C	120	62	64	64	68	73	-	66
FLIP 91-186C	114	61	64	63	65	68	64	65
FLIP 91-187C	122	62	63	67	69	73	64	66
FLIP 91-188C	116	61	63	65	65	71	63	64
FLIP 91-195C	121	73	65	68	72	72	63	69
FLIP 91-202C	117	56	61	63	61	64	62	62
FLIP 91-203C	117	57	61	63	63	63	62	56
FLIP 91-209C	117	57	61	64	64	62	63	61
FLIP 82-150C	118	62	61	62	67	72	56	65
ILC 482	114	54	59	61	57	64	61	52
Local Check	117	57	57	62	61	63	-	59
Location Mean	116	59	60	63	63	65	61	58
S.E. of Mean	1	1	2	1	1	1	1	2
Prob. of Significance	.00	.00	.00	.00	.00	.00	.00	.00
L.S.D. at 5%	4	2	4	4	3	2	4	5
C.V. %	2	2	5	4	3	2	3	5

Cont'd. ...

Table 3.1.2 Cont'd. ...

Entry Name	SYRIA	TURKEY		Overall Mean
	Tel Hadya	Erzurum	Izmir-1 (Menemen)	
FLIP 88- 24C	58	66	121	68
FLIP 88- 68C	50	70	121	65
FLIP 88- 70C	49	67	121	64
FLIP 89- 24C	57	71	121	71
FLIP 89- 67C	63	69	121	72
FLIP 89-118C	53	72	121	68
FLIP 90-136C	63	70	121	71
FLIP 90-137C	50	66	121	65
FLIP 90-173C	62	71	121	72
FLIP 91- 48C	63	70	121	73
FLIP 91- 72C	48	67	121	63
FLIP 91-107C	50	73	121	66
FLIP 91-131C	68	73	121	77
FLIP 91-181C	65	69	121	74
FLIP 91-186C	62	70	121	73
FLIP 91-187C	63	73	121	75
FLIP 91-188C	62	71	121	72
FLIP 91-195C	68	72	121	77
FLIP 91-202C	60	70	121	70
FLIP 91-203C	54	70	121	69
FLIP 91-209C	61	69	121	71
FLIP 82-150C	64	68	121	73
ILC 482	59	67	121	68
Local Check	61	69	121	-
Location Mean	59	70	121	
S.E. of Mean	1	1	One Rep.	
Prob. of Significance	.00	.02		
L.S.D. at 5%	4	4		
C.V. %	4	4		

* The mean has been calculated excluding the locations with incomplete data.

Table 3.1.3 Time to maturity (days) of entries in the CIYT-SP-94 conducted at different locations.

Entry Name	BULGARIA	ETHIOPIA	IRAN				LEBANON	LIBYA
	Toshevo	Debre Zeit	Karaj	Maragheh	Mashhad	Oroumieh	Terbol	Zahra
FLIP 88- 24C	114	126	126	93	102	113	103	109
FLIP 88- 68C	115	129	127	94	103	-	98	100
FLIP 88- 70C	113	121	148	97	101	112	98	96
FLIP 89- 24C	118	126	124	95	104	112	107	107
FLIP 89- 67C	113	146	149	97	103	115	106	113
FLIP 89-118C	117	121	132	94	101	115	102	100
FLIP 90-136C	115	127	116	93	102	112	102	108
FLIP 90-137C	114	121	132	94	102	112	97	96
FLIP 90-173C	115	130	130	95	102	114	104	107
FLIP 91- 48C	114	131	148	98	102	113	112	112
FLIP 91- 72C	115	119	127	94	99	114	97	94
FLIP 91-107C	115	122	131	96	102	116	102	99
FLIP 91-131C	114	132	121	103	100	112	113	115
FLIP 91-181C	116	192	148	100	102	115	112	111
FLIP 91-186C	114	208	142	97	100	114	108	114
FLIP 91-187C	116	129	127	97	101	110	108	116
FLIP 91-188C	114	126	128	99	101	114	109	110
FLIP 91-195C	116	234	150	105	104	110	117	116
FLIP 91-202C	112	130	148	95	103	114	100	101
FLIP 91-203C	113	127	127	97	103	113	104	104
FLIP 91-209C	114	253	141	98	104	112	105	108
FLIP 82-150C	116	274	124	99	103	113	110	108
ILC 482	113	297	134	96	103	114	100	104
Local Check	116	120	130	97	101	113	100	95
Location Mean	115	156	134	97	102	113	105	106
S.E. of Mean	1	1	10	1	1	2	1	1
Prob. of Significance	.00	.00	.37	.00	.79	.40	.00	.00
L.S.D. at 5%	2	3	NS	4	NS	NS	4	4
C.V. %	1	1	13	3	3	2	2	2

Cont'd. ...

Table 3.1.3 Cont'd. ...

Entry Name	SPAIN				SYRIA			
	Badajoz	Al Ghab	Al Jammasah	Gelline	Hama	Homs	Izra'a	Jindiress
FLIP 88- 24C	199	106	104	91	99	111	-	99
FLIP 88- 68C	199	99	101	91	95	106	97	94
FLIP 88- 70C	195	101	100	89	94	107	96	95
FLIP 89- 24C	209	106	106	91	99	113	-	100
FLIP 89- 67C	202	103	105	90	100	109	-	100
FLIP 89-118C	205	102	102	91	97	110	99	97
FLIP 90-136C	207	103	106	90	99	109	-	98
FLIP 90-137C	197	104	101	91	96	106	99	94
FLIP 90-173C	206	104	105	91	99	110	-	103
FLIP 91- 48C	205	104	106	90	101	110	-	102
FLIP 91- 72C	194	98	96	91	95	104	95	90
FLIP 91-107C	207	99	99	91	96	107	98	103
FLIP 91-131C	205	104	108	90	105	112	-	104
FLIP 91-181C	203	106	107	91	101	112	-	104
FLIP 91-186C	203	103	107	90	100	109	-	102
FLIP 91-187C	209	105	105	92	101	112	-	98
FLIP 91-188C	206	106	106	90	100	113	-	97
FLIP 91-195C	208	104	107	90	105	112	-	110
FLIP 91-202C	199	99	106	90	97	109	-	97
FLIP 91-203C	198	99	105	91	98	108	-	98
FLIP 91-209C	198	103	106	91	100	106	106	99
FLIP 82-150C	201	107	105	92	101	111	-	104
ILC 482	197	101	105	90	95	109	107	99
Local Check	202	100	103	91	95	106	-	97
Location Mean	202	103	104	91	99	109	99	99
S.E. of Mean	2	1	1	1	0	1	2	2
Prob. of Significance	.00	.00	.00	.94	.00	.00	.07	.00
L.S.D. at 5%	7	3	3	NS	1	3	NS	6
C.V. %	2	2	2	2	1	2	4	4

Cont'd. ...

Table 3.1.3 Cont'd. ...

Entry Name	SYRIA	TURKEY		Overall Mean
	Tel Hadya	Erzurum	Izmir-1 (Menemen)	
FLIP 88- 24C	101	126	144	115
FLIP 88- 68C	95	125	145	113
FLIP 88- 70C	96	121	144	113
FLIP 89- 24C	98	123	144	116
FLIP 89- 67C	99	121	144	118
FLIP 89-118C	97	127	145	114
FLIP 90-136C	99	124	144	114
FLIP 90-137C	96	126	143	112
FLIP 90-173C	98	124	144	116
FLIP 91- 48C	101	122	102	115
FLIP 91- 72C	94	123	145	110
FLIP 91-107C	97	126	145	114
FLIP 91-131C	102	126	144	118
FLIP 91-181C	100	125	145	122
FLIP 91-186C	100	124	144	122
FLIP 91-187C	100	125	144	117
FLIP 91-188C	101	125	145	116
FLIP 91-195C	102	126	144	127
FLIP 91-202C	98	124	143	115
FLIP 91-203C	97	121	144	114
FLIP 91-209C	99	123	145	123
FLIP 82-150C	99	122	145	125
ILC 482	97	124	142	124
Local Check	97	126	144	-
Location Mean	98	124	142	
S.E. of Mean	1	1	9	
Prob. of Significance	.00	.00	.46	
L.S.D. at 5%	2	2	NS	
C.V. %	1	1	10	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.1.4 Plant height (cm) of entries in the CIYT-SP-94 conducted at different locations.

Entry Name	ALGERIA	BULGARIA	CHINA		ETHIOPIA	IRAN		
	Khroub	Toshevo	Hebei	Shanxi	Debre Zeit	Karaj	Maragheh	Mashhad
FLIP 88- 24C	37	57	78	110	39	27	29	47
FLIP 88- 68C	40	57	66	134	42	39	24	51
FLIP 88- 70C	35	57	68	106	39	27	28	46
FLIP 89- 24C	52	65	86	112	52	37	29	54
FLIP 89- 67C	37	53	77	112	49	32	29	48
FLIP 89-118C	38	51	75	103	37	49	31	51
FLIP 90-136C	45	58	84	112	45	27	32	50
FLIP 90-137C	37	56	81	114	37	31	26	46
FLIP 90-173C	38	52	82	107	43	25	25	48
FLIP 91- 48C	45	55	76	120	53	32	25	51
FLIP 91- 72C	35	46	63	69	39	25	29	44
FLIP 91-107C	36	59	72	114	43	39	27	48
FLIP 91-131C	42	56	79	120	56	32	26	47
FLIP 91-181C	47	58	78	121	48	29	24	51
FLIP 91-186C	45	56	76	130	48	38	30	57
FLIP 91-187C	40	59	78	103	59	40	32	53
FLIP 91-188C	40	54	85	117	47	31	30	46
FLIP 91-195C	45	55	92	107	47	42	31	62
FLIP 91-202C	37	50	72	104	53	34	30	42
FLIP 91-203C	43	54	87	96	57	45	31	46
FLIP 91-209C	45	52	68	117	41	33	30	43
FLIP 82-150C	45	51	80	108	81	38	30	43
ILC 482	35	48	66	110	26	27	27	48
Local Check	60	53	87	30	37	31	31	50
Location Mean	42	55	77	107	46	34	29	49
S.E. of Mean		3	6		1	2	2	4
Prob. of Significance		.09	.04		.00	.00	.32	.27
L.S.D. at 5%		NS	16		3	5	NS	NS
C.V. %	One Rep.	10	12	One Rep.	4	9	14	15

Cont'd. ...

Table 3.1.4 Cont'd. ...

Entry Name	IRAN	ITALY	LEBANON	LIBYA	SPAIN	SYRIA		
	Oroumieh	Tolentino	Terbol	Zahra	Badajoz	Al Ghab	Al Jammasah	Gelline
FLIP 88- 24C	38	50	31	26	46	30	34	32
FLIP 88- 68C	-	52	35	27	51	22	44	25
FLIP 88- 70C	34	50	34	26	49	30	37	30
FLIP 89- 24C	34	60	35	26	58	40	47	29
FLIP 89- 67C	34	48	34	26	50	33	38	27
FLIP 89-118C	37	55	37	26	45	37	41	32
FLIP 90-136C	39	57	36	26	52	40	39	29
FLIP 90-137C	38	53	34	28	46	33	31	28
FLIP 90-173C	36	52	32	24	46	35	38	30
FLIP 91- 48C	37	58	34	25	49	37	36	30
FLIP 91- 72C	35	38	35	27	45	30	31	25
FLIP 91-107C	36	48	36	28	48	32	35	27
FLIP 91-131C	37	55	35	25	55	38	38	32
FLIP 91-181C	41	60	36	26	54	38	37	28
FLIP 91-186C	38	53	36	27	55	37	43	29
FLIP 91-187C	36	58	37	28	47	40	45	34
FLIP 91-188C	35	53	35	25	49	38	43	30
FLIP 91-195C	36	57	36	24	53	40	43	30
FLIP 91-202C	38	53	36	28	49	37	36	27
FLIP 91-203C	37	57	35	28	51	40	42	31
FLIP 91-209C	39	50	35	24	52	35	38	30
FLIP 82-150C	36	55	35	26	50	40	40	30
ILC 482	33	50	34	24	53	32	36	27
Local Check	36	-	33	26	59	30	32	29
Location Mean	36	53	35	26	50	35	39	29
S.E. of Mean	2	4	1	1	2	3	3	2
Prob. of Significance	.35	.12	.02	.63	.00	.00	.03	.40
L.S.D. at 5%	NS	NS	3	NS	7	7	9	NS
C.V. %	6	13	5	9	8	12	14	12

Cont'd. ...

Table 3.1.4 Cont'd. ...

Entry Name	SYRIA					TURKEY	Overall Mean
	Hama	Homs	Izra'a	Jindiress	Tel Hadya	Erzurum	
FLIP 88- 24C	23	25	-	30	27	24	40
FLIP 88- 68C	27	28	24	29	29	26	42
FLIP 88- 70C	27	27	23	29	28	25	40
FLIP 89- 24C	28	33	-	37	28	29	47
FLIP 89- 67C	25	27	-	26	29	23	41
FLIP 89-118C	30	32	25	31	31	23	43
FLIP 90-136C	28	33	-	30	34	27	44
FLIP 90-137C	25	27	24	30	25	24	41
FLIP 90-173C	23	28	-	30	30	23	41
FLIP 91- 48C	25	33	-	31	29	24	43
FLIP 91- 72C	25	27	23	27	27	25	36
FLIP 91-107C	28	27	23	28	26	26	41
FLIP 91-131C	28	28	-	28	30	26	44
FLIP 91-181C	28	32	-	30	28	26	44
FLIP 91-186C	32	32	-	30	31	30	46
FLIP 91-187C	28	32	-	31	31	28	45
FLIP 91-188C	25	30	-	32	27	29	43
FLIP 91-195C	35	33	-	32	31	26	46
FLIP 91-202C	25	30	-	29	28	24	41
FLIP 91-203C	27	32	-	32	29	28	45
FLIP 91-209C	30	28	22	29	29	24	42
FLIP 82-150C	28	30	-	34	27	24	45
ILC 482	25	27	24	26	25	21	38
Local Check	23	27	-	27	26	28	-
Location Mean	27	29	24	30	29	25	
S.E. of Mean	1	2	2	1	1	2	
Prob. of Significance	.00	.00	.85	.00	.00	.02	
L.S.D. at 5%	4	4	NS	4	4	4	
C.V. %	9	9	9	7	8	11	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.1.5 100-Seed weight (g) of entries in the CIYT-SP-94 conducted at different locations.

Entry Name	BULGARIA	CHINA	ETHIOPIA	IRAN		ITALY	LEBANON	SPAIN
	Toshevo	Hebei	Debre Zeit	Maragheh	Oroumieh	Tolentino	Terbol	Badajoz
FLIP 88- 24C	35	31	35	40	28	35	33	35
FLIP 88- 68C	41	31	37	43	-	39	34	36
FLIP 88- 70C	39	31	31	40	31	37	31	39
FLIP 89- 24C	38	33	41	42	30	37	35	35
FLIP 89- 67C	32	28	35	34	31	32	29	29
FLIP 89-118C	34	36	42	47	-	42	33	33
FLIP 90-136C	42	32	44	46	27	40	34	42
FLIP 90-137C	33	30	39	44	29	37	35	37
FLIP 90-173C	26	21	32	37	30	33	33	29
FLIP 91- 48C	33	27	33	40	31	34	28	35
FLIP 91- 72C	36	28	40	45	31	39	35	39
FLIP 91-107C	33	29	36	44	31	35	32	37
FLIP 91-131C	38	33	40	38	-	37	32	37
FLIP 91-181C	35	28	38	39	32	34	34	34
FLIP 91-186C	38	33	40	39	30	38	33	36
FLIP 91-187C	37	28	39	41	32	39	35	38
FLIP 91-188C	38	33	37	39	29	37	34	33
FLIP 91-195C	36	31	38	37	30	35	34	34
FLIP 91-202C	37	33	39	39	30	35	33	33
FLIP 91-203C	40	31	39	44	30	38	35	38
FLIP 91-209C	41	32	40	43	31	40	33	38
FLIP 82-150C	32	22	29	30	29	29	24	28
ILC 482	32	28	37	33	31	29	27	31
Local Check	25	27	12	38	28	-	27	32
Location Mean	35	30	36	40	30	36	32	35
S.E. of Mean	1	2	1	1	1	1	1	1
Prob. of Significance	.00	.00	.00	.00	.00	.00	.00	.00
L.S.D. at 5%	4	5	3	3	2	2	4	3
C.V. %	7	10	5	5	3	4	8	5

Cont'd. ...

Table 3.1.5 Cont'd. ...

Entry Name	SYRIA					TURKEY		Overall Mean
	Al Ghab	Al Jammasah	Homs	Jindiress	Tel Hadya	Ankara	Erzurum	
FLIP 88- 24C	29	43	34	30	27	36	43	35
FLIP 88- 68C	32	43	29	30	26	39	43	36
FLIP 88- 70C	28	42	30	26	27	34	43	34
FLIP 89- 24C	32	38	39	36	30	34	46	37
FLIP 89- 67C	28	39	31	29	26	31	37	31
FLIP 89-118C	33	49	35	32	32	36	46	38
FLIP 90-136C	34	45	39	35	31	35	47	39
FLIP 90-137C	31	40	31	30	27	37	44	35
FLIP 90-173C	30	40	34	30	28	36	40	32
FLIP 91- 48C	30	42	34	30	27	41	40	34
FLIP 91- 72C	31	42	31	28	31	37	44	36
FLIP 91-107C	31	40	31	30	28	38	43	35
FLIP 91-131C	31	47	38	31	26	33	40	36
FLIP 91-181C	31	47	36	32	29	37	42	35
FLIP 91-186C	29	43	35	29	28	36	43	36
FLIP 91-187C	32	43	38	35	31	36	44	37
FLIP 91-188C	30	45	36	32	28	33	43	36
FLIP 91-195C	31	45	36	33	29	33	42	35
FLIP 91-202C	28	39	32	29	26	34	43	34
FLIP 91-203C	30	47	35	30	28	38	45	37
FLIP 91-209C	33	49	36	32	27	36	48	38
FLIP 82-150C	23	34	25	23	22	31	32	27
ILC 482	23	38	30	23	24	40	36	31
Local Check	25	35	41	32	29	40	54	-
Location Mean	30	42	34	30	28	36	43	
S.E. of Mean	1	2	1	1	1	3	1	
Prob. of Significance	.00	.00	.00	.00	.00	.63	.00	
L.S.D. at 5%	2	6	4	3	3	NS	2	
C.V. %	4	9	6	6	6	14	4	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.1.6 Seed yield (Y=kg/ha) and rank (R) of entries in the CIYT-SP-94 conducted at different locations.

Entry Name	ALGERIA		BULGARIA		CANADA		CHINA		ETHIOPIA	
	Khroub		Toshevo		Saskatoon		Hebei		Debre Zeit	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 24C	1312	15	363	21	5481	5	111	9	569	17
FLIP 88- 68C	1399	9	1161	10	5238	10	115	8	717	12
FLIP 88- 70C	1812	2	1452	4	5291	7	150	5	688	14
FLIP 89- 24C	1261	17	893	17	4584	21	90	13	1629	1
FLIP 89- 67C	1493	5	548	20	5130	12	68	18	845	9
FLIP 89-118C	920	24	77	24	5525	4	90	14	1060	7
FLIP 90-136C	1268	16	1286	6	4765	19	70	17	1338	5
FLIP 90-137C	1442	7	952	15	5810	2	111	9	802	10
FLIP 90-173C	1254	18	226	22	4974	16	26	24	1112	6
FLIP 91- 48C	1181	22	1071	12	4987	15	152	4	464	19
FLIP 91- 72C	1348	12	554	19	5238	9	62	21	602	16
FLIP 91-107C	1384	10	149	23	4853	18	62	20	560	18
FLIP 91-131C	1022	23	798	18	4973	17	77	15	710	13
FLIP 91-181C	1384	10	1030	13	4014	23	50	22	188	24
FLIP 91-186C	1652	3	1839	1	5549	3	249	1	626	15
FLIP 91-187C	1326	13	1220	8	5223	11	44	23	736	11
FLIP 91-188C	1217	21	1333	5	4992	14	126	7	214	23
FLIP 91-195C	1413	8	1125	11	5828	1	107	11	343	21
FLIP 91-202C	1326	13	1732	3	5057	13	175	3	1529	3
FLIP 91-203C	1471	6	1744	2	5315	6	223	2	1481	4
FLIP 91-209C	1225	20	1012	14	4131	22	96	12	376	20
FLIP 82-150C	1601	4	1262	7	5240	8	64	19	860	8
ILC 482	1884	1	1185	9	4747	20	138	6	307	22
Local Check	1232	19	911	16	547	24	75	16	1560	2
Location Mean	1368		997		4895		105		805	
S.E. of Mean	162.30		202.26		375.40		37.16		325.34	
Prob. of Significance	.04		.00		.00		.01		.08	
L.S.D. at 5%	462.01		575.77		1068.64		105.79		NS	
T.E > L. Check	2		3		23		2		—	
C.V. %	20.55		35.15		13.28		61.04		57.17	

Cont'd. ...

Table 3.1.6 Cont'd. ...

Entry Name	IRAN								ITALY	
	Karaj		Maragheh		Mashhad		Oroumieh		Tolentino	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 24C	675	22	1019	10	933	10	297	12	2570	6
FLIP 88- 68C	973	9	845	16	390	22	—	—	1981	17
FLIP 88- 70C	1057	7	1026	8	716	13	34	20	2541	8
FLIP 89- 24C	984	8	978	12	1171	6	297	12	2116	15
FLIP 89- 67C	1344	2	820	18	486	18	—	—	3021	1
FLIP 89-118C	849	14	1023	9	124	24	—	—	1327	23
FLIP 90-136C	863	13	1094	7	429	20	240	16	1584	21
FLIP 90-137C	943	10	633	23	524	15	136	18	2893	3
FLIP 90-173C	925	12	949	13	1114	7	905	4	2151	12
FLIP 91- 48C	750	18	891	15	1105	8	323	11	2433	9
FLIP 91- 72C	697	21	1124	4	952	9	93	19	3004	2
FLIP 91-107C	1072	6	1014	11	838	11	471	7	2682	5
FLIP 91-131C	928	11	754	21	410	21	—	—	1883	19
FLIP 91-181C	716	19	501	24	495	17	1048	3	1919	18
FLIP 91-186C	626	23	1224	2	1514	3	793	5	2548	7
FLIP 91-187C	709	20	785	20	429	19	207	17	2168	11
FLIP 91-188C	820	15	1120	5	819	12	255	14	2746	4
FLIP 91-195C	778	17	671	22	1200	4	1129	2	2243	10
FLIP 91-202C	800	16	820	19	210	23	336	10	2113	16
FLIP 91-203C	1278	4	831	17	1190	5	255	15	2146	13
FLIP 91-209C	1341	3	1109	6	533	14	362	9	1782	20
FLIP 82-150C	1562	1	939	14	514	16	414	8	2139	14
ILC 482	518	24	1136	3	1867	1	693	6	1549	22
Local Check	1114	5	1286	1	1790	2	2381	1	—	—
Location Mean	930		941		823		588		2241	
S.E. of Mean	237.49		161.71		433.79		301.60		307.94	
Prob. of Significance	.32		.15		.30		.00		.01	
L.S.D. at 5%	NS		NS		NS		892.72		877.67	
T.E > L. Check	—		—		—		0		—	
C.V. %	44.23		29.76		91.28		67.24		23.80	

Cont'd. ...

Table 3.1.6 Cont'd. ...

Entry Name	LEBANON		LIBYA		SPAIN		SYRIA			
	Terbol		Zahra		Badajoz		Al Ghab		Al Jammasah	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 24C	925	6	94	21	1863	8	1027	16	354	9
FLIP 88- 68C	850	17	248	4	1417	17	1258	8	221	21
FLIP 88- 70C	1014	2	302	1	2075	4	1238	9	316	13
FLIP 89- 24C	912	10	111	15	1523	14	959	19	358	8
FLIP 89- 67C	857	16	110	16	1574	12	1048	14	281	16
FLIP 89-118C	898	13	199	10	398	24	1367	3	197	23
FLIP 90-136C	1007	3	149	13	1568	13	1123	12	248	18
FLIP 90-137C	891	14	171	12	1813	9	1646	1	281	15
FLIP 90-173C	878	15	106	18	1983	6	1306	6	361	7
FLIP 91- 48C	769	23	94	20	1493	15	871	22	236	19
FLIP 91- 72C	844	18	196	11	2110	3	1013	17	205	22
FLIP 91-107C	918	7	223	7	911	23	1313	5	155	24
FLIP 91-131C	762	24	15	24	917	22	891	21	229	20
FLIP 91-181C	782	22	99	19	1175	21	823	24	278	17
FLIP 91-186C	1000	4	137	14	2182	2	871	23	361	6
FLIP 91-187C	918	7	211	9	1179	20	1211	11	382	5
FLIP 91-188C	898	12	106	17	1656	11	1088	13	535	2
FLIP 91-195C	782	21	16	23	1414	18	905	20	306	14
FLIP 91-202C	918	9	220	8	1484	16	1259	7	347	10
FLIP 91-203C	837	19	279	2	2044	5	1225	10	337	11
FLIP 91-209C	823	20	80	22	1410	19	1048	15	323	12
FLIP 82-150C	993	5	224	6	1692	10	973	18	410	4
ILC 482	1048	1	225	5	2611	1	1361	4	528	3
Local Check	905	11	257	3	1967	7	1429	2	643	1
Location Mean	893		161		1602		1135		330	
S.E. of Mean	45.76		34.87		248.55		118.72		75.82	
Prob. of Significance	.00		.00		.00		.00		.01	
L.S.D. at 5%	130.27		99.26		707.53		337.95		215.95	
T.E > L. Check	1		0		0		0		0	
C.V. %	8.88		37.44		26.86		18.11		39.42	

Cont'd. ...

Table 3.1.6 Cont'd. ...

Entry Name	SYRIA									
	Gelline		Hama		Homs		Izra'a		Jindiress	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 24C	706	14	482	14	731	22	—	—	1120	2
FLIP 88- 68C	584	18	593	7	758	20	229	3	599	23
FLIP 88- 70C	477	22	698	3	743	21	357	1	628	20
FLIP 89- 24C	676	15	418	18	1037	7	—	—	1054	3
FLIP 89- 67C	909	7	439	16	1028	8	—	—	665	19
FLIP 89-118C	890	8	619	4	891	14	170	5	620	21
FLIP 90-136C	1126	5	561	9	917	12	—	—	890	11
FLIP 90-137C	823	11	614	5	475	24	196	4	565	24
FLIP 90-173C	1362	1	529	11	1057	6	—	—	928	9
FLIP 91- 48C	480	21	333	23	874	15	—	—	1041	5
FLIP 91- 72C	315	23	894	1	761	19	244	2	684	16
FLIP 91-107C	781	12	762	2	912	13	162	6	605	22
FLIP 91-131C	1141	4	159	24	871	16	—	—	682	17
FLIP 91-181C	572	19	476	15	997	10	—	—	871	12
FLIP 91-186C	641	17	434	17	1226	2	—	—	671	18
FLIP 91-187C	644	16	360	21	793	17	—	—	959	7
FLIP 91-188C	1092	6	349	22	1008	9	—	—	930	8
FLIP 91-195C	203	24	407	19	1214	3	—	—	920	10
FLIP 91-202C	1201	3	487	13	731	23	—	—	867	13
FLIP 91-203C	771	13	529	11	1157	4	—	—	1042	4
FLIP 91-209C	510	20	598	6	1267	1	—	—	863	14
FLIP 82-150C	863	9	391	20	1109	5	—	—	1252	1
ILC 482	862	10	577	8	784	18	144	7	801	15
Local Check	1230	2	535	10	950	11	—	—	1028	6
Location Mean	786		510		929		228		845	
S.E. of Mean	221.04		90.48		182.81		48.82		121.82	
Prob. of Significance	.04		.00		.39		.12		.00	
L.S.D. at 5%	629.23		257.58		NS		NS		346.79	
T.E > L. Check	0		1		—		—		0	
C.V. %	48.71		30.72		34.10		34.21		24.96	

Cont'd. ...

Table 3.1.6 Cont'd. ...

Entry Name	SYRIA		TURKEY							
	Tel Hadya		Ankara		Erzurum		Izmir-1 (Menemen)		Overall Mean	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 88- 24C	429	18	468	2	1806	11	1569	9	1119	12
FLIP 88- 68C	384	21	262	18	1829	10	750	24	1026	20
FLIP 88- 70C	508	13	262	18	1990	5	1412	14	1200	5
FLIP 89- 24C	511	12	278	16	1644	18	1435	13	1119	11
FLIP 89- 67C	392	19	171	23	1990	5	1778	6	1136	10
FLIP 89-118C	752	2	230	21	1574	20	819	23	930	22
FLIP 90-136C	546	10	198	22	1690	17	1167	20	1086	15
FLIP 90-137C	449	17	943	1	1329	23	907	21	1137	9
FLIP 90-173C	769	1	444	4	1508	21	1833	4	1173	6
FLIP 91- 48C	459	16	310	11	1597	19	1806	5	1063	19
FLIP 91- 72C	614	7	296	13	1482	22	894	22	1086	14
FLIP 91-107C	714	4	301	12	2083	3	1255	18	1070	17
FLIP 91-131C	388	20	317	9	1319	24	1352	17	936	21
FLIP 91-181C	266	24	396	5	1736	12	1472	12	920	23
FLIP 91-186C	471	15	345	7	2246	1	1245	19	1257	2
FLIP 91-187C	669	5	317	10	1692	16	1662	8	1074	16
FLIP 91-188C	346	23	357	6	1967	7	1546	10	1148	8
FLIP 91-195C	359	22	255	20	1736	12	1704	7	1088	13
FLIP 91-202C	564	9	159	24	1713	15	1949	3	1166	7
FLIP 91-203C	472	14	278	17	2199	2	1546	11	1291	1
FLIP 91-209C	517	11	293	14	1736	14	2461	1	1070	18
FLIP 82-150C	637	6	453	3	2014	4	1389	15	1208	4
ILC 482	735	3	344	8	1926	8	2292	2	1247	3
Local Check	588	8	280	15	1885	9	1361	16	—	—
Location Mean	523		332		1779		1484			
S.E. of Mean	119.33		147.90		20.90		382.50			
Prob. of Significance	.18		.41		.00		.27			
L.S.D. at 5%	NS		NS		59.51		NS			
T.E > L. Check	—		—		7		—			
C.V. %	39.56		77.27		2.04		44.66			

* The mean has been calculated excluding the locations with incomplete data.

Table 3.1.7. The five heaviest seed yielding entries at the individual locations in the CIYT-SP-94.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
ALGERIA	Khroub	ILC 482	FLIP 88- 70C	FLIP 91-186C	FLIP 82-150C	FLIP 89- 67C
BULGARIA	Toshevo	FLIP 91-186C	FLIP 91-203C	FLIP 91-202C	FLIP 88- 70C	FLIP 91-188C
CANADA	Saskatoon	FLIP 91-195C	FLIP 90-137C	FLIP 91-186C	FLIP 89-118C	FLIP 88- 24C
CHINA	Hebei	FLIP 91-186C	FLIP 91-203C	FLIP 91-202C	FLIP 91- 48C	FLIP 88- 70C
ETHIOPIA	Debre Zeit	FLIP 89- 24C	Local Check	FLIP 91-202C	FLIP 91-203C	FLIP 90-136C
IRAN	Karaj	FLIP 82-150C	FLIP 89- 67C	FLIP 91-209C	FLIP 91-203C	Local Check
IRAN	Maragheh	Local Check	FLIP 91-186C	ILC 482	FLIP 91- 72C	FLIP 91-188C
IRAN	Mashhad	ILC 482	Local Check	FLIP 91-186C	FLIP 91-195C	FLIP 91-203C
IRAN	Oroumieh	Local Check	FLIP 91-195C	FLIP 91-181C	FLIP 90-173C	FLIP 91-186C
ITALY	Tolentino	FLIP 89- 67C	FLIP 91- 72C	FLIP 90-137C	FLIP 91-188C	FLIP 91-107C
LEBANON	Terbol	ILC 482	FLIP 88- 70C	FLIP 90-136C	FLIP 91-186C	FLIP 82-150C
LIBYA	Zahra	FLIP 88- 70C	FLIP 91-203C	Local Check	FLIP 88- 68C	ILC 482
SPAIN	Badajoz	ILC 482	FLIP 91-186C	FLIP 91- 72C	FLIP 88- 70C	FLIP 91-203C
SYRIA	Al Ghab	FLIP 90-137C	Local Check	FLIP 89-118C	ILC 482	FLIP 91-107C
SYRIA	Al Jammasah	Local Check	FLIP 91-188C	ILC 482	FLIP 82-150C	FLIP 91-187C
SYRIA	Gelline	FLIP 90-173C	Local Check	FLIP 91-202C	FLIP 91-131C	FLIP 90-136C
SYRIA	Hama	FLIP 91- 72C	FLIP 91-107C	FLIP 88- 70C	FLIP 89-118C	FLIP 90-137C
SYRIA	Homs	FLIP 91-209C	FLIP 91-186C	FLIP 91-195C	FLIP 91-203C	FLIP 82-150C
SYRIA	Izra'a	FLIP 88- 70C	FLIP 91- 72C	FLIP 88- 68C	FLIP 90-137C	FLIP 89-118C
SYRIA	Jindiress	FLIP 82-150C	FLIP 88- 24C	FLIP 89- 24C	FLIP 91-203C	FLIP 91- 48C
SYRIA	Tel Hadya	FLIP 90-173C	FLIP 89-118C	ILC 482	FLIP 91-107C	FLIP 91-187C
TURKEY	Ankara	FLIP 90-137C	FLIP 88- 24C	FLIP 82-150C	FLIP 90-173C	FLIP 91-181C
TURKEY	Erzurum	FLIP 91-186C	FLIP 91-203C	FLIP 91-107C	FLIP 82-150C	FLIP 88- 70C
						FLIP 89- 67C
TURKEY	Izmir-1 (Menemen)	FLIP 91-209C	ILC 482	FLIP 91-202C	FLIP 90-173C	FLIP 91- 48C

On the basis of average seed yield of common entries over two years (1992/93 and 1993/94), FLIP 89-67C ranked number 1 and was followed by FLIP 88-70C, FLIP 82-150C, FLIP 88-24C and FLIP 90-136C with respective seed yields of 1515, 1466, 1450, 1430, and 1391 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 during 1992/93 and 1993/94.

Entry Name	1992/93		1993/94		Mean	
	y	R	y	R	y	R
FLIP 88- 24C	1740	2	1119	5	1430	4
FLIP 88- 68C	1729	4	1026	8	1378	7
FLIP 88- 70C	1731	3	1200	2	1466	2
FLIP 89- 24C	1559	8	1119	5	1339	8
FLIP 89- 67C	1894	1	1136	4	1515	1
FLIP 89-118C	1545	9	930	9	1238	9
FLIP 90-136C	1695	5	1086	7	1391	5
FLIP 90-137C	1642	7	1137	3	1390	6
FLIP 82-150C	1691	6	1208	1	1450	3

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 one sets of trial were distributed to cooperators in 20 countries. Results were returned for 31 sets covering 11 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 and 3.2.5, respectively. The entry means across locations for time to flowering ranged from 114 days to 125 days. FLIP 90-179C and ILC 482 took least time to flower. In general, early flowering entries were also earlier in maturity. The plant height varied from 49 cm for ILC 482 to 67 cm for FLIP 91-149C.

The location means for 100-seed weight (Table 3.2.5) varied from 25 g (for Dahmouni in Algeria) to 44 g (for Al Jammasah in Syria). The overall mean for 100-seed weight for entries ranged between 28 and 41 g, and the entry FLIP 84-15C had the largest seed size.

The ANOVA for seed yield revealed that at 11 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 (1974 kg/ha) which was closely followed by FLIP 91-220C, FLIP 89-29C, FLIP 82-150C and FLIP 90-96C with respective yields of 1957, 1956, 1947 and 1895 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 90-96C (2191 kg/ha) ranked number 1 in seed yield and was closely followed by FLIP 88-85C (2186 kg/ha), FLIP 89-29C (2170 kg/ha), FLIP 89-38C (2061 kg/ha), and FLIP 90-76C (2006 kg/ha), respectively.

Table 3.2.1. Agronomic details of entries in the CIYT-W-MR-94 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
ALGERIA	Dahmouni	04-JAN-94	13-JUN-94	40	46	-	-	Igran, Igran	Chetoui 1
ALGERIA	Guelma	10-NOV-93	29-JAN-94	-	200	-	-	Igran, Kerb, Kerb	-
ALGERIA	Khroub	29-JAN-94	09-JUL-94	-	45	-	-	Igran+Kerb	ILC 3279
ALGERIA	Oued Smar	20-DEC-93	26-JUN-94	-	200	-	-	Igran	ILC 3279
ALGERIA	Setif	23-NOV-93	20-JUN-94	-	100	-	-	Igran + Kerb	ILC 3279
CYPRUS	Athalassa	18-NOV-93	14-JUN-94	32	72	-	-	Terbutrex	Cyprus Local
ETHIOPIA	Debre Zeit	-	-	-	-	-	-	-	-
IRAN	Gorgan	23-DEC-93	18-JUL-94	-	-	-	-	-	FLIP 84-48
ITALY	Tolentino	18-DEC-93	25-JUL-94	-	-	-	-	-	Sultano
JORDAN	Rabba	17-NOV-93	31-MAY-94	-	-	-	-	Fusilade	Jubeiha-2
JORDAN	Ramtha	18-NOV-93	18-MAY-94	-	-	-	-	-	Jubeiha-2
LEBANON	Tel Amara	05-DEC-93	01-JUN-94	-	-	-	-	-	Janta 2
LEBANON	Terbol	08-DEC-93	14-JUN-94	-	50	-	-	Kerb, Igran	Lebanese Local
PORTUGAL	Elvas	22-NOV-93	20-JUL-94	-	-	-	-	-	Cht 510
SPAIN	Badajoz	17-NOV-93	17-JUN-94	-	-	-	-	Terbutrina, Propizamida	Caudil
SPAIN	Cordoba	02-DEC-93	21-JUN-94	-	-	-	-	Bladex, Chlorothalonil 50%	Pedrosillano
SPAIN	Valladolid	-	-	-	-	-	-	-	-
SYRIA	Al Ghab	18-DEC-93	-	-	-	-	-	-	-
SYRIA	Al Jammasah	09-DEC-93	-	30	50	-	-	-	Ghab-2
SYRIA	Gelline	02-JAN-94	08-JUN-94	2	5	-	-	-	Ghab-1
SYRIA	Hama	29-NOV-93	26-MAY-94	-	50	-	-	-	-
SYRIA	Heimo	25-NOV-93	10-JUN-94	-	50	-	-	-	Ghab-2
SYRIA	Homs	22-NOV-93	07-JUN-94	-	50	-	-	-	Ghab-2
SYRIA	Idleb	09-DEC-93	-	-	-	-	-	-	Ghab-1
SYRIA	Izra'a	20-JAN-94	16-JUN-94	-	50	-	-	-	-
SYRIA	Jindiress	08-DEC-93	-	-	50	-	-	-	-
SYRIA	Tel Hadya	04-DEC-93	-	-	50	-	-	-	-
TURKEY	Diyarbakir	-	-	-	-	-	-	-	-
TURKEY	Izmir (Bornova)	21-DEC-93	17-JUN-94	30	60	-	-	-	Canitez
TURKEY	Izmir-1 (Menemen)	-	-	-	-	-	-	-	-
TURKEY	Izmir-2 (Menemen)	22-DEC-93	20-JUN-94	30	60	-	-	-	-

Table 3.2.2 Time to flowering (days) of entries in the CIYT-W-MR-94 conducted at different locations.

Entry Name	Pedigree	Origin	ALGERIA				CYPRUS
			Dahmouni	Khroub	Oued Smar	Setif	Athalassa
FLIP 84- 15C	X81TH 199/ILC 202(WH)XILC 3355	ICARDA/ICRISAT	118	99	111	161	138
FLIP 86- 6C	X81TH 203/ILC 3279(WH)XILC 3355	ICARDA/ICRISAT	118	99	110	161	138
FLIP 88- 82C	X84TH 88/ILC 484XFLIP 82- 80C	ICARDA/ICRISAT	123	95	111	161	138
FLIP 88- 85C	X85TH 143/ILC 829XFLIP 82-144C	ICARDA/ICRISAT	118	99	108	157	136
FLIP 89- 29C	X84TH 73/ILC 482XFLIP 82- 73C	ICARDA/ICRISAT	126	101	105	157	136
FLIP 89- 38C	X86TH 279(ILC 1919XFLIP 82-191C)XFLIP 84- 18C	ICARDA/ICRISAT	121	97	103	161	136
FLIP 89- 44C	X87TH 31/FLIP 83-7CXFLIP 84-92C	ICARDA/ICRISAT	126	102	111	161	140
FLIP 89- 78C	X87TH 67/FLIP 82- 87CXFLIP 85- 48C	ICARDA/ICRISAT	123	103	121	164	143
FLIP 90- 45C	X86TH 288(FLIP 81- 54WXILC 2506)XFLIP 82- 84C	ICARDA/ICRISAT	124	105	112	161	143
FLIP 90- 76C	X86TH 303(ILC 171XFLIP 82-127C)XILC 171	ICARDA/ICRISAT	124	100	107	161	145
FLIP 90- 77C	X86TH 303(ILC 171XFLIP 82-127C)XILC 171	ICARDA/ICRISAT	124	106	111	164	142
FLIP 90- 96C	X87TH 28/ILC 5342XFLIP 84-93C	ICARDA/ICRISAT	122	102	111	161	142
FLIP 90-179C	X87TH 192/ICC 14212XFLIP 83-98C	ICARDA/ICRISAT	124	98	109	161	137
FLIP 91- 21C	X87TH 31/FLIP 83-7CXFLIP 84-92C	ICARDA/ICRISAT	124	101	111	161	138
FLIP 91- 52C	X88TH 270(FLIP 85-2CXFLIP 84-93C)XFLIP 85-2C	ICARDA/ICRISAT	122	101	108	161	140
FLIP 91- 60C	X89TH 25/ILC 2371XFLIP 84-182C	ICARDA/ICRISAT	123	99	110	161	141
FLIP 91- 61C	X89TH 25/ILC 2371XFLIP 84-182C	ICARDA/ICRISAT	124	99	109	161	142
FLIP 91-149C	X87 TH 318(BE. SEL 81- 41CXFLIP 81- 79C)XFLIP 85- 18C	ICARDA/ICRISAT	124	102	113	167	145
FLIP 91-219C	X87TH 94/FLIP 84-164CXILC 4921	ICARDA/ICRISAT	118	99	111	161	140
FLIP 91-220C	X89TH 10/ILC 1254XFLIP 84-182C	ICARDA/ICRISAT	122	99	109	161	140
FLIP 91-222C	X88TH 208/ILC 202XFLIP 85-111C	ICARDA/ICRISAT	126	105	107	161	142
FLIP 82-150C	X79TH 101/ILC 523XILC 183	ICARDA/ICRISAT	123	98	108	157	137
ILC 482			114	96	102	157	135
LOCAL CHECK			126	97	112	164	136
Location Mean			122	100	109	161	139
S.E. of Mean					1	-	1
Prob. of Significance					.00	.00	.00
L.S.D. at 5%					4	-	3
C.V. %					2	0	1

Cont'd. ...

Table 3.2.2 Cont'd. ...

Entry Name	ETHIOPIA	IRAN	ITALY	JORDAN		LEBANON		PORTUGAL
	Debre Zeit	Gorgan	Tolentino	Rabba	Ramtha	Tel Amara	Terbol	Elvas
FLIP 84- 15C	87	123	137	112	111	134	125	125
FLIP 86- 6C	90	122	137	112	110	131	125	125
FLIP 88- 82C	82	123	139	112	113	132	125	125
FLIP 88- 85C	81	122	136	111	107	130	123	122
FLIP 89- 29C	-	121	135	106	107	129	123	121
FLIP 89- 38C	85	121	136	110	107	129	121	121
FLIP 89- 44C	83	122	135	112	110	134	126	126
FLIP 89- 78C	94	127	140	112	113	134	127	126
FLIP 90- 45C	86	128	142	112	113	132	126	127
FLIP 90- 76C	82	123	142	111	112	132	123	125
FLIP 90- 77C	87	124	142	111	112	132	124	125
FLIP 90- 96C	83	125	139	114	112	135	127	128
FLIP 90-179C	53	120	135	106	105	123	117	119
FLIP 91- 21C	91	122	136	115	109	131	127	126
FLIP 91- 52C	87	127	144	115	113	134	128	128
FLIP 91- 60C	78	123	142	114	113	136	127	127
FLIP 91- 61C	91	123	140	114	113	134	127	129
FLIP 91-149C	91	127	150	118	120	134	130	131
FLIP 91-219C	81	122	137	112	109	133	126	124
FLIP 91-220C	-	123	140	113	115	133	127	125
FLIP 91-222C	87	124	141	115	112	132	128	128
FLIP 91-222C	91	122	137	111	110	132	125	126
FLIP 82-150C	76	119	135	106	108	128	121	119
ILC 482	64	131	144	106	107	128	123	127
LOCAL CHECK								
Location Mean	83	123	139	112	111	132	125	125
S.E. of Mean	3	1	1	1	1		0	1
Prob. of Significance	.00	.00	.00	.00	.00	One Rep.	.00	.00
L.S.D. at 5%	9	3	2	2	2		1	2
C.V. %	4	2	1	1	1		1	1

Cont'd. ...

Table 3.2.2 Cont'd. ...

Entry Name	SPAIN			SYRIA				
	Badajoz	Cordoba	Valladolid	Al Ghab	Al Jammassah	Gelline	Hama	Heimo
FLIP 84- 15C	119	115	138	115	109	99	98	135
FLIP 86- 6C	119	117	138	115	109	100	98	134
FLIP 88- 82C	119	115	138	114	108	100	99	134
FLIP 88- 85C	117	114	137	114	108	98	98	130
FLIP 89- 29C	116	119	137	108	108	97	97	132
FLIP 89- 38C	117	114	140	107	108	100	94	134
FLIP 89- 44C	118	116	139	114	109	99	99	135
FLIP 89- 78C	121	116	140	115	111	102	101	135
FLIP 90- 45C	117	115	137	116	110	101	100	138
FLIP 90- 76C	118	114	138	114	108	100	98	136
FLIP 90- 77C	119	115	138	115	109	100	98	136
FLIP 90- 96C	123	117	140	115	108	102	100	135
FLIP 90-179C	109	115	138	106	108	99	90	120
FLIP 91- 21C	118	116	137	114	109	100	100	135
FLIP 91- 52C	122	116	137	115	110	102	101	136
FLIP 91- 60C	119	116	-	116	109	101	100	136
FLIP 91- 61C	119	116	140	115	110	101	100	136
FLIP 91-149C	123	123	138	117	110	104	104	140
FLIP 91-219C	118	115	139	115	109	98	99	135
FLIP 91-220C	119	117	137	115	109	100	99	136
FLIP 91-222C	123	120	139	116	110	103	100	136
FLIP 82-150C	118	116	138	114	109	99	98	132
ILC 482	115	115	136	105	99	95	92	137
LOCAL CHECK	117	116	137	120	111	103	101	139
Location Mean	118	116	138	114	109	100	99	135
S.E. of Mean	1	-	1	1	1	1	1	1
Prob. of Significance	.00	.00	.81	.00	.00	.00	.00	.00
L.S.D. at 5%	2	-	NS	2	2	2	3	4
C.V. %	1	0	2	1	1	1	2	1

Cont'd. ...

Table 3.2.2 Cont'd. ...

Entry Name	SYRIA					TURKEY		Overall Mean
	Homs	Idleb	Izra'a	Jindiress	Tel Hadya.	Izmir (Bornova)	Izmir-2 (Menemen)	
FLIP 84- 15C	120	128	91	116	120	109	135	119
FLIP 86- 6C	120	128	96	118	120	110	135	120
FLIP 88- 82C	120	130	91	121	121	110	135	120
FLIP 88- 85C	119	128	89	117	117	107	135	118
FLIP 89- 29C	118	125	89	115	118	106	135	117
FLIP 89- 38C	118	124	89	111	115	109	135	117
FLIP 89- 44C	120	128	92	121	122	108	135	120
FLIP 89- 78C	121	132	93	124	126	113	135	122
FLIP 90- 45C	121	131	94	122	125	113	135	122
FLIP 90- 76C	120	128	91	122	120	108	135	120
FLIP 90- 77C	120	128	92	122	120	109	135	121
FLIP 90- 96C	121	130	93	123	124	110	135	121
FLIP 90-179C	110	123	79	106	109	111	135	114
FLIP 91- 21C	120	129	93	122	123	107	135	120
FLIP 91- 52C	122	130	93	125	126	107	135	122
FLIP 91- 60C	121	129	94	124	125	110	135	121
FLIP 91- 61C	122	129	92	124	126	111	135	121
FLIP 91- 61C	126	137	96	127	130	114	135	125
FLIP 91-149C	120	129	91	117	119	108	135	119
FLIP 91-219C	121	131	93	118	119	109	135	120
FLIP 91-220C	122	132	93	124	126	110	135	122
FLIP 91-222C	119	130	91	121	119	109	135	119
FLIP 82-150C	119	123	88	114	115	102	135	115
ILC 482	124	135	104	127	130	105	135	-
LOCAL CHECK								
Location Mean	120	129	92	120	121	109	135	
S.E. of Mean	0	1	2	1	1	1		
Prob. of Significance	.00	.00	.00	.00	.00	.00		
L.S.D. at 5%	1	3	4	2	2	2		
C.V. %	0	1	3	1	1	1	One Rep.	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.2.3 Time to maturity (days) of entries in the CIYT-W-MR-94 conducted at different locations.

Entry Name	ALGERIA			ETHIOPIA		IRAN	JORDAN		LEBANON
	Dahmouni	Oued Smar	Setif	Debre Zeit		Gorgan	Rabba	Ramtha	Tel Amara
FLIP 84- 15C	143	175	210	-		181	154	145	173
FLIP 86- 6C	147	176	210	-		181	157	146	173
FLIP 88- 82C	149	176	210	134		184	147	143	174
FLIP 88- 85C	144	176	210	-		181	157	143	174
FLIP 89- 29C	152	175	210	-		180	145	139	173
FLIP 89- 38C	149	175	210	-		180	147	143	173
FLIP 89- 44C	152	174	210	142		182	157	145	174
FLIP 89- 78C	146	176	210	-		185	157	142	173
FLIP 90- 45C	147	177	210	131		185	147	144	176
FLIP 90- 76C	149	175	210	137		183	147	141	172
FLIP 90- 77C	153	176	210	137		185	157	140	176
FLIP 90- 96C	146	177	210	-		183	157	143	174
FLIP 90-179C	150	177	210	140		181	145	140	168
FLIP 91- 21C	149	174	210	-		181	157	144	175
FLIP 91- 52C	148	176	210	-		185	157	146	176
FLIP 91- 60C	145	176	210	139		182	157	143	175
FLIP 91- 61C	150	177	210	-		182	157	146	174
FLIP 91-149C	153	177	210	-		188	157	150	175
FLIP 91-219C	142	175	210	138		182	157	143	173
FLIP 91-220C	145	176	210	-		182	157	146	174
FLIP 91-222C	151	177	210	-		184	157	145	176
FLIP 82-150C	148	175	210	-		182	147	145	173
ILC 482	141	176	210	137		180	145	138	166
LOCAL CHECK	154	177	210	129		193	145	142	170
Location Mean	148	176	210	136		183	153	143	173
S.E. of Mean		1				2	1	1	
Prob. of Significance		.16				.00	.00	.00	
L.S.D. at 5%		NS				5	2	3	
C.V. %	One Rep.	1	One Rep.	One Rep.		2	1	1	One Rep.

Cont'd. ...

Table 3.2.3 Cont'd. ...

Entry Name	LEBANON	PORTUGAL	SPAIN		SYRIA			Hama
	Terbol	Elvas	Badajoz	Valladolid	Al Ghab	Al Jammassah	Gelline	
FLIP 84- 15C	169	204	197	207	163	153	143	137
FLIP 86- 6C	172	205	204	207	163	158	146	139
FLIP 88- 82C	167	205	203	208	163	156	141	137
FLIP 88- 85C	171	204	204	204	162	155	146	138
FLIP 89- 29C	168	203	202	207	161	152	143	137
FLIP 89- 38C	166	205	204	207	162	158	143	133
FLIP 89- 44C	172	205	206	206	162	154	144	138
FLIP 89- 78C	171	205	202	208	161	157	142	138
FLIP 90- 45C	173	204	208	207	163	155	143	140
FLIP 90- 76C	167	204	205	205	162	155	144	137
FLIP 90- 77C	169	204	204	207	162	156	144	138
FLIP 90- 96C	174	204	213	210	163	159	142	140
FLIP 90-179C	171	206	206	209	162	155	143	137
FLIP 91- 21C	171	203	206	205	163	155	142	139
FLIP 91- 52C	174	204	212	208	163	160	143	141
FLIP 91- 60C	175	205	209	-	164	158	143	139
FLIP 91- 61C	174	206	205	205	163	158	143	139
FLIP 91-149C	175	206	207	207	163	158	146	141
FLIP 91-219C	170	204	202	209	161	155	142	138
FLIP 91-220C	174	205	206	208	163	160	144	140
FLIP 91-222C	175	203	211	209	163	160	146	141
FLIP 82-150C	170	203	205	208	162	155	142	137
ILC 482	166	203	198	206	161	152	142	136
LOCAL CHECK	166	204	201	207	164	159	146	142
Location Mean	171	204	205	207	162	156	143	138
S.E. of Mean	1	1	2	1	1	1	1	1
Prob. of Significance	.00	.15	.00	.56	.01	.00	.00	.00
L.S.D. at 5%	2	NS	6	NS	2	3	3	2
C.V. %	1	1	2	1	1	1	1	1

Cont'd. ...

Table 3.2.3 Cont'd.

Entry Name	SYRIA						TURKEY		Overall Mean
	Heimo	Homs	Idleb	Izra'a	Jindiress	Tel Hadya	Izmir (Bornova)	Izmir (Menemen)	
FLIP 84- 15C	-	163	172	132	178	171	152	167	166
FLIP 86- 6C	188	165	172	134	177	170	155	168	167
FLIP 88- 82C	178	163	169	132	174	167	156	167	166
FLIP 88- 85C	179	163	170	130	174	169	159	167	167
FLIP 89- 29C	191	162	168	130	170	167	151	167	165
FLIP 89- 38C	186	160	169	129	178	165	152	167	165
FLIP 89- 44C	190	164	170	133	173	170	154	167	167
FLIP 89- 78C	181	163	171	133	172	170	152	168	166
FLIP 90- 45C	189	165	171	134	176	170	159	170	167
FLIP 90- 76C	179	163	169	132	170	171	151	167	165
FLIP 90- 77C	178	164	169	131	171	168	151	167	166
FLIP 90- 96C	185	164	171	134	175	170	156	171	168
FLIP 90-179C	189	163	171	122	177	168	159	171	166
FLIP 91- 21C	189	163	170	134	172	171	154	167	167
FLIP 91- 52C	185	165	171	134	175	170	156	170	168
FLIP 91- 60C	183	164	171	133	174	171	156	167	167
FLIP 91- 61C	183	165	171	133	174	171	155	170	168
FLIP 91-149C	182	166	170	136	173	171	158	168	169
FLIP 91-219C	188	162	170	132	174	169	152	167	166
FLIP 91-220C	185	165	172	133	174	171	155	167	168
FLIP 91-222C	183	165	172	135	175	170	155	170	169
FLIP 82-150C	179	162	169	132	173	168	154	167	166
ILC 482	-	162	168	131	177	166	147	167	163
LOCAL CHECK	182	165	174	139	173	172	158	170	-
Location Mean	184	164	170	132	174	169	154	168	
S.E. of Mean	1	0	1	1	1	1	0	1	
Prob. of Significance	.00	.00	.02	.00	.00	.00	.00	.00	
L.S.D. at 5%	4	1	3	3	3	2	1	2	
C.V. %	1	0	1	2	1	1	0	1	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.2.4 Plant height (cm) of entries in the CIYT-W-MR-94 conducted at different locations.

Entry Name	ALGERIA				CYPRUS	IRAN	ITALY	JORDAN
	Dahmouni	Khroub	Oued Smar	Setif	Athalassa	Gorgan	Tolentino	Rabba
FLIP 84- 15C	42	45	43	26	57	110	63	63
FLIP 86- 6C	43	52	54	38	60	103	68	53
FLIP 88- 82C	44	35	47	24	55	112	68	57
FLIP 88- 85C	41	35	43	30	53	97	60	58
FLIP 89- 29C	42	47	47	30	55	95	70	58
FLIP 89- 38C	41	35	38	28	50	96	59	47
FLIP 89- 44C	38	55	48	30	53	103	67	53
FLIP 89- 78C	43	42	46	26	55	107	69	55
FLIP 90- 45C	42	47	48	34	58	101	73	58
FLIP 90- 76C	47	50	48	34	58	108	75	60
FLIP 90- 77C	48	47	52	32	60	109	64	60
FLIP 90- 96C	42	47	45	32	52	98	60	53
FLIP 90-179C	42	40	44	32	47	102	63	45
FLIP 91- 21C	44	42	48	32	53	95	57	45
FLIP 91- 52C	47	43	44	30	52	86	67	52
FLIP 91- 60C	42	47	46	28	53	105	70	50
FLIP 91- 61C	41	42	41	28	52	92	59	50
FLIP 91-149C	42	62	56	30	67	106	82	65
FLIP 91-219C	46	45	40	30	48	103	60	55
FLIP 91-220C	43	44	47	28	52	95	64	52
FLIP 91-222C	41	45	43	28	53	88	65	50
FLIP 82-150C	45	40	42	30	53	92	63	50
ILC 482	44	32	38	24	52	98	60	50
LOCAL CHECK	45	60	50	42	52	106	77	46
Location Mean	43	45	46	30	54	100	66	54
S.E. of Mean			2	-	2	4	3	3
Prob. of Significance			.00	.00	.00	.00	.00	.00
L.S.D. at 5%			6	-	6	13	8	9
C.V. %	One Rep.	One Rep.	8	0	6	8	8	11

Cont'd. ...

Table 3.2.4 Cont'd. ...

Entry Name	JORDAN	LEBANON		PORTUGAL	SPAIN		SYRIA	
	Ramtha	Tel Amara	Terbol	Elvas	Badajoz	Valladolid	Al Ghab	Al Jammassah
FLIP 84- 15C	60	55	61	56	57	55	47	89
FLIP 86- 6C	70	63	64	61	61	55	48	89
FLIP 88- 82C	70	50	54	53	59	50	48	82
FLIP 88- 85C	65	43	58	48	58	49	45	75
FLIP 89- 29C	60	60	59	57	59	49	48	79
FLIP 89- 38C	61	67	51	47	53	57	47	79
FLIP 89- 44C	60	52	59	53	59	46	52	79
FLIP 89- 78C	65	61	62	60	62	50	45	81
FLIP 90- 45C	75	67	60	62	61	53	50	86
FLIP 90- 76C	69	67	61	57	61	53	53	88
FLIP 90- 77C	71	69	62	57	59	57	50	91
FLIP 90- 96C	60	60	61	54	59	56	48	74
FLIP 90-179C	65	57	56	52	53	52	45	78
FLIP 91- 21C	60	53	59	58	52	50	55	80
FLIP 91- 52C	57	59	56	54	55	58	48	78
FLIP 91- 60C	56	52	56	49	54	-	50	73
FLIP 91- 61C	56	53	61	56	52	59	48	76
FLIP 91-149C	75	74	72	72	74	58	50	91
FLIP 91-219C	60	60	55	48	52	57	45	70
FLIP 91-220C	61	52	57	55	51	49	47	73
FLIP 91-222C	56	54	58	56	57	59	50	69
FLIP 82-150C	65	60	53	56	57	58	47	72
ILC 482	56	58	53	46	52	49	37	76
LOCAL CHECK	65	62	53	62	61	50	60	82
Location Mean	63	59	58	55	58	54	48	80
S.E. of Mean	1	One Rep.	2	2	3	4	2	2
Prob. of Significance	.00		.00	.00	.00	NS	.00	.00
L.S.D. at 5%	2		7	6	7	11	5	6
C.V. %	2		7	7	8	12	6	5

Cont'd. ...

Table 3.2.4 Cont'd. . . .

Entry Name	SYRIA								TURKEY	Overall Mean
	Gelline	Hama	Heimo	Homs	Idleb	Yzra'a	Jindiress	Tel Hadya	Izmir (Bornova)	
FLIP 84- 15C	51	40	-	50	42	29	53	58	67	55
FLIP 86- 6C	50	45	63	55	46	33	54	60	72	58
FLIP 88- 82C	43	40	70	52	49	28	51	55	69	54
FLIP 88- 85C	53	40	63	47	47	27	47	54	62	52
FLIP 89- 29C	54	40	56	52	50	30	57	57	61	55
FLIP 89- 38C	39	35	60	47	48	27	49	51	62	50
FLIP 89- 44C	64	43	54	53	61	33	55	62	68	57
FLIP 89- 78C	64	45	59	53	48	30	53	61	71	57
FLIP 90- 45C	56	47	56	53	60	31	61	62	72	59
FLIP 90- 76C	64	45	70	53	60	31	59	61	70	60
FLIP 90- 77C	55	40	77	55	54	32	61	62	69	59
FLIP 90- 96C	52	43	48	48	48	29	48	56	62	54
FLIP 90-179C	45	40	52	50	48	30	52	56	63	52
FLIP 91- 21C	53	43	52	50	55	33	51	56	61	54
FLIP 91- 52C	56	42	47	50	52	31	48	57	64	53
FLIP 91- 60C	56	38	58	45	45	29	48	52	60	52
FLIP 91- 61C	49	42	56	47	46	29	46	51	64	51
FLIP 91-149C	68	53	77	65	67	38	71	74	77	67
FLIP 91-219C	55	37	52	47	43	28	44	53	60	51
FLIP 91-220C	59	40	58	52	45	30	46	55	63	53
FLIP 91-222C	46	43	62	50	45	28	47	56	61	52
FLIP 82-150C	59	43	61	52	49	31	52	54	59	53
ILC 482	51	38	-	47	42	28	44	51	56	49
LOCAL CHECK	58	50	64	62	58	30	71	72	56	-
Location Mean	54	42	60	51	50	30	53	58	64	
S.E. of Mean	1	2	1	2	4	2	2	1	1	
Prob. of Significance	.00	.00	.00	.00	.00	.01	.00	.00	.00	
L.S.D. at 5%	3	6	4	4	10	5	5	4	3	
C.V. %	3	9	4	5	12	9	6	4	3	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.3.5 100-Seed weight (g) of entries in the CIYT-W-MR-94 conducted at different locations.

Entry Name	ALGERIA			CYPRUS		ETHIOPIA	IRAN	ITALY	JORDAN
	Dahmouni	Oued Smar	Setif	Athalassa	Debre Zeit	Gorgan	Tolentino	Rabba	
FLIP 84- 15C	33	40	33	43	43	55	40	41	
FLIP 86- 6C	30	38	29	43	45	48	42	45	
FLIP 88- 82C	24	31	24	34	31	38	33	29	
FLIP 88- 85C	24	33	27	36	33	38	33	30	
FLIP 89- 29C	24	26	25	33	36	38	33	33	
FLIP 89- 38C	26	34	28	39	44	47	39	39	
FLIP 89- 44C	28	35	27	39	45	43	40	38	
FLIP 89- 78C	27	29	25	30	29	42	37	34	
FLIP 90- 45C	23	34	25	39	39	38	35	36	
FLIP 90- 76C	26	32	29	34	42	41	36	37	
FLIP 90- 77C	29	33	26	34	41	41	34	38	
FLIP 90- 96C	24	32	23	30	-	41	36	33	
FLIP 90-179C	27	35	25	41	44	42	37	40	
FLIP 91- 21C	25	36	29	40	43	40	35	40	
FLIP 91- 52C	23	32	26	33	38	39	37	35	
FLIP 91- 60C	24	32	25	33	38	42	36	34	
FLIP 91- 61C	25	32	23	33	-	41	34	33	
FLIP 91-149C	26	34	27	37	42	43	36	43	
FLIP 91-219C	25	29	25	34	38	37	33	37	
FLIP 91-220C	26	33	24	33	-	42	39	36	
FLIP 91-222C	24	29	26	33	37	41	36	35	
FLIP 82-150C	21	28	23	29	29	32	27	30	
ILC 482	19	26	26	31	32	38	28	31	
LOCAL CHECK	21	27	25	36	13	37	29	31	
Location Mean	25	32	26	35	37	41	35	36	
S.E. of Mean		1	-	1	3	1	1	1	
Prob. of Significance		.00	.00	.00	.00	.00	.00	.00	
L.S.D. at 5%		3	-	2	9	3	4	4	
C.V. %	One Rep.	6	0	4	9	5	7	6	

Cont'd. ...

Table 3.3.5 Cont'd. ...

Entry Name	JORDAN	LEBANON	PORTUGAL	SPAIN		SYRIA		
	Ramtha	Terbol	Elvas	Badajoz	Cordoba	Al Ghab	Al Jammassah	Gelline
FLIP 84- 15C	45	39	40	41	40	41	50	35
FLIP 86- 6C	42	38	41	39	40	36	50	45
FLIP 88- 82C	32	24	30	32	31	32	44	31
FLIP 88- 85C	35	30	34	34	35	33	45	31
FLIP 89- 29C	33	27	31	32	30	33	43	37
FLIP 89- 38C	40	33	36	35	33	34	49	33
FLIP 89- 44C	41	33	37	38	34	35	45	40
FLIP 89- 78C	31	30	34	32	32	32	42	29
FLIP 90- 45C	41	33	36	34	33	37	47	34
FLIP 90- 76C	36	32	34	35	35	34	41	36
FLIP 90- 77C	37	32	34	35	34	33	42	40
FLIP 90- 96C	34	30	33	32	32	30	43	30
FLIP 90-179C	40	35	38	37	40	37	50	42
FLIP 91- 21C	40	31	36	38	36	33	47	29
FLIP 91- 52C	34	31	33	36	34	30	43	33
FLIP 91- 60C	37	28	32	34	34	29	43	34
FLIP 91- 61C	36	30	32	35	32	30	47	33
FLIP 91-149C	40	34	39	36	35	35	43	33
FLIP 91-219C	36	28	30	32	31	31	43	33
FLIP 91-220C	37	31	34	35	34	31	42	39
FLIP 91-222C	34	31	33	36	32	29	46	35
FLIP 82-150C	30	25	29	29	27	28	36	34
ILC 482	31	26	27	30	28	28	39	31
LOCAL CHECK	31	26	39	32	27	25	39	30
Location Mean	36	31	34	35	33	32	44	35
S.E. of Mean	1	1	0	1	1	1	3	
Prob. of Significance	.00	.00	.00	.00	.00	.00	.05	
L.S.D. at 5%	3	3	1	2	3	2	8	
C.V. %	5	6	2	4	6	4	11	
								One Rep.

Cont'd. ...

Table 3.3.5 Cont'd. ...

Entry Name	SYRIA					TURKEY	Overall Mean
	Heimo	Homs	Idleb	Jindiress	Tel Hadya	Izmir (Bornova)	
FLIP 84- 15C	.	44	34	37	40	40	41
FLIP 86- 6C	35	43	36	36	40	37	40
FLIP 88- 82C	27	33	31	27	34	31	31
FLIP 88- 85C	32	35	32	31	35	29	33
FLIP 89- 29C	29	36	26	28	34	29	32
FLIP 89- 38C	26	34	31	32	38	34	36
FLIP 89- 44C	31	41	32	33	43	36	37
FLIP 89- 78C	27	32	25	29	35	28	32
FLIP 90- 45C	29	39	33	33	40	32	35
FLIP 90- 76C	33	39	30	31	37	32	34
FLIP 90- 77C	28	37	28	31	39	33	35
FLIP 90- 96C	33	31	28	28	36	28	32
FLIP 90-179C	37	41	34	35	45	34	38
FLIP 91- 21C	32	39	33	31	42	33	36
FLIP 91- 52C	31	33	28	28	35	29	33
FLIP 91- 60C	35	34	26	29	35	29	33
FLIP 91- 61C	34	34	29	29	37	29	33
FLIP 91-149C	35	33	31	30	41	30	35
FLIP 91-219C	30	36	31	27	36	31	32
FLIP 91-220C	37	36	24	29	36	31	34
FLIP 91-222C	33	31	27	29	34	29	33
FLIP 82-150C	24	27	25	25	31	24	28
ILC 482	.	29	27	22	11	26	29
LOCAL CHECK	27	28	23	23	31	39	-
Location Mean	31	35	29	30	37	31	
S.E. of Mean	0	1	2	1	1	1	
Prob. of Significance	.00	.00	.00	.00	.00	.00	
L.S.D. at 5%	1	2	4	2	4	3	
C.V. %	2	3	9	5	6	5	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.2.6 Seed yield (Y=kg/ha) and rank (R) of entries in the CIYT-W-MR-94 conducted at different locations.

Entry Name	ALGERIA						CYPRUS			
	Dahmouni		Khroub		Oued Smar		Setif		Athalassa	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	486	5	839	3	344	7	414	6	2880	11
FLIP 86- 6C	346	17	740	8	347	2	182	24	3190	3
FLIP 88- 82C	574	1	776	6	341	14	436	2	3095	5
FLIP 88- 85C	546	3	771	7	345	5	396	9	3217	2
FLIP 89- 29C	398	13	885	1	336	23	388	10	3097	4
FLIP 89- 38C	427	8	646	12	340	18	400	8	2767	13
FLIP 89- 44C	302	21	484	22	342	11	289	18	2390	22
FLIP 89- 78C	246	24	651	11	342	12	294	17	2462	18
FLIP 90- 45C	308	20	411	24	340	20	415	5	2437	19
FLIP 90- 76C	344	18	437	23	347	1	489	1	2176	24
FLIP 90- 77C	281	23	594	15	343	9	433	3	2366	23
FLIP 90- 96C	364	15	630	14	340	19	301	16	2410	20
FLIP 90-179C	333	19	536	20	343	9	285	19	2473	17
FLIP 91- 21C	348	16	552	19	341	14	256	20	2663	15
FLIP 91- 52C	423	11	589	16	344	7	317	13	2755	14
FLIP 91- 60C	464	7	781	5	345	6	325	12	2998	7
FLIP 91- 61C	427	9	641	13	339	21	246	22	2872	12
FLIP 91-149C	556	2	505	21	337	22	308	15	2392	21
FLIP 91-219C	413	12	786	4	340	16	418	4	2884	10
FLIP 91-220C	425	10	573	17	347	3	313	14	2574	16
FLIP 91-222C	390	14	714	9	346	4	411	7	3001	6
FLIP 82-150C	543	4	844	2	340	16	340	11	2935	9
ILC 482	478	6	661	10	263	24	256	20	3525	1
LOCAL CHECK	293	22	563	18	341	13	237	23	2968	8
Location Mean	405		650		339		340		2772	
S.E. of Mean	45.13		125.47		16.14		71.16		220.90	
Prob. of Significance	.00		.37		.45		.28		.01	
L.S.D. at 5%	128.47		NS		NS		SN		628.82	
T.E > L. Check	11		—		—		—		0	
C.V. %	19.32		33.41		8.25		36.30		13.80	

Cont'd. ...

Table 3.2.6 Cont'd. ...

Entry Name	ETHIOPIA		IRAN		ITALY		JORDAN			
	Debre Zeit		Gorgan		Tolentino		Rabba		Ramtha	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	418	20	1000	22	1968	1	1185	9	1655	23
FLIP 86- 6C	510	19	1267	19	1753	10	979	19	2083	15
FLIP 88- 82C	2504	1	1467	17	1684	14	935	20	2591	8
FLIP 88- 85C	1204	8	1029	21	1790	8	1873	2	2923	4
FLIP 89- 29C	865	14	2210	8	1704	13	1258	7	2015	17
FLIP 89- 38C	1069	10	1600	15	1713	12	1925	1	1969	18
FLIP 89- 44C	918	13	1581	16	1810	7	1050	16	1836	21
FLIP 89- 78C	184	21	2248	7	1780	9	1081	14	2232	11
FLIP 90- 45C	1524	4	724	24	1389	21	1185	10	2089	14
FLIP 90- 76C	1037	12	1648	14	1922	4	1158	12	2454	10
FLIP 90- 77C	519	18	1219	20	1670	16	661	23	2763	5
FLIP 90- 96C	—	—	2524	4	1451	20	1011	17	2230	12
FLIP 90-179C	1881	3	1857	13	1365	23	871	22	1948	19
FLIP 91- 21C	753	16	2010	11	1824	6	1005	18	2042	16
FLIP 91- 52C	673	17	2867	1	1953	3	1532	4	2162	13
FLIP 91- 60C	1086	9	2762	2	1956	2	911	21	2679	6
FLIP 91- 61C	—	—	2352	5	1253	24	1078	15	2958	2
FLIP 91-149C	780	15	2114	9	1380	22	280	24	755	24
FLIP 91-219C	1048	11	781	23	1718	11	1295	5	2620	7
FLIP 91-220C	—	—	2267	6	1854	5	1225	8	3163	1
FLIP 91-222C	1276	6	2610	3	1625	18	1179	11	2456	9
FLIP 82-150C	1233	7	2057	10	1676	15	1125	13	2939	3
ILC 482	2469	2	1990	12	1555	19	1292	6	1666	22
LOCAL CHECK	1402	5	1429	18	1632	17	1649	3	1870	20
Location Mean	1105		1817		1684		1156		2254	
S.E. of Mean	824.32		278.42		252.89		255.04		362.45	
Prob. of Significance	.86		.00		.89		.03		.01	
L.S.D. at 5%	NS		792.57		NS		726.00		1031.77	
T.E > L. Check	—		7		—		0		4	
C.V. %	85.59		26.54		26.00		38.21		27.85	

Cont'd. ...

Table 3.2.6 Cont'd. ...

Entry Name	LEBANON				PORTUGAL		SPAIN			
	Tel Amara		Terbol		Elvas		Badajoz		Cordoba	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	2542	13	2544	5	1667	17	1699	22	3368	12
FLIP 86- 6C	1458	24	2415	8	1719	15	2163	12	2762	23
FLIP 88- 82C	2619	10	2313	13	1549	21	2345	9	2841	22
FLIP 88- 85C	2750	7	2361	10	1809	11	2881	3	3211	14
FLIP 89- 29C	2774	6	2701	1	1608	18	2883	2	3585	4
FLIP 89- 38C	3131	3	2549	4	2211	1	2365	8	3560	6
FLIP 89- 44C	2619	9	2061	21	1480	23	1836	18	3449	9
FLIP 89- 78C	2238	17	2204	17	1595	19	1778	20	2450	24
FLIP 90- 45C	2131	19	2048	22	1854	10	2141	15	2854	20
FLIP 90- 76C	2351	15	2354	11	1587	20	2091	16	3632	1
FLIP 90- 77C	3321	2	2190	18	1723	14	1583	24	3582	5
FLIP 90- 96C	2250	16	2354	12	2139	5	3040	1	3478	7
FLIP 90-179C	3363	1	2381	9	1509	22	1654	23	3417	10
FLIP 91- 21C	1911	20	2102	19	1732	12	1760	21	2968	18
FLIP 91- 52C	1577	22	2245	15	2210	2	2637	5	3039	16
FLIP 91- 60C	2690	8	2020	23	1889	8	2147	14	3386	11
FLIP 91- 61C	2440	14	2245	15	2142	4	2202	10	2984	17
FLIP 91-149C	1577	23	1550	24	1300	24	1813	19	2846	21
FLIP 91-219C	2780	5	2102	20	1874	9	1999	17	2895	19
FLIP 91-220C	2196	18	2537	6	2208	3	2151	13	3602	2
FLIP 91-222C	1810	21	2306	14	2042	7	2549	6	3231	13
FLIP 82-150C	2619	11	2616	3	2069	6	2671	4	3591	3
ILC 482	2560	12	2633	2	1730	13	2483	7	3070	15
LOCAL CHECK	2935	4	2517	7	1686	16	2196	11	3475	8
Location Mean	2443		2306		1806		2211		3220	
S.E. of Mean	336.00		104.94		225.55		352.60		291.46	
Prob. of Significance	.01		.00		.20		.17		.20	
L.S.D. at 5%	956.49		298.73		NS		NS		NS	
T.E > L.*Check	0		0		—		—		—	
C.V. %	23.82		7.88		21.64		27.62		15.68	

Cont'd. ...

Table 3.2.6 Cont'd. ...

Entry Name	SPAIN		SYRIA							
	Valladolid		Al Ghab		Al Jammasah		Gelline		Hama	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	2629	19	1633	19	1689	21	1674	13	905	20
FLIP 86- 6C	3996	3	1401	23	1777	19	1470	20	799	22
FLIP 88- 82C	3454	7	2381	7	1990	14	1833	4	1021	13
FLIP 88- 85C	4518	1	2361	9	1837	16	2056	1	1291	3
FLIP 89- 29C	—	—	2592	4	2164	8	1870	2	1185	5
FLIP 89- 38C	3272	11	2503	5	1653	23	1719	8	1042	11
FLIP 89- 44C	2347	21	1810	16	1817	17	1500	19	778	23
FLIP 89- 78C	1825	22	1456	22	2098	10	1597	16	915	19
FLIP 90- 45C	3283	9	2170	13	1791	18	1360	21	1027	12
FLIP 90- 76C	3049	15	2347	10	2073	11	1817	5	974	14
FLIP 90- 77C	3021	16	1666	18	1847	15	1538	18	958	17
FLIP 90- 96C	3851	4	3354	1	2682	3	1711	10	1106	9
FLIP 90-179C	3290	8	2245	12	1696	20	1688	12	1153	6
FLIP 91- 21C	3809	5	2367	8	2040	12	1624	15	1276	4
FLIP 91- 52C	3056	13	2877	2	2508	5	1739	6	1148	7
FLIP 91- 60C	—	—	1857	15	2549	4	1707	11	894	21
FLIP 91- 61C	2865	17	2299	11	2397	6	1712	9	1079	10
FLIP 91-149C	2748	18	1231	24	1681	22	1199	23	968	15
FLIP 91-219C	2620	20	1912	14	2014	13	1851	3	931	18
FLIP 91-220C	4120	2	2470	6	2303	7	1625	14	958	16
FLIP 91-222C	3216	12	1619	20	2133	9	1560	17	1307	2
FLIP 82-150C	3280	10	2632	3	2717	2	1731	7	1114	8
ILC 482	3691	6	1531	21	2766	1	1333	22	1408	1
LOCAL CHECK	3052	14	1694	17	1519	24	1082	24	519	24
Location Mean	3245		2100		2073		1625		1032	
S.E. of Mean	578.42		366.56		195.33		153.27		175.39	
Prob. of Significance	.37		.02		.00		.02		.27	
L.S.D. at 5%	NS		1043.47		556.04		436.32		NS	
T.E > L. Check	—		2		10		18		—	
C.V. %	25.12		30.23		16.32		16.34		29.45	

Cont'd. ...

Table 3.2.6 Cont'd. ...

Entry Name	SYRIA									
	Helmo		Homs		Idleb		Izra'a		Jindiress	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	0	23	1888	14	1823	19	595	8	1180	24
FLIP 86- 6C	593	20	2142	8	2688	10	586	10	1840	16
FLIP 88- 82C	1283	5	1940	12	1325	22	693	5	1664	22
FLIP 88- 85C	1465	4	2125	9	3070	2	709	4	2220	8
FLIP 89- 29C	234	22	2558	3	3069	3	809	2	2341	5
FLIP 89- 38C	679	17	1423	23	3157	1	646	6	1726	18
FLIP 89- 44C	662	19	1927	13	2174	16	306	23	1690	21
FLIP 89- 78C	1162	9	1791	15	2109	18	473	16	2324	6
FLIP 90- 45C	556	21	1673	20	2973	4	363	21	1763	17
FLIP 90- 76C	985	13	2092	10	2923	7	434	19	2048	11
FLIP 90- 77C	1074	11	1674	19	2150	17	542	12	2110	10
FLIP 90- 96C	1069	12	1589	21	2962	5	622	7	2147	9
FLIP 90-179C	723	16	2386	4	2758	9	577	11	1925	13
FLIP 91- 21C	667	18	1685	17	2339	13	344	22	1911	14
FLIP 91- 52C	1215	7	1695	16	2254	14	479	15	1724	19
FLIP 91- 60C	1600	3	2008	11	2770	8	432	20	2436	3
FLIP 91- 61C	1680	2	1676	18	2206	15	446	18	2424	4
FLIP 91-149C	1221	6	1377	24	2363	12	464	17	1850	15
FLIP 91-219C	893	14	1471	22	1364	21	506	13	2024	12
FLIP 91-220C	1125	10	2591	1	2925	6	592	9	2637	1
FLIP 91-222C	1693	1	2234	6	1269	23	503	14	2300	7
FLIP 82-150C	1169	8	2566	2	1754	20	720	3	2493	2
ILC 482	0	24	2264	5	2368	11	967	1	1441	23
LOCAL CHECK	748	15	2207	7	1028	24	—	—	1705	20
Location Mean	937		1958		2326		557		1997	
S.E. of Mean	180.98		351.61		398.21		120.44		217.04	
Prob. of Significance	.00		.41		.00		.07		.00	
L.S.D. at 5%	515.19		NS		1133.58		NS		617.85	
T.E > L. Check	5		—		16		—		6	
C.V. %	33.44		31.11		29.65		37.45		18.83	

Cont'd. ...

Table 3.2.6 Cont'd. ...

Entry Name	SYRIA		TURKEY					
	Tel Hadya		Izmir (Bornova)		Izmir-2 (Menemen)		Overall Mean	
	Y	R	Y	R	Y	R	Y	R
FLIP 84- 15C	2069	23	2333	13	2333	20	1566	22
FLIP 86- 6C	2535	8	2095	19	2755	8	1619	19
FLIP 88- 82C	2256	20	2175	18	3120	2	1740	12
FLIP 88- 85C	2610	4	2222	17	3454	1	1974	1
FLIP 89- 29C	2559	6	2683	4	2940	6	1956	3
FLIP 89- 38C	2456	11	2738	1	2620	14	1845	9
FLIP 89- 44C	2405	14	2413	12	2704	10	1604	20
FLIP 89- 78C	2282	19	2294	14	2389	18	1634	18
FLIP 90- 45C	2433	12	2238	16	2338	19	1577	21
FLIP 90- 76C	2405	15	2095	19	3102	3	1780	11
FLIP 90- 77C	2340	16	2643	7	2671	11	1690	16
FLIP 90- 96C	2456	10	2071	21	2986	5	1895	5
FLIP 90-179C	2300	18	2492	10	2278	22	1714	14
FLIP 91- 21C	2194	22	2611	9	2537	15	1658	17
FLIP 91- 52C	2512	9	2444	11	2773	7	1847	8
FLIP 91- 60C	2797	2	2667	5	2111	24	1892	6
FLIP 91- 61C	2663	3	2722	2	2662	12	1852	7
FLIP 91-149C	1980	24	1659	23	2120	23	1378	23
FLIP 91-219C	2539	7	2690	3	3079	4	1699	15
FLIP 91-220C	2853	1	2635	8	2736	9	1957	2
FLIP 91-222C	2335	17	2667	6	2435	16	1797	10
FLIP 82-150C	2419	13	2286	15	2657	13	1947	4
ILC 482	2225	21	1762	22	2435	16	1718	13
LOCAL CHECK	2597	5	1651	24	2324	21	—	—
Location Mean	2426		2345		2648			
S.E. of Mean	203.58		223.09		250.55			
Prob. of Significance	.44		.01		.04			
L.S.D. at 5%	NS		635.06		713.24			
T.E > L. Check	—		14		4			
C.V. %	14.53		16.48		16.39			

* The mean has been calculated excluding the locations with incomplete data.

Table 3.2.7. The five heaviest seed yielding entries at the individual locations in the CIYT-W-MR-94.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
ALGERIA	Dahmouni	FLIP 88- 82C	FLIP 91-149C	FLIP 88- 85C	FLIP 82-150C	FLIP 84- 15C
ALGERIA	Khroub	FLIP 89- 29C	FLIP 82-150C	FLIP 84- 15C	FLIP 91-219C	FLIP 91- 60C
ALGERIA	Oued Smar	FLIP 90- 76C	FLIP 86- 6C	FLIP 91-220C	FLIP 91-222C	FLIP 88- 85C
ALGERIA	Setif	FLIP 90- 76C	FLIP 88- 82C	FLIP 90- 77C	FLIP 91-219C	FLIP 90- 45C
CYPRUS	Athalassa	ILC 482	FLIP 88- 85C	FLIP 86- 6C	FLIP 89- 29C	FLIP 88- 82C
ETHIOPIA	Debre Zeit	FLIP 88- 82C	ILC 482	FLIP 90-179C	FLIP 90- 45C	LOCAL CHECK
IRAN	Gorgan	FLIP 91- 52C	FLIP 91- 60C	FLIP 91-222C	FLIP 90- 96C	FLIP 91- 61C
ITALY	Tolentino	FLIP 84- 15C	FLIP 91- 60C	FLIP 91- 52C	FLIP 90- 76C	FLIP 91-220C
JORDAN	Rabba	FLIP 89- 38C	FLIP 88- 85C	LOCAL CHECK	FLIP 91- 52C	FLIP 91-219C
JORDAN	Ramtha	FLIP 91-220C	FLIP 91- 61C	FLIP 82-150C	FLIP 88- 85C	FLIP 90- 77C
LEBANON	Tel Amara	FLIP 90-179C	FLIP 90- 77C	FLIP 89- 38C	LOCAL CHECK	FLIP 91-219C
LEBANON	Terbol	FLIP 89- 29C	ILC 482	FLIP 82-150C	FLIP 89- 38C	FLIP 84- 15C
PORTUGAL	Elvas	FLIP 89- 38C	FLIP 91- 52C	FLIP 91-220C	FLIP 91- 61C	FLIP 90- 96C
SPAIN	Badajoz	FLIP 90- 96C	FLIP 89- 29C	FLIP 88- 85C	FLIP 82-150C	FLIP 91- 52C
SPAIN	Cordoba	FLIP 90- 76C	FLIP 91-220C	FLIP 82-150C	FLIP 89- 29C	FLIP 90- 77C
SPAIN	Valladolid	FLIP 88- 85C	FLIP 91-220C	FLIP 86- 6C	FLIP 90- 96C	FLIP 91- 21C
SYRIA	Al Ghab	FLIP 90- 96C	FLIP 91- 52C	FLIP 82-150C	FLIP 89- 29C	FLIP 89- 38C
SYRIA	Al Jammasah	ILC 482	FLIP 82-150C	FLIP 90- 96C	FLIP 91- 60C	FLIP 91- 52C
SYRIA	Gelline	FLIP 88- 85C	FLIP 89- 29C	FLIP 91-219C	FLIP 88- 82C	FLIP 90- 76C
SYRIA	Hama	ILC 482	FLIP 91-222C	FLIP 88- 85C	FLIP 91- 21C	FLIP 89- 29C
SYRIA	Heimo	FLIP 91-222C	FLIP 91- 61C	FLIP 91- 60C	FLIP 88- 85C	FLIP 88- 82C
SYRIA	Homs	FLIP 91-220C	FLIP 82-150C	FLIP 89- 29C	FLIP 90-179C	ILC 482
SYRIA	Idleb	FLIP 89- 38C	FLIP 88- 85C	FLIP 89- 29C	FLIP 90- 45C	FLIP 90- 96C
SYRIA	Izra'a	ILC 482	FLIP 89- 29C	FLIP 82-150C	FLIP 88- 85C	FLIP 88- 82C
SYRIA	Jindiress	FLIP 91-220C	FLIP 82-150C	FLIP 91- 60C	FLIP 91- 61C	FLIP 89- 29C
SYRIA	Tel Hadya	FLIP 91-220C	FLIP 91- 60C	FLIP 91- 61C	FLIP 88- 85C	LOCAL CHECK
TURKEY	Izmir (Bornova)	FLIP 89- 38C	FLIP 91- 61C	FLIP 91-219C	FLIP 89- 29C	FLIP 91- 60C
TURKEY	Izmir-2 (Menemen)	FLIP 88- 85C	FLIP 88- 82C	FLIP 90- 76C	FLIP 91-219C	FLIP 90- 96C

Table 3.2.8. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in CIYT-W-MR conducted during 1992/93 and 1993/94.

Entry Name	1992/93		1993/94		Mean	
	y	R	y	R	y	R
FLIP 84-15C	2240	7	1566	10	1903	9
FLIP 86- 6C	2268	6	1619	8	1944	7
FLIP 88-85C	2397	2	1974	1	2186	2
FLIP 89-29C	2383	3	1956	2	2170	3
FLIP 89-38C	2276	5	1845	4	2061	4
FLIP 89-44C	2183	9	1604	9	1894	10
FLIP 89-78C	2291	4	1634	7	1963	6
FLIP 90-76C	2232	8	1780	5	2006	5
FLIP 90-96C	2486	1	1895	3	2191	1
ILC 482	2163	10	1718	6	1941	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.

Twenty sets of trial were distributed to cooperators in 12 countries and the results were returned for 4 sets covering 3 countries. The agronomic practices employed at different locations are shown in Table 3.3.1.

Results and Discussion

Mean for time to flowering, time to maturity, plant height, and 100-seed weight are compiled in Tables 3.3.2, 3.3.3, 3.3.4 and 3.3.5, respectively. The entry mean for time to flowering, time to maturity, and plant height ranged from 87 to 101 days; 141 to 147 days; and 41 to 56 cm, respectively. ILC 482 and FLIP 88-79C were earliest to flower.

The mean plant height for the entries over locations revealed that the entry FLIP 91-30C was the tallest (56 cm) and was closely followed by FLIP 91-150C (55 cm). The 100-seed weight for entries varied from 28 g to 38 g.

Table 3.3.1. Agronomic details of entries in CIYT-SL1-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
China						
Shanxi	08.04.94	-	-	-	-	Azff
India						
Ludhiana	10.11.93	07.05.94	15/20/-	-	Thiodan	L500& GLK88012
New Delhi	18.11.93	27.04.94	20/40/-	-	Thiodan	Pusa 267
Syria						
Tel Hadya	15.12.93	10.06.94	-/50/-	-	Kerb + Igran	Ghabl

The ANOVA of the seed yield revealed that at none of the southern latitudes locations the test entries significantly exceeded the respective local check but at Tel Hadya in Syria, 15 entries, 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 entry FLIP 90-14C occurred most frequently among the top five heaviest yielders and was relatively more stable.

On the basis of common entries over two years (Table 3.3.8), FLIP 90-62C ranked number 1 and was followed by FLIP 90-14C, FLIP 90-63C, FLIP 90-27C, and FLIP 82-150C, respectively.

Table 3.3.2 Time to flowering (days) of entries in the CIYT-SLI-94 conducted at different locations.

Entry Name	Pedigree	Origin	CHINA	INDIA		SYRIA	Overall Mean
			Shanxi	Ludhiana	New Delhi	Tel Hadya	
FLIP88-79C	X85TH278/ILC3843 X FLIP83-13C	ICARDA/ICRISAT	55	95	84	113	97
FLIP88-84C	X85TH211/ILC2371 X FLIP82-144C	ICARDA/ICRISAT	54	106	88	118	92
FLIP88-86C	X86TH79/ILC493 X FLIP82-150C	ICARDA/ICRISAT	60	114	89	119	96
FLIP88-87C	X86TH79/ILC493 X FLIP82-150C	ICARDA/ICRISAT	57	112	97	120	97
FLIP89-47C	X87TH57/FLIP83-104C X FLIP84-79C	ICARDA/ICRISAT	60	114	97	126	99
FLIP90-14C	X86TH29/ILC262 X FLIP82-150C	ICARDA/ICRISAT	58	109	92	118	94
FLIP90-27C	X86TH276/ILC1919 X FLIP82-127C X FLIP84-18C	ICARDA/ICRISAT	58	102	92	115	92
FLIP90-62C	X86TH32/ILC1919 X FLIP81-293C	ICARDA/ICRISAT	60	107	94	121	96
FLIP90-63C	X86TH34/ILC1919 X FLIP82-150C	ICARDA/ICRISAT	60	114	89	118	95
FLIP90-85C	X86TH148/FLIP84-46C X ILC3870	ICARDA/ICRISAT	64	113	95	121	98
FLIP90-94C	X87TH20/ILC576 X FLIP84-93C	ICARDA/ICRISAT	60	113	93	119	96
FLIP90-100C	X87TH34/FLIP83-15C X FLIP84-109C	ICARDA/ICRISAT	60	116	93	123	98
FLIP91-9C	X87TH6/FLIP81-293C X FLIP83-47C	ICARDA/ICRISAT	60	112	92	121	96
FLIP91-10C	X87TH9/FLIP81-293C X FLIP84-79C	ICARDA/ICRISAT	59	110	95	122	97
FLIP91-29C	X87TH9/FLIP81-293C X FLIP84-79C	ICARDA/ICRISAT	59	114	96	123	98
FLIP91-30C	X87TH9/FLIP81-293C X FLIP84-79C	ICARDA/ICRISAT	62	115	97	123	99
FLIP91-33C	X87TH34/FLIP83-15C X FLIP84-109C	ICARDA/ICRISAT	58	104	87	117	92
FLIP91-41C	X87TH192/ICC14212 X FLIP83-98C	ICARDA/ICRISAT	58	115	91	118	96
FLIP91-150C	X87TH318/(BE.SEL.81-41C X FLIP81-79C) X FLIP85	ICARDA/ICRISAT	62	116	98	129	101
FLIP91-157C	X87TH144/FLIP85-18C X ILC482	ICARDA/ICRISAT	58	117	85	123	96
FLIP91-190C	X87TH108/FLIP85-1C X FLIP84-91C	ICARDA/ICRISAT	63	90	92	126	93
FLIP82-150C	X79TH101/ILC523 X ILC183	ICARDA/ICRISAT	57	111	97	119	96
ILC 482			57	92	85	115	87
Local Check			42	79	85	129	-
Location Mean			58	108	92	121	
S.E. of Mean			0	0		0	
Prob. of Significance			.00	.00		.00	
L.S.D. at 5%			1	0		1	
C.V. %			1	0	One Rep.	1	

Table 3.3.3 Time to maturity (days) of entries in the CIYT-SL1-94 conducted at different locations.

Entry Name	CHINA	INDIA		SYRIA	Overall Mean
	Shanxi	Ludhiana	New Delhi	Tel Hadya	
FLIP88-79C	101	159	138	166	141
FLIP88-84C	102	165	145	170	145
FLIP88-86C	106	162	145	168	145
FLIP88-87C	105	165	147	170	147
FLIP89-47C	107	162	145	170	146
FLIP90-14C	106	166	143	167	145
FLIP90-27C	103	159	142	166	143
FLIP90-62C	108	161	139	170	144
FLIP90-63C	106	153	147	169	144
FLIP90-85C	111	157	145	168	145
FLIP90-94C	108	165	146	168	147
FLIP90-100C	107	163	141	170	145
FLIP91-9C	108	162	140	170	145
FLIP91-10C	105	162	138	170	144
FLIP91-29C	105	162	147	170	146
FLIP91-30C	108	163	139	170	145
FLIP91-33C	104	160	139	168	143
FLIP91-41C	104	156	140	170	143
FLIP91-150C	108	161	147	170	146
FLIP91-157C	103	163	138	170	143
FLIP91-190C	109	158	145	170	146
FLIP82-150C	105	156	148	169	144
ILC 482	105	169	142	166	146
Local Check	-	160	132	172	-
Location Mean	106	161	142	169	
S.E. of Mean	0	-		1	
Prob. of Significance	.00	.00		.00	
L.S.D. at 5%	1	-		2	
C.V. %	1	0	One Rep.	1	

Table 3.3.4 Plant height (cm) of entries in the CIYT-SLI-94 conducted at different locations.

Entry Name	CHINA	INDIA		SYRIA	Overall Mean
	Shanxi	Ludhiana	New Delhi	Tel Hadya	
FLIP88-79C	42	69	21	49	45
FLIP88-84C	37	77	19	52	46
FLIP88-86C	48	71	19	58	49
FLIP88-87C	41	71	21	59	48
FLIP89-47C	50	72	24	65	53
FLIP90-14C	49	72	20	52	48
FLIP90-27C	44	52	19	51	41
FLIP90-62C	50	55	22	58	46
FLIP90-63C	45	72	23	55	49
FLIP90-85C	47	76	19	52	49
FLIP90-94C	46	70	20	55	48
FLIP90-100C	49	70	22	60	50
FLIP91-9C	50	75	22	58	51
FLIP91-10C	44	66	21	57	47
FLIP91-29C	52	71	22	57	51
FLIP91-30C	49	97	21	56	56
FLIP91-33C	46	77	20	56	50
FLIP91-41C	44	63	18	55	45
FLIP91-150C	62	55	30	75	55
FLIP91-157C	46	72	18	65	50
FLIP91-190C	54	66	25	52	49
FLIP82-150C	51	62	22	56	48
ILC 482	46	77	21	49	48
Local Check	-	79	16	72	-
Location Mean	47	70	21	57	
S.E. of Mean	1	1	3	1	
Prob. of Significance	.00	.00	.48	.00	
L.S.D. at 5%	2	2	NS	4	
C.V. %	2	2	22	4	

Table 3.3.5 100-Seed weight (g) of entries in the CIYT-SL1-94 conducted at different locations.

Entry Name	CHINA	INDIA		SYRIA	Overall Mean
	Shanxi	Ludhiana	New Delhi	Tel Hadya	
FLIP88-79C	31	38	34	35	35
FLIP88-84C	26	40	26	30	30
FLIP88-86C	25	37	27	29	30
FLIP88-87C	25	46	28	31	33
FLIP89-47C	33	43	35	40	38
FLIP90-14C	25	42	27	29	31
FLIP90-27C	35	41	34	33	36
FLIP90-62C	36	36	33	36	35
FLIP90-63C	25	37	28	27	29
FLIP90-85C	28	42	29	32	33
FLIP90-94C	27	48	35	36	36
FLIP90-100C	30	40	35	32	34
FLIP91-9C	28	42	31	32	33
FLIP91-10C	33	38	32	36	35
FLIP91-29C	28	42	32	33	34
FLIP91-30C	30	20	31	32	28
FLIP91-33C	36	32	37	35	35
FLIP91-41C	33	43	31	32	35
FLIP91-150C	35	45	35	38	38
FLIP91-157C	29	39	19	38	31
FLIP91-190C	29	21	29	33	28
FLIP82-150C	25	41	27	29	31
ILC 482	25	42	31	30	32
Local Check	-	57	19	31	-
Location Mean	29	40	30	33	
S.E. of Mean	-	2		1	
Prob. of Significance	.00	.00		.00	
L.S.D. at 5%	-	7		4	
C.V. %	0	10	One Rep.	7	

Table 3.3.6 Seed yield (Y=kg/ha) and rank (R) of entries in the CIYT-SL1-94 conducted at different locations.

Entry Name	CHINA		INDIA				SYRIA		Overall Mean	
	Shanxi		Ludhiana		New Delhi		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP88-79C	3347	7	868	22	1694	5	2234	18	2036	7
FLIP88-84C	2479	17	1142	14	1056	15	2473	7	1787	16
FLIP88-86C	2219	20	1354	10	778	19	2408	8	1690	22
FLIP88-87C	1944	22	1111	16	722	20	2322	17	1525	23
FLIP89-47C	3257	9	903	19	500	24	2323	16	1746	18
FLIP90-14C	2507	15	1667	3	2028	2	2598	3	2200	2
FLIP90-27C	2235	19	2014	1	1750	4	2513	6	2128	4
FLIP90-62C	4556	1	1493	6	1472	8	2752	1	2568	1
FLIP90-63C	2594	14	1528	5	1778	3	2331	15	2058	5
FLIP90-85C	3460	5	1111	18	1000	16	2200	20	1943	12
FLIP90-94C	2494	16	1215	11	1167	14	2640	2	1879	14
FLIP90-100C	3863	3	868	21	1167	13	2038	22	1984	9
FLIP91-9C	2657	13	1215	12	1222	12	2401	9	1874	15
FLIP91-10C	3089	11	1111	16	1444	9	2577	4	2055	6
FLIP91-29C	3307	8	1563	4	1417	11	2382	12	2167	3
FLIP91-30C	2397	18	1389	9	1500	7	2369	13	1914	13
FLIP91-33C	3028	12	1111	15	1528	6	2390	10	2014	8
FLIP91-41C	4213	2	521	24	694	21	2390	11	1954	11
FLIP91-150C	3572	4	903	20	556	23	1936	24	1742	19
FLIP91-157C	3247	10	729	23	639	22	2221	19	1709	21
FLIP91-190C	3355	6	1424	8	889	18	2168	21	1959	10
FLIP82-150C	2175	21	1146	13	1000	17	2563	5	1721	20
ILC 482	1834	23	1493	6	1444	9	2360	14	1783	17
Local Check	—	—	1736	2	2222	1	2005	23	—	—
Location Mean	2949		1234		1236		2358			
S.E. of Mean	141.83		195.04		127.08		112.58			
Prob. of Significance	.00		.00		.00		.00			
L.S.D. at 5%	404.24		555.20		361.75		320.47			
T.E > L. Check	—		0		0		15			
C.V. %	8.33		27.38		17.81		8.27			

Table 3.3.7. The five heaviest seed yielding entries at the individual locations in the CIYT-SL1-94.

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
China					
Shanxi	FLIP90-62C	FLIP91-41C	FLIP90-100C	FLIP91-150C	FLIP90-85C
India					
Ludhiana	FLIP90-27C	Local check	FLIP90-14C	FLIP91-29C	FLIP90-63C
New Delhi	Local check	FLIP90-14C	FLIP90-63C	FLIP90-27C	FLIP88-79C
Syria					
Tel Hadya	FLIP90-62C	FLIP90-94C	FLIP90-14C	FLIP91-10C	FLIP82-150C

Table 3.3.8. The mean seed yield (Y=kg/ha) and rank (R) of the common entries in CIYT-SL1 conducted during 1992/93 and 1993/94.

Entry Name	1992/93		1993/94		Mean	
	y	R	y	R	y	R
FLIP 88-79C	638	10	2036	5	1337	8
FLIP 88-84C	764	9	1787	6	1276	10
FLIP 88-86C	1090	2	1690	10	1390	6
FLIP 88-87C	1237	1	1525	11	1381	7
FLIP 89-47C	590	11	1746	8	1168	11
FLIP 90-14C	1005	5	2200	2	1603	2
FLIP 90-27C	844	7	2128	3	1486	4
FLIP 90-62C	1005	5	2568	1	1787	1
FLIP 90-63C	1012	4	2058	4	1535	3
FLIP 82-150C	1087	3	1721	9	1404	5
ILC 482	775	8	1783	7	1279	9

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.

Twenty sets of trial were distributed to cooperators in 12 countries and the results were returned for 11 sets covering 7 countries. The agronomic practices employed at different locations are given in Table 3.4.1.

Table 3.4.1. Agronomic details of entries in CIYT-SL2-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Canada						
Saskatoon	25.05.94	07.10.94	-	-	-	UC-27
China						
Shanxi	19.05.94	22.09.94	-	-	-	Jinyuen19
Ethiopia						
Ghinchie	25.08.94	-	-	-	-	Marieye
India						
Gujarat	08.12.93	19.04.94	20/40/-	-	Endosulfan, Monoclorophos	ICCC-4
Kanpur	22.11.93	07.04.94	20/40/-	-	-	L550
Ludhiana	10.11.93	07.05.94	15/20/-	-	Thiodan 35EC	L550 & CHK 88012
New Delhi	18.11.93	26.04.94	20/40/-	-	Metasystox, Thiodan	Pusa 267
Qatar						
Rawdat- Harma	02.11.93	07.04.94	90/150/-	-	-	-
Sudan						
Hudeiba	19.11.93	10.03.94	43/-/-	-	Folimat	Shendi
Shendi	27.11.93	16.03.94	43/-/-	-	Diazinon	Shendi
Syria						
Tel Hadya	15.12.93	10.06.94	-/50/-	-	Kerb + Igran	Ghab 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 64 days (for FLIP 91-88C) to 81 days (for FLIP 90-12C), from 129 days to 138 days for time to maturity, 55 cm to 72 cm for plant height, and from 25 g to 35 g for 100-seed weight.

The seed yields at different locations are given in Table 3.4.6. On an average over locations the five best entries included FLIP 90-126C, FLIP 88-42C, FLIP 90-125C, FLIP 89-82C, and FLIP 88-66C and gave seed yield of 2375, 2362, 2321, 2312 and 2265 kg/ha, respectively. The five heaviest seed yielding entries at individual locations are given in Table 3.4.7.

On the basis of average seed yields of common entries over two years, FLIP 89-82C ranked number 1 and was followed by FLIP 88-39C, FLIP 88-42C, FLIP 89-120C and FLIP 88-66C (Table 3.4.8).

Table 3.4.2 Time to flowering (days) of entries in the CIYT-SL2-94 conducted at different locations.

Entry Name	Pedigree	Origin	CHINA	ETHIOPIA	INDIA	
			Shanxi	Ghinchie	Gujarat	Kanpur
FLIP88-34C	X85TH248/ILC3398 X FLIP83-13C	ICARDA/ICRISAT	30	62	58	81
FLIP88-39C	X85TH255/ILC3713 X FLIP82-59C	ICARDA/ICRISAT	31	71	57	72
FLIP88-42C	X85TH230/ILC3395 X FLIP83-13C	ICARDA/ICRISAT	31	61	57	84
FLIP88-47C	X85TH233/ILC3396 X ILC187	ICARDA/ICRISAT	32	59	54	71
FLIP88-56C	X85TH229/ILC3395 X FLIP82-243C	ICARDA/ICRISAT	32	64	54	81
FLIP88-66C	X85TH248/ILC3398 X FLIP83-13C	ICARDA/ICRISAT	29	69	55	65
FLIP89-82C	X87TH186/ICC14198 X FLIP82-150C	ICARDA/ICRISAT	31	61	54	69
FLIP89-117C	X85TH65/(ILC4297 X FLIP82-64C) X ILC2380	ICARDA/ICRISAT	31	71	56	78
FLIP89-120C	X85TH223/ILC3326 X FLIP82-59C	ICARDA/ICRISAT	32	61	57	69
FLIP90-12C	X87TH317/(PL SEL BE 81-40 X ILC195) X FLIP84-46C	ICARDA/ICRISAT	31	84	70	75
FLIP90-28C	X86TH279/(ILC1919 X FLIP82-191C) X FLIP84-18C	ICARDA/ICRISAT	33	60	70	84
FLIP90-71C	X86TH141/FLIP84-46C X ILC482	ICARDA/ICRISAT	35	72	66	85
FLIP90-125C	X88TH346/(ICC14212 X FLIP82-150C) X ICC14212	ICARDA/ICRISAT	34	70	58	86
FLIP90-126C	X88TH346/(ICC14212 X FLIP82-150C) X ICC14212	ICARDA/ICRISAT	30	80	57	85
FLIP90-163C	X86TH137/FLIP84-48C X ILC4293	ICARDA/ICRISAT	30	69	54	62
FLIP90-182C	X87TH290/(ILC263 X FLIP82-150C) X ILC263	ICARDA/ICRISAT	35	84	69	87
FLIP91-35C	X87TH119/FLIP85-4C X FLIP84-78C	ICARDA/ICRISAT	33	71	63	85
FLIP91-75C	X88TH348/(ICC14212 X FLIP83-98C) X ICC14212	ICARDA/ICRISAT	31	65	56	71
FLIP91-88C	X89TH26/ILC3777 X ILC482	ICARDA/ICRISAT	30	62	54	60
FLIP91-142C	X87TH32/FLIP83-7C X FLIP84-109C	ICARDA/ICRISAT	33	82	70	84
FLIP91-193C	X87TH189/ICC14212 X FLIP84-78C	ICARDA/ICRISAT	34	71	63	75
FLIP82-150C	X79TH101/ILC523 X ILC183	ICARDA/ICRISAT	32	95	70	81
ILC 482			31	65	64	87
Local Check			35	62	56	81
Location Mean			32	70	60	78
S.E. of Mean			2	7	1	6
Prob. of Significance			.82	.09	.00	.01
L.S.D. at 5%			NS	NS	2	16
C.V. %			12	18	3	12

Cont'd. ...

Entry Name	INDIA		QATAR	SUDAN		SYRIA	Overall Mean
	Ludhiana	New Delhi	Rawdat Harma	Hudeiba	Shendi	Tel Hadya	
FLIP88-34C	97	78	52	43	48	111	69
FLIP88-39C	85	77	48	41	43	108	66
FLIP88-42C	88	80	52	40	44	109	67
FLIP88-47C	96	76	51	39	48	108	66
FLIP88-56C	93	75	50	44	48	108	67
FLIP88-66C	90	78	48	43	42	107	65
FLIP89-82C	92	80	48	41	42	108	65
FLIP89-117C	96	77	48	43	45	109	68
FLIP89-120C	92	78	48	41	43	109	66
FLIP90-12C	108	73	81	-	77	125	81
FLIP90-28C	102	73	73	68	62	117	75
FLIP90-71C	105	75	75	53	69	121	78
FLIP90-125C	98	74	60	56	53	108	71
FLIP90-126C	90	75	63	58	55	111	72
FLIP90-163C	93	84	49	42	48	108	66
FLIP90-182C	104	74	73	-	64	118	79
FLIP91-35C	105	82	73	-	59	118	77
FLIP91-75C	87	78	51	-	44	112	66
FLIP91-88C	93	82	48	56	43	107	64
FLIP91-142C	110	74	78	-	69	120	80
FLIP91-193C	99	80	63	56	56	118	73
FLIP82-150C	107	74	77	-	69	118	80
ILC 482	104	80	64	58	51	114	73
Local Check	85	82	-	41	44	129	-
Location Mean	97	77	60	48	53	114	
S.E. of Mean	-		1	0	3	1	
Prob. of Significance	.00		.00	.00	.00	.00	
L.S.D. at 5%	-		4	1	8	4	
C.V. %	0	One Rep.	4	1	9	2	

* The mean has been calculated excluding the locations with incomplete data.

Table 9.4.3 Time to maturity (days) of entries in the CIYT-SL2-94 conducted at different locations.

Entry Name	CHINA	ETHIOPIA	INDIA		QATAR		SUDAN	SUDAN	SYRIA	Overall Mean	
	Shanxi	Ghinchie	Gujarat	Kanpur	Ludhiana	New Delhi	Rawdat Harma	Hudeiba	Shendi		Tel Hadya
FLIP88-34C	124	152	106	127	156	136	129	100	91	168	132
FLIP88-39C	124	152	104	126	161	130	129	89	88	165	131
FLIP88-42C	124	151	105	127	154	137	134	102	88	169	132
FLIP88-47C	124	150	103	124	150	130	126	100	91	165	129
FLIP88-56C	124	151	104	139	153	136	128	101	95	167	133
FLIP88-66C	124	150	103	126	154	136	132	100	90	167	131
FLIP89-82C	124	152	105	127	162	132	129	100	85	164	131
FLIP89-117C	124	150	106	126	155	137	127	103	93	166	132
FLIP89-120C	124	152	105	127	155	132	129	99	86	165	131
FLIP90-12C	124	154	113	129	148	146	141	-	103	168	136
FLIP90-28C	124	153	115	127	154	147	139	107	99	165	136
FLIP90-71C	124	151	115	127	151	139	139	100	104	168	135
FLIP90-125C	124	150	108	126	151	146	135	103	99	167	134
FLIP90-126C	124	152	106	128	149	136	136	103	97	167	133
FLIP90-163C	124	151	102	126	157	137	132	100	88	167	132
FLIP90-182C	124	152	114	126	150	141	149	-	104	168	137
FLIP91-35C	124	151	111	134	148	145	144	-	101	168	136
FLIP91-75C	124	151	106	127	153	136	128	-	87	166	131
FLIP91-88C	124	150	102	126	149	130	128	99	88	166	129
FLIP91-142C	124	150	116	126	151	147	144	-	104	175	137
FLIP91-193C	124	151	111	127	151	139	135	102	94	167	133
FLIP82-150C	124	154	115	130	151	147	150	-	101	168	138
ILC 482	124	151	111	127	151	142	137	100	99	166	134
Local Check	114	150	107	124	155	139	-	106	92	173	-
Location Mean	124	151	108	128	153	138	135	101	94	167	
S.E. of Mean	-	1	1	3	-	Rep.	3	3	2	1	
Prob. of Significance	.00	.09	.00	.65	.00	One	.00	.06	.00	.00	
L.S.D. at 5%	-	NS	3	NS	-	One	10	NS	7	2	
C.V. %	0	1	1	5	0	One	4	4	4	1	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.4.4 Plant height (cm) of entries in the CIYT-SL2-94 conducted at different locations.

Entry Name	CHINA	ETHIOPIA			INDIA		QATAR	SUDAN	SYRIA	Overall Mean
	Shanxi	Ghinchie	Gujarat	Kanpur	Ludhiana	New Delhi	Rawdat Harma	Shendi	Tel Hadya	
FLIP88-34C	82	26	42	57	53	65	67	60	45	55
FLIP88-39C	69	35	54	56	62	60	72	63	50	58
FLIP88-42C	79	36	50	65	48	63	78	61	48	59
FLIP88-47C	112	21	50	58	65	55	58	65	47	59
FLIP88-56C	100	26	50	51	58	70	72	68	51	61
FLIP88-66C	90	29	51	57	66	61	72	64	47	60
FLIP89-82C	76	26	49	59	61	60	67	65	47	57
FLIP89-117C	95	28	57	57	48	73	85	62	50	62
FLIP89-120C	97	30	59	63	62	69	72	67	49	63
FLIP90-12C	70	30	54	55	69	62	75	65	55	59
FLIP90-28C	84	45	52	58	56	62	72	62	49	60
FLIP90-71C	47	39	48	60	59	63	77	66	59	58
FLIP90-125C	86	32	43	52	66	62	63	68	47	58
FLIP90-126C	73	39	52	55	54	62	75	58	51	58
FLIP90-163C	72	23	49	67	69	70	73	63	55	60
FLIP90-182C	115	61	48	58	54	62	80	64	53	66
FLIP91-35C	95	38	50	71	84	73	92	57	60	69
FLIP91-75C	97	33	53	54	59	61	58	62	46	58
FLIP91-88C	61	35	42	62	49	63	67	66	48	55
FLIP91-142C	98	37	57	72	75	87	88	69	63	72
FLIP91-193C	63	28	44	76	68	78	82	62	57	62
FLIP82-150C	95	57	41	60	60	73	77	62	56	65
ILC 482	78	35	48	58	57	51	72	66	49	57
Local Check	97	24	43	53	57	60	-	65	68	-
Location Mean	85	34	49	60	61	65	74	64	52	-
S.E. of Mean	3	5	1	3	0		5	5	2	
Prob. of Significance	.00	.00	.00	.00	.00	One Rep.	.01	.99	.00	
L.S.D. at 5%	9	15	3	9	0		15	NS	5	
C.V. %	6	27	3	10	0	One	13	14	5	

Table 3.4.5 100-Seed weight (g) of entries in the CIYT-SL2-94 conducted at different locations.

Entry Name	CHINA	ETHIOPIA	INDIA		QATAR		SUDAN	SYRIA	Overall Mean	
	Shanxi	Ghinchie	Gujarat	Kanpur	Ludhiana	New Delhi	Rawdat Harma	Shendi		Tel Hadya
FLIP88-34C	23	34	30	30	31	36	26	29	37	31
FLIP88-39C	23	36	33	26	38	35	35	33	39	33
FLIP88-42C	23	38	36	25	35	36	26	30	38	32
FLIP88-47C	23	40	30	33	31	36	26	31	37	32
FLIP88-56C	24	33	36	34	34	41	25	35	40	33
FLIP88-66C	23	39	23	31	30	39	31	34	42	33
FLIP89-82C	23	39	34	25	32	35	32	31	35	32
FLIP89-117C	23	35	34	25	36	38	28	35	37	33
FLIP89-120C	23	39	32	31	37	40	32	32	40	34
FLIP90-12C	23	39	32	27	32	38	28	31	39	32
FLIP90-28C	23	33	33	25	33	38	29	33	38	32
FLIP90-71C	23	37	34	25	30	35	24	26	34	30
FLIP90-125C	23	27	31	15	26	30	25	22	28	25
FLIP90-126C	23	34	32	20	31	36	24	27	34	29
FLIP90-163C	23	37	29	24	30	39	32	32	38	32
FLIP90-182C	23	40	33	20	30	35	24	30	38	30
FLIP91-35C	23	38	36	35	35	40	25	34	40	34
FLIP91-75C	23	33	38	25	29	33	29	27	32	30
FLIP91-88C	23	38	31	30	36	33	31	32	41	33
FLIP91-142C	23	36	34	20	34	33	25	31	37	31
FLIP91-193C	23	45	27	25	37	46	35	37	43	35
FLIP82-150C	23	30	35	15	23	27	21	23	29	25
ILC 482	23	30	28	21	21	28	21	24	30	25
Local Check	23	25	15	19	21	17	-	19	30	-
Location Mean	23	36	32	25	31	35	28	30	37	
S.E. of Mean	0	1	1	1	0			1	1	
Prob. of Significance	.00	.00	.00	.00	.00			.00	.00	
L.S.D. at 5%	0	4	2	3	0			3	2	
C.V. %	0	6	4	6	1			7	4	

Table 3.4.6 Seed yield (Y=kg/ha) and rank (R) of entries in the CIYT-SL2-94 conducted at different locations.

Entry Name	CANADA		CHINA		ETHIOPIA		INDIA			
	Saskatoon		Shanxi		Ghinchie		Gujarat		Kanpur	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP88-34C	3966	4	2396	19	510	21	1687	6	822	19
FLIP88-39C	3427	15	2188	21	449	22	1238	15	1253	4
FLIP88-42C	3538	13	2708	14	1384	2	1864	2	1153	9
FLIP88-47C	3365	18	3229	2	402	23	1242	13	774	20
FLIP88-56C	3237	20	3125	3	316	24	1184	17	979	16
FLIP88-66C	4006	3	2917	9	881	13	1857	3	1001	13
FLIP89-82C	3235	21	2292	20	1105	5	1741	4	851	17
FLIP89-117C	3602	11	3021	7	716	16	1197	16	1442	2
FLIP89-120C	3515	14	2917	9	756	15	1333	10	1177	7
FLIP90-12C	3811	5	2604	15	1033	7	844	23	628	23
FLIP90-28C	3668	8	2917	9	1017	8	1156	18	1001	14
FLIP90-71C	4185	2	1771	24	1097	6	993	20	1031	11
FLIP90-125C	3752	6	2813	12	1289	3	1551	8	1112	10
FLIP90-126C	3200	22	2500	16	822	14	1429	9	1448	1
FLIP90-163C	3309	19	2500	16	617	20	1075	19	1017	12
FLIP90-182C	3570	12	3281	1	905	12	952	21	747	21
FLIP91-35C	3667	9	2500	16	963	10	884	22	847	18
FLIP91-75C	3649	10	3021	5	663	18	1238	14	1251	5
FLIP91-88C	2951	24	2153	22	925	11	1633	7	1240	6
FLIP91-142C	3414	16	2969	8	630	19	816	24	540	24
FLIP91-193C	3372	17	1979	23	681	17	1293	12	986	15
FLIP82-150C	3675	7	3021	5	1111	4	1333	11	740	22
ILC 482	4206	1	2812	13	1002	9	1687	5	1157	8
Local Check	3000	23	3021	4	2648	1	2190	1	1424	3
Location Mean	3555		2694		913		1351		1026	
S.E. of Mean	311.77		74.88		183.53		153.96		142.20	
Prob. of Significance	.36		.00		.00		.00		.00	
L.S.D. at 5%	NS		213.15		522.46		438.26		404.79	
T.E > L. Check	—		1		0		0		0	
C.V. %	15.19		4.81		34.80		19.74		24.01	

Cont'd. ...

Table 3.4.6 Cont'd.

Entry Name	INDIA		QATAR		SUDAN		SYRIA		Overall Mean					
	Ludhiana		New Delhi		Rawdat Harma		Hudeiba		Shendi		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP88-34C	87	23	1556	18	3589	19	275	16	1262	16	2421	15	1829	19
FLIP88-39C	1493	6	2111	5	5000	9	743	11	1813	11	2768	3	2174	9
FLIP88-42C	1285	9	1833	11	5178	5	1100	3	2317	5	2359	18	2362	2
FLIP88-47C	90	22	1778	12	2906	23	844	6	1806	12	2141	22	1773	21
FLIP88-56C	833	11	2056	6	3494	21	994	4	2238	8	2414	16	1988	13
FLIP88-66C	694	15	1917	9	4867	11	990	5	2071	10	2439	14	2265	5
FLIP89-82C	1701	3	1972	8	4917	10	750	10	2845	3	2456	13	2312	4
FLIP89-117C	833	12	1639	16	3144	22	800	7	2357	4	2293	19	2024	12
FLIP89-120C	1319	8	1694	15	4433	13	1130	2	2298	6	2283	20	2173	10
FLIP90-12C	816	13	1306	20	4289	15	—	—	655	19	2509	12	1949	18
FLIP90-28C	1493	7	1833	10	5172	6	252	17	837	17	3113	2	2221	7
FLIP90-71C	524	16	2139	4	4311	14	605	12	770	18	2520	11	1934	16
FLIP90-125C	1563	5	1500	19	5200	4	776	9	1710	13	2719	4	2321	3
FLIP90-126C	1875	2	2167	3	5494	2	428	14	1675	14	3145	1	2375	1
FLIP90-163C	1563	4	1722	14	5067	8	409	15	2163	9	2023	23	2105	11
FLIP90-182C	250	19	861	23	4039	16	—	—	353	24	2616	6	1757	22
FLIP91-35C	1181	10	1194	21	3583	20	—	—	587	20	2604	7	1801	20
FLIP91-75C	212	20	2278	2	4583	12	—	—	2921	2	2546	8	2236	6
FLIP91-88C	38	24	2444	1	5670	1	794	8	2290	7	2531	9	2188	8
FLIP91-142C	694	14	500	24	3761	18	—	—	393	22	2156	21	1587	23
FLIP91-193C	330	17	1722	13	5339	3	239	10	1302	15	2360	17	1936	15
FLIP82-150C	142	21	944	22	5078	7	—	—	435	21	2653	5	1913	17
ILC 482	316	18	1639	17	3956	17	455	13	389	23	2529	10	1969	14
Local Check	1944	1	1972	7	—	—	1131	1	2960	1	1807	24	—	—
Location Mean	887		1699		4482		706		1602		2475			
S.E. of Mean	204.00		178.50		629.50		213.07		229.82		189.61			
Prob. of Significance	.00		.00		.09		.08		.00		.00			
L.S.D. at 5%	580.72		508.12		1794.17		NS		654.21		539.76			
T.E > L. Check	0		0		—		—		0		10			
C.V. %	39.85		18.20		24.33		42.66		24.85		13.27			

* The mean has been calculated excluding the locations with incomplete data.

Table 3.4.7. The five heaviest seed yielding entries at the individual locations in the CIYT-SL2-94.

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Canada					
Saskatoon	ILC 482	FLIP90-71C	FLIP88-66C	FLIP88-34C	FLIP90-12C
China					
Shanxi	FLIP90-182C	FLIP88-47C	FLIP88-56C	Local check	FLIP82-150C FLIP91-75C
Ethiopia					
Ghinchie	Local check	FLIP88-42C	FLIP90-125C	FLIP82-150C	FLIP89-82C
India					
Gujarat	Local check	FLIP88-42C	FLIP88-66C	FLIP89-82C	ILC 482
Kanpur	FLIP90-126C	FLIP89-117C	Local check	FLIP88-39C	FLIP91-75C
Ludhiana	Local check	FLIP90-126C	FLIP89-82C	FLIP90-163C	FLIP90-125C
New Delhi	FLIP91-88C	FLIP91-75C	FLIP90-126C	FLIP90-71C	FLIP88-39C
Qatar					
Rawdat Harma	FLIP91-88C	FLIP90-126C	FLIP91-193C	FLIP90-125C	FLIP88-42C
Sudan					
Hudeiba	Local check	FLIP89-120C	FLIP88-42C	FLIP88-56C	FLIP88-66C
Shendi	Local check	FLIP91-75C	FLIP89-82C	FLIP89-117C	FLIP88-42C
Syria					
Tel Hadya	FLIP90-126C	FLIP90-28C	FLIP88-93C	FLIP90-125C	FLIP82-150C

Table 3.4.8. The mean seed yield (Y=kg/ha) and rank (R) of the common entries in CIYT-SL2 conducted during 1992/93 and 1993/94.

Entry Name	1992/93		1993/94		Mean	
	y	R	y	R	y	R
FLIP 88-34C	1354	4	1829	10	1592	8
FLIP 88-39C	1749	2	2174	4	1962	2
FLIP 88-42C	1318	6	2362	1	1840	3
FLIP 88-47C	1140	9	1773	11	1457	11
FLIP 88-56C	1294	7	1988	8	1641	7
FLIP 88-66C	1129	10	2265	3	1697	5
FLIP 89-82C	1801	1	2312	2	2057	1
FLIP 89-117C	1329	5	2024	7	1677	6
FLIP 89-120C	1384	3	2173	5	1779	4
FLIP 90-163C	1050	11	2105	6	1578	10
ILC 482	1199	8	1969	9	1584	9

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

Material

The Chickpea International Yield Trial-Latin America comprised of 23 test entries and one local check which was to be added by the cooperator. Twelve 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.

Twenty one sets of trial were sent to cooperators in 15 countries. The results were, however, received for 7 trials from 6 countries. The agronomic information received from the cooperators is given in Table 3.5.1.

Table 3.5.1. Agronomic details of entries in CIYT-LA-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Canada						
Saskatoon	14.05.94	21.10.94	-	-	-	VC-27
India						
Ludhiana	17.11.93	04.05.94	15/20/-	-	Thiodan	L550
New Delhi	18.11.93	26.04.94	20/40/-	-	Metasystox, Thiodan	Pusa 267
New Zealand						
Lincoln	01.10.93	02.04.94	-	-	Treflan Gordoprin	ILC 134
Spain						
Badajoz	17.11.93	17.06.94	-	-	Terbutrina, Propizamida	Caudil
Syria						
Tel Hadya	15.12.93	10.06.94	-/50/-	-	Kerb + Igran	ILC 464
Turkey						
Izmir-1	22.12.93	20.06.94	30/60/-	-	-	Canitez

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 101 days (for FLIP 91-98C) to 116 days (for ILC 97), 163 days (for ILC 3367) to 173 days (for ILC 3847), and 52 cm (FLIP 91-98C) to 68 cm (for FLIP 91-93C and FLIP 85-5C), respectively. The 100-seed weight was highest for ILC 97 (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 15, 9 and 10 entries at Saskatoon in Canada, Lincoln in New Zealand, and Tel Hadya (Syria) (Table 3.5.6). On an average over locations, the five best yielding entries included FLIP 91-132C, FLIP 91-93C, FLIP 88-6C, FLIP 90-32C and FLIP 91-98C with respective seed yields of 2901, 2586, 2584, 2578, and 2558 kg/ha (Table 3.5.6). The five heaviest yielders at each location are presented in Table 3.5.7. The mean of common entries across two years (Table 3.5.8) revealed that FLIP 88-6C with seed yield of 2515 kg/ha ranked number 1 and was followed by ILC 97, ILC 4184, ILC 136 and FLIP 90-15C with seed yields of 2273, 2206, 2148 and 2087 kg/ha, respectively.

Table 3.5.2 Time to flowering (days) of entries in the CIYT-LA-94 conducted at different locations.

Entry Name	Pedigree	Origin	INDIA		SPAIN	SYRIA	TURKEY	Overall Mean
			Ludhiana	New Delhi	Badajoz	Tel Hadya	Izmir-1 (Menemen)	
ILC97	.	SPAIN	106	100	119	121	133	116
ILC99	.	SPAIN	102	94	119	118	133	113
ILC136	.	SPAIN	99	96	120	117	133	113
ILC613	.	TUNISIA	104	94	118	122	133	114
ILC3356	.	SPAIN	102	96	121	121	133	114
ILC3367	.	SPAIN	104	94	119	123	133	115
ILC3808	.	MOROCCO	113	72	118	122	133	112
ILC3847	.	MOROCCO	115	71	118	123	133	112
ILC4178	.	TUNISIA	100	95	119	119	133	113
ILC4184	.	TUNISIA	99	94	117	119	133	112
FLIP87-90C	X83TH124/FLIP82-84C X ILC72	ICARDA/ICRISAT	107	66	121	125	133	110
FLIP88-6C	X84TH332/FLIP83-69C X FLIP82-81C) X ILC3847	ICARDA/ICRISAT	106	68	118	123	133	110
FLIP89-121C	X85TH230/ILC3395 X FLIP83-13C	ICARDA/ICRISAT	97	93	119	116	133	112
FLIP89-131C	X85TH230/ILC3395 X FLIP83-13C	ICARDA/ICRISAT	92	84	115	112	133	107
FLIP90-15C	X87TH168/ILC1919 X FLIP85-4C	ICARDA/ICRISAT	103	70	121	119	133	109
FLIP90-32C	X86TH271/ILC482 X FLIP83-15C) X FLIP84-19C	ICARDA/ICRISAT	104	98	118	124	133	115
FLIP90-158C	X86TH175/ILC3843 X ILC3870	ICARDA/ICRISAT	89	82	108	109	133	104
FLIP91-92C	X89TH29/ILC3777 X FLIP84-82C	ICARDA/ICRISAT	87	80	107	108	133	103
FLIP91-93C	X87TH86/FLIP84-78C X ILC4921	ICARDA/ICRISAT	130	73	118	121	133	115
FLIP91-98C	X88TH19/ICC14218 X FLIP84-93C	ICARDA/ICRISAT	85	75	105	109	133	101
FLIP91-132C	X87TH271/ILC136XFLIP 84-18C) X FLIP84-78C	ICARDA/ICRISAT	106	101	120	125	133	117
FLIP85-5C	X81TH199/ILC202(WH) X ILC3355	ICARDA/ICRISAT	110	71	122	124	133	112
ILC 464			112	65	119	122	133	110
Local Check			85	91	116	115	133	-
Location Mean			102	84	117	119	133	
S.E. of Mean			4	One Rep.	1	1	One Rep.	
Prob. of Significance			.00		.00	.00		
L.S.D. at 5%			12		3	2		
C.V. %			7		2	1		

Table 3.5.3 Time to maturity (days) of entries in the CIYT-LA-94 conducted at different locations.

Entry Name	INDIA		SPAIN	SYRIA	TURKEY	Overall Mean
	Ludhiana	New Delhi	Badajoz	Tel Hadya	Izmir-1 (Menemen)	
ILC 97	159	145	201	171	181	171
ILC 99	157	147	202	169	181	171
ILC 136	155	147	203	169	180	171
ILC 613	157	146	210	170	179	172
ILC 3356	158	148	203	170	174	171
ILC 3367	109	148	208	170	181	163
ILC 3808	149	148	207	169	181	171
ILC 3847	156	147	211	170	181	173
ILC 4178	156	144	204	169	179	170
ILC 4184	154	145	210	169	176	171
FLIP87-90C	155	146	204	171	180	171
FLIP88-6C	157	147	206	170	181	172
FLIP89-121C	155	145	201	169	178	170
FLIP89-131C	153	145	203	169	182	170
FLIP90-15C	159	146	205	170	181	172
FLIP90-32C	160	145	204	171	180	172
FLIP90-158C	157	144	194	167	180	168
FLIP91-92C	151	141	194	169	174	166
FLIP91-93C	161	146	206	170	177	172
FLIP91-98C	150	137	193	165	178	165
FLIP91-132C	153	145	206	170	180	171
FLIP85-5C	158	145	208	171	180	172
ILC 464	151	145	210	171	181	172
Local Check	155	149	203	167	181	-
Location Mean	154	145	204	170	179	
S.E. of Mean	10		2	0	2	
Prob. of Significance	.39		.00	.00	.05	
L.S.D. at 5%	NS		5	1	5	
C.V. %	11	One Rep.	2	0	2	

Table 3.5.4 Plant height (cm) of entries in the CIYT-LA-94 conducted at different locations.

Entry Name	INDIA		NEW ZEALAND	SPAIN	SYRIA	Overall Mean
	Ludhiana	New Delhi	Lincoln	Badajoz	Tel Hadya	
ILC97	59	65	64	54	55	59
ILC99	64	64	63	55	48	59
ILC136	61	75	58	54	54	60
ILC613	60	62	58	52	52	57
ILC3356	60	60	58	57	54	58
ILC3367	58	70	53	57	57	59
ILC3808	59	77	63	54	50	61
ILC3847	62	78	64	52	57	63
ILC4178	59	70	59	54	48	58
ILC4184	54	67	57	57	50	57
FLIP87-90C	64	68	76	58	56	64
FLIP88-6C	65	77	63	52	54	62
FLIP89-121C	56	74	56	49	52	57
FLIP89-131C	53	74	60	48	50	57
FLIP90-15C	65	73	62	56	54	62
FLIP90-32C	73	71	61	59	58	64
FLIP90-158C	65	67	61	54	53	60
FLIP91-92C	57	61	55	56	44	55
FLIP91-93C	74	81	63	59	61	68
FLIP91-98C	58	68	51	44	41	52
FLIP91-132C	64	76	70	61	65	67
FLIP85-5C	78	72	73	55	62	68
ILC 464	60	69	68	61	57	63
Local Check	56	55	57	62	53	-
Location Mean	62	70	61	55	54	
S.E. of Mean	-		4	2	1	
Prob. of Significance	.00		.04	.00	.00	
L.S.D. at 5%	-		12	5	4	
C.V. %	0	One Rep.	12	6	4	

Table 3.5.5 100-Seed weight (g) of entries in the CIYT-LA-94 conducted at different locations.

Entry Name	INDIA		NEW ZEALAND	SPAIN	SYRIA	Overall Mean
	Ludhiana	New Delhi	Lincoln	Badajoz	Tel Hadya	
ILC97	48	59	42	50	53	50
ILC99	30	48	37	46	49	42
ILC136	30	46	38	43	50	42
ILC613	24	41	39	45	48	40
ILC3356	27	48	36	45	51	42
ILC3367	27	42	37	41	50	39
ILC3808	31	45	40	48	51	43
ILC3847	27	49	41	52	54	45
ILC4178	24	50	38	47	51	42
ILC4184	26	48	39	50	55	43
FLIP87-90C	35	48	39	45	46	43
FLIP88-6C	25	46	40	48	48	41
FLIP89-121C	39	42	39	42	46	42
FLIP89-131C	32	46	36	43	42	40
FLIP90-15C	29	48	40	49	53	44
FLIP90-32C	26	44	37	36	43	37
FLIP90-158C	34	43	35	37	43	39
FLIP91-92C	24	43	37	41	46	38
FLIP91-93C	30	39	38	37	43	38
FLIP91-98C	31	44	35	40	44	39
FLIP91-132C	25	46	40	40	46	39
FLIP85-5C	32	52	41	46	45	43
ILC 464	26	47	43	47	48	42
Local Check	31	17	44	32	30	-
Location Mean	30	45	39	44	47	
S.E. of Mean	0			1	1	
Prob. of Significance	.00			.00	.00	
L.S.D. at 5%	0			4	3	
C.V. %	0			5	4	

Table 3.5.6 Seed yield (Y=kg/ha) and rank (R) of entries in the CIYT-LA-94 conducted at different locations.

Entry Name	CANADA		INDIA				NEW ZEALAND		SPAIN	
	Saskatoon		Ludhiana		New Delhi		Lincoln		Badajoz	
	Y	R	Y	R	Y	R	Y	R	Y	R
ILC97	3552	7	972	6	1556	8	6487	3	2125	5
ILC99	2290	13	677	14	1333	11	3327	16	1694	17
ILC136	3049	9	868	9	1056	14	4078	11	1283	23
ILC613	1669	18	451	19	944	17	2389	23	1716	16
ILC3356	1756	16	625	15	944	16	3510	15	1798	15
ILC3367	1848	15	451	19	528	24	3549	14	1824	14
ILC3808	842	23	174	24	639	20	2014	24	2106	7
ILC3847	1380	21	181	23	556	22	2417	22	1271	24
ILC4178	1577	19	799	10	1694	6	4195	10	1684	18
ILC4184	2206	14	590	16	1806	5	5025	9	1998	8
FLIP87-90C	1720	17	590	16	556	21	2687	20	1883	11
FLIP88-6C	4062	5	972	5	972	15	5879	6	2660	2
FLIP89-121C	3413	8	903	8	1139	12	5662	8	1483	21
FLIP89-131C	2383	12	590	16	2139	4	3878	12	1919	10
FLIP90-15C	2419	11	799	11	722	19	2500	21	1417	22
FLIP90-32C	4075	4	1076	3	1417	9	6162	5	1969	9
FLIP90-158C	2460	10	938	7	1583	7	3238	17	1849	12
FLIP91-92C	1120	22	764	13	2322	3	3802	13	2648	3
FLIP91-93C	4833	2	1181	2	1139	13	5735	7	1825	13
FLIP91-98C	3627	6	1007	4	2417	2	6668	2	1633	19
FLIP91-132C	4729	3	799	12	1361	10	7430	1	2410	4
FLIP85-5C	5132	1	417	21	528	23	6363	4	1613	20
ILC 464	1400	20	354	22	833	18	3075	18	2110	6
Local Check	378	24	2465	1	2806	1	3027	19	2980	1
Location Mean	2580		777		1291		4296		1912	
S.E. of Mean	512.17		187.08		136.93		661.07		260.55	
Prob. of Significance	.00		.00		.00		.00		.00	
L.S.D. at 5%	1457.99		532.56		389.79		1881.85		741.70	
T.E > L. Check	15		0		0		9		0	
C.V. %	34.38		41.72		18.37		26.65		23.60	

Cont'd. ...

Table 3.5.6 Cont'd. ...

Entry Name	SYRIA		TURKEY		Overall Mean	
	Tel Hadya		Izmir-1 (Menemen)			
	Y	R	Y	R	Y	R
ILC97	2003	13	1194	16	2556	6
ILC99	1716	21	1176	18	1745	16
ILC136	1937	14	1602	3	1982	10
ILC613	2169	8	1394	9	1533	20
ILC3356	2081	11	2079	1	1828	15
ILC3367	1835	17	1500	5	1648	18
ILC3808	1768	20	1370	10	1273	23
ILC3847	1900	16	1417	6	1303	22
ILC4178	1920	15	1565	4	1919	13
ILC4184	1711	22	1273	14	2087	9
FLIP87-90C	2272	4	991	21	1528	21
FLIP88-6C	2272	3	1273	13	2584	3
FLIP89-121C	2289	2	991	22	2269	8
FLIP89-131C	1779	19	1134	19	1975	11
FLIP90-15C	2150	9	1944	2	1707	17
FLIP90-32C	2313	1	1037	20	2578	4
FLIP90-158C	2260	5	1352	11	1954	12
FLIP91-92C	1445	24	894	23	1856	14
FLIP91-93C	2203	7	1190	17	2586	2
FLIP91-98C	2140	10	412	24	2558	5
FLIP91-132C	2248	6	1329	12	2901	1
FLIP85-5C	1802	18	1403	7	2466	7
ILC 464	2023	12	1394	8	1598	19
Local Check	1661	23	1236	15	—	—
Location Mean	1996		1298			
S.E. of Mean	156.28		332.71			
Prob. of Significance	.01		.48			
L.S.D. at 5%	444.89		NS			
T.E > L. Check	10		—			
C.V. %	13.56		44.40			

Table 3.5.7. The five heaviest seed yielding entries at the individual locations in the CIYT-LA-94.

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Canada					
Saskatoon	FLIP85-5C	FLIP91-93C	FLIP91-132C	FLIP90-32C	FLIP88-6C
India					
Ludhiana	Local check	FLIP91-93C	FLIP90-32C	FLIP91-98C	FLIP88-6C
New Delhi	Local check	FLIP91-98C	FLIP91-92C	FLIP89-131C	ILC 4184
New Zealand					
Lincoln	FLIP91-132C	FLIP91-98C	ILC 97	FLIP85-5C	FLIP90-32C
Spain					
Badajoz	Local check	FLIP88-6C	FLIP91-92C	FLIP91-132C	ILC 97
Syria					
Tel Hadya	FLIP90-32C	FLIP89-121C	FLIP88-6C	FLIP87-90C	FLIP90-158C
Turkey					
Izmir-1	ILC 3356	FLIP90-15C	ILC 136	ILC 4178	ILC 3367

Table 3.5.8. The mean seed yield (Y =kg/ha) and rank (R) of the common entries in CIYT-LA conducted during 1992/93 and 1993/94.

Entry Name	1992/93		1993/94		Mean	
	y	R	y	R	y	R
ILC 97	1990	13	2556	2	2273	2
ILC 99	2160	8	1745	8	1953	10
ILC 136	2313	5	1982	4	2148	4
ILC 613	2141	9	1533	12	1837	12
ILC 3356	2128	10	1828	7	1978	8
ILC 3367	2012	12	1648	10	1830	13
ILC 3847	1949	14	1303	14	1626	14
ILC 4178	2217	6	1919	6	2068	6
ILC 4184	2325	4	2087	3	2206	3
FLIP 87-90C	2379	3	1528	13	1954	9
FLIP 88-6C	2445	2	2584	1	2515	1
FLIP 89-131C	2019	11	1975	5	1997	7
FLIP 90-15C	2466	1	1707	9	2087	5
ILC 464	2168	7	1598	11	1883	11

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

Material

The Chickpea International Screening Nursery-Spring comprised of 61 test entries which originated from the materials developed through hybridization at ICARDA. The nursery also included three checks, two namely ILC 482, FLIP 82-150C were supplied, and one local check to be added 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 replicated plots of 4m length in an 8x8 lattice design with 2 replications. The spacings between rows were 45 cm.

Thirty four sets of nursery were distributed to cooperators in 10 countries and the results were received from 21 locations in 8 countries. The agronomic details received from the cooperators are given in Table 3.6.1.

Results and Discussion

The adjusted means for entries across locations varied from 59 to 75 days for days to flowering (Table 3.6.2), 107 to 115 days for days to maturity (Table 3.6.3), 34 to 45 cm for plant height (Table 3.6.4), and 26 to 41 g for 100-seed weight (Tables 3.6.5).

The adjusted seed yields for the entries are given in Table 3.6.6. On the basis of overall mean, FLIP 92-41C gave the highest yield (1435 kg/ha) and was followed by FLIP 92-20C (1409 kg/ha), FLIP 92-156C (1404 kg/ha), FLIP 91-182C (1379 kg/ha), and FLIP 92-47C (1379 kg/ha). The five heaviest seed yielding entries at different locations are given in Table 3.6.7.

Table 3.6.1. Agronomic details of entries in the CISEN-SP-94 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
CANADA	Saskatoon	14-MAR-94	21-OCT-94	-	-	-	-	-	UC-27
CHINA	Qinghai	01-APR-94	15-SEP-94	27	69	-	-	-	Hesong
IRAN	Karaj	-	-	-	-	-	-	-	-
IRAN	Maragheh	31-MAR-94	24-JUL-94	30	60	-	-	-	Jam
IRAN	Mashhad	19-APR-94	01-AUG-94	-	90	-	-	-	Jam
IRAN	Shirvan	17-MAR-96	10-JUL-96	-	-	-	-	-	Yengeh Ghaleh
LEBANON	Terbol	05-MAR-94	07-JUL-94	-	50	-	-	-	Leb. Local
SAUDI ARABIA	Derab	12-DEC-93	15-MAY-94	150	10	-	-	-	-
SYRIA	Al Ghab	03-MAR-94	-	-	-	-	-	-	-
SYRIA	Gelline	20-MAR-94	24-JUL-94	20	50	-	-	-	Baladi
SYRIA	Hama	19-FEB-94	05-JUN-94	-	50	-	-	-	Local Check
SYRIA	Homs	03-MAR-94	14-JUL-94	-	50	-	-	-	-
SYRIA	Izra'a	17-MAR-94	04-JUL-94	-	50	-	-	-	-
SYRIA	Jindiress	10-MAR-94	-	-	50	-	-	-	ILC 1929
SYRIA	Tel Hadya	03-MAR-94	30-JUN-94	-	50	-	-	-	ILC 1929
TUNISIA	Beja	30-NOV-93	01-JUL-94	-	45	-	-	-	Amdoun 1
TUNISIA	Oued Meliz	26-NOV-93	01-JUL-94	-	45	-	25	-	Amdoun 1
TURKEY	Ankara	23-MAR-94	23-JUN-94	22	60	-	-	-	Eser-87
TURKEY	Diyarbakir	10-MAR-94	27-JUN-94	30	60	-	-	-	Yerli Nohut
TURKEY	Eskisehir	-	-	-	-	-	-	-	-
TURKEY	Izmir-1 (Menemen)	27-JAN-94	15-JUL-94	30	60	-	-	-	Canitez

Table 3.6.2 Time to flowering (days) of entries in the CISON-SP-94 conducted at different locations.

Entry Name	Pedigree	Origin	CHINA	IRAN		
			Qinghai	Karaj	Maragheh	Mashhad
FLIP90-21C	X87TH283/(ILC295 X FLIP84-18C) X FLIP84-164C	ICARDA/ICRISAT	75	79	63	43
FLIP90-181C	X87TH216/ILC4296 X FLIP84-93C	ICARDA/ICRISAT	68	69	65	41
FLIP91-64C	X87TH189/ICC14212 X FLIP84-78C	ICARDA/ICRISAT	75	83	66	47
FLIP91-104C	X88TH8/ILC4293 X FLIP84-81C	ICARDA/ICRISAT	70	74	59	45
FLIP91-108C	X88TH19/ICC14218 X FLIP84-93C	ICARDA/ICRISAT	66	71	59	41
FLIP91-113C	X88TH195/FLIP85-122C X ILC148	ICARDA/ICRISAT	64	73	61	44
FLIP91-137C	X88TH19/ICC14218 X FLIP84-93C	ICARDA/ICRISAT	65	76	59	42
FLIP91-158C	X87TH18/ILC493 X FLIP84-78C	ICARDA/ICRISAT	70	73	61	41
FLIP91-176C	X87TH165/ILC1919 X FLIP84-99C	ICARDA/ICRISAT	74	86	64	42
FLIP91-182C	X87TH40/FLIP83-98C X FLIP84-155C	ICARDA/ICRISAT	71	76	63	41
FLIP91-194C	X87TH189/ICC14212 X FLIP84-78C	ICARDA/ICRISAT	73	78	65	47
FLIP91-201C	X87TH57/FLIP83-104 X FLIP84-78C	ICARDA/ICRISAT	71	82	64	42
FLIP91-218C	X87TH86/FLIP84-78C X ILC4921	ICARDA/ICRISAT	73	77	64	44
FLIP92-9C	X89TH27/ILC3777 X FLIP82-150C	ICARDA/ICRISAT	66	75	59	45
FLIP92-20C	X88TH232/(ILC576 X FLIP84-93C) X ILC576	ICARDA/ICRISAT	68	79	62	41
FLIP92-21C	X88TH287/(FLIP84-78C X ILC1931) X FLIP84-48C	ICARDA/ICRISAT	70	81	61	39
FLIP92-23C	X88TH233/FLIP83-79C X FLIP85-142C	ICARDA/ICRISAT	69	79	61	41
FLIP92-33C	X90TH146/FLIP83-66C X FLIP87-85C	ICARDA/ICRISAT	72	76	61	43
FLIP92-36C	X89TH55/ILC2593 X FLIP82-150C	ICARDA/ICRISAT	72	82	63	44
FLIP92-37C	X89TH93/ILC100 X FLIP84-93C	ICARDA/ICRISAT	71	73	63	43
FLIP92-41C	X89TH103/ILC482 X FLIP84-93C	ICARDA/ICRISAT	68	71	63	49
FLIP92-42C	X89TH103/ILC482 X FLIP84-93C	ICARDA/ICRISAT	70	77	60	43
FLIP92-43C	X89TH103/ILC482 X FLIP84-93C	ICARDA/ICRISAT	71	76	64	41
FLIP92-44C	X89TH120/FLIP85-4C X FLIP82-150C	ICARDA/ICRISAT	67	77	61	45
FLIP92-47C	X89TH135/ILC1929 X FLIP84-92C	ICARDA/ICRISAT	70	77	62	47
FLIP92-49C	X89TH189/FLIP84-43C X FLIP85-122C	ICARDA/ICRISAT	70	70	61	47
FLIP92-51C	X89TH242/(FLIP84-124C X FLIP83-77C) X ILC5367	ICARDA/ICRISAT	74	78	64	47
FLIP92-53C	X89TH246/(FLIP85-108C X FLIP83-48C) X ILC1253	ICARDA/ICRISAT	67	71	63	42
FLIP92-54C	X89TH246/(FLIP85-108C X FLIP83-48C) X ILC1253	ICARDA/ICRISAT	68	74	59	47
FLIP92-56C	X89TH278/(FLIP85-122C X FLIP85-137C) X FLIP85-18C	ICARDA/ICRISAT	70	69	61	45
FLIP92-57C	X89TH166/ILC1932 X FLIP85-122C	ICARDA/ICRISAT	69	75	63	41
FLIP92-60C	X89TH166/ILC1932 X FLIP85-122C	ICARDA/ICRISAT	69	85	62	41
FLIP92-61C	X89TH166/ILC1932 X FLIP85-122C	ICARDA/ICRISAT	69	71	61	44
FLIP92-67C	X88TH215/FLIP85-122C X S85036	ICARDA/ICRISAT	69	72	63	44
FLIP92-69C	X89TH522/ILC2876 X ICCV-2	ICARDA/ICRISAT	68	74	62	43
FLIP92-74C	X89TH171/UC15 X FLIP85-122C	ICARDA/ICRISAT	70	76	63	44

Cont'd. ...

Table 3.6.2 Cont'd. ...

Entry Name	Pedigree	Origin	CHINA	IRAN		
			Qinghai	Karaj	Maragheh	Mashhad
FLIP92-75C	X89TH175/UC27 X FLIP84-78C	ICARDA/ICRISAT	69	76	61	43
FLIP92-76C	X89TH189/FLIP84-43C X FLIP85-122C	ICARDA/ICRISAT	70	72	63	41
FLIP92-95C	X89TH101/ILC482 X FLIP83-47C	ICARDA/ICRISAT	70	73	63	44
FLIP92-99C	X88TH19/ICC14218 X FLIP84-93C	ICARDA/ICRISAT	65	79	58	43
FLIP92-104C	X89TH189/FLIP84-43C X FLIP85-122C	ICARDA/ICRISAT	69	72	61	42
FLIP92-105C	X89TH278/(FLIP85-122C X FLIP85-137C) X FLIP85-18C	ICARDA/ICRISAT	74	82	66	42
FLIP92-108C	X88TH216/FLIP85-122C X FLIP85-112C	ICARDA/ICRISAT	70	72	63	50
FLIP92-117C	X88TH307/(FLIP85-62C X FLIP82-92C) X FLIP85-62C	ICARDA/ICRISAT	77	85	66	44
FLIP92-119C	X88TH32/FLIP85-142C X FLIP82-150	ICARDA/ICRISAT	71	84	63	44
FLIP92-121C	X88TH176/FLIP85-122C X FLIP85-137C	ICARDA/ICRISAT	70	72	65	42
FLIP92-124C	X88TH206/ILC202 X S86301	ICARDA/ICRISAT	76	76	65	43
FLIP92-128C	X89TH85/FLIP86-77C X FLIP85-90C	ICARDA/ICRISAT	76	84	68	45
FLIP92-130C	X89TH48/ILC4297 X FLIP83-47C	ICARDA/ICRISAT	70	75	62	44
FLIP92-131C	X89TH48/ILC4297 X FLIP83-47C	ICARDA/ICRISAT	70	77	64	44
FLIP92-137C	X89TH171/UC15 X FLIP85-122C	ICARDA/ICRISAT	68	76	62	43
FLIP92-138C	X89TH189/FLIP84-43C X FLIP85-122C	ICARDA/ICRISAT	68	77	61	41
FLIP92-141C	X89TH189/FLIP84-43C X FLIP85-122C	ICARDA/ICRISAT	69	81	62	41
FLIP92-148C	X89TH192/FLIP85-85C X FLIP85-122C	ICARDA/ICRISAT	69	76	62	42
FLIP92-149C	X89TH280/(FLIP83-72C X FLIP86-54C) X FLIP86-70C	ICARDA/ICRISAT	74	80	65	44
FLIP92-156C	X89TH25/ILC2371 X FLIP84-182C	ICARDA/ICRISAT	74	82	67	44
FLIP92-160C	X89TH12/ILC4291 X FLIP82-150C	ICARDA/ICRISAT	70	76	62	46
FLIP92-168C	X89TH24/ILC2371 X FLIP84-92C	ICARDA/ICRISAT	73	79	65	43
FLIP92-182C	X89TH24/ILC2371 X FLIP84-92C	ICARDA/ICRISAT	75	82	68	46
FLIP92-183C	X89TH25/ILC2371 X FLIP84-182C	ICARDA/ICRISAT	73	84	62	44
FLIP92-185C	X88TH86/FLIP83-98C X FLIP86-12C	ICARDA/ICRISAT	75	80	65	47
FLIP82-150C	X79TH101/ILC523 X ILC183	ICARDA/ICRISAT	71	74	62	46
ILC 482			69	74	62	45
Local Check			77	80	62	42
Location Mean			71	77	63	44
S.E. of Mean			1	5	2	3
L.S.D. at 5%			3	9	4	6
L.S.D. for T.E. in S.B.			3	9	4	6
L.S.D. for T.E. in D.B.			3	9	4	6
C.V. %			2	6	3	7
Efficiency %			117	119	100	101

Cont'd. ...

Entry Name	IRAN	LEBANON	SAUDI ARABIA	SYRIA				
	Shirvan	Terbol	Derab	Al Ghab	Gelline	Hama	Homs	Izra'a
FLIP90-21C								
FLIP90-181C	77	72	85	73	65	69	75	66
FLIP91-64C	65	59	67	54	63	55	51	57
FLIP91-104C	73	71	89	68	65	65	61	62
FLIP91-108C	65	56	65	53	58	55	51	57
FLIP91-113C	66	56	80	54	61	57	50	59
FLIP91-137C	65	54	67	48	62	56	51	58
FLIP91-158C	65	59	96	64	63	59	54	59
FLIP91-176C	70	65	87	62	66	62	62	61
FLIP91-182C	78	76	88	72	65	70	73	67
FLIP91-194C	70	71	80	68	65	63	65	65
FLIP91-201C	75	70	90	69	66	66	64	64
FLIP91-218C	70	66	78	67	67	63	69	65
FLIP92-9C	71	67	81	69	64	66	72	65
FLIP92-20C	65	54	66	52	60	55	51	57
FLIP92-21C	68	61	66	65	62	61	73	62
FLIP92-23C	75	71	86	68	65	66	70	66
FLIP92-33C	66	60	78	60	62	55	58	62
FLIP92-36C	71	64	79	68	66	63	62	65
FLIP92-37C	73	71	85	73	64	65	43	65
FLIP92-41C	66	63	85	60	64	55	60	62
FLIP92-42C	68	59	95	55	59	55	58	60
FLIP92-43C	70	63	84	62	61	62	67	63
FLIP92-44C	70	64	83	64	64	63	62	65
FLIP92-47C	71	63	71	64	61	62	67	63
FLIP92-49C	70	65	81	68	64	62	70	66
FLIP92-51C	73	67	83	65	66	63	73	66
FLIP92-53C	75	70	76	69	64	66	70	64
FLIP92-54C	70	65	81	61	63	61	62	61
FLIP92-56C	70	64	70	64	63	62	60	62
FLIP92-57C	68	59	92	55	60	59	58	59
FLIP92-60C	72	68	78	65	62	65	72	64
FLIP92-61C	73	67	69	63	64	62	64	64
FLIP92-67C	73	67	85	69	63	64	72	65
FLIP92-69C	75	69	84	68	62	64	73	66
FLIP92-74C	73	67	76	61	64	64	59	63
	71	70	92	70	66	66	72	66

Table 3.6.2 Cont'd. ...

Entry Name	IRAN	LEBANON	SAUDI ARABIA	SYRIA				
	Shirvan	Terbol	Derab	Al Ghab	Gelline	Hama	Homs	Izra'a
FLIP92-75C	75	70	77	68	65	66	73	66
FLIP92-76C	73	68	83	66	65	66	70	64
FLIP92-95C	66	60	84	58	63	59	62	61
FLIP92-99C	65	52	61	48	57	54	51	53
FLIP92-104C	73	68	82	68	62	64	69	67
FLIP92-105C	76	75	88	73	64	71	74	-
FLIP92-108C	73	68	84	69	63	66	72	65
FLIP92-117C	78	78	87	72	63	73	78	-
FLIP92-119C	77	72	88	73	66	69	74	66
FLIP92-121C	73	68	82	69	64	66	72	66
FLIP92-124C	78	77	92	73	65	74	78	-
FLIP92-128C	77	75	90	73	65	70	74	63
FLIP92-130C	73	69	73	67	60	65	71	61
FLIP92-131C	73	70	70	70	69	66	75	64
FLIP92-137C	76	71	75	68	64	64	72	67
FLIP92-138C	75	69	76	62	67	64	71	65
FLIP92-141C	72	68	83	69	63	65	71	-
FLIP92-148C	75	70	87	69	67	67	72	65
FLIP92-149C	71	75	89	73	65	70	72	-
FLIP92-156C	76	72	88	73	65	68	74	66
FLIP92-160C	71	70	79	63	66	66	69	67
FLIP92-168C	76	75	84	73	63	68	74	-
FLIP92-182C	77	73	89	72	64	69	74	-
FLIP92-183C	76	72	87	72	64	63	71	66
FLIP92-185C	80	73	91	73	63	71	73	-
FLIP82-150C	74	71	91	70	65	66	73	67
ILC 482	69	60	68	55	64	60	60	60
Local Check	71	64	-	60	62	60	68	62
Location Mean	72	67	81	65	64	64	67	62
S.E. of Mean	2	1	6	2	2	2	1	2
L.S.D. at 5%	4	2	12	3	5	3	2	3
L.S.D. for T.E. in S.B.	4	2	12	3	5	3	2	4
L.S.D. for T.E. in D.B.	4	2	12	3	5	3	2	3
C.V. %	3	2	8	3	3	3	2	2
Efficiency %	104	114	100	102	126	100	103	96

Cont'd. ...

Table 3.6.2 Cont'd. ...

Entry Name	SYRIA		TURKEY		Overall Mean
	Jindireess	Tel Hadya	Ankara	Izmir-1 (Menemen)	
FLIP90-21C	68	67	66	104	72
FLIP90-181C	46	49	-	102	61
FLIP91-64C	65	65	66	100	71
FLIP91-104C	46	48	66	104	61
FLIP91-108C	49	52	65	100	62
FLIP91-113C	46	47	66	104	60
FLIP91-137C	51	61	66	92	65
FLIP91-158C	61	61	67	92	67
FLIP91-176C	65	65	67	104	73
FLIP91-182C	65	62	67	94	68
FLIP91-194C	67	62	67	100	71
FLIP91-201C	68	62	67	100	69
FLIP91-218C	67	62	66	102	70
FLIP92-9C	45	48	66	106	61
FLIP92-20C	61	61	67	100	66
FLIP92-21C	65	64	67	104	70
FLIP92-23C	51	57	68	106	64
FLIP92-33C	59	63	67	93	67
FLIP92-36C	69	65	67	102	69
FLIP92-37C	52	57	66	112	66
FLIP92-41C	53	54	66	104	65
FLIP92-42C	57	58	66	104	67
FLIP92-43C	61	62	65	100	68
FLIP92-44C	64	61	67	96	66
FLIP92-47C	63	62	66	93	68
FLIP92-49C	67	62	66	100	69
FLIP92-51C	64	64	67	104	70
FLIP92-53C	65	61	66	102	67
FLIP92-54C	61	58	66	104	66
FLIP92-56C	51	50	66	104	64
FLIP92-57C	68	61	67	100	69
FLIP92-60C	65	63	66	102	68
FLIP92-61C	67	64	66	92	69
FLIP92-67C	66	63	66	102	70
FLIP92-69C	58	56	67	114	67
FLIP92-74C	67	64	66	100	71

Table 3.6.2 Cont'd. ...

Entry Name	SYRIA		TURKEY		Overall Mean
	Jindireess	Tel Hadya	Ankara	Izmir-1 (Menemen)	
FLIP92-75C	69	65	65	116	71
FLIP92-76C	66	63	66	100	69
FLIP92-95C	54	58	65	100	65
FLIP92-99C	45	48	66	104	59
FLIP92-104C	65	63	66	116	70
FLIP92-105C	68	67	65	100	73
FLIP92-108C	65	63	66	100	70
FLIP92-117C	68	66	66	114	75
FLIP92-119C	69	68	65	102	73
FLIP92-119C	69	68	65	100	69
FLIP92-121C	64	62	65	100	69
FLIP92-121C	73	67	66	92	73
FLIP92-124C	67	66	67	100	74
FLIP92-128C	68	62	67	100	68
FLIP92-130C	65	63	66	104	70
FLIP92-131C	68	63	65	104	69
FLIP92-137C	67	62	65	116	70
FLIP92-138C	66	61	65	100	69
FLIP92-141C	69	63	66	100	71
FLIP92-148C	68	66	65	102	72
FLIP92-149C	67	61	65	100	72
FLIP92-156C	66	62	67	106	69
FLIP92-160C	71	64	65	104	72
FLIP92-168C	68	67	66	94	73
FLIP92-182C	68	61	65	100	71
FLIP92-183C	68	67	65	104	73
FLIP92-185C	67	62	67	114	72
FLIP82-150C	61	56	66	104	65
ILC 482	52	55	66	102	-
Local Check	62	61	66	102	
Location Mean	3	2		7	
S.E. of Mean	5	4		14	
L.S.D. at 5%	5	4		14	
L.S.D. for T.E. in S.B.	5	4		14	
L.S.D. for T.E. in D.B.	4	3		6	
C.V. %	100	106		243	
Efficiency %					

* The mean has been calculated excluding the locations with incomplete data.

Table 3.6.3 Time to maturity (days) of entries in the CISON-SP-94 conducted at different locations.

Entry Name	CHINA	IRAN			LEBANON	SAUDI ARABIA	
	Qinghai	Karaj	Maragheh	Mashhad	Shirvan	Terbol	Derab
FLIP90-21C	180	138	101	104	104	111	98
FLIP90-181C	174	133	100	111	101	100	83
FLIP91-64C	174	140	101	110	106	112	103
FLIP91-104C	172	135	99	107	100	100	80
FLIP91-108C	179	137	99	109	102	99	98
FLIP91-113C	169	133	99	107	100	95	85
FLIP91-137C	174	134	100	112	101	99	105
FLIP91-158C	180	135	98	104	101	103	103
FLIP91-176C	172	138	103	111	104	120	102
FLIP91-182C	178	138	99	107	103	107	94
FLIP91-194C	180	139	101	104	104	106	108
FLIP91-201C	175	139	102	107	100	106	94
FLIP91-218C	176	140	100	105	102	108	95
FLIP92-9C	167	136	99	106	100	104	83
FLIP92-20C	171	140	98	105	100	100	83
FLIP92-21C	173	139	98	101	101	105	97
FLIP92-23C	170	137	97	104	101	99	86
FLIP92-33C	172	137	98	109	101	105	94
FLIP92-36C	172	139	101	108	102	108	101
FLIP92-37C	174	137	99	107	102	105	100
FLIP92-41C	173	136	97	105	101	100	105
FLIP92-42C	170	134	100	113	101	107	102
FLIP92-43C	175	136	99	104	101	105	99
FLIP92-44C	170	139	99	106	102	106	86
FLIP92-47C	174	137	99	109	101	104	100
FLIP92-49C	173	135	99	109	100	106	100
FLIP92-51C	174	139	102	104	103	108	93
FLIP92-53C	173	132	97	106	101	101	96
FLIP92-54C	175	137	97	108	101	100	86
FLIP92-56C	173	136	99	106	102	97	104
FLIP92-57C	172	133	98	104	102	105	95
FLIP92-60C	174	134	97	110	101	103	83
FLIP92-61C	178	134	98	109	102	104	103
FLIP92-67C	174	132	98	111	101	105	100
FLIP92-69C	174	133	98	108	101	105	93
FLIP92-74C	178	137	98	109	100	105	106
FLIP92-75C	177	136	98	109	102	108	95

Cont'd. ...

Table 3.6.3 Cont'd. ...

Entry Name	CHINA	IRAN				LEBANON	SAUDI ARABIA
	Qinghai	Karaj	Maragheh	Mashhad	Shirvan	Terbol	Derab
FLIP92-76C	174	135	99	106	100	107	99
FLIP92-95C	174	135	98	107	102	101	103
FLIP92-99C	172	136	97	104	101	98	84
FLIP92-104C	170	135	97	105	102	105	98
FLIP92-105C	172	138	102	110	104	111	101
FLIP92-108C	181	134	100	104	101	106	98
FLIP92-117C	170	139	103	107	103	119	103
FLIP92-119C	174	141	101	105	102	109	102
FLIP92-121C	177	134	97	103	100	103	97
FLIP92-124C	174	138	100	112	101	119	109
FLIP92-128C	177	137	103	106	103	111	102
FLIP92-130C	169	137	97	111	100	104	88
FLIP92-131C	171	136	98	106	101	109	90
FLIP92-137C	172	137	97	110	101	106	91
FLIP92-138C	169	134	98	107	101	106	80
FLIP92-141C	171	139	97	103	100	103	98
FLIP92-148C	176	139	99	108	102	107	105
FLIP92-149C	175	139	102	107	103	111	102
FLIP92-156C	182	140	105	112	104	113	101
FLIP92-160C	174	136	98	110	101	107	94
FLIP92-168C	173	135	103	111	103	118	103
FLIP92-182C	175	136	103	112	105	115	106
FLIP92-183C	181	138	101	112	104	112	104
FLIP92-185C	169	138	102	109	102	112	108
FLIP92-150C	176	140	99	106	101	108	105
ILC 482	172	137	98	102	101	100	83
Local Check	169	141	97	101	100	100	-
Location Mean	174	137	99	107	102	106	96
S.E. of Mean	3	3	1	4	1	1	6
L.S.D. at 5%	6	5	2	8	3	3	13
L.S.D. for T.E. in S.B	7	5	2	8	3	3	13
L.S.D. for T.E. in D.B	7	5	2	8	3	3	13
C.V. %	2	2	1	3	1	1	7
Efficiency %	352	106	117	100	100	117	100

Cont'd. ...

Table 3.6.1 Cont'd. ...

Entry Name	SYRIA						
	Al Ghab	Gelline	Hama	Homs	Izra'a	Jindiress	Tal Hadya
FLIP90-21C	102	92	99	109	-	97	100
FLIP90-181C	99	86	94	105	106	94	97
FLIP91-64C	103	89	99	108	-	105	99
FLIP91-104C	100	90	94	104	106	97	95
FLIP91-108C	99	90	94	105	108	97	97
FLIP91-113C	97	91	93	106	107	90	95
FLIP91-137C	100	89	95	107	108	104	96
FLIP91-158C	99	89	98	106	109	103	99
FLIP91-176C	102	89	100	108	-	109	99
FLIP91-182C	100	88	99	106	-	99	98
FLIP91-194C	100	91	98	106	-	99	100
FLIP91-201C	99	89	97	106	-	100	99
FLIP91-218C	102	90	98	109	-	108	100
FLIP92-9C	100	91	93	105	106	94	96
FLIP92-20C	100	89	98	106	109	99	98
FLIP92-21C	99	90	98	105	-	103	98
FLIP92-23C	98	89	95	105	109	99	96
FLIP92-33C	100	88	98	104	-	100	100
FLIP92-36C	102	91	99	110	-	98	100
FLIP92-37C	100	89	96	108	109	98	98
FLIP92-41C	97	91	95	105	109	95	98
FLIP92-42C	102	87	98	106	-	96	99
FLIP92-43C	101	87	98	106	109	98	100
FLIP92-44C	99	91	98	107	110	98	98
FLIP92-47C	101	91	98	106	-	100	101
FLIP92-49C	99	88	98	107	-	96	99
FLIP92-51C	101	92	98	107	-	96	100
FLIP92-53C	99	88	94	104	109	97	97
FLIP92-54C	98	87	95	104	-	97	97
FLIP92-56C	96	89	94	105	108	94	95
FLIP92-57C	99	89	98	106	-	99	97
FLIP92-60C	100	91	98	105	-	99	97
FLIP92-61C	99	89	97	107	-	96	99
FLIP92-67C	100	87	97	107	109	98	98
FLIP92-69C	99	89	97	106	-	97	97
FLIP92-74C	100	89	98	106	-	101	98
FLIP92-75C	98	86	64	108	-	104	98

Cont'd. ...

Table 3.6.3 Cont'd. ...

Entry Name	SYRIA						
	Al Ghab	Gelline	Hama	Homs	Izra'a	Jindiress	Tel Hadya
FLIP92-76C	99	88	98	107	-	95	99
FLIP92-95C	98	90	95	104	110	103	99
FLIP92-99C	98	90	93	104	103	89	95
FLIP92-104C	99	87	98	106	-	96	98
FLIP92-105C	103	91	100	109	-	100	98
FLIP92-108C	100	91	98	107	-	98	99
FLIP92-117C	104	88	101	111	-	109	101
FLIP92-119C	102	91	100	109	-	96	97
FLIP92-121C	99	88	97	105	-	98	98
FLIP92-124C	103	88	101	115	-	110	102
FLIP92-128C	103	89	100	109	-	98	98
FLIP92-130C	100	90	98	105	109	98	98
FLIP92-131C	100	90	98	111	-	97	97
FLIP92-137C	99	89	98	106	-	97	98
FLIP92-138C	99	89	98	106	110	101	99
FLIP92-141C	99	88	98	107	-	95	98
FLIP92-148C	99	88	98	107	-	100	98
FLIP92-149C	102	87	101	108	-	101	100
FLIP92-156C	103	90	99	109	-	98	99
FLIP92-160C	103	90	99	107	-	100	99
FLIP92-168C	100	88	101	113	-	107	100
FLIP92-182C	102	89	100	110	-	102	102
FLIP92-183C	103	91	101	111	-	104	99
FLIP92-185C	101	88	100	110	-	95	99
FLIP82-150C	102	89	99	109	-	101	98
ILC 482	97	90	96	106	107	99	96
Local Check	97	89	95	105	-	94	96
Location Mean	100	89	97	107	108	99	98
S.E. of Mean	1	2	6	1	1	4	2
L.S.D. at 5%	3	4	12	3	2	8	3
L.S.D. for T.E. in S.B	3	4	12	3	4	8	4
L.S.D. for T.E. in D.B	3	4	12	3	3	8	4
C.V. %	1	2	6	1	1	4	2
Efficiency %	115	119	100	127	-41	109	103

Cont'd. ...

Table 3.6.3 Cont'd. ...

Entry Name	TURKEY		Overall Mean
	Diyarbakir	Izmir-1 (Menemen)	
FLIP90-21C	-	142	113
FLIP90-181C	-	143	109
FLIP91-64C	-	142	114
FLIP91-104C	-	140	108
FLIP91-108C	-	140	110
FLIP91-113C	-	144	107
FLIP91-137C	-	135	111
FLIP91-158C	-	133	111
FLIP91-176C	-	142	114
FLIP91-182C	-	151	112
FLIP91-194C	-	142	113
FLIP91-201C	-	142	111
FLIP91-218C	-	140	112
FLIP92-9C	189	143	108
FLIP92-20C	189	138	109
FLIP92-21C	190	142	111
FLIP92-23C	189	146	109
FLIP92-33C	192	151	111
FLIP92-36C	190	143	112
FLIP92-37C	189	154	112
FLIP92-41C	191	142	110
FLIP92-42C	190	142	111
FLIP92-43C	190	144	111
FLIP92-44C	189	137	110
FLIP92-47C	189	138	111
FLIP92-49C	191	139	111
FLIP92-51C	190	140	111
FLIP92-53C	193	146	109
FLIP92-54C	187	144	109
FLIP92-56C	190	140	109
FLIP92-57C	189	144	110
FLIP92-60C	189	142	110
FLIP92-61C	189	131	110
FLIP92-67C	189	145	111
FLIP92-67C	190	151	111
FLIP92-69C	189	140	112
FLIP92-74C	189	140	112
FLIP92-74C	189	141	109
FLIP92-75C	189	141	109

Entry Name	TURKEY		Overall Mean
	Diyarbakir	Izmir-1 (Menemen)	
FLIP92-76C	190	140	110
FLIP92-95C	189	142	111
FLIP92-99C	191	142	107
FLIP92-104C	189	141	110
FLIP92-105C	195	141	113
FLIP92-108C	193	142	111
FLIP92-117C	195	153	115
FLIP92-119C	194	140	112
FLIP92-121C	189	138	110
FLIP92-124C	198	135	115
FLIP92-128C	197	138	112
FLIP92-130C	193	137	110
FLIP92-131C	191	140	110
FLIP92-137C	189	147	111
FLIP92-138C	189	136	109
FLIP92-141C	189	137	109
FLIP92-148C	190	138	112
FLIP92-149C	198	142	113
FLIP92-156C	190	140	114
FLIP92-160C	190	143	111
FLIP92-168C	189	147	115
FLIP92-182C	196	139	114
FLIP92-183C	195	142	114
FLIP92-185C	194	142	113
FLIP92-150C	189	151	113
ILC 482	189	140	108
Local Check	189	138	-
Location Mean	191	142	
S.E. of Mean		8	
L.S.D. at 5%		15	
L.S.D. for T.E. in S.B		16	
L.S.D. for T.E. in D.B		16	
C.V. %		5	
Efficiency %		184	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.6.4 Plant height (cm) of entries in the CISH-SP-94 conducted at different locations.

Entry Name	CHINA	IRAN				LEBANON	SAUDI ARABIA
	Qinghai	Karaj	Maragheh	Mashhad	Shirvan	Terbol	Derab
FLIP90-21C	105	41	36	47	25	37	47
FLIP90-181C	97	32	40	53	23	33	25
FLIP91-64C	101	41	37	62	24	44	45
FLIP91-104C	97	42	40	51	26	39	37
FLIP91-108C	129	34	36	46	19	37	35
FLIP91-113C	113	39	41	54	22	35	42
FLIP91-137C	118	35	40	43	29	34	40
FLIP91-158C	101	42	32	62	22	38	37
FLIP91-176C	105	36	37	60	27	40	43
FLIP91-182C	104	32	38	57	29	36	45
FLIP91-194C	100	35	37	44	21	33	58
FLIP91-201C	105	51	40	46	24	38	40
FLIP91-218C	103	41	40	47	23	36	37
FLIP92-9C	65	40	34	53	25	34	40
FLIP92-20C	104	40	34	45	23	31	35
FLIP92-21C	102	44	38	54	20	35	32
FLIP92-23C	98	34	40	55	20	32	58
FLIP92-33C	95	32	37	40	19	33	29
FLIP92-36C	90	36	40	52	23	32	42
FLIP92-37C	79	36	37	52	21	34	47
FLIP92-41C	107	34	42	41	22	32	27
FLIP92-42C	107	33	39	48	24	38	37
FLIP92-43C	99	45	39	42	26	32	32
FLIP92-44C	81	45	38	55	25	33	57
FLIP92-47C	125	42	35	48	21	33	50
FLIP92-49C	126	41	39	51	26	32	29
FLIP92-51C	104	37	39	47	22	35	42
FLIP92-53C	105	36	37	52	17	33	30
FLIP92-54C	139	46	33	51	20	26	27
FLIP92-56C	110	33	36	51	24	32	35
FLIP92-57C	111	40	39	52	25	32	37
FLIP92-60C	119	43	43	47	25	34	47
FLIP92-61C	103	45	36	61	22	35	37
FLIP92-67C	104	43	39	60	25	34	54
FLIP92-69C	109	36	36	54	24	35	37
FLIP92-74C	119	31	44	54	25	35	42
FLIP92-75C	107	57	38	62	29	35	55

Cont'd. ...

Table 3.6.4 Cont'd. ...

Entry Name	CHINA	IRAN				LEBANON	SAUDI ARABIA
	Qinghai	Karaj	Maragheh	Mashhad	Shirvan	Terbol	Derab
FLIP92-76C	123	50	39	50	22	34	45
FLIP92-95C	108	31	46	43	21	31	27
FLIP92-99C	96	30	37	31	21	34	41
FLIP92-104C	112	48	40	54	25	33	45
FLIP92-105C	118	31	41	50	26	40	42
FLIP92-108C	119	56	39	56	23	35	54
FLIP92-117C	99	31	40	58	21	41	40
FLIP92-119C	107	46	47	54	29	42	53
FLIP92-121C	103	47	36	57	22	34	42
FLIP92-124C	111	32	39	57	30	41	40
FLIP92-128C	112	30	34	47	23	37	42
FLIP92-130C	132	51	39	59	24	33	44
FLIP92-131C	99	27	43	56	33	34	39
FLIP92-137C	102	41	39	48	26	39	42
FLIP92-138C	129	45	35	63	28	32	52
FLIP92-141C	103	49	39	56	21	33	60
FLIP92-148C	118	51	41	55	22	34	40
FLIP92-149C	107	45	45	48	24	38	50
FLIP92-156C	111	57	37	51	23	36	42
FLIP92-160C	110	36	40	67	23	32	40
FLIP92-168C	128	41	36	46	23	38	32
FLIP92-182C	105	37	35	47	23	36	42
FLIP92-183C	130	42	33	47	21	36	30
FLIP92-185C	108	34	45	57	26	40	50
FLIP82-150C	98	34	42	49	22	35	42
ILC 482	90	39	38	51	24	30	40
Local Check	102	40	38	61	22	35	-
Location Mean	107	40	38	52	24	35	42
S.E. of Mean	15	3	3	9	3	3	8
L.S.D. at 5%	29	6	6	19	5	6	17
L.S.D. for T.E. in S.B	30	6	7	19	5	6	17
L.S.D. for T.E. in D.B	29	6	7	19	5	6	17
C.V. %	13	7	8	18	11	8	20
Efficiency %	115	100	128	101	105	100	100

Cont'd. ...

Table 3.6.4 Cont'd.

Entry Name	SYRIA						TURKEY		Overall Mean
	Al Ghab	Gelline	Hama	Homs	Izra'a	Jindiress	Tel Hadya	Diyarbakir	
FLIP90-21C	40	26	27	31	-	31	32	-	40
FLIP90-181C	32	26	22	26	24	32	27	-	36
FLIP91-64C	43	29	37	38	-	38	37	-	44
FLIP91-104C	35	26	25	29	26	32	30	-	39
FLIP91-108C	28	27	25	29	23	29	29	-	39
FLIP91-113C	27	25	22	25	23	25	29	-	38
FLIP91-137C	36	26	25	33	21	28	31	-	40
FLIP91-158C	40	29	27	27	27	28	31	-	40
FLIP91-176C	42	31	32	39	-	39	38	-	44
FLIP91-182C	43	34	30	36	-	33	34	-	42
FLIP91-194C	31	26	25	27	-	29	29	-	38
FLIP91-201C	45	28	30	37	-	36	32	-	43
FLIP91-218C	40	27	27	34	-	30	32	-	40
FLIP92-9C	27	26	25	28	22	29	25	40	35
FLIP92-20C	36	29	25	29	21	30	28	36	38
FLIP92-21C	42	33	27	35	-	34	35	40	41
FLIP92-23C	27	27	22	28	20	26	26	31	38
FLIP92-33C	35	25	25	27	-	27	27	37	35
FLIP92-36C	38	29	27	28	-	31	31	41	38
FLIP92-37C	35	28	22	27	22	29	31	30	37
FLIP92-41C	27	25	20	27	24	24	26	34	35
FLIP92-42C	37	27	30	31	-	32	32	37	40
FLIP92-43C	35	29	30	32	22	32	26	39	39
FLIP92-44C	40	31	27	37	28	33	32	36	41
FLIP92-47C	40	30	22	30	-	29	34	34	41
FLIP92-49C	38	32	27	48	-	33	33	39	43
FLIP92-51C	38	28	25	32	-	29	29	35	39
FLIP92-53C	32	25	20	28	20	31	26	31	36
FLIP92-54C	32	23	22	29	-	26	26	33	39
FLIP92-56C	28	26	25	29	24	28	30	32	37
FLIP92-57C	33	32	27	34	-	34	32	37	41
FLIP92-60C	38	32	30	32	-	29	32	39	43
FLIP92-61C	43	31	30	34	-	35	32	39	42
FLIP92-67C	40	28	27	31	30	32	35	38	43
FLIP92-69C	39	31	27	31	-	35	33	38	41
FLIP92-74C	43	32	25	37	22	32	35	38	42
FLIP92-75C	42	32	27	34	-	34	34	39	45

Table 3.6.4 Cont'd. ...

Entry Name	SYRIA							TURKEY	Overall Mean
	Al Ghab	Gelline	Hama	Homs	Izra'a	Jindiress	Tel Hadya	Diyarbakir	
FLIP92-76C	40	30	25	35	.	36	34	38	43
FLIP92-95C	30	25	22	29	20	26	29	32	36
FLIP92-99C	30	19	25	23	23	26	25	35	34
FLIP92-104C	40	29	27	33	.	34	33	37	43
FLIP92-105C	43	35	32	37	.	38	38	46	44
FLIP92-108C	40	31	27	32	.	33	33	42	44
FLIP92-117C	44	30	30	34	.	34	37	47	42
FLIP92-119C	45	26	32	37	.	37	38	43	46
FLIP92-121C	40	31	25	34	.	31	31	42	41
FLIP92-124C	45	33	32	37	.	38	31	41	44
FLIP92-128C	38	28	30	33	.	32	29	39	40
FLIP92-130C	38	35	27	35	27	34	30	33	45
FLIP92-131C	38	32	27	33	.	36	34	37	41
FLIP92-137C	40	28	30	33	.	34	34	41	41
FLIP92-138C	42	31	25	35	30	34	33	35	45
FLIP92-141C	38	32	30	36	.	36	34	38	44
FLIP92-148C	43	31	27	35	.	36	34	39	44
FLIP92-149C	43	32	32	39	.	36	37	44	44
FLIP92-156C	38	30	27	30	.	31	31	38	42
FLIP92-160C	40	31	25	31	.	29	29	33	41
FLIP92-168C	37	25	27	33	.	31	30	40	41
FLIP92-182C	37	30	30	30	.	31	30	36	39
FLIP92-183C	40	26	27	31	.	28	35	39	40
FLIP92-185C	43	32	27	34	.	34	35	43	43
FLIP82-150C	40	27	27	30	.	28	29	31	39
ILC 482	23	29	22	25	21	26	27	34	36
Local Check	23	25	25	28	.	26	26	32	.
Location Mean	37	29	27	32	23	32	31	37	.
S.E. of Mean	2	3	3	2	3	3	2		
L.S.D. at 5%	5	6	6	5	27	6	4		
L.S.D. for T.E. in S.B	5	6	6	5	41	6	4		
L.S.D. for T.E. in D.B	5	6	6	5	35	6	4		
C.V. %	6	9	10	7	9	9	6		
Efficiency %	107	106	100	128	30	107	112		

One Rep.

* The mean has been calculated excluding the locations with incomplete data.

Table 3.6.5 100-Seed yield (g) of entries in the CISM-SP-94 conducted at different locations.

Entry Name	CHINA	IRAN		LEBANON		SYRIA	
	Qinghai	Maragheh	Shirvan	Terbol	Al Ghab	Homs	Jindiress
FLIP90-21C	33	45	36	37	35	39	36
FLIP90-181C	31	41	32	31	30	32	28
FLIP91-64C	34	43	32	39	35	38	35
FLIP91-104C	37	54	39	40	33	41	37
FLIP91-108C	34	45	37	35	34	35	32
FLIP91-113C	28	47	38	33	34	39	31
FLIP91-137C	38	52	42	42	39	44	34
FLIP91-158C	31	43	33	33	30	33	30
FLIP91-176C	34	48	34	45	38	43	40
FLIP91-182C	30	40	31	33	31	34	29
FLIP91-194C	33	46	35	38	35	39	34
FLIP91-201C	35	39	35	36	30	39	35
FLIP91-218C	31	40	32	33	28	39	38
FLIP92-9C	29	47	38	38	33	39	35
FLIP92-20C	32	44	29	31	31	36	32
FLIP92-21C	30	38	29	30	29	34	28
FLIP92-23C	26	38	30	30	26	31	28
FLIP92-23C	28	40	31	32	33	35	28
FLIP92-33C	24	35	27	25	30	30	27
FLIP92-36C	33	48	37	37	34	39	31
FLIP92-37C	55	40	30	28	30	29	28
FLIP92-41C	31	42	35	32	31	34	28
FLIP92-42C	35	41	29	29	28	32	26
FLIP92-43C	29	38	29	29	26	34	29
FLIP92-44C	28	41	32	31	28	30	29
FLIP92-47C	32	37	34	29	31	35	30
FLIP92-49C	28	49	36	37	30	39	35
FLIP92-51C	35	39	30	29	28	30	31
FLIP92-53C	30	39	31	28	27	33	27
FLIP92-54C	30	38	29	28	28	29	26
FLIP92-56C	32	37	29	30	26	34	28
FLIP92-57C	27	40	32	30	27	31	27
FLIP92-60C	29	39	30	32	29	33	30
FLIP92-61C	29	38	27	27	24	29	28
FLIP92-67C	31	40	30	29	29	33	29
FLIP92-69C	28	38	27	30	26	32	29
FLIP92-74C	29	39	29	31	28	36	30
FLIP92-75C							

Cont'd. ...

Table 3.6.5 Cont'd. ...

Entry Name	CHINA	IRAN		LEBANON		SYRIA	
	Qinghai	Maragheh	Shirvan	Terbol	Al Ghab	Homs	Jindiress
FLIP92-76C	30	39	27	29	27	37	30
FLIP92-95C	34	37	27	29	28	33	29
FLIP92-99C	29	54	42	38	33	39	33
FLIP92-104C	31	37	29	30	30	33	26
FLIP92-105C	35	46	35	36	32	39	33
FLIP92-108C	32	42	32	30	28	38	31
FLIP92-117C	37	44	35	45	40	41	39
FLIP92-119C	35	32	26	29	30	30	24
FLIP92-121C	27	34	25	28	25	29	28
FLIP92-124C	28	37	28	34	32	33	28
FLIP92-128C	32	41	34	35	32	36	33
FLIP92-130C	29	36	33	27	25	32	24
FLIP92-131C	30	37	29	30	27	34	29
FLIP92-137C	29	39	29	29	27	34	30
FLIP92-138C	27	36	28	30	27	34	31
FLIP92-141C	32	41	28	29	28	31	26
FLIP92-148C	31	39	30	30	27	34	31
FLIP92-149C	35	40	34	35	29	37	33
FLIP92-156C	35	41	32	32	30	37	30
FLIP92-160C	25	33	25	24	24	25	27
FLIP92-168C	32	42	33	34	28	38	32
FLIP92-182C	33	43	29	33	29	34	30
FLIP92-183C	30	41	33	32	30	35	32
FLIP92-185C	33	48	33	33	28	36	31
FLIP82-150C	30	34	24	23	31	26	26
ILC 462	26	42	29	27	29	31	26
Local Check	26	38	28	28	26	38	34
Location Mean	31	41	31	32	30	35	30
S.E. of Mean	One Rep.	3	2	1	3	2	2
L.S.D. at 5%		6	5	2	6	3	4
L.S.D. for T.E. in S.B		6	5	2	6	3	4
L.S.D. for T.E. in D.B		6	5	2	6	3	4
C.V. %		7	7	3	10	4	7
		100	109	105	101	102	100

Cont'd. ...

Table 3.6.5 Cont'd. ...

Entry Name	SYRIA		TURKEY
	Tel Hadya	Diyarbakir	Overall Mean
FLIP90-21C	32	-	36
FLIP90-181C	29	-	32
FLIP91-64C	32	-	36
FLIP91-104C	32	-	39
FLIP91-108C	30	-	35
FLIP91-113C	31	-	35
FLIP91-137C	39	-	41
FLIP91-158C	29	-	33
FLIP91-176C	35	-	40
FLIP91-182C	28	-	32
FLIP91-194C	33	-	37
FLIP91-201C	31	-	35
FLIP91-218C	29	-	34
FLIP92-9C	38	37	37
FLIP92-20C	30	31	33
FLIP92-21C	26	28	31
FLIP92-23C	24	27	29
FLIP92-33C	27	30	32
FLIP92-36C	23	25	28
FLIP92-37C	33	32	36
FLIP92-41C	24	27	33
FLIP92-42C	30	30	33
FLIP92-43C	32	30	31
FLIP92-43C	25	26	30
FLIP92-44C	28	31	31
FLIP92-47C	25	28	32
FLIP92-49C	32	32	36
FLIP92-51C	25	28	31
FLIP92-53C	25	30	30
FLIP92-54C	24	27	29
FLIP92-56C	24	28	30
FLIP92-57C	25	29	30
FLIP92-60C	24	27	31
FLIP92-61C	23	27	28
FLIP92-67C	27	26	31
FLIP92-69C	23	28	29
FLIP92-74C	26	29	31
FLIP92-75C			

Entry Name	SYRIA		TURKEY
	Tel Hadya	Diyarbakir	Overall Mean
FLIP92-76C	25	29	31
FLIP92-95C	26	26	30
FLIP92-99C	33	37	38
FLIP92-104C	26	28	30
FLIP92-105C	31	32	36
FLIP92-108C	27	29	33
FLIP92-117C	35	34	40
FLIP92-119C	24	26	29
FLIP92-121C	25	26	28
FLIP92-124C	24	27	31
FLIP92-128C	29	31	34
FLIP92-130C	22	25	29
FLIP92-131C	25	27	30
FLIP92-137C	24	27	30
FLIP92-138C	25	28	30
FLIP92-141C	26	26	30
FLIP92-148C	26	28	31
FLIP92-149C	28	30	34
FLIP92-156C	28	30	33
FLIP92-160C	22	21	26
FLIP92-168C	28	29	33
FLIP92-182C	28	28	32
FLIP92-183C	27	29	32
FLIP92-185C	27	28	34
FLIP92-150C	21	22	27
ILC 482	23	25	29
Local Check	29	29	-
Location Mean	28	28	
S.E. of Mean	2		
L.S.D. at 5%	3		
L.S.D. for T.E. in S.B	3		
L.S.D. for T.E. in D.B	3		
C.V. %	5		
Efficiency %	116		

One Rep.

* The mean has been calculated excluding the locations with incomplete data.

Table 3.6.6 Seed yield (y=kg/ha) and rank (R) of entries in the CISM-SP-94 conduit different locations

Entry Name	CANADA		CHINA		IRAN					
	Saskatoon		Qinghai		Karaj		Maragheh		Mashhad	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP90-21C	3209	48	96	57	2102	7	1271	26	1631	31
FLIP90-181C	4480	18	208	51	1359	50	1170	32	3542	2
FLIP91-64C	3538	40	354	45	994	60	1066	45	1135	49
FLIP91-104C	4429	19	375	42	2083	10	1530	2	1545	35
FLIP91-108C	4572	17	125	55	1527	40	1316	16	920	56
FLIP91-113C	3162	49	83	59	1321	52	975	56	1566	32
FLIP91-137C	3077	53	63	61	883	63	1285	22	861	57
FLIP91-158C	4649	15	646	26	1435	45	1064	46	809	59
FLIP91-176C	3095	52	521	32	2086	9	591	64	750	60
FLIP91-182C	5018	5	1021	7	1403	46	1026	52	2186	15
FLIP91-194C	3907	30	300	48	1022	57	1172	31	1201	48
FLIP91-201C	3954	29	667	24	1025	56	1055	49	1479	39
FLIP91-218C	4279	23	729	18	1359	49	1218	29	1344	45
FLIP92-9C	4369	21	355	43	889	62	1430	4	405	64
FLIP92-20C	4732	14	417	39	2213	6	1427	6	705	61
FLIP92-21C	3601	39	596	28	1511	41	1292	21	691	62
FLIP92-23C	3956	28	396	41	1892	19	1374	9	2494	9
FLIP92-33C	4815	10	83	59	1956	16	1365	10	2617	6
FLIP92-36C	4023	27	146	53	1644	34	1407	8	2924	4
FLIP92-37C	4048	26	500	33	1756	30	1228	27	1870	26
FLIP92-41C	5536	2	146	53	1451	43	1301	19	2078	19
FLIP92-42C	4316	22	546	31	1663	33	1307	18	2015	20
FLIP92-43C	4901	8	583	29	2044	12	1429	5	988	55
FLIP92-44C	4222	24	458	34	1298	53	1317	15	1851	27
FLIP92-47C	4582	16	458	34	1463	42	1354	12	1477	40
FLIP92-49C	3381	46	354	44	1587	37	975	57	1547	33
FLIP92-51C	2060	63	54	62	1568	38	1284	23	1443	42
FLIP92-53C	3836	34	-	64	1292	54	1067	44	1882	25
FLIP92-54C	3653	37	333	46	2302	3	1296	20	2218	14
FLIP92-56C	5314	4	400	40	1438	44	1142	37	1394	43
FLIP92-57C	2219	62	771	16	1971	15	885	61	1521	36
FLIP92-60C	3870	32	687	21	1324	51	1471	3	1508	38
FLIP92-61C	3292	47	1063	5	1857	23	1227	28	1988	22
FLIP92-67C	3881	31	687	21	2232	5	1015	53	2321	13
FLIP92-69C	3644	38	958	8	1387	47	1426	7	2587	7
FLIP92-74C	3046	56	896	11	1800	28	1063	47	1083	52
FLIP92-75C	3385	45	708	19	1848	25	1271	25	1940	24

Cont'd. ...

Table 3.6.6 Cont'd. ...

Entry Name	CANADA		CHINA		IRAN					
	Saskatoon		Qinghai		Karaj		Maragheh		Mashhad	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-76C	2600	59	279	49	2276	4	1161	33	1510	37
FLIP92-95C	4087	25	188	52	1632	35	1557	1	1452	41
FLIP92-99C	3067	54	250	50	749	64	949	58	472	63
FLIP92-104C	3110	51	437	37	1768	29	980	55	2122	17
FLIP92-105C	3446	42	917	10	1838	26	1059	48	1266	47
FLIP92-108C	3388	44	446	36	2048	11	1194	30	1066	53
FLIP92-117C	3504	41	1396	1	927	61	1033	51	1104	51
FLIP92-119C	2623	58	854	13	2019	13	1347	13	1114	50
FLIP92-121C	3863	33	1104	4	1756	30	1278	24	2377	12
FLIP92-124C	4378	20	700	20	1600	36	945	59	2149	16
FLIP92-128C	3655	36	675	23	1016	59	777	63	1785	30
FLIP92-130C	3696	35	608	27	1835	27	862	62	2498	8
FLIP92-131C	2299	60	667	24	1016	58	1148	36	1298	46
FLIP92-137C	3388	43	583	30	1870	20	1159	34	1031	54
FLIP92-138C	3059	55	1333	2	1946	17	1142	38	2086	18
FLIP92-141C	3127	50	938	9	1730	32	945	60	1346	44
FLIP92-148C	2261	61	1021	6	1924	18	1108	42	1547	34
FLIP92-149C	4953	7	417	38	1867	22	1097	43	1841	28
FLIP92-156C	4811	12	896	11	2590	1	1041	50	2479	10
FLIP92-160C	4831	9	25	63	1867	21	1361	11	844	58
FLIP92-168C	4814	11	750	17	1286	55	1130	40	1804	29
FLIP92-182C	5941	1	792	15	1543	39	996	54	2884	5
FLIP92-183C	4999	6	317	47	1851	24	1152	35	3214	3
FLIP92-185C	4746	13	1270	3	2010	14	1128	41	1951	23
FLIP82-150C	5460	3	83	58	1365	48	1141	39	1997	21
ILC 482	2878	57	125	56	2089	8	1321	14	2470	11
Local Check	1844	64	833	14	2527	2	1312	17	3704	1
Location Mean	3857		547		1655		1178		1718	
S.E. of Mean	685		404		439		173		884	
L.S.D. at 5%	1343		769		882		337		1730	
L.S.D. for T.E. in S.B	1387		1097		882		351		1790	
L.S.D. for T.E. in D.B	1377		817		882		348		1777	
T.E > L. Check	47		0		0		0		0	
C.V. %	17		70		27		14		48	
Efficiency %	115		85		100		144		118	

Cont'd. ...

Table 3.6.6 Cont'd. ...

Entry Name	IRAN		LEBANON		SAUDI ARABIA		SYRIA			
	Shirvan		Terbol		Derab		Al Ghab		Gelline	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP90-21C	313	19	1061	8	1582	11	889	46	368	34
FLIP90-181C	326	15	796	53	1385	24	1525	2	246	54
FLIP91-64C	203	61	796	53	914	52	639	63	353	36
FLIP91-104C	350	11	1041	9	904	54	1254	12	278	49
FLIP91-108C	296	27	898	34	1214	36	1019	30	314	44
FLIP91-113C	342	12	939	24	1442	19	1016	32	132	62
FLIP91-137C	236	54	796	56	716	58	1081	22	125	63
FLIP91-158C	301	24	939	24	689	60	904	44	405	28
FLIP91-176C	103	64	449	63	1341	26	618	64	171	61
FLIP91-182C	321	17	959	18	1682	10	1177	17	501	9
FLIP91-194C	248	49	857	41	1401	23	990	34	551	3
FLIP91-201C	296	26	1082	5	826	55	1060	25	81	64
FLIP91-218C	304	21	857	41	1417	22	1382	5	220	55
FLIP92-9C	324	16	959	23	1106	41	1093	20	262	53
FLIP92-20C	268	41	1082	5	1887	5	1085	21	454	13
FLIP92-21C	235	56	1000	12	1014	47	1207	14	456	12
FLIP92-23C	362	7	959	18	1432	20	983	35	354	35
FLIP92-33C	269	40	918	30	931	50	1295	9	372	33
FLIP92-36C	446	2	1061	7	557	63	1305	8	343	40
FLIP92-37C	276	36	939	24	1425	21	1635	1	420	23
FLIP92-41C	302	23	980	16	929	51	967	40	504	8
FLIP92-42C	400	3	878	36	1531	13	1334	6	405	27
FLIP92-43C	272	37	939	24	1497	15	1064	24	541	4
FLIP92-44C	292	29	857	41	2488	3	1270	10	423	21
FLIP92-47C	297	25	959	18	2628	1	1333	7	444	15
FLIP92-49C	166	62	878	39	703	59	1267	11	436	17
FLIP92-51C	455	1	918	30	1104	42	936	42	426	19
FLIP92-53C	331	14	837	45	1281	28	916	43	315	43
FLIP92-54C	294	28	878	37	907	53	1254	13	306	46
FLIP92-56C	287	32	816	49	1241	33	1034	26	269	52
FLIP92-57C	256	47	837	45	1162	39	789	53	484	10
FLIP92-60C	280	34	1143	1	2536	2	1003	33	392	30
FLIP92-61C	258	46	1020	11	1000	48	967	39	431	18
FLIP92-67C	302	22	959	22	1482	16	968	38	181	59
FLIP92-69C	358	10	1000	12	1093	43	885	48	537	5
FLIP92-74C	227	57	939	24	1760	7	811	51	510	7
FLIP92-75C	312	20	980	16	1723	8	1155	18	391	31

Cont'd. ...

Table 3.6.6 Cont'd. ...

Entry Name	IRAN		LEBANON		SAUDI ARABIA		SYRIA			
	Shirvan		Terbol		Derab		Al Ghab		Gelline	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-76C	264	42	755	58	1377	25	749	55	409	25
FLIP92-95C	313	18	1143	1	1223	35	1186	16	393	29
FLIP92-99C	270	38	755	58	991	49	745	56	195	57
FLIP92-104C	270	39	816	49	1033	46	903	45	438	16
FLIP92-105C	240	51	776	57	1209	37	671	61	389	32
FLIP92-108C	261	44	984	15	1803	6	732	57	581	1
FLIP92-117C	154	63	591	62	1060	45	665	62	274	51
FLIP92-119C	288	31	959	18	1240	34	702	59	274	50
FLIP92-121C	255	48	796	55	1247	31	810	52	409	26
FLIP92-124C	239	53	327	64	1245	32	724	58	299	47
FLIP92-128C	207	59	592	61	1175	38	701	60	554	2
FLIP92-130C	359	9	918	30	1714	9	1027	29	482	11
FLIP92-131C	363	6	904	33	642	61	969	36	421	22
FLIP92-137C	236	55	878	37	1898	4	1033	27	350	37
FLIP92-138C	342	13	837	45	1472	17	887	47	350	38
FLIP92-141C	224	58	816	49	1280	29	766	54	327	42
FLIP92-148C	203	60	837	45	1341	27	1018	31	419	24
FLIP92-149C	260	45	898	34	1499	14	859	50	286	48
FLIP92-156C	278	35	939	24	1562	12	1032	28	192	58
FLIP92-160C	281	33	1082	4	1272	30	1523	3	521	6
FLIP92-168C	239	52	857	41	1108	40	1205	15	198	56
FLIP92-182C	241	50	633	60	619	62	951	41	334	41
FLIP92-183C	362	8	816	49	1445	18	875	49	171	60
FLIP92-185C	289	30	1000	12	817	56	968	37	426	20
FLIP82-150C	263	43	1020	10	1063	44	1078	23	343	39
ILC 482	364	5	1122	3	721	57	1112	19	309	45
Local Check	369	4	878	40	-	-	1446	4	445	14
Location Mean	287		893		1284		1023		362	
S.E. of Mean	66		135		677		305		136	
L.S.D. at 5%	130		271		1330		613		267	
L.S.D. for T.E. in S.B	132		271		1375		614		276	
L.S.D. for T.E. in D.B	132		271		1361		614		274	
T.E > L. Check	0		0		-		0		0	
C.V. %	22		15		50		30		35	
Efficiency %	103		100		110		100		119	

Cont'd. ...

Table 3.6.6 Cont'd. ...

Entry Name	SYRIA									
	Hama		Homs		Lazra'a		Jindress		Tel Hadya	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP90-21C	263	50	823	47	-		1113	11	861	11
FLIP90-181C	566	12	771	50	262	3	1129	10	638	36
FLIP91-64C	280	48	754	51	1	39	974	26	600	42
FLIP91-104C	595	10	639	58	216	5	728	57	1318	1
FLIP91-108C	600	9	519	61	247	4	827	48	638	35
FLIP91-113C	722	3	671	54	379	1	742	55	603	41
FLIP91-137C	667	6	661	57	185	7	610	62	710	22
FLIP91-158C	431	22	665	55	141	11	624	61	800	15
FLIP91-176C	116	60	939	30	-		1104	12	512	56
FLIP91-182C	317	41	1007	20	9	25	1004	24	594	43
FLIP91-194C	440	20	672	53	8	29	776	53	748	19
FLIP91-201C	461	18	460	63	1	42	1095	14	662	30
FLIP91-218C	471	17	881	35	-		1103	13	857	13
FLIP92-9C	672	5	1018	17	265	2	1236	6	1207	2
FLIP92-20C	504	16	1075	10	81	14	1181	7	1153	3
FLIP92-21C	245	51	1086	7	-		878	38	1002	4
FLIP92-23C	654	7	1026	15	131	12	443	64	705	24
FLIP92-33C	400	25	1092	6	9	24	1012	22	792	16
FLIP92-36C	313	43	980	24	0	45	1152	8	644	32
FLIP92-37C	524	14	960	26	58	17	1415	2	930	7
FLIP92-41C	565	13	952	27	171	9	855	43	866	10
FLIP92-42C	339	36	868	39	6	30	980	25	858	12
FLIP92-43C	349	32	1016	18	73	15	902	34	685	26
FLIP92-44C	333	37	1115	4	70	16	1054	16	552	50
FLIP92-47C	414	24	912	32	-		1033	19	747	20
FLIP92-49C	317	42	841	41	8	28	941	30	694	25
FLIP92-51C	323	40	1012	19	-		816	49	734	21
FLIP92-53C	505	15	981	23	9	26	1023	21	761	17
FLIP92-54C	448	19	1060	13	9	23	546	63	669	29
FLIP92-56C	594	11	561	59	183	8	635	60	589	45
FLIP92-57C	346	33	941	29	12	21	863	42	581	46
FLIP92-60C	311	44	1085	8	8	27	648	59	520	55
FLIP92-61C	435	21	912	31	-		890	36	615	37
FLIP92-67C	333	38	745	52	43	19	922	32	524	54
FLIP92-69C	393	27	548	60	-		1576	1	662	31
FLIP92-74C	361	30	1081	9	-		864	41	424	60
FLIP92-75C	361	31	445	64	2	37	756	54	527	53

Cont'd. ...

Table 3.6.6 Cont'd. ...

Entry Name	SYRIA									
	Hama		Homs		Izra'a		Jindireess		Tel Hadya	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-76C	427	23	828	46	-		901	35	556	49
FLIP92-95C	728	2	1270	1	57	18	954	28	640	34
FLIP92-99C	735	1	493	62	157	10	665	58	589	44
FLIP92-104C	328	39	795	49	3	34	806	50	509	57
FLIP92-105C	188	56	834	43	-		1140	9	815	14
FLIP92-108C	344	34	830	44	1	41	730	56	414	61
FLIP92-117C	58	63	1070	11	3	35	855	44	543	51
FLIP92-119C	172	57	942	28	-		851	45	312	64
FLIP92-121C	382	28	897	33	-		1011	23	709	23
FLIP92-124C	52	64	1060	14	5	32	834	46	457	59
FLIP92-128C	113	61	835	42	1	43	795	51	560	48
FLIP92-130C	398	26	964	25	39	20	872	39	561	47
FLIP92-131C	213	53	663	56	1	40	1048	17	371	63
FLIP92-137C	295	47	871	38	0	44	903	33	611	39
FLIP92-138C	343	35	828	45	90	13	792	52	495	58
FLIP92-141C	374	29	872	37	11	22	885	37	536	52
FLIP92-148C	225	52	809	48	-		834	47	670	28
FLIP92-149C	152	59	988	22	3	33	1280	3	642	33
FLIP92-156C	210	55	897	34	-		1067	15	881	9
FLIP92-160C	275	49	1121	3	3	36	947	29	1000	5
FLIP92-168C	85	62	1100	5	-		973	27	384	62
FLIP92-182C	212	54	1006	21	2	38	1038	18	673	27
FLIP92-183C	300	45	1069	12	-		1256	5	759	18
FLIP92-185C	163	58	1022	16	6	31	1025	20	614	38
FLIP82-150C	297	46	866	40	-		869	40	604	40
ILC 482	675	4	875	36	189	6	929	31	923	8
Local Check	617	8	1244	2	-		1269	4	940	6
Location Mean	380		888		72		937		684	
S.E. of Mean	59		164				245		226	
L.S.D. at 5%	115		319				481		443	
L.S.D. for T.E. in S.B	119		333				495		458	
L.S.D. for T.E. in D.B	118		330				492		455	
T.E > L. Check	1		0				0		0	
C.V. %	15		17				25		31	
Efficiency %	110		170				109		118	

Cont'd. ...

Table 3.6.6 Cont'd. ...

Entry Name	TUNISIA				TURKEY				Overall Mean	
	Beja		Oued Meliz		Ankara		Diyarbakir			
	Y	R	Y	R	Y	R	Y	R		
FLIP90-21C	1930	6	3909	7	282	52	-	-	1260	27
FLIP90-181C	1654	28	2724	48	-	-	-	-	1340	11
FLIP91-64C	1209	53	2506	55	355	28	-	-	964	60
FLIP91-104C	1758	16	3610	18	287	51	-	-	1332	14
FLIP91-108C	1888	9	2971	37	372	25	-	-	1170	38
FLIP91-113C	1941	5	2946	40	409	15	-	-	1117	44
FLIP91-137C	1576	37	2465	58	380	23	-	-	941	61
FLIP91-158C	1284	54	2321	62	366	27	-	-	1065	52
FLIP91-176C	845	64	2643	51	332	35	-	-	934	62
FLIP91-182C	1410	51	3814	11	309	42	-	-	1379	4
FLIP91-194C	1817	12	2490	56	316	41	-	-	1094	48
FLIP91-201C	1128	62	2980	36	243	58	-	-	1077	51
FLIP91-218C	1679	26	2695	49	289	49	-	-	1223	32
FLIP92-9C	2161	1	3656	14	554	2	956	4	1259	28
FLIP92-20C	1795	13	3897	8	411	13	917	6	1409	2
FLIP92-21C	1613	33	4034	6	546	3	639	34	1204	34
FLIP92-23C	1894	8	3130	31	427	11	733	24	1305	21
FLIP92-33C	1636	30	2946	39	347	30	550	40	1324	16
FLIP92-36C	1651	29	4304	4	432	9	94	51	1347	9
FLIP92-37C	1760	15	3354	24	223	59	550	40	1359	8
FLIP92-41C	1969	3	4822	1	331	36	667	32	1435	1
FLIP92-42C	1970	2	3277	27	180	62	789	18	1335	13
FLIP92-43C	1853	10	3574	20	248	56	683	30	1336	12
FLIP92-44C	1712	21	2902	42	289	50	389	50	1307	20
FLIP92-47C	1526	39	3819	10	432	10	872	10	1379	5
FLIP92-49C	1258	56	2372	61	149	63	789	18	1043	54
FLIP92-51C	1239	59	2407	59	273	54	767	22	987	58
FLIP92-53C	1791	14	3650	15	624	1	794	17	1203	35
FLIP92-54C	1752	17	2814	45	498	5	989	2	1220	33
FLIP92-56C	1691	24	3616	17	325	38	772	21	1247	29
FLIP92-57C	1417	49	2984	35	376	24	917	6	1061	53
FLIP92-60C	1510	42	3493	21	405	16	800	16	1282	24
FLIP92-61C	1538	38	2912	41	401	17	811	14	1200	36
FLIP92-67C	1157	61	2465	57	291	48	694	28	1189	37
FLIP92-69C	1724	20	3178	30	346	31	611	36	1291	23
FLIP92-74C	1513	41	2637	53	296	46	722	25	1118	43
FLIP92-75C	1431	47	1976	64	412	12	600	37	1130	41

Table 3.6.6 Cont'd. ...

Entry Name	TUNISIA				TURKEY				Overall Mean	
	Beja		Oued Meliz		Ankara		Diyarbakir			
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-76C	1400	52	3053	32	397	18	878	9	1090	49
FLIP92-95C	1700	23	3838	9	278	53	972	3	1315	19
FLIP92-99C	1614	32	2640	52	306	43	472	45	902	63
FLIP92-104C	1617	31	2814	44	386	22	694	28	1103	45
FLIP92-105C	1445	44	3634	16	409	14	644	33	1168	39
FLIP92-108C	1212	60	2583	54	530	4	711	26	1095	47
FLIP92-117C	1267	55	3052	33	334	34	428	49	1033	55
FLIP92-119C	1422	48	2211	63	299	45	556	39	1019	56
FLIP92-121C	1439	46	3353	26	218	60	944	5	1275	25
FLIP92-124C	1257	57	3022	34	348	29	433	47	1135	40
FLIP92-128C	989	63	2812	46	247	57	806	15	1014	57
FLIP92-130C	1441	45	2791	47	488	6	494	43	1239	30
FLIP92-131C	1725	19	2878	43	397	19	433	47	978	59
FLIP92-137C	1522	40	2382	60	294	47	833	13	1118	42
FLIP92-138C	1606	36	3375	23	445	8	711	26	1234	31
FLIP92-141C	1248	58	3227	29	339	33	533	42	1097	46
FLIP92-148C	1449	43	2669	50	319	39	778	20	1078	50
FLIP92-149C	1610	35	3416	22	387	21	628	35	1298	22
FLIP92-156C	1412	50	3581	19	318	40	889	8	1404	3
FLIP92-160C	1955	4	4319	3	482	7	672	31	1366	7
FLIP92-168C	1915	7	3744	13	300	44	1050	1	1270	26
FLIP92-182C	1702	22	3235	28	218	61	567	38	1341	10
FLIP92-183C	1844	11	2965	38	328	37	461	46	1375	6
FLIP92-185C	1610	34	3353	25	371	26	839	12	1318	17
FLIP82-150C	1688	25	4241	5	343	32	489	44	1316	18
ILC 482	1732	18	4798	2	397	20	872	10	1331	15
Local Check	1677	27	3773	12	253	55	761	23	-	-
Location Mean	1582		3188		352		699			
S.E. of Mean	207		521		134		One Rep.			
L.S.D. at 5%	404		1010		263					
L.S.D. for T.E. in S.B	418		1057		271					
L.S.D. for T.E. in D.B	415		1047		269					
T.E > L. Check	1		1		4					
C.V. %	12		15		36					
Efficiency %	121		194		109					

* The mean has been calculated excluding the locations with incomplete data.

Table 3.6.7. The five heaviest seed yielding entries conducted at the individual locations in the CISN-SP-94.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
CANADA	Saskatoon	FLIP92-182C	FLIP92-41C	FLIP92-150C	FLIP92-56C	FLIP91-182C
CHINA	Qinghai	FLIP92-117C	FLIP92-138C	FLIP92-185C	FLIP92-121C	FLIP92-61C
IRAN	Karaj	FLIP92-156C	Local Check	FLIP92-54C	FLIP92-76C	FLIP92-67C
IRAN	Maragheh	FLIP92-95C	FLIP91-104C	FLIP92-60C	FLIP92-9C	FLIP92-43C
IRAN	Mashhad	Local Check	FLIP90-181C	FLIP92-183C	FLIP92-36C	FLIP92-182C
IRAN	Shirvan	FLIP92-51C	FLIP92-36C	FLIP92-42C	Local Check	ILC 482
LEBANON	Terbol	FLIP92-60C		ILC 482	FLIP92-160C	FLIP91-201C
		FLIP92-95C				FLIP92-20C
SAUDI ARABIA	Derab	FLIP92-47C	FLIP92-60C	FLIP92-44C	FLIP92-137C	FLIP92-20C
SYRIA	Al Ghab	FLIP92-37C	FLIP90-181C	FLIP92-160C	Local Check	FLIP91-218C
SYRIA	Gelline	FLIP92-108C	FLIP92-128C	FLIP91-194C	FLIP92-43C	FLIP92-69C
SYRIA	Hama	FLIP92-99C	FLIP92-95C	FLIP91-113C	ILC 482	FLIP92-9C
SYRIA	Homs	FLIP92-95C	Local Check	FLIP92-160C	FLIP92-44C	FLIP92-168C
SYRIA	Izra'a	FLIP91-113C	FLIP92-9C	FLIP90-181C	FLIP91-108C	FLIP91-104C
SYRIA	Jindiress	FLIP92-69C	FLIP92-37C	FLIP92-149C	Local Check	FLIP92-183C
SYRIA	Tel Hadya	FLIP91-104C	FLIP92-9C	FLIP92-20C	FLIP92-21C	FLIP92-160C
TUNISIA	Beja	FLIP92-9C	FLIP92-42C	FLIP92-41C	FLIP92-160C	FLIP91-113C
TUNISIA	Oued Meliz	FLIP92-41C	ILC 482	FLIP92-160C	FLIP92-36C	FLIP92-150C
TURKEY	Ankara	FLIP92-53C	FLIP92-9C	FLIP92-21C	FLIP92-108C	FLIP92-54C
TURKEY	Diyarbakir	FLIP92-168C	FLIP92-54C	FLIP92-95C	FLIP92-9C	FLIP92-121C

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

Material

The Chickpea International Screening Nursery-Winter comprised 61 test entries which originated from the materials developed through hybridization at ICARDA. The nursery also included three checks, two namely ILC 482, FLIP 82-150C were supplied, and one local check to be added 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 replicated plots of 4m length in an 8x8 lattice design with 2 replications. The suggested spacings between rows were 45 cm.

Fifty sets of the nursery were distributed to cooperators in 18 countries and the results were received from 29 locations in 11 countries. The agronomic details received from the cooperators are given in Table 3.7.1.

Results and Discussion

The data on time to flowering, time to maturity, plant height and 100-seed weight are given in Tables 3.7.2, 3.7.3, 3.7.4, and 3.7.5, respectively. On the basis of average over locations, the entries FLIP 90-98C and ILC 482 were among the earliest to flower in 112 days. Days to maturity, ranged between 161 and 166 days. On the basis of entry means over locations FLIP 91-162C was the tallest with 60 cm plant height; and entries FLIP 91-18C and FLIP 91-50C, had the largest seed size (39 g/100-seed).

The adjusted seed yields of entries are presented in Table 3.7.6. The ANOVA for seed yield revealed that at 13 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 92-40C, ILC 482, FLIP 92-169C, FLIP 92-162C, and FLIP 82-150C. The top five heaviest yielders at each location are presented in Table 3.7.7.

Table 3.7.1. Agronomic details of entries in the CISH-W-94 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
ALGERIA	Khroub	29-JAN-94	09-JUL-94	-	45	-	-	Igran, Kerb	ILC 32379
ALGERIA	Setif	23-NOV-93	-	-	100	-	-	Igran, Kerb	ILC 3279
CHINA	Chengdu	06-JUN-94	29-AUG-94	35	120	-	-	Carbendazim, Omethoate, Detramethrin	-
CYPRUS	Athalassa	18-NOV-93	14-JUN-94	32	72	-	-	Terbutrex	Local Cyprus
IRAN	Gonbad (Gorgan)	26-DEC-93	02-JUL-94	-	-	-	-	-	Koroosh
IRAN	Karaj	-	-	-	-	-	-	-	-
ITALY	Tarquinia	19-JAN-94	20-AUG-94	-	200	-	-	-	Principe
ITALY	Tolentino	-	-	-	-	-	-	-	Sultano
LEBANON	Tel Amara	05-DEC-93	02-JUN-94	-	-	-	-	-	Janta 2
LEBANON	Terbol	08-DEC-93	15-JUN-94	-	50	-	-	Kerb, Igran	Leb. Local
PORTUGAL	Elvas	25-NOV-93	29-JUN-94	-	-	-	-	-	CHK 510
SPAIN	Valladolid	-	-	-	-	-	-	-	-
SYRIA	Al Ghab	21-DEC-93	-	-	-	-	-	-	-
SYRIA	Al Jammassah	13-DEC-93	-	30	50	-	-	-	Ghab 2
SYRIA	Gelline	02-JAN-94	-	20	50	-	-	-	Ghab 1
SYRIA	Hama	29-NOV-93	26-MAY-94	-	50	-	-	-	Ghab 2
SYRIA	Heimo	24-NOV-93	16-JUN-94	-	100	-	-	-	Ghab 2
SYRIA	Homs	22-NOV-93	07-JUN-94	-	50	-	-	-	-
SYRIA	Idleb	09-DEC-93	-	40	60	-	-	-	Ghab 1
SYRIA	Izra'a	23-JAN-94	14-JUN-94	-	50	-	-	-	-
SYRIA	Jindiress	08-DEC-93	08-JUN-94	-	50	-	-	-	ILC 3279
SYRIA	Tel Hadya	04-DEC-93	10-JUN-94	-	50	-	-	-	ILC 3279
TUNISIA	Beja	30-NOV-93	01-JUL-94	-	45	-	-	Bravo	Amdoun 1
TUNISIA	Oued Meliz	26-NOV-93	07-JUL-94	-	45	-	-	-	Amdoun 1
TURKEY	Ankara	12-NOV-93	17-JUN-94	22	60	-	-	-	Eser-87
TURKEY	Bolkesir	-	-	-	-	-	-	-	-
TURKEY	Diyarbakir	12-DEC-93	23-JUN-94	30	60	-	-	-	Yerli Nohut
TURKEY	Izmir (Bornova)	17-DEC-93	15-JUN-94	30	60	-	-	-	ILC 195
TURKEY	Izmir-1 (Menemen)	22-DEC-93	20-JUN-94	30	60	-	-	-	Canitez

Table 3.7.2 Time to flowering (days) of entries at different locations in the CIYT_SP during 1993/94

Entry Name	Pedigree	Origin	ALGERIA	CHINA	CYPRUS	IRAN
			Khroub	Chengdu	Athalassa	Gonbad (Gorgan)
FLIP 90- 8C	X87TH 317/(PL SE. BE. 81-40XILC 195)XFLIP 84- 46C	ICARDA/ICRISAT	52	56	137	123
FLIP 90-111C	X88TH 122/FLIP 85-122CXBE. SEL. 81-48	ICARDA/ICRISAT	50	53	137	123
FLIP 91- 15C	X87TH 106/FLIP 85- 1CXFLIP 84- 78C	ICARDA/ICRISAT	52	60	142	125
FLIP 91- 18C	X87TH 165/ILC 1919XFLIP 84-99C	ICARDA/ICRISAT	52	55	140	122
FLIP 91- 19C	X87TH 230/FLIP 85- 91CXILC 1279	ICARDA/ICRISAT	52	56	139	124
FLIP 91- 45C	X87TH 10/FLIP 81-293CXFLIP 84- 93C	ICARDA/ICRISAT	51	55	140	121
FLIP 91- 50C	X88TH 79/FLIP 85- 42CXFLIP 86- 93C	ICARDA/ICRISAT	52	59	137	122
FLIP 91- 58C	X89TH 10/ILC 1254XFLIP 84-182C	ICARDA/ICRISAT	51	62	139	123
FLIP 91- 59C	X89TH 15/ILC 4291XFLIP 84-182C	ICARDA/ICRISAT	51	60	142	123
FLIP 91- 63C	X89TH 29/ILC 3777XFLIP 84- 92C	ICARDA/ICRISAT	51	52	140	123
FLIP 91-130C	X87TH 20/ILC 576XFLIP 84- 93C	ICARDA/ICRISAT	51	56	141	124
FLIP 91-140C	X88TH 307/(FLIP 85- 62CXFLIP 82- 92C)XFLIP 85- 62C	ICARDA/ICRISAT	52	53	138	124
FLIP 91-141C	X87TH 32/FLIP 83- 7CXFLIP 84-109C	ICARDA/ICRISAT	52	55	140	123
FLIP 91-146C	X87TH 136/FLIP 84- 46CXFLIP 82- 78C	ICARDA/ICRISAT	52	62	138	125
FLIP 91-155C	X87TH 144/FLIP 85- 18CXILC 482	ICARDA/ICRISAT	52	61	140	124
FLIP 91-156C	X87TH 144/FLIP 85- 18CXILC 482	ICARDA/ICRISAT	51	55	136	122
FLIP 91-162C	X88TH 32/FLIP 85-142CXFLIP 82-150C	ICARDA/ICRISAT	52	64	140	123
FLIP 91-163C	X88TH 176/FLIP 85-122CXFLIP 85-137C	ICARDA/ICRISAT	51	60	138	121
FLIP 91-169C	X88TH 206/ILC 202XS 86301	ICARDA/ICRISAT	52	58	138	123
FLIP 91-175C	X87TH 160/S 85088XILC 3870	ICARDA/ICRISAT	52	65	139	124
FLIP 91-183C	X87TH 53/ILC 5342XFLIP 84- 80C	ICARDA/ICRISAT	51	65	139	123
FLIP 91-189C	X87TH 98/FLIP 84- 17CXILC 4921	ICARDA/ICRISAT	50	50	140	122
FLIP 91-204C	X87TH 67/FLIP 82- 87CXFLIP 85- 46C	ICARDA/ICRISAT	51	56	139	123
FLIP 91-206C	X88TH 270/(ILC 482XFLIP 84- 18C)XFLIP 84- 99C	ICARDA/ICRISAT	50	54	141	121
FLIP 92- 22C	X88TH 215/FLIP 85-122CXS 85036	ICARDA/ICRISAT	51	48	138	122
FLIP 92- 25C	X89TH 25/ILC 2371XFLIP 84-182C	ICARDA/ICRISAT	50	53	137	121
FLIP 92- 27C	X90TH 127/FLIP 84-176CXFLIP 84- 79C	ICARDA/ICRISAT	51	60	139	122
FLIP 92- 40C	X89TH 103/ILC 482XFLIP 84- 93C	ICARDA/ICRISAT	51	51	140	121
FLIP 92- 48C	X89TH 189/FLIP 84- 43CXFLIP 85-122C	ICARDA/ICRISAT	51	54	137	123
FLIP 92- 58C	X89TH 166/ILC1932XFLIP 85-122C	ICARDA/ICRISAT	51	55	138	121
FLIP 92- 65C	X88TH 215/FLIP 85-122CXS 85036	ICARDA/ICRISAT	51	56	140	123
FLIP 92- 98C	X89TH 195/FLIP 85- 85CXILC 215	ICARDA/ICRISAT	50	59	138	121
FLIP 92-101C	X88TH 22/FLIP 84-124CXFLIP 83- 77C	ICARDA/ICRISAT	50	64	138	123
FLIP 92-102C	X88TH 307/(FLIP 85-62CXFLIP 82- 92C)XFLIP 85- 62C	ICARDA/ICRISAT	53	56	139	123
FLIP 92-110C	X89TH 80/FLIP 85- 18CXFLIP 84- 78C	ICARDA/ICRISAT	51	61	140	122
FLIP 92-111C	X89TH 85/FLIP 86- 77CXFLIP 85- 90C	ICARDA/ICRISAT	52	65	140	123

Cont'd. ...

Table 3.7.2 Cont'd. ...

Entry Name	Pedigree	Origin	ALGERIA	CHINA	CYPRUS	IRAN
			Khroub	Chengdu	Athalassa	Gonbad (Gorgan)
FLIP 92-112C	X89TH 141/ILC 1934XFLIP 85-122C	ICARDA/ICRISAT	52	61	141	122
FLIP 92-120C	X88TH 32/FLIP 85-142CXFLIP 82-150C	ICARDA/ICRISAT	51	54	138	123
FLIP 92-122C	X88TH 319/(FLIP 85- 91CXILC3856)XFLIP 85- 91C	ICARDA/ICRISAT	53	62	137	124
FLIP 92-123C	X88TH 216/FLIP 85-122CXFLIP 85-112C	ICARDA/ICRISAT	51	63	140	123
FLIP 92-125C	X88TH 206/ILC 202XFLIP 86-111C	ICARDA/ICRISAT	51	56	139	123
FLIP 92-126C	X88TH 206/ILC 202XFLIP 86-111C	ICARDA/ICRISAT	52	60	133	123
FLIP 92-134C	X89TH 50/ILC 4297XFLIP 82-150C	ICARDA/ICRISAT	51	56	139	121
FLIP 92-135C	X89TH 156/ILC 571XFLIP 85-122C	ICARDA/ICRISAT	50	52	138	121
FLIP 92-142C	X89TH 419/ILC 4641XTREE TYPE	ICARDA/ICRISAT	50	53	137	122
FLIP 92-146C	X89TH 166/ILC 1932XFLIP 85-122C	ICARDA/ICRISAT	50	51	138	121
FLIP 92-147C	X89TH 166/ILC1932XFLIP 85-122C	ICARDA/ICRISAT	51	51	140	122
FLIP 92-154C	X89TH 14/ILC 4291XFLIP 84- 92C	ICARDA/ICRISAT	51	56	141	123
FLIP 92-155C	X89TH 24/ILC 2371XFLIP 84- 92C	ICARDA/ICRISAT	50	54	140	123
FLIP 92-162C	X89TH 19/ILC 5365XFLIP 84- 92C	ICARDA/ICRISAT	51	57	141	123
FLIP 92-163C	X89TH 24/ILC 2371XFLIP 84- 92C	ICARDA/ICRISAT	51	57	141	122
FLIP 92-164C	X89TH 24/ILC 2371XFLIP 84- 92C	ICARDA/ICRISAT	52	55	140	123
FLIP 92-165C	X89TH 24/ILC 2371XFLIP 84- 92C	ICARDA/ICRISAT	51	58	139	123
FLIP 92-166C	X89TH 24/ILC 2371XFLIP 84- 92C	ICARDA/ICRISAT	52	60	141	123
FLIP 92-167C	X89TH 24/ILC 2371XFLIP 84- 92C	ICARDA/ICRISAT	51	62	139	124
FLIP 92-169C	X89TH 29/ILC 3777XFLIP 84- 92C	ICARDA/ICRISAT	52	60	141	123
FLIP 92-177C	X89TH 86/FLIP 86- 77CXFLIP 85- 84C	ICARDA/ICRISAT	51	56	139	123
FLIP 92-180C	X89TH 242/(FLIP 84- 12CXFLIP 83- 77C)XILC 5367	ICARDA/ICRISAT	51	55	137	121
FLIP 92-191C	X89TH 126/FLIP 83- 77CXFLIP 83- 47C	ICARDA/ICRISAT	51	56	140	122
FLIP 92-195C	X89TH 165/UC 15XFLIP 84- 92C	ICARDA/ICRISAT	51	56	142	123
FLIP 92-196C	X89TH 165/UC 15XFLIP 84- 92C	ICARDA/ICRISAT	51	57	138	123
FLIP 82-150C	X79TH 101/ILC 523XILC 183	ICARDA/ICRISAT	50	51	138	121
ILC 482			50	53	139	121
Local Check			51	-	137	127
Location Mean			51	57	139	123
S.E. of Mean			1	5	2	1
L.S.D. at 5%			2	9	5	2
L.S.D. for T.E. in S.B.			2	9	5	2
L.S.D. for T.E. in D.B.			2	8	2	1
C.V. %			103	100	105	102
Efficiency %						

Cont'd. ...

Table 3.7.2 Cont'd. ...

Entry Name	IRAN	ITALY		LEBANON		PORTUGAL	SPAIN	SYRIA
	Karaj	Tarquini	Tolentino	Tel Amara	Terbol	Elvas	Valladolid	Al Ghab
FLIP 90- 8C	127	101	107	132	129	125	149	115
FLIP 90-111C	127	104	105	134	125	123	146	114
FLIP 91- 15C	130	109	111	132	129	126	159	117
FLIP 91- 18C	125	97	105	132	125	119	145	113
FLIP 91- 19C	128	102	111	132	129	126	149	114
FLIP 91- 45C	127	108	105	132	127	120	145	115
FLIP 91- 50C	128	100	108	134	127	123	147	115
FLIP 91- 58C	128	101	109	134	128	124	147	117
FLIP 91- 59C	128	105	108	132	128	125	149	114
FLIP 91- 63C	128	101	109	132	127	123	145	115
FLIP 91-130C	130	104	117	132	129	126	156	117
FLIP 91-140C	130	106	108	132	129	125	146	116
FLIP 91-141C	131	102	114	133	129	124	152	117
FLIP 91-146C	130	103	112	134	127	124	148	114
FLIP 91-155C	129	110	111	133	127	124	149	114
FLIP 91-156C	129	100	104	131	127	123	146	113
FLIP 91-162C	128	100	109	132	127	123	147	117
FLIP 91-163C	133	99	107	130	125	123	144	112
FLIP 91-169C	129	103	108	134	127	123	146	114
FLIP 91-175C	128	104	116	134	128	123	152	117
FLIP 91-183C	129	102	110	133	126	122	145	115
FLIP 91-189C	127	110	108	132	124	122	144	114
FLIP 91-204C	129	103	106	131	128	120	149	65
FLIP 91-206C	125	103	107	131	123	118	145	113
FLIP 92- 22C	126	105	105	131	122	120	143	112
FLIP 92- 25C	129	99	104	131	125	118	144	112
FLIP 92- 27C	128	94	106	131	123	117	148	112
FLIP 92- 40C	126	110	103	131	122	115	145	111
FLIP 92- 48C	127	112	108	132	123	120	145	114
FLIP 92- 58C	128	105	105	131	123	123	146	113
FLIP 92- 65C	127	108	109	134	126	122	144	115
FLIP 92- 98C	130	103	104	128	121	115	145	110
FLIP 92-101C	129	97	107	132	126	122	144	114
FLIP 92-102C	129	103	110	134	129	124	146	114
FLIP 92-110C	128	98	106	131	127	123	146	114
FLIP 92-111C	130	109	110	133	127	126	148	115

Cont'd. ...

Table 3.7.2 Cont'd. ...

Entry Name	IRAN	ITALY		LEBANON		PORTUGAL	SPAIN	SYRIA
	Karaj	Tarquinia	Tolentino	Tel Amara	Terbol	Elvas	Valladolid	Al Ghab
FLIP 92-112C	124	102	111	131	126	122	145	115
FLIP 92-120C	127	107	108	132	127	123	145	117
FLIP 92-122C	130	110	109	134	129	123	147	114
FLIP 92-123C	132	104	108	132	126	122	145	113
FLIP 92-125C	131	104	107	133	128	123	145	115
FLIP 92-126C	129	105	107	131	127	123	146	114
FLIP 92-134C	128	103	105	131	122	119	145	114
FLIP 92-135C	130	102	105	132	122	123	144	113
FLIP 92-142C	130	99	105	129	123	122	144	111
FLIP 92-146C	129	109	106	129	123	122	146	113
FLIP 92-147C	131	103	106	131	122	120	144	112
FLIP 92-154C	126	103	108	132	129	126	149	116
FLIP 92-155C	131	106	110	132	127	124	147	116
FLIP 92-162C	128	100	108	134	128	124	147	117
FLIP 92-163C	127	108	110	134	129	124	145	113
FLIP 92-164C	128	105	109	131	129	124	145	117
FLIP 92-165C	129	103	110	134	127	123	146	115
FLIP 92-166C	131	103	109	134	128	124	150	116
FLIP 92-167C	130	100	110	133	129	123	148	115
FLIP 92-169C	128	104	109	133	129	124	150	115
FLIP 92-177C	129	99	110	132	127	123	147	114
FLIP 92-180C	127	104	105	130	125	118	152	111
FLIP 92-191C	130	103	111	130	126	123	146	115
FLIP 92-195C	129	109	110	133	127	123	149	116
FLIP 92-196C	129	106	109	133	128	124	145	115
FLIP 82-150C	127	109	106	132	125	119	146	112
ILC 482	128	96	104	130	121	115	145	111
Local Check	131	109	112	128	123	123	149	117
Location Mean	129	104	108	132	126	122	147	113
S.E. of Mean	3	1	1	One Rep.	1	2	2	9
L.S.D. at 5%	5	3	3		2	3	4	18
L.S.D. for T.E. in S.B.	5	3	3		2	3	4	22
L.S.D. for T.E. in D.B.	5	3	3		2	3	4	18
C.V. %	2	1	1		1	1	1	8
Efficiency %	138	100	105		101	100	100	98

Cont'd. ...

Table 3.7.2 Cont'd. ...

Entry Name	SYRIA								
	Al Jammasah	Gelline	Hama	Heimo	Homs	Idleb	Izra'a	Jindiress	Tel Hadya
FLIP 90- 8C	106	102	101	135	122	130	93	123	127
FLIP 90-111C	105	100	100	137	121	128	90	120	123
FLIP 91- 15C	108	104	101	140	124	128	91	126	128
FLIP 91- 18C	107	102	99	133	121	131	90	121	123
FLIP 91- 19C	108	101	101	138	122	130	91	123	126
FLIP 91- 45C	107	101	100	133	121	127	90	122	122
FLIP 91- 50C	107	104	101	135	121	133	91	120	124
FLIP 91- 58C	110	102	101	137	123	130	92	126	126
FLIP 91- 59C	110	102	101	137	122	128	92	124	126
FLIP 91- 63C	110	100	101	136	122	127	90	119	126
FLIP 91-130C	110	104	101	141	124	131	93	123	128
FLIP 91-140C	110	100	101	137	122	127	95	120	126
FLIP 91-141C	110	104	102	138	122	131	93	125	127
FLIP 91-146C	109	101	100	139	121	130	91	125	126
FLIP 91-155C	110	101	102	137	121	131	93	120	124
FLIP 91-156C	107	100	99	131	120	126	90	119	124
FLIP 91-162C	109	102	100	136	121	133	91	123	128
FLIP 91-163C	108	100	98	135	120	129	89	121	120
FLIP 91-169C	107	102	100	137	121	131	91	122	126
FLIP 91-175C	110	100	100	139	123	131	93	122	127
FLIP 91-183C	107	101	99	138	121	133	90	122	122
FLIP 91-189C	108	101	99	135	119	130	88	118	118
FLIP 91-204C	107	103	100	136	121	130	89	122	121
FLIP 91-206C	107	98	98	134	120	127	87	121	120
FLIP 92- 22C	109	100	98	135	120	129	86	120	119
FLIP 92- 25C	105	98	99	136	120	126	88	116	118
FLIP 92- 27C	107	98	98	134	119	127	85	116	118
FLIP 92- 40C	105	95	99	130	119	127	87	114	117
FLIP 92- 48C	109	99	98	136	121	127	86	118	118
FLIP 92- 58C	107	99	98	133	120	127	87	120	120
FLIP 92- 65C	110	103	99	138	121	132	87	121	126
FLIP 92- 98C	108	96	92	130	117	127	89	110	114
FLIP 92-101C	106	101	99	131	121	127	91	120	123
FLIP 92-102C	106	101	101	134	122	128	93	120	126
FLIP 92-110C	108	101	100	135	122	131	92	121	124
FLIP 92-111C	107	104	102	139	121	129	93	122	126

Cont'd. ...

Table 3.7.2 Cont'd. ...

Entry Name	SYRIA								
	Al Jammasah	Gelline	Hama	Heimo	Homs	Idleb	Izra'a	Jindiress	Tel Hadya
FLIP 92-112C	107	101	99	136	120	130	91	121	124
FLIP 92-120C	108	101	100	137	122	130	90	121	127
FLIP 92-122C	109	102	101	137	123	128	91	121	127
FLIP 92-123C	107	102	99	134	121	129	89	121	124
FLIP 92-125C	108	102	102	137	123	128	92	123	126
FLIP 92-126C	107	102	100	138	121	130	92	119	126
FLIP 92-134C	108	100	97	135	120	129	88	120	119
FLIP 92-135C	108	98	97	134	121	127	86	121	120
FLIP 92-142C	108	100	97	134	120	127	86	120	119
FLIP 92-146C	109	99	97	137	120	127	87	120	122
FLIP 92-147C	107	100	98	137	120	130	86	120	119
FLIP 92-154C	110	103	102	137	122	134	91	124	127
FLIP 92-155C	109	104	102	137	121	131	92	125	127
FLIP 92-162C	109	101	101	136	122	129	92	125	126
FLIP 92-163C	109	102	100	137	122	129	93	124	126
FLIP 92-164C	110	102	101	137	122	129	92	125	126
FLIP 92-165C	110	102	102	136	121	131	92	124	126
FLIP 92-166C	110	103	102	137	122	131	93	126	127
FLIP 92-167C	110	102	101	136	122	128	94	125	126
FLIP 92-169C	110	101	103	136	122	130	94	125	127
FLIP 92-177C	109	102	100	139	121	131	92	121	124
FLIP 92-180C	104	97	97	130	119	125	87	118	119
FLIP 92-191C	108	101	99	136	121	131	90	123	124
FLIP 92-195C	109	102	100	137	123	132	92	125	127
FLIP 92-196C	109	102	102	137	123	130	89	125	126
FLIP 82-150C	107	98	98	132	121	127	89	118	122
ILC 482	105	100	93	131	117	127	88	115	115
Local Check	110	93	104	138	124	133	106	127	130
Location Mean	108	101	100	136	121	129	90	121	123
S.E. of Mean	1	1	1	1	1	2	1	2	1
L.S.D. at 5%	2	2	1	2	1	3	2	4	2
L.S.D. for T.E. in S.B.	2	2	1	2	1	3	2	4	2
L.S.D. for T.E. in D.B.	2	2	1	2	1	3	2	4	2
C.V. %	1	1	1	1	1	1	1	2	1
Efficiency %	101	115	165	109	107	101	132	105	100

Cont'd. ...

Table 3.7.2 Cont'd. ...

Entry Name	TURKEY			Overall Mean
	Ankara	Diyarbakir	Izmir (Bornova)	
FLIP 90- 8C	216	-	110	117
FLIP 90-111C	214	128	109	115
FLIP 91- 15C	214	-	113	119
FLIP 91- 18C	216	130	108	115
FLIP 91- 19C	214	131	110	117
FLIP 91- 45C	215	128	107	116
FLIP 91- 50C	216	-	108	116
FLIP 91- 58C	214	-	110	117
FLIP 91- 59C	214	-	110	118
FLIP 91- 63C	216	-	109	116
FLIP 91-130C	216	-	114	119
FLIP 91-140C	-	-	107	117
FLIP 91-141C	215	-	114	118
FLIP 91-146C	216	-	110	118
FLIP 91-155C	214	128	110	118
FLIP 91-156C	216	128	107	115
FLIP 91-162C	216	-	111	117
FLIP 91-163C	-	126	108	115
FLIP 91-169C	215	-	108	116
FLIP 91-175C	-	-	113	118
FLIP 91-183C	214	136	109	117
FLIP 91-189C	214	130	108	115
FLIP 91-204C	214	-	113	114
FLIP 91-206C	214	124	107	114
FLIP 92- 22C	215	126	108	114
FLIP 92- 25C	-	124	108	114
FLIP 92- 27C	216	129	107	114
FLIP 92- 40C	215	124	105	113
FLIP 92- 48C	216	139	108	115
FLIP 92- 58C	216	125	108	115
FLIP 92- 65C	216	141	112	117
FLIP 92- 98C	215	125	101	112
FLIP 92-101C	214	128	111	115
FLIP 92-102C	216	128	108	116
FLIP 92-110C	214	131	109	116
FLIP 92-111C	-	130	110	118

Table 3.7.2 Cont'd. ...

Entry Name	TURKEY			Overall Mean
	Ankara	Diyarbakir	Izmir (Bornova)	
FLIP 92-112C	215	131	110	116
FLIP 92-120C	216	138	110	116
FLIP 92-122C	-	135	110	118
FLIP 92-123C	215	126	110	116
FLIP 92-125C	216	130	109	117
FLIP 92-126C	215	128	110	116
FLIP 92-134C	216	131	108	114
FLIP 92-135C	215	130	109	114
FLIP 92-142C	216	127	108	114
FLIP 92-146C	216	127	108	115
FLIP 92-147C	214	129	107	115
FLIP 92-154C	214	134	111	118
FLIP 92-155C	214	130	110	118
FLIP 92-162C	216	139	111	117
FLIP 92-163C	216	140	111	117
FLIP 92-164C	214	134	111	117
FLIP 92-165C	214	133	111	117
FLIP 92-166C	214	131	111	118
FLIP 92-167C	214	132	111	118
FLIP 92-169C	214	131	110	118
FLIP 92-177C	216	134	110	117
FLIP 92-180C	-	126	104	114
FLIP 92-191C	214	129	111	116
FLIP 92-195C	216	141	108	118
FLIP 92-196C	214	134	109	117
FLIP 82-150C	214	129	108	115
ILC 482	214	124	104	112
Local Check	215	123	110	-
Location Mean	215	130	109	
S.E. of Mean			1	
L.S.D. at 5%			2	
L.S.D. for T.E. in S.B.			2	
L.S.D. for T.E. in D.B.			2	
C.V. %			1	
Efficiency %			103	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.7.3 Time to maturity (days) of entries in the CISH-W-94 conducted at different locations.

Entry Name	CHINA	IRAN	ITALY	LEBANON	PORTUGAL		
	Chengdu	Gonbad (Gorgan)	Karaj	Tarquinia	Tel Amara	Terbol	Elvas
FLIP 90- 8C	84	186	175	182	176	172	206
FLIP 90-111C	84	186	177	181	170	168	205
FLIP 91- 15C	84	187	181	188	173	176	198
FLIP 91- 18C	84	185	176	177	175	175	199
FLIP 91- 19C	84	187	180	184	172	176	204
FLIP 91- 45C	84	186	180	188	173	172	201
FLIP 91- 50C	84	185	179	184	175	174	207
FLIP 91- 58C	84	186	179	183	174	175	196
FLIP 91- 59C	84	186	180	193	174	174	205
FLIP 91- 63C	84	186	177	176	175	174	200
FLIP 91-130C	84	187	180	181	174	175	204
FLIP 91-140C	84	185	177	182	171	175	203
FLIP 91-141C	84	186	180	189	173	174	199
FLIP 91-146C	84	187	179	183	162	172	206
FLIP 91-155C	84	187	178	179	172	173	205
FLIP 91-156C	84	185	154	186	173	174	202
FLIP 91-162C	84	185	179	185	174	173	194
FLIP 91-163C	84	184	181	180	172	168	191
FLIP 91-169C	84	186	178	187	172	174	198
FLIP 91-175C	84	187	180	189	174	174	201
FLIP 91-183C	84	186	180	180	173	171	195
FLIP 91-189C	84	185	180	192	174	170	202
FLIP 91-204C	84	185	182	183	174	176	204
FLIP 91-206C	84	184	176	187	172	168	186
FLIP 92- 22C	84	185	177	183	174	166	183
FLIP 92- 25C	84	184	179	181	170	169	204
FLIP 92- 27C	84	185	177	174	173	166	184
FLIP 92- 40C	84	184	180	194	173	169	190
FLIP 92- 48C	84	186	178	192	172	166	194
FLIP 92- 58C	84	184	179	185	170	168	185
FLIP 92- 65C	84	186	178	193	173	174	204
FLIP 92- 98C	84	184	177	183	172	166	184
FLIP 92-101C	84	186	179	176	171	172	202
FLIP 92-102C	84	186	177	189	174	174	202
FLIP 92-110C	84	185	179	177	172	172	200
FLIP 92-111C	84	166	177	185	173	174	202
FLIP 92-112C	84	185	176	186	176	175	207

Cont'd. ...

Table 3.7.3 Cont'd. ...

Entry Name	CHINA	IRAN	ITALY	LEBANON	PORTUGAL		
	Chengdu	Gonbad (Gorgan)	Karaj	Tarquinia	Tel Amara	Terbol	Elvas
FLIP 92-120C	84	186	174	179	174	174	186
FLIP 92-122C	84	186	180	191	174	174	193
FLIP 92-123C	84	186	178	186	172	170	205
FLIP 92-125C	84	186	180	187	173	172	200
FLIP 92-126C	84	186	180	186	173	172	206
FLIP 92-134C	84	184	151	181	174	168	186
FLIP 92-135C	84	184	181	187	172	167	183
FLIP 92-142C	84	185	180	176	174	166	184
FLIP 92-146C	84	186	177	191	170	166	195
FLIP 92-147C	84	185	181	184	173	166	192
FLIP 92-154C	84	186	180	185	176	175	208
FLIP 92-155C	84	186	182	189	173	174	203
FLIP 92-162C	84	186	178	183	174	175	202
FLIP 92-163C	84	185	179	187	174	175	207
FLIP 92-164C	84	186	178	181	174	175	203
FLIP 92-165C	84	186	180	182	174	174	202
FLIP 92-166C	84	186	182	187	173	174	205
FLIP 92-167C	84	187	180	182	174	174	196
FLIP 92-169C	84	186	180	183	173	175	204
FLIP 92-177C	84	186	181	178	173	171	195
FLIP 92-180C	84	184	176	181	171	168	195
FLIP 92-191C	84	185	179	181	176	174	203
FLIP 92-195C	84	186	179	193	172	175	200
FLIP 92-196C	84	186	178	187	176	174	205
FLIP 82-150C	84	184	178	188	173	171	190
ILC 482	84	184	174	174	173	168	183
Local Check	84	190	181	180	170	168	202
Location Mean	84	186	178	184	173	172	198
S.E. of Mean	One Rep.	1	7	2	One Rep.	1	7
L.S.D. at 5%		1	14	5		2	13
L.S.D. for T.E. in S.B		1	14	5		2	14
L.S.D. for T.E. in D.B		1	14	5		2	14
T.E > L. Check		0	0	29		46	0
C.V. %		0	4	1		0	3
		109	104	100		103	110

Cont'd. ...

Table 3.7.3 Cont'd. ...

Entry Name	SPAIN	SYRIA					
	Valladolid	Al Ghab	Al Jammasah	Gelline	Hama	Heimo	Homs
FLIP 90- 8C	213	159	155	144	132	186	160
FLIP 90-111C	215	159	155	145	130	181	161
FLIP 91- 15C	215	160	156	150	135	185	165
FLIP 91- 18C	214	159	156	147	131	184	162
FLIP 91- 19C	212	159	156	148	134	190	163
FLIP 91- 45C	216	160	156	146	131	178	160
FLIP 91- 50C	216	159	156	145	134	184	161
FLIP 91- 58C	218	160	157	148	143	181	163
FLIP 91- 59C	217	160	156	145	133	182	161
FLIP 91- 63C	215	159	157	145	133	182	161
FLIP 91-130C	218	160	157	148	136	184	164
FLIP 91-140C	212	160	156	145	135	186	162
FLIP 91-141C	216	160	156	148	123	182	163
FLIP 91-146C	210	157	156	147	131	.	160
FLIP 91-155C	215	160	156	147	134	180	161
FLIP 91-156C	215	158	155	145	131	187	162
FLIP 91-162C	214	160	156	145	121	181	160
FLIP 91-163C	215	159	156	145	131	181	160
FLIP 91-169C	214	159	156	148	131	181	162
FLIP 91-175C	216	160	157	149	131	184	162
FLIP 91-183C	216	159	156	145	133	187	160
FLIP 91-189C	214	160	157	146	131	184	161
FLIP 91-204C	216	161	157	147	133	186	162
FLIP 91-206C	214	158	155	144	127	182	160
FLIP 92- 22C	212	158	156	145	128	185	162
FLIP 92- 25C	216	160	157	146	132	188	160
FLIP 92- 27C	216	158	157	145	127	181	160
FLIP 92- 40C	215	158	155	144	131	180	160
FLIP 92- 48C	217	157	156	147	128	181	160
FLIP 92- 58C	215	159	157	149	118	180	160
FLIP 92- 65C	215	161	157	148	129	182	161
FLIP 92- 98C	215	159	157	145	129	187	160
FLIP 92-101C	216	159	156	146	130	182	160
FLIP 92-102C	210	159	156	149	144	183	162
FLIP 92-110C	215	158	156	144	131	181	161
FLIP 92-111C	215	159	156	148	134	.	161
FLIP 92-112C	215	161	155	146	133	184	161

Cont'd. ...

Table 3.7.3 Cont'd. ...

Entry Name	SPAIN		SYRIA				
	Valladolid	Al Ghab	Al Jammasah	Gelline	Hama	Heimo	Homs
FLIP 92-120C	212	160	156	147	134	180	161
FLIP 92-122C	215	160	156	147	133	180	164
FLIP 92-123C	215	157	156	145	131	184	161
FLIP 92-125C	210	160	155	146	131	179	161
FLIP 92-126C	210	161	155	145	133	182	160
FLIP 92-134C	214	160	156	144	130	183	160
FLIP 92-135C	215	159	155	142	127	180	160
FLIP 92-142C	212	158	155	144	130	181	160
FLIP 92-146C	212	158	155	144	128	180	160
FLIP 92-147C	214	158	155	144	128	180	160
FLIP 92-154C	216	162	157	146	135	181	162
FLIP 92-155C	215	160	157	150	134	182	161
FLIP 92-162C	218	161	157	148	133	185	162
FLIP 92-163C	216	157	156	147	134	184	162
FLIP 92-164C	218	160	157	148	144	181	164
FLIP 92-165C	218	160	157	148	134	183	162
FLIP 92-166C	218	160	157	148	133	182	163
FLIP 92-167C	217	160	157	149	133	180	163
FLIP 92-169C	218	160	157	150	133	181	162
FLIP 92-177C	210	158	156	146	132	.	160
FLIP 92-180C	212	159	155	144	132	186	162
FLIP 92-191C	215	160	157	145	144	182	160
FLIP 92-195C	218	160	157	146	122	182	163
FLIP 92-196C	217	160	157	147	135	183	162
FLIP 82-150C	213	160	155	144	133	181	160
ILC 482	213	158	155	143	128	.	159
Local Check	214	160	157	149	134	178	162
Location Mean	215	159	156	146	132	182	161
S.E. of Mean	2	1	1	2	6	2	1
L.S.D. at 5%	4	2	1	5	12	5	2
L.S.D. for T.E. in S.B	4	2	1	5	12	7	2
L.S.D. for T.E. in D.B	4	2	1	5	12	5	2
T.E > L. Check	9	0	0	0	0	20	4
C.V. %	1	1	0	2	4	1	1
Efficiency %	100	135	108	102	413	107	100

Cont'd.

Table 3.7.3 Cont'd.

Entry Name	SYRIA					TURKEY		Overall Mean
	Idlib	Lazkiye	Jindires	Tel Hadya	Diyarbakir	Izmir (Bornova)	Izmir-1 (Menemen)	
FLIP 90- 8C	169	134	172	171	-	155	174	164
FLIP 90-111C	167	131	172	170	181	151	167	163
FLIP 91- 15C	170	132	175	171	-	157	174	166
FLIP 91- 18C	169	131	175	169	185	152	174	164
FLIP 91- 19C	170	132	175	170	180	153	174	165
FLIP 91- 45C	169	130	172	169	184	151	171	164
FLIP 91- 50C	171	132	176	170	-	154	174	165
FLIP 91- 58C	170	133	173	171	-	155	174	165
FLIP 91- 59C	170	132	174	170	-	155	167	165
FLIP 91- 63C	170	129	174	171	-	155	174	164
FLIP 91-130C	170	136	176	171	-	158	174	166
FLIP 91-140C	170	135	172	171	-	152	171	164
FLIP 91-141C	171	133	175	170	-	157	174	165
FLIP 91-146C	169	132	171	170	-	152	167	163
FLIP 91-155C	170	133	174	170	181	154	167	164
FLIP 91-156C	169	129	173	170	182	153	174	163
FLIP 91-162C	168	129	174	171	-	151	174	163
FLIP 91-163C	168	130	170	168	181	152	167	162
FLIP 91-163C	170	132	172	169	-	152	174	164
FLIP 91-169C	171	132	176	170	-	157	174	166
FLIP 91-175C	166	131	174	171	184	152	174	164
FLIP 91-183C	170	127	176	168	184	151	174	164
FLIP 91-189C	170	128	178	171	-	159	174	165
FLIP 91-204C	167	125	170	168	182	150	167	161
FLIP 91-206C	170	125	173	167	181	151	171	162
FLIP 92- 22C	168	127	176	169	180	151	171	163
FLIP 92- 25C	167	124	172	169	183	152	174	161
FLIP 92- 27C	169	126	172	168	184	151	174	163
FLIP 92- 40C	168	126	170	167	186	151	174	163
FLIP 92- 48C	167	126	171	167	181	151	167	161
FLIP 92- 58C	171	127	178	171	187	159	174	165
FLIP 92- 65C	166	129	174	168	181	149	167	161
FLIP 92- 98C	169	131	172	170	182	158	171	164
FLIP 92-101C	170	132	173	171	181	153	174	165
FLIP 92-102C	169	132	171	171	185	153	174	163
FLIP 92-110C	171	133	175	171	186	155	174	165
FLIP 92-111C	170	129	174	170	181	156	174	165
FLIP 92-112C								

Table 3.7.3 Cont'd. ...

Entry Name	SYRIA				TURKEY			Overall Mean
	Idlib	Izra'a	Jindiress	Tel Hadya	Diyarbakir	Izmir (Bornova)	Izmir-1 (Menemen)	
FLIP 92-120C	170	129	173	170	181	153	174	163
FLIP 92-122C	170	131	171	171	181	153	174	165
FLIP 92-123C	169	131	171	170	180	151	167	163
FLIP 92-125C	169	132	173	170	184	151	167	164
FLIP 92-126C	168	132	171	171	181	151	171	164
FLIP 92-134C	167	127	172	167	180	151	174	161
FLIP 92-135C	168	125	170	169	181	151	167	161
FLIP 92-142C	168	125	170	168	180	152	174	161
FLIP 92-146C	167	126	174	167	181	152	167	162
FLIP 92-147C	169	126	171	168	182	153	174	162
FLIP 92-154C	170	131	175	171	184	156	174	166
FLIP 92-155C	170	131	178	170	182	155	171	165
FLIP 92-162C	171	132	176	169	184	155	174	165
FLIP 92-163C	170	133	174	171	185	155	174	165
FLIP 92-164C	170	133	175	171	183	155	174	166
FLIP 92-165C	170	133	176	170	182	155	171	165
FLIP 92-166C	170	132	176	169	181	155	174	166
FLIP 92-167C	170	134	173	170	185	156	174	165
FLIP 92-169C	171	133	174	171	182	156	167	165
FLIP 92-177C	169	132	175	170	143	152	174	163
FLIP 92-180C	168	126	174	168	179	153	167	162
FLIP 92-191C	168	129	175	170	184	155	167	165
FLIP 92-195C	171	132	174	170	-	156	174	165
FLIP 92-196C	170	129	175	170	183	156	174	165
FLIP 82-150C	170	129	173	169	183	152	174	163
ILC 482	166	126	178	167	182	151	167	161
Local Check	170	141	173	172	184	156	171	-
Location Mean	169	130	174	170	182	154	172	
S.E. of Mean	1	2	2	1		1		
L.S.D. at 5%	2	3	3	2		2		
L.S.D. for T.E. in S.B	2	3	3	2	One Rep.	2	One Rep.	
L.S.D. for T.E. in D.B	2	3	3	2		2		
T.E > L. Check	0	0	6	0		2		
C.V. %	1	1	1	1		1		
Efficiency %	172	124	136	100		100		

* The mean has been calculated excluding the locations with incomplete data.

Table 3.7.4 Plant height (cm) of entries in the CISN-W-94 conducted at different locations.

Entry Name	ALGERIA	CHINA	CYPRUS	IRAN		ITALY	
	Khroub	Chengdu	Athalassa	Gonbad (Gorgan)	Karaj	Tarquimia	Tolentino
FLIP 90- 8C	47	45	57	58	35	77	60
FLIP 90-111C	50	39	52	53	32	70	63
FLIP 91- 15C	50	50	63	62	39	77	72
FLIP 91- 18C	58	42	57	59	27	75	73
FLIP 91- 19C	52	51	61	62	52	70	70
FLIP 91- 45C	50	43	54	57	32	80	69
FLIP 91- 50C	45	51	57	57	37	77	74
FLIP 91- 58C	45	47	53	57	33	70	75
FLIP 91- 59C	47	40	51	56	41	72	60
FLIP 91- 63C	43	43	53	55	36	75	73
FLIP 91-130C	50	46	58	62	45	77	75
FLIP 91-140C	50	54	52	58	28	70	65
FLIP 91-141C	47	52	58	62	46	82	80
FLIP 91-146C	50	52	59	60	37	75	75
FLIP 91-155C	50	46	51	54	27	75	68
FLIP 91-156C	57	45	56	59	31	75	65
FLIP 91-162C	50	53	62	61	41	80	80
FLIP 91-163C	35	52	58	58	34	72	72
FLIP 91-169C	59	52	59	60	33	82	69
FLIP 91-175C	45	43	55	57	31	75	71
FLIP 91-183C	45	43	59	57	46	70	70
FLIP 91-189C	37	48	52	52	31	67	69
FLIP 91-204C	37	48	55	51	40	77	58
FLIP 91-206C	43	52	58	53	26	75	68
FLIP 92- 22C	43	49	58	49	43	67	70
FLIP 92- 25C	33	50	53	51	29	70	70
FLIP 92- 27C	50	48	52	57	28	77	68
FLIP 92- 40C	40	49	50	50	23	75	61
FLIP 92- 48C	50	50	55	58	29	75	65
FLIP 92- 58C	42	48	50	55	37	82	63
FLIP 92- 65C	42	51	56	57	36	80	79
FLIP 92- 98C	43	47	48	49	44	67	67
FLIP 92-101C	48	46	48	54	28	72	70
FLIP 92-102C	55	48	56	56	41	75	65
FLIP 92-110C	40	51	57	56	24	75	74
FLIP 92-111C	50	44	55	53	26	62	74
FLIP 92-112C	40	48	52	57	32	77	68

Cont'd. ...

Table 3.7.4 Cont'd. ...

Entry Name	ALGERIA	CHINA	CYPRUS	IRAN		ITALY	
	Khroub	Chengdu	Athalassa	Gonbad (Gorgan)	Karaj	Tarquini	Tolentino
FLIP 92-120C	56	47	56	59	43	75	70
FLIP 92-122C	52	60	61	63	31	82	75
FLIP 92-123C	57	54	61	59	26	77	71
FLIP 92-125C	57	45	62	63	39	72	78
FLIP 92-126C	58	46	56	55	37	70	72
FLIP 92-134C	42	47	56	57	41	70	68
FLIP 92-135C	43	51	53	54	30	72	61
FLIP 92-142C	47	51	52	66	48	65	65
FLIP 92-146C	47	56	54	56	35	70	62
FLIP 92-147C	48	42	54	56	34	82	60
FLIP 92-154C	40	44	54	54	46	67	72
FLIP 92-155C	47	46	51	60	51	67	65
FLIP 92-162C	42	48	52	56	35	75	71
FLIP 92-163C	45	48	51	55	47	70	70
FLIP 92-164C	43	48	50	57	40	67	65
FLIP 92-165C	46	42	52	56	36	60	70
FLIP 92-166C	40	54	52	53	26	70	72
FLIP 92-167C	40	44	55	55	30	75	65
FLIP 92-169C	37	50	55	59	29	72	66
FLIP 92-177C	50	47	57	56	34	67	60
FLIP 92-180C	30	44	52	50	29	65	62
FLIP 92-191C	40	45	47	53	36	70	65
FLIP 92-195C	47	50	54	54	48	77	70
FLIP 92-196C	40	48	55	56	38	70	73
FLIP 82-150C	40	50	52	53	25	65	67
ILC 482	40	50	51	47	29	67	60
Local Check	60	-	51	49	31	73	72
Location Mean	46	48	55	56	35	73	69
S.E. of Mean	One Rep.	6	3	4	2	8	5
L.S.D. at 5%		11	6	7	3	16	10
L.S.D. for T.E. in S.B		11	6	8	3	16	10
L.S.D. for T.E. in D.B		11	6	8	3	16	10
C.V. %		12	5	6	4	11	7
		100	117	106	102	100	102

Cont'd. ...

Table 3.7.4 Cont'd. ...

Entry Name	LEBANON		PORTUGAL	SPAIN	SYRIA		
	Tel Amara	Terbol	Elvas	Valladolid	Al Ghab	Al Jammaah	Gefline
FLIP 90- 8C	65	62	53	63	50	70	50
FLIP 90-111C	50	55	43	57	47	71	47
FLIP 91- 15C	69	61	58	66	50	74	58
FLIP 91- 18C	68	60	55	62	50	83	52
FLIP 91- 19C	66	56	53	63	50	85	60
FLIP 91- 45C	65	54	45	57	45	73	48
FLIP 91- 50C	46	60	53	56	47	68	51
FLIP 91- 58C	51	60	48	56	47	68	47
FLIP 91- 59C	55	63	49	57	47	69	49
FLIP 91- 63C	62	58	47	61	50	72	47
FLIP 91-130C	52	65	56	67	50	68	52
FLIP 91-140C	60	63	53	65	50	87	50
FLIP 91-141C	46	61	55	63	50	72	52
FLIP 91-146C	52	64	50	64	50	54	52
FLIP 91-155C	60	58	50	57	47	80	45
FLIP 91-156C	70	57	53	60	50	86	55
FLIP 91-162C	70	62	54	70	50	80	58
FLIP 91-163C	40	58	53	64	50	87	52
FLIP 91-169C	63	67	57	67	47	64	55
FLIP 91-175C	55	60	50	60	45	87	50
FLIP 91-183C	67	64	51	60	47	66	52
FLIP 91-189C	60	54	45	50	45	70	45
FLIP 91-204C	56	56	51	58	45	79	46
FLIP 91-206C	57	62	50	64	50	65	52
FLIP 92- 22C	54	55	43	59	50	87	47
FLIP 92- 25C	70	55	44	54	47	72	52
FLIP 92- 27C	48	54	47	58	47	74	46
FLIP 92- 40C	47	53	45	51	40	72	45
FLIP 92- 48C	60	51	49	61	47	80	50
FLIP 92- 58C	48	55	49	64	45	80	48
FLIP 92- 65C	60	57	52	57	50	80	49
FLIP 92- 98C	56	57	43	59	42	59	40
FLIP 92-101C	45	54	46	59	42	69	49
FLIP 92-102C	64	59	47	60	52	78	55
FLIP 92-110C	55	59	49	55	47	66	53
FLIP 92-111C	61	58	49	55	47	77	50
FLIP 92-112C	55	58	47	59	50	68	49

Cont'd. ...

Table 3.7.4 Cont'd. ...

Entry Name	LEBANON		PORTUGAL	SPAIN	SYRIA		
	Tel Amara	Terbol	Elvas	Valladolid	Al Ghab	Al Jammassah	Gelline
FLIP 92-120C	65	65	53	59	47	83	54
FLIP 92-122C	62	59	56	63	52	79	50
FLIP 92-123C	66	64	56	61	52	75	55
FLIP 92-125C	70	64	57	65	50	71	48
FLIP 92-126C	67	67	55	62	50	70	52
FLIP 92-134C	60	53	53	62	45	66	45
FLIP 92-135C	55	51	48	66	47	56	50
FLIP 92-142C	46	57	50	57	47	63	47
FLIP 92-146C	51	52	50	58	47	67	50
FLIP 92-147C	50	54	49	61	47	71	47
FLIP 92-154C	60	54	46	60	47	69	49
FLIP 92-155C	55	56	48	61	47	66	47
FLIP 92-162C	57	58	48	61	47	69	45
FLIP 92-163C	56	55	45	58	46	68	45
FLIP 92-164C	55	55	49	56	42	65	48
FLIP 92-165C	55	59	47	57	45	67	49
FLIP 92-166C	53	55	46	58	47	63	45
FLIP 92-167C	50	60	48	59	47	65	46
FLIP 92-169C	51	59	45	63	50	70	50
FLIP 92-177C	55	61	52	63	47	65	50
FLIP 92-180C	50	57	41	54	45	72	52
FLIP 92-191C	52	51	45	54	45	70	46
FLIP 92-195C	56	57	48	61	45	71	50
FLIP 92-196C	64	58	47	54	45	64	47
FLIP 82-150C	52	58	48	61	47	73	45
ILC 482	50	52	43	47	42	73	43
Local Check	52	50	53	61	53	86	45
Location Mean	57	58	49	60	48	72	49
S.E. of Mean	One Rep.	4	4	4	2	6	3
L.S.D. at 5%		7	7	8	4	12	7
L.S.D. for T.E. in S.B		7	7	8	5	12	7
L.S.D. for T.E. in D.B		7	7	8	4	12	7
C.V. %		6	7	6	4	8	7
Efficiency %		114	100	109	97	105	100

Cont'd. ...

Table 3.7.4 Cont'd. ...

Entry Name	SYRIA						
	Hama	Heimo	Homs	Idlib	Izra'a	Jindiress	Tel Hadya
FLIP 90- 8C	43	65	50	42	81	59	61
FLIP 90-111C	46	55	45	48	28	47	58
FLIP 91- 15C	49	50	53	47	40	62	67
FLIP 91- 18C	47	57	50	45	36	58	58
FLIP 91- 19C	46	60	55	50	38	60	62
FLIP 91- 45C	41	61	45	46	33	48	56
FLIP 91- 50C	45	65	50	38	28	56	57
FLIP 91- 58C	42	58	43	44	28	47	48
FLIP 91- 59C	41	38	48	42	29	50	56
FLIP 91- 63C	43	62	45	43	32	47	55
FLIP 91-130C	48	50	50	50	34	58	62
FLIP 91-140C	45	55	52	52	31	58	59
FLIP 91-141C	51	.	50	52	36	61	63
FLIP 91-146C	44	45	50	50	33	62	61
FLIP 91-155C	39	54	45	40	28	49	57
FLIP 91-156C	49	70	55	44	33	55	67
FLIP 91-162C	56	66	57	49	32	62	63
FLIP 91-163C	42	69	50	51	31	61	59
FLIP 91-169C	49	56	53	53	34	64	66
FLIP 91-175C	42	51	43	48	30	52	55
FLIP 91-183C	42	66	53	44	30	54	56
FLIP 91-189C	42	61	40	42	27	45	56
FLIP 91-204C	41	66	48	42	28	57	62
FLIP 91-206C	40	60	45	47	33	57	52
FLIP 92- 22C	38	50	53	50	31	56	53
FLIP 92- 25C	40	56	50	41	29	43	54
FLIP 92- 27C	38	50	45	42	31	55	54
FLIP 92- 40C	36	50	37	30	26	46	55
FLIP 92- 48C	46	53	48	57	30	60	60
FLIP 92- 58C	44	55	43	54	29	56	58
FLIP 92- 65C	43	61	48	45	32	60	63
FLIP 92- 98C	44	61	37	41	26	42	47
FLIP 92-101C	39	63	45	47	27	50	51
FLIP 92-102C	49	.	52	54	34	55	58
FLIP 92-110C	39	45	47	43	32	58	57
FLIP 92-111C	43	45	50	45	30	57	57
FLIP 92-112C	41	52	48	50	30	52	55

Cont'd. ...

Table 3.7.4 Cont'd. ...

Entry Name	SYRIA						
	Hama	Heimo	Homs	Idleb	Izra'a	Jindiress	Tel Hadya
FLIP 92-120C	49	54	55	56	36	62	71
FLIP 92-122C	46	70	57	55	34	61	66
FLIP 92-123C	44	66	55	49	33	65	63
FLIP 92-125C	46	69	57	56	34	58	68
FLIP 92-126C	47	56	50	53	34	59	60
FLIP 92-134C	42	51	48	54	33	53	60
FLIP 92-135C	41	66	45	50	30	60	56
FLIP 92-142C	39	61	48	52	33	55	56
FLIP 92-146C	41	66	45	52	31	55	55
FLIP 92-147C	44	60	48	46	33	56	60
FLIP 92-154C	43	50	45	44	30	52	55
FLIP 92-155C	40	56	47	44	32	45	54
FLIP 92-162C	41	50	40	42	28	48	53
FLIP 92-163C	42	50	43	52	29	51	53
FLIP 92-164C	41	53	42	45	30	50	50
FLIP 92-165C	44	55	45	41	28	42	55
FLIP 92-166C	42	61	40	40	27	49	50
FLIP 92-167C	39	61	45	42	27	49	57
FLIP 92-169C	38	63	45	47	31	52	51
FLIP 92-177C	42	.	53	45	32	57	59
FLIP 92-180C	38	45	48	38	27	45	53
FLIP 92-191C	39	45	43	39	29	48	51
FLIP 92-195C	47	52	45	46	29	47	55
FLIP 92-196C	41	51	47	41	32	44	51
FLIP 82-150C	41	55	45	52	28	49	51
ILC 482	42	.	48	37	26	42	48
Local Check	53	67	52	52	31	65	66
Location Mean	43	57	48	47	32	54	57
S.E. of Mean	3	One Rep.	2	5	9	3	4
L.S.D. at 5%	5		5	10	18	6	7
L.S.D. for T.E. in S.B	6		5	10	18	6	7
L.S.D. for T.E. in D.B	6		5	10	18	6	7
C.V. %	6		5	10	28	5	6
Efficiency %	234		100	158	100	103	100

Cont'd. ...

Table 1.7.4 Cont'd.

Entry Name	TURKEY		Overall Mean
	Diyarbakir	Izmir (Bornova)	
FLIP 90- 8C	-	66	57
FLIP 90-111C	54	59	51
FLIP 91- 15C	-	67	59
FLIP 91- 18C	52	64	56
FLIP 91- 19C	58	62	58
FLIP 91- 45C	55	59	52
FLIP 91- 50C	-	58	51
FLIP 91- 58C	-	58	51
FLIP 91- 59C	-	62	52
FLIP 91- 63C	-	59	52
FLIP 91-130C	-	69	57
FLIP 91-140C	-	64	56
FLIP 91-141C	-	72	58
FLIP 91-146C	-	67	55
FLIP 91-155C	43	61	52
FLIP 91-156C	55	63	56
FLIP 91-162C	-	70	60
FLIP 91-163C	66	63	54
FLIP 91-169C	-	68	58
FLIP 91-175C	-	57	53
FLIP 91-183C	63	57	54
FLIP 91-189C	54	59	49
FLIP 91-204C	-	61	52
FLIP 91-206C	62	63	53
FLIP 92- 22C	53	63	53
FLIP 92- 22C	67	61	51
FLIP 92- 25C	49	63	52
FLIP 92- 27C	58	57	47
FLIP 92- 40C	57	60	54
FLIP 92- 48C	65	59	53
FLIP 92- 58C	48	62	55
FLIP 92- 65C	52	48	48
FLIP 92- 98C	54	64	50
FLIP 92-101C	53	64	56
FLIP 92-102C	54	59	52
FLIP 92-110C	59	61	53
FLIP 92-111C	57	60	52
FLIP 92-112C			

Entry Name	TURKEY		Overall Mean
	Diyarbakir	Izmir (Bornova)	
FLIP 92-120C	65	73	59
FLIP 92-122C	64	69	59
FLIP 92-123C	67	69	58
FLIP 92-125C	54	72	59
FLIP 92-126C	59	67	57
FLIP 92-134C	61	63	53
FLIP 92-135C	60	60	51
FLIP 92-142C	56	61	53
FLIP 92-146C	55	58	52
FLIP 92-147C	60	57	52
FLIP 92-154C	59	58	52
FLIP 92-155C	60	56	52
FLIP 92-162C	56	57	51
FLIP 92-163C	55	57	52
FLIP 92-164C	52	59	50
FLIP 92-165C	57	57	50
FLIP 92-166C	55	58	50
FLIP 92-167C	61	60	50
FLIP 92-169C	63	62	52
FLIP 92-177C	47	62	53
FLIP 92-180C	53	56	48
FLIP 92-191C	56	56	49
FLIP 92-195C	-	60	53
FLIP 92-196C	54	59	51
FLIP 92-150C	54	57	50
ILC 482	52	54	47
Local Check	53	66	-
Location Mean	57	61	
S.E. of Mean		3	
L.S.D. at 5%		6	
L.S.D. for T.E. in S.B		6	
L.S.D. for T.E. in D.B		6	
C.V. %		5	
Efficiency %		100	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.7.5 100-Seed weight (g) of entries in CISON-W-94 conducted at different locations

Entry Name	CHINA	IRAN	ITALY		LEBANON		PORTUGAL
	Chengdu	Gonbad (Gorgan)	Tarquimia	Tolentino	Tel Amara	Terbol	Elvas
FLIP 90- 8C	-	32	38	39	27	25	30
FLIP 90-111C	-	32	32	28	27	25	30
FLIP 91- 15C	-	38	46	40	28	34	37
FLIP 91- 18C	-	38	49	38	30	35	42
FLIP 91- 19C	34	37	45	40	30	36	37
FLIP 91- 45C	-	34	38	39	28	28	34
FLIP 91- 50C	-	45	45	45	31	36	41
FLIP 91- 58C	-	36	40	36	27	32	36
FLIP 91- 59C	-	35	41	39	27	31	33
FLIP 91- 63C	-	36	41	40	27	30	34
FLIP 91-130C	39	38	39	30	26	33	36
FLIP 91-140C	-	37	38	42	30	36	38
FLIP 91-141C	-	40	45	45	28	34	38
FLIP 91-146C	-	27	34	33	26	26	28
FLIP 91-155C	32	34	40	36	26	28	32
FLIP 91-156C	42	38	43	39	30	34	36
FLIP 91-162C	-	33	43	34	28	30	32
FLIP 91-163C	-	33	41	32	28	28	30
FLIP 91-169C	44	38	38	43	29	35	38
FLIP 91-175C	-	38	42	36	27	33	35
FLIP 91-183C	-	38	43	40	27	29	32
FLIP 91-189C	46	33	32	37	26	26	31
FLIP 91-204C	-	35	41	38	28	32	35
FLIP 91-206C	36	34	31	30	22	27	30
FLIP 92- 22C	60	37	38	38	29	29	32
FLIP 92- 25C	44	37	37	40	27	29	32
FLIP 92- 27C	37	34	37	32	28	25	29
FLIP 92- 40C	28	36	40	34	27	29	32
FLIP 92- 48C	-	35	38	38	29	29	34
FLIP 92- 58C	33	36	40	41	27	29	33
FLIP 92- 65C	39	38	44	37	29	35	38
FLIP 92- 98C	57	37	39	37	32	31	35
FLIP 92-101C	-	31	44	41	29	33	38
FLIP 92-102C	-	38	42	39	30	34	36
FLIP 92-110C	-	37	43	39	30	34	36
FLIP 92-111C	-	38	42	36	29	34	34
FLIP 92-112C	-	38	41	39	31	35	45

Cont'd. ...

Table 3.7.5 Cont'd. ...

Entry Name	CHINA	IRAN	ITALY		LEBANON		PORTUGAL
	Chengdu	Gonbad (Gorgan)	Tarquini	Tolentino	Tel Amara	Terbol	Elvas
FLIP 92-120C	28	36	46	37	29	30	33
FLIP 92-122C	-	30	35	32	25	27	31
FLIP 92-123C	-	35	41	35	21	30	32
FLIP 92-125C	-	35	40	40	29	32	36
FLIP 92-126C	47	34	40	38	26	30	32
FLIP 92-134C	51	36	41	38	30	29	35
FLIP 92-135C	42	37	42	37	28	29	33
FLIP 92-142C	39	36	37	42	29	30	33
FLIP 92-146C	37	39	40	36	30	30	33
FLIP 92-147C	39	36	38	33	28	26	34
FLIP 92-154C	-	33	44	40	26	33	33
FLIP 92-155C	-	34	36	38	26	31	34
FLIP 92-162C	-	36	41	39	26	31	32
FLIP 92-163C	-	36	37	39	27	30	34
FLIP 92-164C	-	38	41	39	22	34	36
FLIP 92-165C	-	34	40	41	27	30	31
FLIP 92-166C	-	35	37	37	25	31	35
FLIP 92-167C	-	35	43	41	26	31	33
FLIP 92-169C	-	34	38	36	25	30	33
FLIP 92-177C	-	37	42	36	32	30	34
FLIP 92-180C	-	36	33	39	25	27	27
FLIP 92-191C	-	36	36	36	29	31	32
FLIP 92-195C	49	36	40	37	30	31	34
FLIP 92-196C	-	37	40	40	27	31	35
FLIP 82-150C	22	32	35	31	26	26	29
ILC 482	-	33	36	29	26	27	28
Local Check	-	33	43	35	27	28	41
Location Mean	40	36	40	37	28	30	34
S.E. of Mean		1	3			1	2
L.S.D. at 5%		3	6			2	3
L.S.D. for T.E. in S.B		3	6			2	3
L.S.D. for T.E. in D.B	One Rep.	3	6	One Rep.	One Rep.	2	3
C.V. %		4	8			3	5
		105	100			106	107

Cont'd. ...

Table 3.7.5 Cont'd. ...

Entry Name	SYRIA						
	Al Ghab	Al Jannasah	Heimo	Homs	Idlib	Jindiress	Tel Hadya
FLIP 90- 8C	29	40	32	33	28	28	38
FLIP 90-111C	26	39	24	31	26	25	33
FLIP 91- 15C	32	49	32	34	28	33	43
FLIP 91- 18C	36	50	32	41	31	35	44
FLIP 91- 19C	37	50	30	41	31	34	43
FLIP 91- 45C	31	39	31	33	26	27	35
FLIP 91- 50C	33	45	33	39	31	38	44
FLIP 91- 58C	30	44	28	33	33	30	37
FLIP 91- 59C	31	45	29	35	29	28	34
FLIP 91- 63C	29	38	33	34	29	28	36
FLIP 91-130C	34	39	31	34	23	32	39
FLIP 91-140C	36	43	32	39	31	32	40
FLIP 91-141C	30	48	32	37	33	33	41
FLIP 91-146C	23	37	-	24	26	23	31
FLIP 91-155C	33	45	30	33	23	27	36
FLIP 91-156C	32	44	30	36	34	30	38
FLIP 91-162C	31	40	26	31	25	30	34
FLIP 91-163C	34	44	26	32	29	28	35
FLIP 91-169C	36	41	29	36	29	29	40
FLIP 91-175C	34	40	30	35	32	31	39
FLIP 91-183C	35	40	27	36	31	29	36
FLIP 91-189C	31	40	28	31	24	26	34
FLIP 91-204C	33	39	30	34	32	29	37
FLIP 91-206C	29	39	29	31	27	27	33
FLIP 92- 22C	30	40	30	30	32	29	36
FLIP 92- 25C	34	40	26	34	28	30	37
FLIP 92- 27C	28	40	29	33	27	28	34
FLIP 92- 40C	31	41	29	35	30	29	36
FLIP 92- 48C	31	40	27	35	30	31	38
FLIP 92- 58C	32	39	27	38	30	29	35
FLIP 92- 65C	36	45	30	40	19	33	42
FLIP 92- 98C	31	40	30	37	32	29	38
FLIP 92-101C	34	42	31	35	32	32	42
FLIP 92-102C	29	44	28	39	28	31	34
FLIP 92-110C	32	45	32	36	34	34	42
FLIP 92-111C	32	43	-	33	28	30	38
FLIP 92-112C	34	50	34	39	31	35	41

Cont'd. ...

Table 3.7.5 Cont'd. ...

Entry Name	SYRIA						
	Al Ghab	Al Jannasah	Heimo	Homs	Idleb	Jindiress	Tel Hadya
FLIP 92-120C	32	39	30	34	32	32	33
FLIP 92-122C	26	37	28	29	24	24	31
FLIP 92-123C	32	40	29	32	28	30	36
FLIP 92-125C	32	40	32	33	26	28	36
FLIP 92-126C	27	39	27	33	27	27	37
FLIP 92-134C	30	41	28	32	31	29	37
FLIP 92-135C	33	39	27	33	35	30	38
FLIP 92-142C	34	40	28	32	31	29	37
FLIP 92-146C	32	38	29	34	29	30	36
FLIP 92-147C	33	40	31	33	30	29	37
FLIP 92-154C	30	40	32	32	27	30	36
FLIP 92-155C	32	40	30	35	29	26	35
FLIP 92-162C	25	42	28	35	31	28	36
FLIP 92-163C	24	40	31	34	28	29	36
FLIP 92-164C	32	43	33	37	30	30	37
FLIP 92-165C	30	40	30	35	28	27	35
FLIP 92-166C	31	40	29	34	28	30	36
FLIP 92-167C	31	38	34	33	28	28	36
FLIP 92-169C	30	37	32	34	28	29	41
FLIP 92-177C	33	45	-	34	26	33	43
FLIP 92-180C	31	38	30	30	36	27	34
FLIP 92-191C	31	40	31	36	28	28	37
FLIP 92-195C	29	41	29	36	33	30	34
FLIP 92-196C	29	41	30	34	35	30	35
FLIP 82-150C	26	38	22	27	27	25	28
ILC 482	27	38	-	29	23	25	32
Local Check	25	35	28	32	25	23	29
Location Mean	31	41	30	34	29	29	37
S.E. of Mean	2	3	1	1	4	1	2
L.S.D. at 5%	4	6	1	3	9	3	4
L.S.D. for T.E. in S.B	4	6	2	3	9	3	6
L.S.D. for T.E. in D.B	4	6	1	3	9	3	4
C.V. %	6	8	2	4	15	4	5
Efficiency %	102	100	97	111	100	131	99

Cont'd. ...

Table 3.7.5 Cont'd. ...

Entry Name	TURKEY			Overall Mean
	Ankara	Diyarbakır	Izmir (Bornova)	
FLIP 90- 8C	37	-	27	32
FLIP 90-111C	42	28	25	30
FLIP 91- 15C	35	-	32	36
FLIP 91- 18C	38	35	34	39
FLIP 91- 19C	40	33	33	38
FLIP 91- 45C	28	30	28	32
FLIP 91- 50C	35	-	34	39
FLIP 91- 58C	41	-	29	35
FLIP 91- 59C	40	-	29	34
FLIP 91- 63C	18	-	30	33
FLIP 91-130C	38	-	32	34
FLIP 91-140C	39	-	31	37
FLIP 91-141C	36	-	36	37
FLIP 91-146C	39	-	27	29
FLIP 91-155C	37	29	30	33
FLIP 91-156C	37	35	30	36
FLIP 91-162C	36	-	30	33
FLIP 91-163C	39	30	30	33
FLIP 91-169C	39	-	32	36
FLIP 91-175C	40	-	33	35
FLIP 91-183C	30	32	30	34
FLIP 91-189C	35	29	29	31
FLIP 91-204C	37	-	31	34
FLIP 91-206C	39	26	28	31
FLIP 92- 22C	37	31	29	33
FLIP 92- 25C	38	33	30	34
FLIP 92- 27C	38	27	29	32
FLIP 92- 40C	40	29	29	33
FLIP 92- 48C	36	31	30	34
FLIP 92- 58C	39	29	31	34
FLIP 92- 65C	37	34	36	36
FLIP 92- 98C	36	32	24	34
FLIP 92-101C	39	33	31	36
FLIP 92-102C	38	35	28	35
FLIP 92-110C	35	-	34	36
FLIP 92-111C	31	34	33	34
FLIP 92-112C	40	35	34	38

Table 3.7.5 Cont'd. ...

Entry Name	TURKEY			Overall Mean
	Ankara	Diyarbakir	Izmir (Bornova)	
FLIP 92-120C	36	31	32	34
FLIP 92-122C	32	28	28	29
FLIP 92-123C	34	29	33	33
FLIP 92-125C	30	32	32	33
FLIP 92-126C	35	32	29	32
FLIP 92-134C	40	32	35	35
FLIP 92-135C	35	33	35	34
FLIP 92-142C	38	30	33	34
FLIP 92-146C	39	31	35	34
FLIP 92-147C	35	31	32	33
FLIP 92-154C	40	34	30	34
FLIP 92-155C	39	33	30	33
FLIP 92-162C	35	34	30	33
FLIP 92-163C	38	33	29	33
FLIP 92-164C	36	35	32	35
FLIP 92-165C	41	34	28	33
FLIP 92-166C	33	34	29	33
FLIP 92-167C	38	34	33	34
FLIP 92-169C	38	33	30	33
FLIP 92-177C	35	31	31	35
FLIP 92-180C	41	29	28	32
FLIP 92-191C	39	31	31	33
FLIP 92-195C	37	-	30	34
FLIP 92-196C	37	34	31	34
FLIP 82-150C	40	26	26	30
ILC 482	38	27	27	30
Local Check	39	31	22	-
Location Mean	37	31	30	
S.E. of Mean	3		1	
L.S.D. at 5%	5	One Rep.	3	
L.S.D. for T.E. in S.B	8		3	
L.S.D. for T.E. in D.B	6		3	
C.V. %	7		5	
Efficiency %	88		100	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.7.6 Seed yield (y.kg/ha) and rank (R) of entries in the CISH-W-94 conducted at different locations.

Entry Name	CHINA		CYPRUS		IRAN				ITALY	
	Chengdu		Athalassa		Gonbad (Gorgan)		Karaj		Tarquinia	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 8C	.	.	1799	50	1567	55	887	52	7682	1
FLIP 90-111C	.	.	2255	16	1771	44	1340	17	4139	47
FLIP 91- 15C	.	.	1981	40	1492	58	853	55	4692	38
FLIP 91- 18C	.	.	1786	51	1637	52	1085	41	6359	6
FLIP 91- 19C	430	2	2042	33	1789	42	1538	8	4919	34
FLIP 91- 45C	.	.	2130	27	2276	12	1258	24	4433	42
FLIP 91- 50C	.	.	2681	4	1919	40	1067	43	5441	23
FLIP 91- 58C	.	.	1976	41	1924	38	1676	5	5747	16
FLIP 91- 59C	.	.	1886	45	2027	25	1208	27	5759	15
FLIP 91- 63C	.	.	1844	48	2222	14	1310	20	4970	33
FLIP 91-130C	49	20	1433	62	1571	54	1028	45	6733	4
FLIP 91-140C	.	.	2150	25	2324	10	680	62	5191	25
FLIP 91-141C	.	.	1350	63	1649	51	997	48	4096	48
FLIP 91-146C	.	.	2326	12	1962	32	983	49	5106	30
FLIP 91-155C	300	3	2121	29	1740	48	466	64	4175	46
FLIP 91-156C	45	21	2058	32	2246	13	620	63	5085	31
FLIP 91-162C	.	.	1688	54	1892	41	1308	21	6349	7
FLIP 91-163C	.	.	2177	21	1527	56	892	51	4282	45
FLIP 91-169C	76	16	1674	55	2102	20	838	56	6199	8
FLIP 91-175C	.	.	2224	17	1424	60	1000	47	2523	62
FLIP 91-183C	.	.	1566	61	1192	62	729	60	5557	20
FLIP 91-189C	76	16	2308	13	1627	53	1270	23	3109	59
FLIP 91-204C	.	.	2127	28	2662	3	1071	42	3179	57
FLIP 91-206C	132	8	2432	8	1941	36	1171	31	3113	58
FLIP 92- 22C	.	.	2161	24	2568	4	1122	35	5375	24
FLIP 92- 25C	148	5	2782	2	2151	16	1023	46	1539	64
FLIP 92- 27C	159	4	1879	46	1956	33	1249	26	3804	53
FLIP 92- 40C	453	1	1989	39	2130	18	828	58	4908	35
FLIP 92- 48C	.	.	2389	10	1652	50	1511	11	3904	50
FLIP 92- 58C	94	13	1895	44	1510	57	1160	32	3824	52
FLIP 92- 65C	121	10	1938	43	1670	49	1514	10	5125	27
FLIP 92- 98C	94	13	1952	42	1976	31	1466	13	2452	63
FLIP 92-101C	.	.	1597	59	1422	61	956	50	4423	43
FLIP 92-102C	.	.	2215	19	2070	22	1129	33	5591	18
FLIP 92-110C	.	.	2106	30	2413	8	1737	4	5468	22
FLIP 92-111C	.	.	2083	31	2008	29	1193	28	4590	40
FLIP 92-112C	.	.	1645	57	1132	63	1096	38	4808	37

Cont'd. ...

Table 3.7.6 Cont'd. . . .

Entry Name	CHINA		CYPRUS		IRAN		ITALY	
	Chengdu		Athalassa		Gonbad (Gorgan)		Tarquinia	
	Y	R	Y	R	Y	R	Y	R
FLIP 92-120C	.	.	2169	23	2210	15	1326	19
FLIP 92-122C	.	.	2292	14	2511	6	1185	29
FLIP 92-123C	.	.	1992	38	1787	43	1093	39
FLIP 92-125C	.	.	1744	52	1930	37	1033	44
FLIP 92-126C	117	11	835	64	2025	26	1116	37
FLIP 92-134C	76	16	2023	37	1765	45	875	54
FLIP 92-135C	101	12	1580	60	2060	24	1091	40
FLIP 92-142C	135	7	1649	56	2137	17	1181	30
FLIP 92-146C	145	6	2041	34	1943	35	751	59
FLIP 92-147C	122	9	1698	53	1759	46	1536	9
FLIP 92-154C	.	.	2264	15	1921	39	696	61
FLIP 92-155C	.	.	2410	9	2563	5	1272	22
FLIP 92-162C	.	.	2637	5	2097	21	1752	3
FLIP 92-163C	.	.	1825	49	1981	30	1555	7
FLIP 92-164C	.	.	2178	20	1463	59	1464	14
FLIP 92-165C	.	.	2026	36	2290	11	1836	1
FLIP 92-166C	.	.	2223	18	2117	19	1119	36
FLIP 92-167C	.	.	2435	7	1951	34	832	57
FLIP 92-169C	.	.	2338	11	2424	7	1332	18
FLIP 92-177C	.	.	2171	22	2019	27	1433	15
FLIP 92-180C	.	.	2035	35	2895	1	1256	25
FLIP 92-191C	.	.	1611	58	1749	47	1474	12
FLIP 92-195C	91	15	1868	47	2017	28	1580	6
FLIP 92-196C	.	.	2138	26	2063	23	1776	2
FLIP 82-150C	54	19	3038	1	2778	2	1125	34
ILC 482	.	.	2689	3	2371	9	880	53
Local Check	.	.	2441	6	556	64	1341	16
Location Mean	144	.	2047	.	1949	.	1175	.
S.E. of Mean	.	.	428	.	315	.	434	.
L.S.D. at 5%	.	.	830	.	632	.	844	.
L.S.D. for T.E. in S.B	.	.	867	.	632	.	881	.
L.S.D. for T.E. in D.B	.	.	859	.	632	.	873	.
T.E > L. Check	.	.	0	.	62	.	0	.
C.V. %	.	.	19	.	16	.	34	.
	.	.	159	.	100	.	155	.

Cont'd. . . .

Table 3.7.6 Cont'd. ...

Entry Name	LEBANON				PORTUGAL		SPAIN		SYRIA	
	Tel Amara		Terbol		Elvas		Valladolid		Al Ghab	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 8C	2586	8	2152	53	1721	28	2719	6	1111	47
FLIP 90-111C	2100	25	2407	32	1773	21	2068	40	1191	44
FLIP 91- 15C	1686	52	1987	61	1235	63	1969	42	1000	55
FLIP 91- 18C	1879	40	2183	48	1455	54	1460	64	1159	45
FLIP 91- 19C	1757	62	2159	50	1281	62	1649	60	1254	37
FLIP 91- 45C	1843	42	2607	18	1430	57	2284	30	873	57
FLIP 91- 50C	1700	51	2756	10	2154	5	2410	20	1064	50
FLIP 91- 58C	2064	29	2672	15	2180	3	2134	37	1603	15
FLIP 91- 59C	1793	47	2561	22	1898	13	2298	28	1445	24
FLIP 91- 63C	2321	15	2618	17	2163	4	2124	39	1731	11
FLIP 91-130C	1586	55	2339	35	1644	38	1793	54	1286	34
FLIP 91-140C	2321	15	2479	27	1664	37	2464	16	1334	30
FLIP 91-141C	1536	57	2184	47	1509	50	1572	62	381	64
FLIP 91-146C	1793	45	2154	51	1709	29	2533	11	1318	31
FLIP 91-155C	1471	61	2070	59	1696	30	1734	57	1349	29
FLIP 91-156C	1750	49	2436	31	1694	31	2445	18	1952	4
FLIP 91-162C	2229	19	2160	49	1297	61	2271	32	683	62
FLIP 91-163C	1971	35	2350	34	1605	43	1823	52	1508	21
FLIP 91-169C	2071	28	2666	16	1817	17	2360	23	715	59
FLIP 91-175C	857	64	2153	52	1612	42	1687	59	714	60
FLIP 91-183C	2086	26	2254	43	1541	48	1906	44	1207	40
FLIP 91-189C	1793	45	2979	3	1678	33	1865	49	1461	23
FLIP 91-204C	2279	17	2007	60	2081	8	1904	46	1048	52
FLIP 91-206C	2214	21	2985	2	1983	10	2838	5	1317	33
FLIP 92- 22C	2814	5	2352	33	1395	59	1593	61	1508	21
FLIP 92- 25C	2029	32	2792	8	1674	34	2295	29	2064	3
FLIP 92- 27C	1800	44	1930	64	1591	45	2153	36	1746	10
FLIP 92- 40C	3107	3	2803	7	2683	1	1939	43	1826	8
FLIP 92- 48C	1900	39	2214	44	1567	46	1806	53	1207	40
FLIP 92- 58C	2050	31	2071	58	1383	60	1768	56	1064	50
FLIP 92- 65C	2021	33	1984	62	1429	58	1870	47	1048	54
FLIP 92- 98C	2693	7	2696	12	1618	41	2300	27	1254	37
FLIP 92-101C	1164	63	2270	40	1728	25	1826	51	1540	20
FLIP 92-102C	2357	14	2685	13	1865	14	3005	3	1064	49
FLIP 92-110C	2557	9	2756	9	1932	12	2499	14	1855	6
FLIP 92-111C	1543	56	2682	14	1220	64	2564	9	1350	28
FLIP 92-112C	1857	41	2112	55	1436	56	2124	38	1572	16

Cont'd. ...

Table 3.7.6 Cont'd. ...

Entry Name	LEBANON				PORTUGAL		SPAIN		SYRIA	
	Tel Amara		Terbol		Elvas		Valladolid		Al Ghab	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 92-120C	2543	10	2573	20	1744	23	2336	25	1889	5
FLIP 92-122C	1507	59	2463	28	1442	55	3157	2	1127	46
FLIP 92-123C	1836	43	2082	57	1502	51	2215	33	1318	31
FLIP 92-125C	2114	24	2259	41	1463	52	2279	31	1778	9
FLIP 92-126C	2829	4	2287	37	1955	11	2844	4	1286	34
FLIP 92-134C	3186	2	2452	29	1728	26	1536	63	1048	52
FLIP 92-135C	1950	37	2259	42	1633	39	1689	58	1238	39
FLIP 92-142C	2150	23	2186	46	1462	53	1782	55	1207	40
FLIP 92-146C	1914	38	2093	56	1781	20	1971	41	1429	25
FLIP 92-147C	2407	12	1932	63	1750	22	1867	48	1286	36
FLIP 92-154C	2221	20	2450	30	1565	47	2327	26	1207	40
FLIP 92-155C	2250	18	2129	54	2183	2	1859	50	1572	16
FLIP 92-162C	2436	11	2715	11	1864	15	2673	8	698	61
FLIP 92-163C	1536	57	2308	36	1673	35	2181	34	716	58
FLIP 92-164C	1964	36	2195	45	1795	19	2343	24	445	63
FLIP 92-165C	1643	53	2528	24	2087	7	2517	13	1714	12
FLIP 92-166C	1500	60	2285	38	1723	27	2524	12	1667	14
FLIP 92-167C	1736	50	2588	19	2119	6	2450	17	1572	16
FLIP 92-169C	1757	48	2539	23	1672	36	2404	21	2238	2
FLIP 92-177C	2407	13	2567	21	1600	44	2498	15	1080	48
FLIP 92-180C	2214	21	2825	6	1539	49	2683	7	2524	1
FLIP 92-191C	2064	29	2481	26	1838	16	2552	10	1683	13
FLIP 92-195C	1593	54	2505	25	2026	9	2162	35	1397	27
FLIP 92-196C	2086	27	2274	39	1801	18	3364	1	1413	26
FLIP 82-150C	1971	34	2954	4	1629	40	2397	22	1556	19
ILC 482	2800	6	3230	1	1738	24	2434	19	1826	7
Local Check	3421	1	2914	5	1690	32	1905	45	968	56
Location Mean	2049		2418		1708		2203		1343	
S.E. of Mean	645		232		275		505		632	
L.S.D. at 5%	1296		457		545		1004		1260	
L.S.D. for T.E. in S.B	1296		469		556		1018		1547	
L.S.D. for T.E. in D.B	1296		467		554		1015		1270	
T.E > L. Check	0		0		1		3		1	
C.V. %	31		9		16		22		47	
Efficiency %	100		108		103		101		98	

Cont'd. ...

Table 3.7.6 Cont'd. ...

Entry Name	SYRIA									
	Al Jammasah		Gelline		Hama		Heimo		Homs	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 8C	2150	21	1253	45	813	41	200	60	1310	35
FLIP 90-111C	2313	14	1427	23	1321	2	610	50	1191	44
FLIP 91- 15C	1753	37	855	62	534	59	1442	17	841	64
FLIP 91- 18C	1760	36	877	61	543	58	738	42	1139	49
FLIP 91- 19C	1596	49	1205	47	543	57	350	56	987	59
FLIP 91- 45C	2274	17	1480	15	1019	12	1640	10	1560	20
FLIP 91- 50C	2112	23	1419	25	825	38	212	59	1132	50
FLIP 91- 58C	2811	3	1691	4	507	61	1729	7	1537	21
FLIP 91- 59C	2445	7	1441	16	910	24	1885	2	1437	27
FLIP 91- 63C	1048	64	1725	3	909	25	1904	1	1489	23
FLIP 91-130C	1906	29	802	63	696	52	1100	29	1155	47
FLIP 91-140C	2272	18	1261	42	872	31	447	55	1268	39
FLIP 91-141C	1793	34	752	64	944	18	553	52	1036	58
FLIP 91-146C	1386	59	1263	41	582	56	-2	62	1061	55
FLIP 91-155C	1140	63	1166	50	804	44	1197	25	1248	40
FLIP 91-156C	2124	22	1294	35	768	47	838	37	1330	33
FLIP 91-162C	1916	28	1530	11	1071	8	816	38	1144	48
FLIP 91-163C	1557	53	1311	34	883	30	715	44	1215	42
FLIP 91-169C	1744	40	1264	40	851	34	800	40	1227	41
FLIP 91-175C	1522	54	1075	57	444	63	1399	18	953	60
FLIP 91-183C	2021	25	1133	51	900	27	243	58	1657	14
FLIP 91-189C	1682	43	1505	12	808	43	1349	22	1677	12
FLIP 91-204C	2083	24	1002	59	1070	9	1802	5	1291	38
FLIP 91-206C	2392	12	1425	24	1138	5	1067	31	1768	6
FLIP 92- 22C	1458	56	1316	32	837	36	507	54	2286	1
FLIP 92- 25C	2915	2	1955	1	1206	4	791	41	1754	8
FLIP 92- 27C	1597	48	1192	49	606	54	1148	27	1306	37
FLIP 92- 40C	2434	9	1766	2	1381	1	987	34	1489	22
FLIP 92- 48C	1870	31	1261	43	862	33	710	46	1045	57
FLIP 92- 58C	2005	26	1236	46	1111	6	1196	26	1878	3
FLIP 92- 65C	1473	55	1055	58	794	46	694	48	1405	29
FLIP 92- 98C	1645	47	1255	44	946	17	646	49	1113	53
FLIP 92-101C	1747	38	1330	31	827	37	1619	11	1064	54
FLIP 92-102C	1346	60	1380	27	915	23	321	57	1365	31
FLIP 92-110C	1390	58	1494	13	811	42	876	36	1482	25
FLIP 92-111C	1582	51	1122	53	927	21	-12	63	915	63
FLIP 92-112C	1820	33	1197	48	515	60	1038	32	1051	56

Cont'd. ...

Table 3.7.6 Cont'd. ...

Entry Name	SYRIA									
	Al Jammassah		Gelline		Hama		Helmo		Homs	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 92-120C	1770	35	1377	28	1055	11	511	53	1713	9
FLIP 92-122C	1560	52	969	60	503	62	1124	28	1627	17
FLIP 92-123C	1673	44	1272	36	717	50	564	51	1120	52
FLIP 92-125C	1744	39	1364	29	738	49	695	47	949	61
FLIP 92-126C	1683	42	1433	18	795	45	723	43	1126	51
FLIP 92-134C	1586	50	1311	33	915	22	1036	33	1565	18
FLIP 92-135C	1305	62	1269	38	883	29	878	35	1172	46
FLIP 92-142C	1443	57	1269	38	901	26	1450	15	1457	26
FLIP 92-146C	1316	61	1097	56	944	19	1287	23	1328	34
FLIP 92-147C	1668	46	1105	54	989	15	1092	30	1333	32
FLIP 92-154C	1938	27	1411	26	749	48	1574	13	1696	10
FLIP 92-155C	2495	6	1272	36	1005	13	1836	3	1372	30
FLIP 92-162C	2291	16	1344	30	824	39	1827	4	1409	28
FLIP 92-163C	2565	5	1430	20	867	32	1378	19	1308	36
FLIP 92-164C	2567	4	1433	18	596	55	1362	21	1649	15
FLIP 92-165C	1668	45	1438	17	1230	3	1725	8	1214	43
FLIP 92-166C	2414	11	1103	55	705	51	1604	12	1667	13
FLIP 92-167C	2297	15	1430	20	963	16	1770	6	1487	24
FLIP 92-169C	1821	32	1603	6	821	40	1446	16	1817	4
FLIP 92-177C	1734	41	1122	52	688	53	17	61	1179	45
FLIP 92-180C	2216	19	1583	8	1097	7	812	39	1563	19
FLIP 92-191C	2425	10	1564	9	900	28	1481	14	1801	5
FLIP 92-195C	1897	30	1558	10	930	20	1222	24	1761	7
FLIP 92-196C	2164	20	1605	5	850	35	1644	9	1631	16
FLIP 82-150C	2368	13	1483	14	1002	14	1375	20	2115	2
ILC 482	3424	1	1430	20	1056	10	-20	64	1692	11
Local Check	2438	8	1600	7	416	64	714	45	915	62
Location Mean	1930		1322		854		1011		1382	
S.E. of Mean	579		188		222		274		301	
L.S.D. at 5%	1163		377		429		542		596	
L.S.D. for T.E. in S.B	1164		377		451		552		608	
L.S.D. for T.E. in D.B	1164		377		446		550		605	
T.E > L. Check	0		0		32		23		21	
C.V. %	30		14		24		26		21	
Efficiency %	100		100		744		102		104	

Cont'd. ...

Table 3.7.6 Cont'd. ...

Entry Name	SYRIA								TUNISIA	
	Idlib		Idra'a		Jindiress		Tel Hadya		Beja	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 90- 8C	1840	38	220	63	1537	36	2423	37	1545	14
FLIP 90-111C	3207	2	587	13	936	63	2314	44	1419	27
FLIP 91- 15C	1561	47	349	53	1606	31	2797	12	934	63
FLIP 91- 18C	1192	60	272	62	1489	42	2722	18	963	62
FLIP 91- 19C	1452	55	514	26	1111	62	1823	63	1151	55
FLIP 91- 45C	2352	19	393	46	1873	15	2995	3	1340	42
FLIP 91- 50C	1017	62	441	42	1700	21	2526	29	1388	36
FLIP 91- 58C	2440	17	321	58	2665	1	2900	7	1347	41
FLIP 91- 59C	2560	15	578	14	2211	5	2410	39	1437	24
FLIP 91- 63C	2584	13	447	41	1796	16	2983	4	1879	2
FLIP 91-130C	2142	26	380	47	1438	46	2359	42	1509	18
FLIP 91-140C	2809	8	353	52	1768	18	2626	24	1191	51
FLIP 91-141C	2248	25	321	56	1482	43	2465	34	1125	57
FLIP 91-146C	1551	49	375	49	1338	56	2422	38	1170	53
FLIP 91-155C	1700	41	562	17	1423	49	2249	52	1411	31
FLIP 91-156C	1927	35	369	50	1650	27	2467	33	1237	49
FLIP 91-162C	2690	11	336	55	1340	55	1821	64	1356	40
FLIP 91-163C	1433	56	480	32	1565	35	2269	48	1368	39
FLIP 91-169C	1498	52	321	57	1634	30	2814	10	1373	37
FLIP 91-175C	1372	57	377	48	1436	47	2103	58	1373	38
FLIP 91-183C	1140	61	658	8	1509	40	2740	15	1422	26
FLIP 91-189C	1540	50	433	43	1507	41	2893	8	1526	16
FLIP 91-204C	2349	20	526	22	1439	45	2168	57	1197	50
FLIP 91-206C	3028	3	500	29	1675	25	2732	16	1563	12
FLIP 92- 22C	2408	18	653	9	1328	57	2095	59	1735	4
FLIP 92- 25C	2578	14	723	6	1519	38	2504	31	1585	10
FLIP 92- 27C	2140	28	524	23	1641	29	2380	40	1644	6
FLIP 92- 40C	2281	22	812	4	2178	6	2764	13	1638	7
FLIP 92- 48C	1904	36	481	31	1677	24	2446	35	1423	25
FLIP 92- 58C	2332	21	507	28	1697	22	2222	54	1508	19
FLIP 92- 65C	1265	59	516	24	2095	7	2020	61	1145	56
FLIP 92- 98C	2140	27	832	3	1405	50	2731	17	1451	23
FLIP 92-101C	1647	44	689	7	1915	14	2266	49	1455	22
FLIP 92-102C	2479	16	479	33	1682	23	2515	30	1493	20
FLIP 92-110C	1977	32	509	27	2002	11	2757	14	1634	8
FLIP 92-111C	1656	42	418	44	1663	26	2331	43	1093	58
FLIP 92-112C	2056	30	340	54	1600	32	2176	55	1243	48

Cont'd. ...

Table 3.7.6 Cont'd. ...

Entry Name	SYRIA								TUNISIA	
	Idleb		Izra'a		Jindiress		Tel Hadya		Beja	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 92-120C	2587	12	529	21	1595	33	2579	28	1781	3
FLIP 92-122C	1962	33	314	59	1642	28	2246	53	1278	45
FLIP 92-123C	1566	46	491	30	1368	52	2260	51	1406	32
FLIP 92-125C	1553	48	281	61	1428	48	2078	60	1039	60
FLIP 92-126C	1458	54	535	19	1576	34	2432	36	1391	34
FLIP 92-134C	1569	45	552	18	1466	44	2591	26	1607	9
FLIP 92-135C	2703	9	610	11	1353	54	2371	41	1011	61
FLIP 92-142C	1649	43	575	15	1513	39	2261	50	1268	47
FLIP 92-146C	1742	39	562	16	1525	37	2305	47	1288	44
FLIP 92-147C	2008	31	642	10	1745	19	2175	56	1389	35
FLIP 92-154C	774	64	450	40	1937	12	2806	11	1552	13
FLIP 92-155C	2117	29	361	51	1785	17	2708	19	1158	54
FLIP 92-162C	2918	6	595	12	2093	8	3163	1	1516	17
FLIP 92-163C	1516	51	453	38	1926	13	2659	23	1416	29
FLIP 92-164C	2254	24	288	60	2407	2	2617	25	1413	30
FLIP 92-165C	2280	23	515	25	1731	20	2956	5	1190	52
FLIP 92-166C	1465	53	465	36	2249	4	2307	46	436	64
FLIP 92-167C	2691	10	475	34	2084	10	2665	22	1529	15
FLIP 92-169C	2893	7	452	39	2316	3	2695	21	1402	33
FLIP 92-177C	920	63	471	35	1380	51	2309	45	1902	1
FLIP 92-180C	2968	5	889	1	1363	53	2469	32	1278	46
FLIP 92-191C	1891	37	533	20	1254	58	3127	2	1416	28
FLIP 92-195C	1724	40	405	45	776	64	2697	20	1332	43
FLIP 92-196C	1372	58	454	37	1148	61	2926	6	1061	59
FLIP 82-150C	3483	1	850	2	2084	9	2588	27	1464	21
ILC 482	3027	4	798	5	1250	60	2817	9	1668	5
Local Check	1931	34	-33	64	1252	59	1997	62	1583	11
Location Mean	2024		486		1637		2501		1376	
S.E. of Mean	807		112		315		322		302	
L.S.D. at 5%	1595		217		620		636		596	
L.S.D. for T.E. in S.B	1629		226		638		651		611	
L.S.D. for T.E. in D.B	1622		224		634		648		607	
T.E. > L. Check	0		63		14		23		0	
C.V. %	38		21		18		12		21	
Efficiency %	104		158		109		105		107	

Cont'd. ...

Table 3.7.6 Cont'd. ...

TUNISIA		TURKEY		IZMIR (Bornova)		Overall Mean	
Entry Name							
FLIP 90-8C	2802	38	871	20	49	18	1828
FLIP 90-111C	2734	41	75	64	8	25	1847
FLIP 91-15C	1453	64	357	59	49	50	1458
FLIP 91-18C	2730	42	757	29	43	62	1585
FLIP 91-19C	2581	50	1114	9	32	45	1573
FLIP 91-45C	3424	14	1257	4	42	2	1962
FLIP 91-50C	2959	28	418	55	49	38	1729
FLIP 91-58C	2824	36	821	26	49	33	2005
FLIP 91-59C	3065	25	1101	10	49	10	1972
FLIP 91-63C	2977	26	980	13	49	11	1956
FLIP 91-130C	2730	43	514	49	49	40	1675
FLIP 91-140C	1747	63	729	33	49	39	1754
FLIP 91-141C	2860	32	546	47	49	58	1453
FLIP 91-146C	3289	17	648	41	49	29	1632
FLIP 91-155C	2199	60	791	27	36	56	1571
FLIP 91-156C	3523	10	710	35	45	42	1798
FLIP 91-162C	3249	19	686	37	49	47	1740
FLIP 91-163C	3139	22	852	24	11	36	1735
FLIP 91-169C	3423	15	864	23	49	19	1787
FLIP 91-175C	1840	62	646	42	49	55	1339
FLIP 91-183C	3559	9	461	52	41	47	1688
FLIP 91-189C	2805	37	894	18	38	29	1759
FLIP 91-189C	2524	55	1727	1	49	61	1704
FLIP 91-204C	3402	16	449	54	6	23	2029
FLIP 92-22C	2094	61	909	17	35	36	1848
FLIP 92-25C	3507	12	387	58	5	7	1988
FLIP 92-27C	2223	59	323	63	47	44	1627
FLIP 92-40C	3861	3	394	57	1	1	2218
FLIP 92-48C	2714	45	716	34	40	53	1668
FLIP 92-48C	2853	33	656	40	29	52	1728
FLIP 92-58C	2321	58	993	12	46	63	1580
FLIP 92-65C	2614	49	621	44	15	64	1716
FLIP 92-101C	2875	31	700	36	25	16	1729
FLIP 92-102C	3515	11	1256	5	20	34	1970
FLIP 92-110C	3815	5	1316	3	49	41	1989
FLIP 92-111C	2479	56	645	43	22	21	1689
FLIP 92-113C	2525	54	1255	6	36	49	1659

Table 3.7.6 Cont'd. ...

Entry Name	TUNISIA		TURKEY						Overall Mean	
	Oued Meliz		Ankara		Diyarbakir		Izmir (Bornova)			
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP 92-120C	3877	2	731	32	1778	27	3286	3	2112	7
FLIP 92-122C	3697	6	453	53	2111	18	2036	57	1829	27
FLIP 92-123C	3207	20	778	28	2056	20	2893	15	1749	36
FLIP 92-125C	3633	7	403	56	556	44	2571	28	1724	45
FLIP 92-126C	3271	18	738	31	1722	29	3018	9	1783	32
FLIP 92-134C	2949	29	957	14	1667	31	2554	31	1764	33
FLIP 92-135C	2918	30	603	46	2167	17	2804	20	1733	40
FLIP 92-142C	2569	51	949	15	1833	25	2643	27	1676	51
FLIP 92-146C	2834	35	866	22	2000	22	2482	35	1703	48
FLIP 92-147C	2564	52	1083	11	1167	38	2714	24	1724	44
FLIP 92-154C	2781	40	870	21	2389	12	2911	14	1896	22
FLIP 92-155C	2789	39	1255	7	3000	3	3232	6	2120	6
FLIP 92-162C	3627	8	677	38	1778	27	2679	26	2134	4
FLIP 92-163C	2632	47	333	62	1556	34	3250	5	1879	24
FLIP 92-164C	3103	23	844	25	2000	22	3054	8	1911	21
FLIP 92-165C	2843	34	336	61	2222	16	2321	43	2065	8
FLIP 92-166C	2450	57	544	48	2333	13	2929	13	1888	23
FLIP 92-167C	2723	44	1121	8	2556	9	2143	51	2032	10
FLIP 92-169C	2702	46	885	19	2556	9	2786	21	2169	3
FLIP 92-177C	3491	13	748	30	278	48	2214	46	1746	37
FLIP 92-180C	2628	48	477	51	3000	3	2875	16	2003	13
FLIP 92-191C	3176	21	934	16	2333	13	3268	4	2057	9
FLIP 92-195C	2540	53	1328	2	0	49	2554	32	1815	29
FLIP 92-196C	2962	27	493	50	2111	18	2964	12	1996	14
FLIP 82-150C	3069	24	613	45	2722	7	1768	60	2131	5
ILC 482	4114	1	355	60	3167	2	2071	54	2174	2
Local Check	3859	4	659	39	1611	32	1893	59	-	-
Location Mean	2941		780		1380		2526			
S.E. of Mean	527		426				411			
L.S.D. at 5%	1024		783				826			
L.S.D. for T.E. in S.B	1069		1160		One Rep.		826			
L.S.D. for T.E. in D.B	1059		862				826			
T.E. > L. Check	0		1				23			
C.V. %	17		48				16			
Efficiency %	155		99				100			

* The mean has been calculated excluding the locations with incomplete data.

Table 3.7.7. The five heaviest seed yielding entries at the individual locations in the CISN-W-94.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
CHINA	Chengdu	FLIP 92- 40C	FLIP 91- 19C	FLIP 91-155C	FLIP 92- 27C	FLIP 92- 25C
CYPRUS	Athalassa	FLIP 82-150C	FLIP 92- 25C	ILC 482	FLIP 91- 50C	FLIP 92-162C
IRAN	Gonbad (Gorgan)	FLIP 92-180C	FLIP 82-150C	FLIP 91-204C	FLIP 92- 22C	FLIP 92-155C
IRAN	Karaj	FLIP 92-165C	FLIP 92-196C	FLIP 92-162C	FLIP 92-110C	FLIP 91- 58C
ITALY	Tarquinia	FLIP 90- 8C	FLIP 92-165C	FLIP 92-169C	FLIP 91-130C	FLIP 92-120C
LEBANON	Tel Amara	Local Check	FLIP 92-134C	FLIP 92- 40C	FLIP 92-126C	FLIP 92- 22C
LEBANON	Terbol	ILC 482	FLIP 91-206C	FLIP 91-189C	FLIP 82-150C	Local Check
PORTUGAL	Elvas	FLIP 92- 40C	FLIP 92-155C	FLIP 91- 58C	FLIP 91- 63C	FLIP 91- 50C
SPAIN	Valladolid	FLIP 92-196C	FLIP 92-122C	FLIP 92-102C	FLIP 92-126C	FLIP 91-206C
SYRIA	Al Ghab	FLIP 92-180C	FLIP 92-169C	FLIP 92- 25C	FLIP 91-156C	FLIP 92-120C
SYRIA	Al Jammasah	ILC 482	FLIP 92- 25C	FLIP 91- 58C	FLIP 92-164C	FLIP 92-163C
SYRIA	Gelline	FLIP 92- 25C	FLIP 92- 40C	FLIP 91- 63C	FLIP 91- 58C	FLIP 92-196C
SYRIA	Hama	FLIP 92- 40C	FLIP 90-111C	FLIP 92-165C	FLIP 92- 25C	FLIP 91-206C
SYRIA	Heimo	FLIP 91- 63C	FLIP 91- 59C	FLIP 92-155C	FLIP 92-162C	FLIP 91-204C
SYRIA	Homs	FLIP 92- 22C	FLIP 82-150C	FLIP 92- 58C	FLIP 92-169C	FLIP 92-191C
SYRIA	Idleb	FLIP 82-150C	FLIP 90-111C	FLIP 91-206C	ILC 482	FLIP 92-180C
SYRIA	Izra'a	FLIP 92-180C	FLIP 82-150C	FLIP 92- 98C	FLIP 92- 40C	ILC 482
SYRIA	Jindiress	FLIP 91- 58C	FLIP 92-164C	FLIP 92-169C	FLIP 92-166C	FLIP 91- 59C
SYRIA	Tel Hadya	FLIP 92-162C	FLIP 92-191C	FLIP 91- 45C	FLIP 91- 63C	FLIP 92-165C
TUNISIA	Beja	FLIP 92-177C	FLIP 91- 63C	FLIP 92-120C	FLIP 92- 22C	ILC 482
TUNISIA	Oued Meliz	ILC 482	FLIP 92-120C	FLIP 92- 40C	Local Check	FLIP 92-110C
TURKEY	Ankara	FLIP 91-204C	FLIP 92-195C	FLIP 92-110C	FLIP 91- 45C	FLIP 92-102C
TURKEY	Diyarbakir	FLIP 92- 40C	ILC 482	FLIP 92-155C		FLIP 92- 25C
				FLIP 92-180C		
TURKEY	Izmir (Bornova)	FLIP 92- 40C	FLIP 91- 45C	FLIP 92-120C	FLIP 92-191C	FLIP 92-163C

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

The Chickpea International Screening Nursery - Southerly Latitudes 1 comprised 46 test entries and two checks, namely ILC 482, FLIP 82-150C were supplied 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 in a 7x7 simple lattice design with 2 replications. The spacing between rows were 45 cm. Fifteen sets of nursery were distributed to cooperators in 9 countries and the results were received from 3 locations in 3 countries. The agronomic details received from the cooperators are presented in Table 3.8.1.

Table 3.8.1. Agronomic details of entries in CISN-SL1-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Canada						
Saskatoon	11.05.94	17.10.94	-	-	-	UC 27
Iran						
Khoramabad	11.03.94	12.06.94	-/69/-	-	-	Local
Syria						
Tel Hadya	20.12.93	10.06.94	-/50/-	-	Kerb + Igran	Ghab 3

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 varied from 83 to 97 days, 124 to 132 days, 41 to 51 cm, 23 to 31 g, and 1784 to 3012 kg/ha respectively. The five heaviest yielding entries based on mean over locations included FLIP 92-176C, FLIP 92-38C, FLIP 91-199C, FLIP 91-26C, and FLIP 92-174C, respectively with seed yields of 3012, 2948, 2902, 2872 and 2806 kg/ha.

Table 3.8.2 Time to flowering (days) of entries in the CISON-SL1-94 conducted at different locations.

Entry Name	Pedigree	Origin	IRAN	SYRIA	Overall Mean
			Khoramabad	Tel Hadya	
FLIP91-26C	X87TH 167/ILC 1919XFLIP83-47C	ICARDA/ICRISAT	57	117	87
FLIP91-161C	X88TH 32/FLIP85-142C X FLIP82-150C	ICARDA/ICRISAT	68	126	97
FLIP91-199C	X87TH 213/ILC 237 X FLIP84-93C	ICARDA/ICRISAT	67	123	95
FLIP92-1C	X89TH 27/ILC3777 X FLIP82-150C	ICARDA/ICRISAT	55	126	90
FLIP92-14C	X88TH 54/FLIP85-112C X ILC 482	ICARDA/ICRISAT	66	123	95
FLIP92-19C	X88TH 222/(ILC482XFLIP84-79C)XILC482	ICARDA/ICRISAT	54	112	83
FLIP92-24C	X89TH 12/ILC4291 X FLIP82-150C	ICARDA/ICRISAT	53	112	83
FLIP92-26C	X90TH 127/FLIP84-176C X FLIP84-79C	ICARDA/ICRISAT	54	117	86
FLIP92-29C	X90TH 137/FLIP84-176C X FLIP84-155C	ICARDA/ICRISAT	61	118	89
FLIP92-30C	X90TH 138/FLIP85-84C X FLIP84-155C	ICARDA/ICRISAT	58	121	89
FLIP92-32C	X90TH 142/FLIP84-176C X FLIP87-60C	ICARDA/ICRISAT	60	120	90
FLIP92-35C	X89TH 45/ILC 4492 X FLIP82-150C	ICARDA/ICRISAT	66	124	95
FLIP92-38C	X89TH 102/ILC 482 X FLIP84- 92C	ICARDA/ICRISAT	53	116	84
FLIP92-39C	X89TH 103/ILC 482 X FLIP84- 93C	ICARDA/ICRISAT	52	115	84
FLIP92-45C	X89TH 130/FLIP83-77C X FLIP82-150C	ICARDA/ICRISAT	67	121	94
FLIP92-46C	X89TH 130/FLIP83-77C X FLIP82-150C	ICARDA/ICRISAT	67	119	93
FLIP92-59C	X89TH 166/ILC1932 X FLIP85-122C	ICARDA/ICRISAT	60	118	89
FLIP92-62C	X89TH 218/FLIP83- 97C X ILC 5901	ICARDA/ICRISAT	66	122	94
FLIP92-63C	X89TH 245/(FLIP84-124CXFLIP84-102C)XILC1250	ICARDA/ICRISAT	54	116	85
FLIP92-66C	X88TH 306/(FLIP85-62CXFLIP82-78C)XFLIP85-62C	ICARDA/ICRISAT	66	127	96
FLIP92-71C	X89TH 156/ILC 571 X FLIP85-122C	ICARDA/ICRISAT	62	118	90
FLIP92-77C	X89TH 258/(FLIP85-122CXFLIP82-150C)XFLIP86-77C	ICARDA/ICRISAT	66	128	97
FLIP92-96C	X89TH 160/ILC 571 X FLIP84-92C	ICARDA/ICRISAT	54	117	86
FLIP92-118C	X88TH 17/ICC 14218 X FLIP 83-77C	ICARDA/ICRISAT	68	127	97
FLIP92-136C	X89TH 156/ILC 571 X FLIP85-122C	ICARDA/ICRISAT	62	120	91
FLIP92-143C	X89TH 419/ILC 4641 X Tree Type	ICARDA/ICRISAT	60	119	90
FLIP92-144C	X89TH 166/ILC 1932 X FLIP85-122C	ICARDA/ICRISAT	58	118	88
FLIP92-145C	X89TH 166/ILC 1932 X FLIP85-122C	ICARDA/ICRISAT	62	118	90
FLIP92-153C	X89TH 7/ILC 1254 X FLIP82-150C	ICARDA/ICRISAT	62	120	91
FLIP92-158C	X89TH 7/ILC 1254 X FLIP82-150C	ICARDA/ICRISAT	65	119	92

Table 3.8.2 Cont'd. ...

Entry Name	Pedigree	Origin	IRAN	SYRIA	Overall Mean
			Khoramabad	Tel Hadya	
FLIP92-161C	X89TH 17/ILC 5365 X FLIP82-150C	ICARDA/ICRISAT	67	120	94
FLIP92-170C	X88TH 23/FLIP84-124C X FLIP84-81C	ICARDA/ICRISAT	66	121	94
FLIP92-171C	X88TH 330/(ILC 1920 X FLIP83-48C)XILC 1920	ICARDA/ICRISAT	65	118	92
FLIP92-172C	X89TH 40/ILC 3520 X FLIP82-150C	ICARDA/ICRISAT	66	119	92
FLIP92-173C	X89TH 45/ILC 4492 X FLIP82-150C	ICARDA/ICRISAT	67	125	96
FLIP92-174C	X89TH 50/ILC 4297 X FLIP82-150C	ICARDA/ICRISAT	66	120	93
FLIP92-175C	X89TH 50/ILC 4297 X FLIP82-150C	ICARDA/ICRISAT	62	120	91
FLIP92-176C	X89TH 50/ILC 4297 X FLIP82-150C	ICARDA/ICRISAT	63	121	92
FLIP92-178C	X89TH 120/FLIP85- 4C X FLIP82-150C	ICARDA/ICRISAT	68	126	97
FLIP92-179C	X89TH 130/FLIP83-77C X FLIP82-150C	ICARDA/ICRISAT	57	121	89
FLIP92-188C	X89TH 45/ILC 4492 X FLIP82-150C	ICARDA/ICRISAT	66	126	96
FLIP92-190C	X89TH 95/ILC 100 X FLIP82-150C	ICARDA/ICRISAT	64	121	92
FLIP92-192C	X89TH 195/FLIP85- 85C X ILC 215	ICARDA/ICRISAT	62	120	91
FLIP92-193C	X89TH 100/ILC 464 X FLIP82-150C	ICARDA/ICRISAT	61	121	91
FLIP92-194C	X89TH 145/ILC 1934 X FLIP84-92C	ICARDA/ICRISAT	67	120	94
FLIP92-197C	X89TH 261/(FLIP84-22CXFLIP82-150C)XFLIP85-4C	ICARDA/ICRISAT	67	123	95
FLIP 82-150C	X79TH 101/ILC 523 X ILC 183	ICARDA/ICRISAT	64	119	92
ILC 482	ILC 482	TURKEY	50	115	83
Local Check			50	129	—
Location Mean			62	121	
S.E. of Mean			3	2	
L.S.D. at 5%			6	3	
L.S.D. for T.E. in S.B.			6	3	
L.S.D. for T.E. in D.B.			6	3	
C.V. %			5	1	
Efficiency %			100	103	

Table 3.8.3 Time to maturity (dyas) of entries in the CISON-SL1-94 conducted at different locations.

Entry Name	IRAN	SYRIA	Overall Mean
	Khoramabad	Tel Hadya	
FLIP91-26C	89	167	128
FLIP91-161C	92	171	131
FLIP91-199C	94	170	132
FLIP92-1C	85	171	128
FLIP92-14C	86	169	128
FLIP92-19C	82	165	124
FLIP92-24C	86	166	126
FLIP92-26C	84	167	126
FLIP92-29C	87	169	128
FLIP92-30C	87	169	128
FLIP92-32C	88	167	127
FLIP92-35C	91	171	131
FLIP92-38C	84	167	125
FLIP92-39C	86	167	126
FLIP92-45C	91	170	130
FLIP92-46C	89	169	129
FLIP92-59C	90	166	128
FLIP92-62C	91	170	130
FLIP92-63C	85	169	127
FLIP92-66C	88	171	130
FLIP92-71C	90	168	129
FLIP92-77C	94	171	132
FLIP92-96C	88	167	127
FLIP92-118C	92	171	131
FLIP92-136C	87	170	128
FLIP92-143C	87	168	127
FLIP92-144C	84	166	125
FLIP92-145C	88	171	129
FLIP92-153C	85	169	127
FLIP92-158C	90	169	129

Entry Name	IRAN	SYRIA	Overall Mean
	Khoramabad	Tel Hadya	
FLIP92-161C	94	169	132
FLIP92-170C	92	167	129
FLIP92-171C	88	168	128
FLIP92-172C	91	169	130
FLIP92-173C	93	171	132
FLIP92-174C	91	170	130
FLIP92-175C	91	170	131
FLIP92-176C	89	169	129
FLIP92-178C	94	170	132
FLIP92-179C	90	171	130
FLIP92-188C	93	171	132
FLIP92-190C	91	169	130
FLIP92-192C	90	170	130
FLIP92-193C	91	170	131
FLIP92-194C	92	170	131
FLIP92-197C	88	170	129
FLIP 82-150C	89	171	130
ILC 482	83	168	125
Local Check	84	171	—
Location Mean	89	169	
S.E. of Mean	3	1	
L.S.D. at 5%	6	3	
L.S.D. for T.E. in S.B	6	3	
L.S.D. for T.E. in D.B	6	3	
C.V. %	3	1	
Efficiency %	100	114	

Table 3.8.4 Plant height (cm) of entries in the CISON-SL1-94 conducted at different locations.

Entry Name	IRAN	SYRIA	Overall Mean
	Khoramabad	Tel Hadya	
FLIP91-26C	31	53	42
FLIP91-161C	35	60	48
FLIP91-199C	34	56	45
FLIP92-1C	34	61	48
FLIP92-14C	34	57	46
FLIP92-19C	36	53	45
FLIP92-24C	32	58	45
FLIP92-26C	34	55	45
FLIP92-29C	36	50	43
FLIP92-30C	35	58	47
FLIP92-32C	35	52	43
FLIP92-35C	34	56	45
FLIP92-38C	33	50	42
FLIP92-39C	37	53	45
FLIP92-45C	32	50	41
FLIP92-46C	35	54	44
FLIP92-59C	36	55	45
FLIP92-62C	38	62	50
FLIP92-63C	31	52	42
FLIP92-66C	38	62	50
FLIP92-71C	34	54	44
FLIP92-77C	37	62	50
FLIP92-96C	31	53	42
FLIP92-118C	37	61	49
FLIP92-136C	34	56	45
FLIP92-143C	36	56	46
FLIP92-144C	36	58	47
FLIP92-145C	34	56	45
FLIP92-153C	34	51	43
FLIP92-158C	33	54	44

Entry Name	IRAN	SYRIA	Overall Mean
	Khoramabad	Tel Hadya	
FLIP92-161C	34	55	44
FLIP92-170C	36	54	45
FLIP92-171C	38	56	47
FLIP92-172C	36	56	46
FLIP92-173C	34	54	44
FLIP92-174C	37	58	47
FLIP92-175C	36	53	44
FLIP92-176C	33	57	45
FLIP92-178C	38	59	48
FLIP92-179C	33	52	42
FLIP92-188C	37	55	46
FLIP92-190C	35	51	43
FLIP92-192C	35	59	47
FLIP92-193C	34	51	43
FLIP92-194C	32	56	44
FLIP92-197C	36	53	45
FLIP 82-150C	35	56	45
ILC 482	34	55	44
Local Check	31	71	51
Location Mean	35	56	
S.E. of Mean	2	3	
L.S.D. at 5%	4	7	
L.S.D. for T.E. in S.B	4	7	
L.S.D. for T.E. in D.B	4	7	
C.V. %	5	6	
Efficiency %	124	117	

Table 3.8.5 100-Seed weight (g) of entries in the CISH-SL1-94 conducted at different locations.

Entry Name	IRAN	SYRIA	Overall Mean
	Khoramabad	Tel Hadya	
FLIP91-26C	21	33	27
FLIP91-161C	23	31	27
FLIP91-199C	27	31	29
FLIP92-1C	25	31	28
FLIP92-14C	24	36	30
FLIP92-19C	23	35	29
FLIP92-24C	24	29	26
FLIP92-26C	20	32	26
FLIP92-29C	20	35	28
FLIP92-30C	22	33	27
FLIP92-32C	24	31	28
FLIP92-35C	21	28	24
FLIP92-38C	24	35	29
FLIP92-39C	22	34	28
FLIP92-45C	23	28	26
FLIP92-46C	25	30	28
FLIP92-59C	20	36	28
FLIP92-62C	24	27	25
FLIP92-63C	22	23	23
FLIP92-66C	25	36	31
FLIP92-71C	24	36	30
FLIP92-77C	23	28	25
FLIP92-96C	25	27	26
FLIP92-118C	22	31	26
FLIP92-136C	22	36	29
FLIP92-143C	23	33	28
FLIP92-144C	24	36	30
FLIP92-145C	23	35	29
FLIP92-153C	23	29	26
FLIP92-158C	20	28	24

Entry Name	IRAN	SYRIA	Overall Mean
	Khoramabad	Tel Hadya	
FLIP92-161C	23	30	26
FLIP92-170C	20	33	27
FLIP92-171C	25	38	31
FLIP92-172C	24	30	27
FLIP92-173C	18	32	25
FLIP92-174C	25	30	27
FLIP92-175C	20	30	25
FLIP92-176C	21	28	24
FLIP92-178C	24	30	27
FLIP92-179C	24	24	24
FLIP92-188C	23	31	27
FLIP92-190C	20	30	25
FLIP92-192C	24	35	30
FLIP92-193C	26	33	29
FLIP92-194C	22	29	25
FLIP92-197C	25	22	24
FLIP 92-150C	24	31	27
ILC 482	22	31	26
Local Check	24	29	—
Location Mean	23	31	—
S.E. of Mean	2.08	2	—
L.S.D. at 5%	5.91	3	—
L.S.D. for T.E. in S.B	—	4	—
L.S.D. for T.E. in D.B	—	3	—
C.V. %	12.8	5	—

Table 3.8.6 Seed yield (y=kg/ha) and rank (R) of entries in the CISN-SL1-94 conducted at different locations.

Entry Name	CANADA		IRAN		SYRIA		Overall Mean	
	Saskatoon		Khoramabad		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R
FLIP91-26C	5152	6	547	25	2919	3	2872	4
FLIP91-161C	3845	37	446	36	2703	7	2331	32
FLIP91-199C	6022	1	517	30	2167	34	2902	3
FLIP92-1C	4602	20	779	5	1986	42	2456	24
FLIP92-14C	6012	2	225	47	2165	35	2801	6
FLIP92-19C	3943	36	555	24	2250	30	2250	34
FLIP92-24C	4439	24	737	7	3123	2	2766	8
FLIP92-26C	4163	30	404	38	1690	48	2086	39
FLIP92-29C	4104	31	531	27	1811	47	2149	37
FLIP92-30C	4029	34	659	10	1981	43	2223	35
FLIP92-32C	5284	5	680	9	2246	31	2736	11
FLIP92-35C	3659	39	522	28	2437	24	2206	36
FLIP92-38C	5747	3	509	31	2588	14	2948	2
FLIP92-39C	4823	15	600	14	2608	12	2677	13
FLIP92-45C	4451	23	575	17	2639	11	2555	19
FLIP92-46C	4782	17	640	11	2684	9	2702	12
FLIP92-59C	3422	42	298	45	2034	40	1918	44
FLIP92-62C	4792	16	546	26	2246	32	2528	20
FLIP92-63C	3274	44	399	42	2363	25	2012	42
FLIP92-66C	3387	43	401	41	2058	39	1949	43
FLIP92-71C	3429	41	582	16	2214	33	2075	41
FLIP92-77C	4038	33	562	23	2482	20	2361	30
FLIP92-96C	3980	35	612	13	2480	21	2357	31
FLIP92-118C	3757	38	402	40	2097	37	2085	40
FLIP92-136C	3628	40	380	43	2310	27	2106	38
FLIP92-143C	2930	46	368	44	2308	28	1869	46
FLIP92-144C	2830	47	569	20	1953	45	1784	48
FLIP92-145C	3256	45	203	48	1999	41	1819	47
FLIP92-153C	4774	18	795	4	2702	8	2757	10
FLIP92-158C	5021	8	508	32	2855	4	2795	7

Table 3.8.6 Cont'd. ...

Entry Name	CANADA		IRAN		SYRIA		Overall Mean	
	Saskatoon		Khoramabad		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R
FLIP92-161C	4860	12	517	29	2476	22	2618	16
FLIP92-170C	4203	27	587	15	2357	26	2382	27
FLIP92-171C	2659	48	563	22	2493	18	1905	45
FLIP92-172C	4573	21	186	49	2819	5	2526	21
FLIP92-173C	4955	11	817	2	2071	38	2614	17
FLIP92-174C	4993	10	764	6	2662	10	2806	5
FLIP92-175C	4836	14	404	39	2483	19	2574	18
FLIP92-176C	5602	4	267	46	3167	1	3012	1
FLIP92-178C	4848	13	465	34	1541	49	2285	33
FLIP92-179C	5020	9	621	12	2261	29	2634	15
FLIP92-188C	5022	7	455	35	2815	6	2764	9
FLIP92-190C	4552	22	499	33	2514	17	2521	22
FLIP92-192C	4175	29	997	1	1955	44	2376	28
FLIP92-193C	4669	19	709	8	2532	16	2637	14
FLIP92-194C	4404	25	574	18	2118	36	2365	29
FLIP92-197C	4187	28	569	21	2539	15	2432	26
FLIP 82-150C	4098	32	795	3	2600	13	2498	23
ILC 482	4321	26	571	19	2452	23	2448	25
Local Check	1265	49	411	37	1934	46	-	-
Location Mean	4309		537		2365			
S.E. of Mean	859		240		320			
L.S.D. at 5%	1689		476		625			
L.S.D. for T.E. in S.B	2351		490		656			
L.S.D. for T.E. in D.B	1745		486		648			
T.E > L. Check	45		1		14			
Error d.f.	34		36		36			
C.V. %	19		42		12			
Efficiency %	97		107		164			

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

The Chickpea International Screening Nursery - Southerly Latitudes 2 comprised 46 test entries and three checks, two namely ILC 482 and FLIP 82-150C were supplied and one local check to be added by the cooperator.

Methods and Management

The entries were planted in single row plots of 4 m length in a 7x7 simple lattice design with 2 replications. The spacing between rows were 45 cm. Fifteen sets of nursery were distributed to cooperators in 10 countries and the results were received from 4 locations from 4 countries. The agronomic details received from the cooperators are presented in Table 3.9.1.

Table 3.9.1. Agronomic details of entries in CISN-SL2-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Canada						
Saskatoon	14.05.94	21.10.94	-	-	-	UC 27
Chile						
Chillan	27.06.94	28.12.94	-/90/-	-	Linuron	California
Sudan						
Hudeiba	19.11.93	10.03.94	43/-/-	-	Folimat	Shendi
Syria						
Tel Hadya	20.12.93	10.06.94	-/50/-	-	Kerb + Igran	Ghab 3

Results and Discussion

The adjusted entry means across locations varied from 107 to 120 days for time to flowering (Table 3.9.2), 175 to 178 days for time to maturity (Table 3.9.3), 51 to 71 cm for plant height (Table 3.9.4), 28 to 40 g for 100-seed weight (Table 3.9.5), and 930 to 3610 kg/ha for seed yield (Table 3.9.6).

The five heaviest yielding entries on the basis of location means included, ILC 482, FLIP 82-150C, FLIP 92-17C, FLIP 92-91C, and FLIP 92-94C with seed yields of 3610, 3329, 3303, 3237, 3169 kg/ha, respectively.

Table 3.9.2 Time to flowering (days) of entries in the CISON-SL2-94 conducted at different locations.

Entry Name	Pedigree	Origin	CHILE	SUDAN	SYRIA	Overall Mean
			Chillan	Hudeiba	Tel Hadya	
FLIP90-131C	X87TH 216/ILC 4296 X FLIP84-93C	ICARDA/ICRISAT	113	58	114	113
FLIP90-168C	X87TH 214/ILC 4296 X FLIP83- 72C	ICARDA/ICRISAT	117	51	111	114
FLIP91-69C	X87TH 96/FLIP84-164C X ICC 14218	ICARDA/ICRISAT	113	44	108	111
FLIP91-71C	X87TH 216/ILC 4296 X FLIP84-93C	ICARDA/ICRISAT	109	43	106	107
FLIP91-76C	X89TH 6/ILC 1254 X ILC 482	ICARDA/ICRISAT	113	43	106	110
FLIP91-77C	X89TH 7/ILC 1254 X FLIP82-150C	ICARDA/ICRISAT	109	45	108	108
FLIP91-78C	X89TH 7/ILC 1254 X FLIP82-150C	ICARDA/ICRISAT	109	44	109	109
FLIP91-79C	X89TH 7/ILC 1254 X FLIP82-150C	ICARDA/ICRISAT	113	44	109	111
FLIP91-80C	X89TH 8/ILC 1254 X FLIP82- 47C	ICARDA/ICRISAT	106	66	110	108
FLIP91-120C	X89TH 522/ILC 2876 X ICCV- 2	ICARDA/ICRISAT	113	69	105	109
FLIP91-122C	X89TH 522/ILC 2876 X ICCV- 2	ICARDA/ICRISAT	107	73	106	107
FLIP91-124C	X89TH 523/ILC 2876 X ICCV- 3	ICARDA/ICRISAT	108	43	107	108
FLIP91-125C	X89TH 523/ILC 2876 X ICCV- 3	ICARDA/ICRISAT	113	44	111	112
FLIP91-126C	X89TH 523/ILC 2876 X ICCV- 3	ICARDA/ICRISAT	113	40	106	110
FLIP92-2C	X89TH 8/ILC 1254 X FLIP83-47C	ICARDA/ICRISAT	113	45	110	112
FLIP92-3C	X89TH 9/ILC 1254 X FLIP84-92C	ICARDA/ICRISAT	113	60	111	112
FLIP92-6C	X89TH 21/ILC 2371 X ILC 482	ICARDA/ICRISAT	107	44	107	107
FLIP92-7C	X89TH 21/ILC 2371 X ILC 482	ICARDA/ICRISAT	114	44	107	111
FLIP92-10C	X89TH 522/ILC 2876 X ICCV- 2	ICARDA/ICRISAT	113	59	113	113
FLIP92-15C	X88TH 216/FLIP85-122C X FLIP85-112C	ICARDA/ICRISAT	107	72	118	113
FLIP92-17C	X88TH 36/FLIP86-67C X FLIP81-293C	ICARDA/ICRISAT	117	73	116	116
FLIP92-28C	X90TH 131/FLIP83-66C X FLIP84-19C	ICARDA/ICRISAT	115	71	116	116
FLIP92-31C	X90TH 140/FLIP84-188C X FLIP84-155C	ICARDA/ICRISAT	111	70	119	115
FLIP92-68C	X90TH 147/FLIP84-176C X FLIP87-85C	ICARDA/ICRISAT	106	55	115	111
FLIP92-73C	X89TH 156/ILC 571 X FLIP85-122C	ICARDA/ICRISAT	116	63	117	116
FLIP92-80C	X90TH 140/FLIP84-188C X FLIP84-155C	ICARDA/ICRISAT	113	56	111	112
FLIP92-81C	X90TH 140/FLIP84-188C X FLIP84-155C	ICARDA/ICRISAT	117	56	108	112
FLIP92-82C	X90TH 141/FLIP83-66C X FLIP87-60C	ICARDA/ICRISAT	107	58	108	108
FLIP92-83C	X90TH 141/FLIP83-66C X FLIP87-60C	ICARDA/ICRISAT	113	58	109	111
FLIP92-84C	X90TH 141/FLIP83-66C X FLIP87-60C	ICARDA/ICRISAT	113	58	108	110

Table 3.9.2 Cont'd. ...

Entry Name	Pedigree	Origin	CHILE	SUDAN	SYRIA	Overall Mean
			Chillan	Hudeiba	Tel Hadya	
FLIP92-85C	X90TH 142/FLIP84-176C X FLIP87-60C	ICARDA/ICRISAT	117	57	111	114
FLIP92-86C	X90TH 146/FLIP83-66C X FLIP87-85C	ICARDA/ICRISAT	117	57	107	112
FLIP92-87C	X90TH 146/FLIP83-66C X FLIP87-85C	ICARDA/ICRISAT	115	41	108	112
FLIP92-88C	X90TH 147/FLIP84-176C X FLIP87-85C	ICARDA/ICRISAT	108	55	110	109
FLIP92-90C	X90TH 148/FLIP85-84C X FLIP87-85C	ICARDA/ICRISAT	113	57	114	113
FLIP92-91C	X90TH 148/FLIP85-84C X FLIP87-85C	ICARDA/ICRISAT	111	55	111	111
FLIP92-92C	X90TH 149/FLIP85-93C X FLIP87-85C	ICARDA/ICRISAT	113	52	105	109
FLIP92-94C	X90TH 150/FLIP84-188C X FLIP87-85C	ICARDA/ICRISAT	115	58	109	112
FLIP92-109C	X90TH 149/FLIP85-93C X FLIP87-85C	ICARDA/ICRISAT	113	-	115	114
FLIP92-114C	X89TH 156/ILC 571 X FLIP85-122C	ICARDA/ICRISAT	107	59	118	113
FLIP92-115C	X89TH 216/FLIP85-84C X ILC 5901	ICARDA/ICRISAT	115	60	117	116
FLIP92-127C	X88TH 215/FLIP85-122C X S 85036	ICARDA/ICRISAT	113	58	118	116
FLIP92-129C	X89TH 85/FLIP86-77C X FLIP85-90C	ICARDA/ICRISAT	115	-	123	119
FLIP92-140C	X89TH 189/FLIP84-43C X FLIP85-122C	ICARDA/ICRISAT	106	-	118	112
FLIP92-150C	X89TH 297/(ILC5928XFLIP85-58C)XFLIP85-18C	ICARDA/ICRISAT	115	-	125	120
FLIP92-157C	X89TH 156/ILC 571 X FLIP85-122C	ICARDA/ICRISAT	107	-	118	112
FLIP 82-150C	X79TH 101/ILC 523 X ILC 183	ICARDA/ICRISAT	106	-	118	112
ILC 482	ILC 482	TURKEY	116	59	112	114
Local Check			109	52	130	-
Location Mean			112	55	112	
S.E. of Mean			0	One Rep.	1	
L.S.D. at 5%			1		3	
L.S.D. for T.E. in S.B.			1		3	
L.S.D. for T.E. in D.B.			1		3	
C.V. %			0		1	
Efficiency %			105		101	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.9.3 Time to maturity (days) of entries in the CISON-SL2-94 conducted at different locations.

Entry Name	CHILE	SUDAN	SYRIA	Overall Mean
	Chillan	Hudeiba	Tel Hadya	
FLIP90-131C	184	104	168	176
FLIP90-168C	188	105	169	178
FLIP91-69C	187	98	165	176
FLIP91-71C	184	97	167	176
FLIP91-76C	187	96	169	178
FLIP91-77C	186	98	167	176
FLIP91-78C	185	97	167	176
FLIP91-79C	188	98	168	178
FLIP91-80C	186	101	169	177
FLIP91-120C	186	96	168	177
FLIP91-122C	186	96	167	176
FLIP91-124C	186	97	166	176
FLIP91-125C	188	99	168	178
FLIP91-126C	188	98	166	177
FLIP92-2C	186	98	168	177
FLIP92-3C	188	104	169	178
FLIP92-6C	185	97	168	177
FLIP92-7C	186	97	166	176
FLIP92-10C	188	99	169	178
FLIP92-15C	184	108	168	176
FLIP92-17C	186	107	169	178
FLIP92-28C	188	105	167	178
FLIP92-31C	188	106	167	177
FLIP92-68C	188	97	167	177
FLIP92-73C	186	109	167	177
FLIP92-80C	188	99	167	177
FLIP92-81C	186	98	165	175
FLIP92-82C	184	97	165	175
FLIP92-83C	188	103	165	176
FLIP92-84C	186	100	166	176

Entry Name	CHILE	SUDAN	SYRIA	Overall Mean
	Chillan	Hudeiba	Tel Hadya	
FLIP92-85C	188	97	166	177
FLIP92-86C	186	109	167	176
FLIP92-87C	188	100	166	177
FLIP92-88C	184	97	167	176
FLIP92-90C	188	96	169	178
FLIP92-91C	188	95	165	176
FLIP92-92C	185	98	164	175
FLIP92-94C	188	97	166	177
FLIP92-109C	188	-	168	178
FLIP92-114C	186	97	167	176
FLIP92-115C	186	96	167	176
FLIP92-127C	188	102	168	178
FLIP92-129C	187	-	169	178
FLIP92-140C	186	-	167	176
FLIP92-150C	188	-	167	177
FLIP92-157C	184	-	167	175
FLIP 82-150C	183	-	168	176
ILC 482	188	105	167	177
Local Check	187	99	172	-
Location Mean	187	100	167	
S.E. of Mean	1		1	
L.S.D. at 5%	1	One Rep.	2	
L.S.D. for T.E. in S.B	1		2	
L.S.D. for T.E. in D.B	1		2	
C.V. %	0		1	
Efficiency %	113		100	

* The mean has been calculated excluding the locations with incomplete data.

Table 3.9.4 Plant height (cm) of entries in the CISON-SL2-94 conducted at different locations.

Entry Name	CHILE	SYRIA	Overall Mean
	Chillan	Tel Hadya	
FLIP90-131C	57	46	52
FLIP90-168C	69	42	56
FLIP91-69C	72	46	59
FLIP91-71C	71	45	58
FLIP91-76C	63	44	53
FLIP91-77C	60	45	52
FLIP91-78C	76	42	59
FLIP91-79C	84	43	63
FLIP91-80C	75	43	59
FLIP91-120C	62	42	52
FLIP91-122C	63	42	52
FLIP91-124C	71	39	55
FLIP91-125C	70	38	54
FLIP91-126C	80	40	60
FLIP92-2C	81	50	65
FLIP92-3C	75	49	62
FLIP92-6C	57	45	51
FLIP92-7C	77	46	61
FLIP92-10C	76	43	60
FLIP92-15C	73	57	65
FLIP92-17C	86	49	67
FLIP92-28C	84	44	64
FLIP92-31C	94	47	71
FLIP92-68C	75	51	63
FLIP92-73C	77	56	67
FLIP92-80C	73	45	59
FLIP92-81C	67	43	55
FLIP92-82C	68	44	56
FLIP92-83C	75	44	59
FLIP92-84C	53	50	51

Entry Name	CHILE	SYRIA	Overall Mean
	Chillan	Tel Hadya	
FLIP92-85C	75	49	62
FLIP92-86C	70	42	56
FLIP92-87C	78	53	66
FLIP92-88C	73	56	64
FLIP92-90C	57	45	51
FLIP92-91C	67	47	57
FLIP92-92C	67	43	55
FLIP92-94C	76	44	60
FLIP92-109C	75	45	60
FLIP92-114C	71	61	66
FLIP92-115C	81	57	69
FLIP92-127C	61	54	58
FLIP92-129C	54	54	54
FLIP92-140C	70	60	65
FLIP92-150C	62	53	58
FLIP92-157C	82	56	69
FLIP 82-150C	67	50	59
ILC 482	72	51	62
Local Check	59	62	-
Location Mean	71	48	
S.E. of Mean	12	4	
L.S.D. at 5%	23	7	
L.S.D. for T.E. in S.B	24	7	
L.S.D. for T.E. in D.B	24	7	
C.V. %	16	7	
Efficiency %	109	102	

Table 3.9.5. 100-Seed weight (g) of entries in the CISON-SL2-94 conducted at different locations.

Entry Name	CHILE	SYRIA	Overall Mean
	Chillan	Tel Hadya	
FLIP90-131C	37	40	39
FLIP90-168C	38	41	39
FLIP91-69C	35	39	37
FLIP91-71C	38	42	40
FLIP91-76C	31	34	32
FLIP91-77C	27	29	28
FLIP91-78C	37	41	39
FLIP91-79C	31	42	36
FLIP91-80C	33	38	35
FLIP91-120C	28	32	30
FLIP91-122C	26	30	28
FLIP91-124C	27	33	30
FLIP91-125C	34	36	35
FLIP91-126C	26	32	29
FLIP92-2C	28	35	31
FLIP92-3C	36	36	36
FLIP92-6C	34	38	36
FLIP92-7C	31	36	33
FLIP92-10C	28	30	29
FLIP92-15C	39	37	38
FLIP92-17C	37	38	37
FLIP92-28C	33	38	36
FLIP92-31C	30	35	32
FLIP92-68C	30	36	33
FLIP92-73C	35	36	36
FLIP92-80C	32	33	32
FLIP92-81C	32	36	34
FLIP92-81C	34	35	35
FLIP92-82C	30	35	33
FLIP92-83C	33	34	33
FLIP92-84C			

Entry Name	CHILE	SYRIA	Overall Mean
	Chillan	Tel Hadya	
FLIP92-85C	31	32	31
FLIP92-86C	40	39	39
FLIP92-87C	35	42	38
FLIP92-88C	35	39	37
FLIP92-90C	37	39	38
FLIP92-91C	29	32	30
FLIP92-92C	35	37	36
FLIP92-94C	34	34	34
FLIP92-109C	36	39	37
FLIP92-114C	36	36	36
FLIP92-115C	35	38	36
FLIP92-127C	33	33	33
FLIP92-129C	34	40	37
FLIP92-140C	24	37	31
FLIP92-150C	32	37	34
FLIP92-157C	35	36	35
FLIP 82-150C	30	30	30
ILC 482	27	31	29
Local Check	57	35	46
Location Mean	33	36	
S.E. of Mean	2	2	
L.S.D. at 5%	4	4	
L.S.D. for T.E. in S.B	4	4	
L.S.D. for T.E. in D.B	4	4	
C.V. %	6	5	
Efficiency %	100	96	

Table 3.9.6 Seed yield (y=kg/ha) and rank (R) of entries in the CISON-SL2-94 conducted at different locations.

Entry Name	CANADA		CHILE		SUDAN		SYRIA		Overall Mean	
	Saskatoon		Chillan		Hudeiba		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP90-131C	4247	9	2172	18	569	18	2734	5	3051	9
FLIP90-168C	3573	24	1641	34	919	9	2145	34	2453	27
FLIP91-69C	3663	21	1703	31	797	11	2536	15	2634	21
FLIP91-71C	2975	34	1703	32	950	8	2374	22	2351	33
FLIP91-76C	1967	41	1422	43	1183	6	2282	26	1890	42
FLIP91-77C	2057	40	1953	20	769	13	2863	2	2291	35
FLIP91-78C	2292	38	2375	8	1214	5	1917	41	2195	37
FLIP91-79C	1451	45	1359	44	1547	2	2175	31	1662	44
FLIP91-80C	3225	31	3188	1	1769	1	2653	8	3022	11
FLIP91-120C	1654	44	1141	46	1153	7	2166	32	1654	45
FLIP91-122C	1793	42	2078	19	497	19	1832	44	1901	41
FLIP91-124C	1056	47	1484	39	778	12	1813	45	1451	46
FLIP91-125C	578	49	1031	47	856	10	1180	49	930	48
FLIP91-126C	1039	48	1359	44	1222	4	1673	46	1357	47
FLIP92-2C	4100	13	1781	27	181	33	2239	29	2707	17
FLIP92-3C	2593	36	2297	12	78	40	1474	48	2121	40
FLIP92-6C	3337	29	1813	23	461	21	2279	27	2476	26
FLIP92-7C	1686	43	2359	9	358	24	2536	14	2194	38
FLIP92-10C	2174	39	1438	42	361	23	1658	47	1756	43
FLIP92-15C	3141	33	1813	24	144	35	1916	42	2290	36
FLIP92-17C	4893	4	2297	14	119	36	2718	6	3303	3
FLIP92-28C	3552	25	1828	22	442	22	2074	36	2485	24
FLIP92-31C	4182	11	2469	7	228	31	2594	12	3082	8
FLIP92-68C	3779	17	813	49	153	34	1927	40	2173	39
FLIP92-73C	3689	19	2469	6	486	20	2831	4	2996	12
FLIP92-80C	4616	5	2297	13	264	29	2519	16	3144	7
FLIP92-81C	4920	3	2313	11	722	14	2266	28	3166	6
FLIP92-82C	2720	35	1859	21	631	15	2501	18	2360	32
FLIP92-83C	4055	14	1766	29	608	16	2478	19	2766	16
FLIP92-84C	3583	23	1766	28	189	32	1927	39	2425	28

Table 3.9.6 Cont'd. ...

Entry Name	CANADA		CHILE		SUDAN		SYRIA		Overall Mean	
	Saskatoon		Chillan		Hudeiba		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-85C	2572	37	2578	5	289	28	2049	37	2399	30
FLIP92-86C	3659	22	1500	38	322	26	2113	35	2424	29
FLIP92-87C	3933	15	1656	33	350	25	2333	24	2641	20
FLIP92-88C	4104	12	1484	40	36	43	2402	21	2663	19
FLIP92-90C	3268	30	1766	29	69	41	2154	33	2396	31
FLIP92-91C	5000	2	2203	16	253	30	2508	17	3237	4
FLIP92-92C	4228	10	1547	37	592	17	2613	11	2796	15
FLIP92-94C	4527	7	2641	4	92	38	2341	23	3169	5
FLIP92-109C	4563	6	1563	36	-	-	2832	3	2986	13
FLIP92-114C	3394	28	1578	35	89	39	2466	20	2479	25
FLIP92-115C	3546	26	1813	24	44	42	2205	30	2521	23
FLIP92-127C	3690	18	2188	17	303	27	1999	38	2625	22
FLIP92-129C	3688	20	1797	26	-	-	2543	13	2676	18
FLIP92-140C	3142	32	1453	41	-	-	2306	25	2300	34
FLIP92-150C	4283	8	2203	15	-	-	2623	10	3036	10
FLIP92-157C	3440	27	2344	10	-	-	2623	9	2802	14
FLIP 82-150C	3912	16	2922	3	-	-	3153	1	3329	2
ILC 482	5004	1	3125	2	117	37	2702	7	3610	1
Local Check	1153	46	1016	48	1458	3	1898	43	-	-
Location Mean	3259		1905		550		2289			
S.E. of Mean	821		444				372			
L.S.D. at 5%	1617		900				741			
L.S.D. for T.E. in S.B	1681		900				760			
L.S.D. for T.E. in D.B	1665		900				755			
T.E > L. Check	34		20				8			
Error d.f.	36		36				36			
C.V. %	23		23				16			
Efficiency %	122		100				105			

* The mean has been calculated excluding the locations with incomplete data.

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

The Chickpea International Screening Nursery Latin America comprised 46 test entries and two checks, namely FLIP 85-5C, ILC 464 were supplied and one local check to be added by the cooperator.

Methods and Management

The entries were planted in single row plots of 4 m length in a 7x7 simple lattice design with 2 replications. The spacing between rows were 45 cm. Sixteen sets of nursery were distributed to cooperators in 14 countries and the results were received from 6 locations from 6 countries. The agronomic details received from the cooperators are presented in Table 3.10.1.

Table 3.10.1. Agronomic details of entries in CISN-LA-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Chile						
Chillan	27.06.94	28.12.94	-/90/-	-	Linuron	California
Italy						
Tarquinoa	19.01.94	18.08.94	-/200/-	-	-	Principe
New Zealand						
Lincoln	01.10.93	02.04.94	-	-	Treflan, Gordoprin	ILC 134
Portugal						
Elvas	25.11.93	04.07.94	-	-	-	CHK 540
Syria						
Tel Hadya	20.12.93	10.06.94	-/50/-	-	Kerb + Igran	ILC 464
Turkey						
Haymana	08.04.94	-	-	-	-	Akcin 91

Results and Discussion

The adjusted entry means across locations varied from 95 to 106 days for time to flowering (Table 3.10.2), 161 to 169 days for time to maturity (Table 3.10.3), 47 to 69 cm for plant height (Table 3.10.4), 36 to 51 g for 100-seed weight (Table 3.10.5), and 1261 to 3460 kg/ha for seed yield (Table 3.10.6). The five best entries across locations, included FLIP 91-136C, FLIP 91-82C, FLIP 90-119C, FLIP 92-184C and FLIP 92-106C, with seed yields of 3460, 3007, 2795, 2719 and 2719, respectively. The five heaviest yielding entries at different locations are given in Table 3.10.7.

Table 3.10.2 Time to flowering (days) of entries in the CISH-LA-94 conducted at different locations.

Entry Name	Pedigree	Origin	CHILE	ITALY	PORTUGAL	SYRIA	TURKEY	Overall Mean
			Chillan	Tarquiniia	Elvas	Tel Hadya	Haymana	
ILC3377	-	SPAIN	109	102	118	119	54	100
FLIP84-15C	X81 TH 199/ILC 202(WH)XILC 3355	ICARDA/ICRISAT	112	104	120	123	53	102
FLIP85-15C	X83 TH 19/FLIP 82-65CXFLIP 82-69C	ICARDA/ICRISAT	109	103	123	125	56	103
FLIP89-4C	X85 TH 179/ILC 3683XFLIP 83-15C	ICARDA/ICRISAT	111	106	118	116	53	101
FLIP89-17C	X87 TH 216/ILC 4296XFLIP 84-93C	ICARDA/ICRISAT	106	106	120	117	43	98
FLIP89-20C	X86 TH 214/ILC2319XFLIP 81-54W	ICARDA/ICRISAT	106	110	115	113	53	99
FLIP89-89C	X85 TH 178/ILC 3683XFLIP 83-13C	ICARDA/ICRISAT	107	100	117	114	52	98
FLIP89-116C	X85 TH 162/ILC 3488XFLIP 83-13C	ICARDA/ICRISAT	112	97	118	115	53	99
FLIP90-2C	X86 TH 278/(ILC1919XFLIP82-144C)XFLIP84-18C	ICARDA/ICRISAT	113	105	123	125	58	104
FLIP90-16C	X87 TH 166/ILC 1919XFLIP 85-4C	ICARDA/ICRISAT	113	110	124	122	54	104
FLIP90-17C	X87 TH 180/ICC 14194XFLIP 83-48C	ICARDA/ICRISAT	111	106	124	120	54	103
FLIP90-18C	X87 TH 271/(ILC136XFLIP84-18C)XFLIP84-78C	ICARDA/ICRISAT	109	109	124	127	57	105
FLIP90-19C	X87 TH 271/(ILC136XFLIP84-18C)XFLIP84-78C	ICARDA/ICRISAT	113	100	124	126	68	106
FLIP90-22C	X87 TH 319/(Pl. Sc. Be. 81-46CXFLIP83-46C)	ICARDA/ICRISAT	110	98	124	125	57	103
FLIP90-49C	X87 TH 229/FLIP 85-91CXILC 2956	ICARDA/ICRISAT	111	99	124	128	58	104
FLIP90-89C	X87 TH 80/S 85091XFLIP 85-4C	ICARDA/ICRISAT	108	99	123	123	57	102
FLIP90-92C	X87 TH 291/(ILC136XFLIP81-293C)XILC136	ICARDA/ICRISAT	107	100	124	124	57	102
FLIP90-119C	X88 TH 311/(FLIP85-16CXILC72)XFLIP85-16C	ICARDA/ICRISAT	111	102	125	123	58	104
FLIP90-129C	X86 TH 258/(ILC171XFLIP82-144C)XFLIP84-17C	ICARDA/ICRISAT	107	106	123	124	55	103
FLIP90-130C	X86 TH 98/FLIP84-19CXFLIP82-91C	ICARDA/ICRISAT	111	104	123	129	53	104
FLIP90-147C	X86 TH 275/(ILC482XFLIP82-93C)XFLIP84-19C	ICARDA/ICRISAT	106	107	122	126	56	103
FLIP91-82C	X89 TH 10/ILC1254XFLIP84-182C	ICARDA/ICRISAT	106	100	109	108	51	95
FLIP91-85C	X89 TH 11/ILC4291XILC482	ICARDA/ICRISAT	112	106	109	107	50	97
FLIP91-86C	X89 TH 14/ILC4291XFLIP84-92C	ICARDA/ICRISAT	103	106	112	107	51	96
FLIP91-87C	X89 TH 22/ILC2371XFLIP82-150C	ICARDA/ICRISAT	113	108	112	109	51	98
FLIP91-91C	X89 TH 28/ILC3777XFLIP 83-47C	ICARDA/ICRISAT	106	99	109	108	49	94
FLIP91-105C	X88 TH 12/ILC 4293XFLIP 84-102C	ICARDA/ICRISAT	109	101	115	112	52	98
FLIP91-111C	X88 TH 121/FLIP 85-122CXILC 4296	ICARDA/ICRISAT	107	100	117	107	51	96
FLIP91-112C	X88 TH 121/FLIP 85-122CXILC 4296	ICARDA/ICRISAT	108	99	114	109	56	97
FLIP91-133C	X87 TH 189/ICC 14212XFLIP 84-78C	ICARDA/ICRISAT	113	106	115	109	51	99

Cont'd. ...

Table 3.10.2 Cont'd. ...

Entry Name	Pedigree	Origin	CHILE	ITALY	PORTUGAL	SYRIA	TURKEY	Overall Mean
			Chillan	Tarquimia	Elvas	Tel Hadya	Haymana	
FLIP91-134C	X87 TH 189/ICC 14212XFLIP 84-78C	ICARDA/ICRISAT	107	101	115	115	51	98
FLIP91-135C	X89 TH 8/ILC 1254XFLIP 83-47C	ICARDA/ICRISAT	106	104	115	111	55	98
FLIP91-136C	X89 TH 9/ILC 1254XFLIP 84-92C	ICARDA/ICRISAT	108	104	112	108	53	97
FLIP91-138C	X88 TH 18/ICC14218XFLIP84-81C	ICARDA/ICRISAT	106	97	120	120	58	100
FLIP92-4C	X89 TH 11/ILC4291XILC 482	ICARDA/ICRISAT	113	100	109	108	52	96
FLIP92-8C	X89 TH 26/ILC3777XILC 482	ICARDA/ICRISAT	111	103	109	109	49	96
FLIP92-50C	X89 TH 211/FLIP 85-85CXILC 215	ICARDA/ICRISAT	112	106	117	111	50	99
FLIP92-55C	X89 TH 273/(ILC5928XFLIP87-58C)XFLIP85-42C	ICARDA/ICRISAT	106	101	114	110	50	96
FLIP92-79C	X87 TH 35/FLIP 83-47CXFLIP 84-143C	ICARDA/ICRISAT	111	101	114	110	50	97
FLIP92-93C	X90 TH 149/FLIP 85-93CXFLIP87-85C	ICARDA/ICRISAT	112	105	115	109	52	98
FLIP92-97C	X89 TH 195/FLIP 85-85CXILC 215	ICARDA/ICRISAT	106	103	115	113	49	97
FLIP92-100C	X90 TH 134/FLIP 85-93CXFLIP 84-19C	ICARDA/ICRISAT	106	102	125	123	58	103
FLIP92-106C	X89 TH 279/(FLIP83-72CXILC4292)XFLIP86-50C	ICARDA/ICRISAT	106	106	124	123	57	103
FLIP92-107C	X89 TH 279/(FLIP83-72CXILC4292)XFLIP86-50C	ICARDA/ICRISAT	106	102	123	121	56	102
FLIP92-116C	X89 TH 177/ILC6055XFLIP85-122C	ICARDA/ICRISAT	106	103	122	120	38	98
FLIP92-184C	X88 TH 206/ILC 202XS 86301	ICARDA/ICRISAT	115	102	124	126	57	104
FLIP85-5C	X81 TH 199/ILC 202(WH)XILC 3355	ICARDA/ICRISAT	106	109	125	126	60	105
ILC464		TURKEY	108	100	119	123	56	101
Local Check			106	102	121	122	55	—
Location Mean			109	103	118	117	53	
S.E. of Mean			1	1	2	3	5	
L.S.D. at 5%			1	1	3	6	10	
L.S.D. for T.E. in S.B.			2	1	3	6	10	
L.S.D. for T.E. in D.B.			2	1	3	6	10	
C.V. %			1	1	1	2	9	
Efficiency %			102	100	100	100	100	

Table 3.10.3. Time to maturity (days) of entries in the CISON-LA-94 conducted at different locations.

Entry Name	CHILE	ITALY	PORTUGAL	SYRIA	TURKEY	Overall Mean
	Chillan	Tarquimia	Elvas	Tel Hadya	Haymana	
ILC3377	186	181	201	170	98	167
FLIP84-15C	185	180	189	170	98	164
FLIP85-15C	184	180	204	171	100	168
FLIP89-4C	185	186	198	171	99	168
FLIP89-17C	186	183	198	171	100	167
FLIP89-20C	189	188	200	170	97	169
FLIP89-89C	184	181	193	170	100	166
FLIP89-116C	184	178	193	170	98	165
FLIP90-2C	187	179	199	170	100	167
FLIP90-16C	189	186	201	171	95	168
FLIP90-17C	186	185	198	170	100	168
FLIP90-18C	185	184	199	170	102	168
FLIP90-19C	185	180	199	171	100	167
FLIP90-22C	185	175	200	171	99	166
FLIP90-49C	184	172	199	172	103	166
FLIP90-89C	184	179	201	171	99	167
FLIP90-92C	187	178	198	170	96	166
FLIP90-119C	189	179	201	171	98	168
FLIP90-129C	186	183	196	169	99	167
FLIP90-130C	188	186	193	171	96	167
FLIP90-147C	184	186	200	171	97	168
FLIP91-82C	184	185	192	170	97	166
FLIP91-85C	189	187	195	166	98	167
FLIP91-86C	184	187	196	171	96	167
FLIP91-87C	190	183	182	169	98	164
FLIP91-91C	186	181	184	165	92	161
FLIP91-105C	186	182	202	170	100	168
FLIP91-111C	184	176	183	167	98	162
FLIP91-112C	187	177	191	168	98	164
FLIP91-133C	187	182	190	168	96	165

Table 3.10.3. Cont'd. ...

Entry Name	CHILE	ITALY	PORTUGAL	SYRIA	TURKEY	Overall Mean
	Chillan	Tarquimia	Elvas	Tel Hadya	Haymana	
FLIP91-134C	189	181	184	166	95	163
FLIP91-135C	184	185	197	171	100	167
FLIP91-136C	186	180	199	167	99	166
FLIP91-138C	184	174	198	170	100	165
FLIP92-4C	190	178	184	168	94	163
FLIP92-8C	184	183	184	166	91	162
FLIP92-50C	184	182	191	170	94	164
FLIP92-55C	184	177	184	166	93	161
FLIP92-79C	186	178	184	166	92	162
FLIP92-93C	186	187	185	166	95	164
FLIP92-97C	185	184	191	171	97	165
FLIP92-100C	186	180	200	169	95	166
FLIP92-106C	186	181	199	171	103	168
FLIP92-107C	184	186	198	170	100	168
FLIP92-116C	188	183	185	171	94	164
FLIP92-184C	194	180	197	169	99	168
FLIP85-5C	184	184	198	170	102	168
ILC464	188	178	202	170	101	168
Local Check	184	184	199	171	100	—
Location Mean	186	182	195	169	98	
S.E. of Mean	0.78	1	5	1	2	
L.S.D. at 5%	2.23	2	9	2	4	
L.S.D. for T.E. in S.B	..	2	10	2	4	
L.S.D. for T.E. in D.B	-	2	10	2	4	
C.V. %	0.59	1	2	1	2	
Efficiency %	100	104	112	102	100	

Table 3.10.4. Plant height (cm) of entries in the CISON-LA-94 conducted at different locations.

Entry Name	CHILE	ITALY	NEW ZEALAND	PORTUGAL	SYRIA	TURKEY	Overall Mean
	Chillan	Tarquimia	Lincoln	Elvas	Tel Hadya	Haymana	
ILC3377	78	57	52	48	49	30	52
FLIP84-15C	77	57	61	48	50	36	55
FLIP85-15C	95	66	71	49	56	38	62
FLIP89-4C	86	61	53	45	45	32	53
FLIP89-17C	94	62	62	54	53	35	60
FLIP89-20C	89	60	63	38	49	30	55
FLIP89-89C	75	59	54	38	44	32	51
FLIP89-116C	84	57	47	41	47	32	52
FLIP90-2C	77	53	63	46	51	32	53
FLIP90-16C	79	67	65	46	55	29	57
FLIP90-17C	81	62	63	44	51	35	56
FLIP90-18C	79	55	77	49	62	36	60
FLIP90-19C	94	65	73	48	49	35	61
FLIP90-22C	89	62	53	53	47	35	57
FLIP90-49C	85	72	93	61	63	43	69
FLIP90-89C	79	66	68	45	55	33	58
FLIP90-92C	65	60	60	46	53	35	53
FLIP90-119C	91	63	65	56	59	38	62
FLIP90-129C	75	48	65	50	51	34	53
FLIP90-130C	83	67	94	57	61	35	67
FLIP90-147C	50	63	66	49	54	31	52
FLIP91-82C	71	56	52	39	45	33	49
FLIP91-85C	91	64	40	39	42	29	51
FLIP91-86C	60	53	57	44	41	32	48
FLIP91-87C	95	51	56	41	43	33	53
FLIP91-91C	73	60	47	42	40	32	49
FLIP91-105C	82	53	28	44	43	32	47
FLIP91-111C	71	68	66	46	49	31	55
FLIP91-112C	81	40	65	44	43	36	52
FLIP91-133C	82	55	63	42	45	34	54

Table 3.10.4. Cont'd. ...

Entry Name	CHILE	ITALY	NEW ZEALAND	PORTUGAL	SYRIA	TURKEY	Overall Mean
	Chillan	Tarquiniia	Lincoln	Elvas	Tel Hadya	Haymana	
FLIP91-134C	92	55	50	36	42	30	51
FLIP91-135C	80	55	49	42	42	31	50
FLIP91-136C	69	58	55	36	45	31	50
FLIP91-138C	71	65	69	48	54	38	57
FLIP92-4C	98	68	61	36	42	31	56
FLIP92-8C	80	53	42	30	43	29	46
FLIP92-50C	101	56	49	43	41	31	54
FLIP92-55C	76	55	64	40	48	35	52
FLIP92-79C	80	62	50	34	44	26	49
FLIP92-93C	68	57	58	38	42	27	48
FLIP92-97C	93	59	57	46	43	31	55
FLIP92-100C	66	64	59	46	51	28	52
FLIP92-106C	76	67	62	44	50	33	55
FLIP92-107C	65	65	58	43	47	31	52
FLIP92-116C	80	66	75	47	54	35	60
FLIP92-184C	92	70	71	50	57	38	63
FLIP85-5C	80	60	73	52	52	36	59
ILC464	78	62	54	55	50	37	55
Local Check	59	65	52	49	67	35	-
Location Mean	80	60	60	45	49	33	
S.E. of Mean	6	6	5.04	4	4	3	
L.S.D. at 5%	12	13	14.46	8	7	5	
L.S.D. for T.E. in S.B	12	13	-	8	7	5	
L.S.D. for T.E. in D.B	12	13	-	8	7	5	
C.V. %	7	10	11.85	8	7	7	
Efficiency %	113	101	118	114	107	108	

Table 3.10.5. 100-Seed weight (g) of entries in the CISON-LA-94 conducted at different locations.

Entry Name	CHILE	ITALY	NEW ZEALAND	PORTUGAL	SYRIA	Overall Mean
	Chillan	Tarquiniia	Lincoln	Elvas	Tel Hadya	
ILC3377	34	38	36	36	41	37
FLIP84-15C	42	50	44	41	42	44
FLIP85-15C	38	43	42	40	43	41
FLIP89-4C	55	45	45	48	55	50
FLIP89-17C	49	47	46	44	46	46
FLIP89-20C	37	41	42	43	45	42
FLIP89-89C	43	53	44	40	46	45
FLIP89-116C	42	44	44	41	44	43
FLIP90-2C	47	48	47	41	46	46
FLIP90-16C	43	45	42	42	47	44
FLIP90-17C	42	50	44	41	46	44
FLIP90-18C	47	51	47	40	45	46
FLIP90-19C	45	50	44	39	48	45
FLIP90-22C	42	48	44	44	45	44
FLIP90-49C	38	53	42	41	44	43
FLIP90-89C	37	42	39	39	44	40
FLIP90-92C	38	46	37	41	43	41
FLIP90-119C	39	45	40	39	42	41
FLIP90-129C	44	42	46	43	42	43
FLIP90-130C	48	46	46	42	45	46
FLIP90-147C	39	47	44	36	43	42
FLIP91-82C	37	37	42	36	41	39
FLIP91-85C	36	37	42	37	41	39
FLIP91-86C	37	50	43	41	44	43
FLIP91-87C	41	43	43	42	46	43
FLIP91-91C	36	39	38	39	36	38
FLIP91-105C	47	41	43	50	46	45
FLIP91-111C	45	39	41	39	45	42
FLIP91-112C	44	41	40	41	44	42
FLIP91-133C	44	44	44	41	48	44

Table 3.10.5 Cont'd. ...

Entry Name	CHILE	ITALY	NEW ZEALAND	PORTUGAL	SYRIA	Overall Mean
	Chillan	Tarquiniia	Lincoln	Elvas	Tel Hadya	
FLIP91-134C	45	43	42	40	46	43
FLIP91-135C	42	41	47	41	48	44
FLIP91-136C	38	33	35	34	40	36
FLIP91-138C	43	52	42	42	46	45
FLIP92-4C	39	44	43	38	44	42
FLIP92-8C	41	41	41	39	41	41
FLIP92-50C	38	42	40	36	37	38
FLIP92-55C	36	43	42	36	40	40
FLIP92-79C	37	39	42	40	46	41
FLIP92-93C	38	37	40	36	41	39
FLIP92-97C	36	38	41	36	36	37
FLIP92-100C	43	49	44	39	42	44
FLIP92-106C	37	44	40	38	43	41
FLIP92-107C	38	42	39	38	42	40
FLIP92-116C	38	44	36	34	38	38
FLIP92-184C	40	48	39	35	38	40
FLIP85-5C	46	52	43	49	46	47
ILC464	47	48	47	47	49	48
Local Check	54	44	40	40	29	-
Location Mean	41	44	42	40	43	
S.E. of Mean	3	5	One Rep.	1	3	
L.S.D. at 5%	5	9		3	6	
L.S.D. for T.E. in S.B	5	9		3	6	
L.S.D. for T.E. in D.B	5	9		3	6	
C.V. %	6	10		3	7	
Efficiency %	100	100		100	103	

Table 3.10.6 Seed yield (y=kg/ha) and rank (R) of entries in the CISON-LA-94 conducted at different locations.

Entry Name	CHILE		ITALY		NEW ZEALAND		PORTUGAL		SYRIA		TURKEY		Overall Mean	
	Chillan		Tarquinia		Lincoln		Elvas		Tel Hadya		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
ILC3377	1916	6	3534	18	2931	28	1509	17	2347	7	1955	20	2365	15
FLIP84-15C	1112	29	3081	27	2642	34	1850	5	2939	1	2577	9	2367	14
FLIP85-15C	1138	23	5768	1	4050	14	1294	27	1937	26	1849	24	2672	6
FLIP89-4C	1600	12	3173	25	455	49	1163	39	1737	39	1598	30	1621	42
FLIP89-17C	392	49	2414	38	1878	43	1628	11	1701	40	1432	34	1574	44
FLIP89-20C	1682	10	1821	42	5256	6	1037	46	1762	36	1564	31	2187	24
FLIP89-89C	1113	28	4658	6	1296	45	1178	37	2018	20	2251	16	2086	29
FLIP89-116C	870	37	2034	40	2666	33	1272	31	1834	33	2180	17	1809	40
FLIP90-2C	855	39	3213	24	3042	26	1275	29	1913	28	786	45	1847	37
FLIP90-16C	2064	2	3097	26	3676	19	1444	20	2447	4	2386	12	2519	8
FLIP90-17C	1058	31	4378	9	2755	32	1212	34	2048	19	669	46	2020	34
FLIP90-18C	770	41	3862	14	3059	25	1453	19	2147	15	1348	37	2106	27
FLIP90-19C	857	38	3827	15	2317	38	1209	35	2223	12	1554	32	1998	35
FLIP90-22C	575	47	3043	28	3377	21	1519	15	1539	44	2100	18	2025	32
FLIP90-49C	946	35	4738	5	2134	40	1034	47	1961	22	2272	13	2181	25
FLIP90-89C	704	43	4194	11	4183	13	1259	32	2332	9	1780	27	2409	11
FLIP90-92C	1037	32	4218	10	2601	36	1081	43	2841	2	2260	15	2340	16
FLIP90-119C	1346	17	4941	3	4335	12	1356	25	2212	14	2577	8	2795	3
FLIP90-129C	1883	8	2719	33	3006	27	1316	26	2008	21	1300	39	2039	31
FLIP90-130C	1115	27	2871	32	3835	17	1169	38	1886	29	1267	41	2024	33
FLIP90-147C	1903	7	4035	13	3880	16	1131	42	1852	32	614	47	2236	21
FLIP91-82C	1991	5	3450	21	5308	3	1688	8	2339	8	3265	2	3007	2
FLIP91-85C	2021	3	1646	45	2224	39	1897	3	2064	18	2793	5	2108	26
FLIP91-86C	1074	30	2580	34	4644	9	1044	45	1219	47	2674	7	2206	22
FLIP91-87C	1286	18	1881	41	2830	30	1372	24	2220	13	3025	3	2102	28
FLIP91-91C	2008	4	2504	37	3722	18	1847	6	1957	23	1841	25	2313	18
FLIP91-105C	1121	26	781	49	926	48	1631	10	1915	27	1433	33	1301	47
FLIP91-111C	1023	33	2542	36	2617	35	1634	9	1949	24	1272	40	1840	38
FLIP91-112C	593	46	3419	22	2342	37	1141	41	926	49	950	44	1562	45
FLIP91-133C	603	45	2220	39	2074	41	531	49	1029	48	1850	23	1385	46

Table 3.10.6 Cont'd. ...

Entry Name	CHILE		ITALY		NEW ZEALAND		PORTUGAL		SYRIA		TURKEY		Overall Mean	
	Chillan		Tarquinia		Lincoln		Elvas		Tel Hadya		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP91-134C	1808	9	2573	35	2002	42	1438	21	2458	3	1323	38	1933	36
FLIP91-135C	822	40	1488	46	1271	46	1397	23	1582	43	1005	43	1261	48
FLIP91-136C	2684	1	4657	7	6198	1	1866	4	2409	6	2944	4	3460	1
FLIP91-138C	906	36	4931	4	3327	22	1181	36	1482	46	1827	26	2276	19
FLIP92-4C	1141	22	1449	47	1819	44	1903	2	2081	17	1239	42	1605	43
FLIP92-8C	1438	15	1797	44	2889	29	1147	40	1756	37	2001	19	1838	39
FLIP92-50C	1507	14	1813	43	3255	23	1272	30	1860	31	2781	6	2081	30
FLIP92-55C	1668	11	4046	12	3117	24	2081	1	1682	41	1862	22	2409	10
FLIP92-79C	435	48	1164	48	3956	15	1509	16	2261	11	584	49	1652	41
FLIP92-93C	1174	20	3523	19	4432	11	1472	18	2416	5	1353	36	2395	12
FLIP92-97C	1406	16	3414	23	4497	10	1522	14	1618	42	1874	21	2388	13
FLIP92-100C	1171	21	3777	16	5034	7	1016	48	2288	10	602	48	2315	17
FLIP92-106C	632	44	5052	2	4829	8	1597	13	1940	25	2262	14	2719	5
FLIP92-107C	1127	25	3457	20	5268	4	1294	27	2134	16	1627	29	2485	9
FLIP92-116C	725	42	2954	31	5258	5	1078	44	1748	38	1405	35	2195	23
FLIP92-184C	1191	19	4570	8	5609	2	1416	22	1883	30	1646	28	2719	4
FLIP85-5C	1593	13	2963	30	3556	20	1222	33	1832	34	2427	11	2265	20
ILC464	1127	24	3536	17	2757	31	1834	7	1778	35	4414	1	2574	7
Local Check	983	34	3026	29	1032	47	1622	12	1490	45	2427	10	-	-
Location Mean	1228		3201		3269		1389		1959		1858			
S.E. of Mean	339		1170		1052		246		352		589			
L.S.D. at 5%	674		2332		2096		499		713		1152			
L.S.D. for T.E. in S.B	692		2387		2147		499		713		1207			
L.S.D. for T.E. in D.B	687		2373		2135		499		713		1194			
T.E > L. Check	10		1		23		0		14		1			
Error d.f.	36		36		36		36		36		36			
C.V. %	26		35		31		18		18		29			
Efficiency %	106		104		105		100		100		151			

Table 3.10.7. The five heaviest seed yielding entries at the individual locations in the CISN-LA-94.

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Chile					
Chillan	FLIP91-136C	FLIP90-16C	FLIP91-85C	FLIP91-91C	FLIP91-82C
Italy					
Tarquinia	FLIP85-15C	FLIP92-106C	FLIP90-119C	FLIP91-138C	FLIP90-49C
New Zealand					
Lincoln	FLIP91-136C	FLIP92-184C	FLIP91-82C	FLIP92-107C	FLIP92-116C
Portugal					
Elvas	FLIP92-55C	FLIP92-4C	FLIP91-85C	FLIP91-136C	FLIP84-15C
Syria					
Tel Hadya	FLIP84-15C	FLIP90-92C	FLIP91-134C	FLIP90-16C	FLIP92-93C
Turkey					
Haymana	ILC 464	FLIP91-82C	FLIP91-87C	FLIP91-136C	FLIP91-85C

3.11. CHICKPEA INTERNATIONAL F₄ NURSERIES (CIF₄N)

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 Nurseries are given in Table 3.11.1.

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 11 and 6 countries, respectively. The results were, however, received back for 10 locations (Tolentino and Tarquinia in Italy; Maru in Jordan; Elvas in Portugal; Valladolid in Spain; Amasya, Bornova, Haymana, Diyarbakir and Izmir in Turkey) for CIF₄N-MR and six locations (Saskatoon in Canada; Akaki in Ethiopia; Berhampore, New Delhi and Kanpur in India; Hudeiba in Sudan) for CIF₄N-SL.

Results and Discussion

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

Table 3.11.1. Details of Chickpea International F₄ Nurseries - Mediterranean Region (CIF₄N-MR) and Southerly Latitudes (CIF₄N-SL) conducted at different locations during 1993/94.

CIF ₄ N-MR		CIF ₄ N-SL	
Cross No.	Parentage	Cross No.	Parentage
X91TH6	FLIP85-42C X FLIP84-93C	X91TH5	FLIP85-42C X ILC482 (COLTOL)
X91TH8	FLIP86-5C X FLIP84-93C	X91TH12	FLIP88-71C X FLIP83-72C
X91TH10	FLIP88-7C X FLIP84-78C	X91TH33	FLIP89-63C X FLIP83-46C
X91TH11	FLIP88-71C X FLIP83-47C	X91TH35	FLIP89-67C X FLIP83-46C
X91TH13	FLIP89-19C X FLIP84-79C	X91TH37	FLIP89-106C X FLIP85-17C
X91TH14	FLIP89-19C X FLIP84-81C	X91TH38	FLIP89-106C X FLIP86-5C
X91TH34	FLIP89-63C X FLIP85-45C	X91TH39	ILC482 X FLIP85-17C
X91TH36	FLIP89-67C X FLIP85-45C	X91TH42	FLIP82-150C X FLIP89-11C
X91TH46	FLIP84-47C X FLIP89-28C	X91TH44	FLIP84-92C X FLIP89-11C
X91TH48	FLIP85-5C X FLIP89-28C	X91TH49	FLIP87-69C X FLIP84-91C
X91TH50	FLIP87-69C X FLIP89-24C	X91TH68	FLIP89-34C X FLIP89-5C
X91TH60	FLIP89-87C X FLIP84-22C	X91TH97	FLIP89-64C X ILC237
X91TH62	FLIP85-45C X FLIP85-19C	X91TH131	ILC5032 X FLIP83-47C
X91TH77	FLIP85-18C X S90229	X91TH171	(FLIP87-85CXFLIP87-60C)X FLIP85-13C
X91TH79	FLIP85-62C X S90229	X91TH175	(FLIP88-42CXFLIP86-32C)XILC4641
X91TH152	(FLIP84-15CXFLIP87-60C)XFLIP85-15C	X91TH178	(FLIP81-89CXFLIP87-76C)XFLIP84-92C
X91TH155	(FLIP85-4CXFLIP83-45C)XFLIP89-11C	X91TH180	(FLIP81-89CXFLIP84-92C)XFLIP84-79C
X91TH173	(FLIP87-85CXFLIP86-32C)XFLIP89-40C	X91TH184	(FLIP84-15CXFLIP82-78C)XILC482
X91TH174	(FLIP88-31CXFLIP86-32C)XFLIP89-95C	X91TH188	(FLIP86-44CXFLIP84-130C)XFLIP86-5C
X91TH189	(FLIP84-158CXFLIP83-108C)XFLIP88-7C	X91TH192	(FLIP86-44CXFLIP84-39C)XFLIP89-28C
X91TH190	(FLIP86-44CXFLIP83-108C)XFLIP89-11C	X91TH193	(FLIP83-66CXFLIP84-79C)XFLIP86-53C
X91TH194	(FLIP83-66CXFLIP84-19C)XFLIP84-164C	X91TH198	(FLIP83-66CXFLIP87-60C)XILC237
ILC 3279	-	ILC 482	-
Local Check	-	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 CIABN-B 41 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.

Twenty six sets of CIABN-A and twenty four sets of CIABN-B were distributed to cooperators in 10 and 12 countries. The results were, however, received for 10 sets for CIABN-A and 10 sets for CIABN-B.

Results and Discussion

The entries which took 5 or less rating were considered tolerant/ resistant. 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 and Oued Smar. Twenty one entries at Oued Smar were rated tolerant/resistant. There was no disease infestation at Guelma.

Bulgaria: The nursery was conducted at Toshevo. The susceptible check took 9 rating. Twenty four out of 40 kabuli test entries were resistant or tolerant.

India: The nursery was conducted at Hisar, Ludhiana and New Delhi. The susceptible check at all the locations took 9 rating. Out of 50 test entries evaluated, 28 kabuli and 2 desi lines at Hisar; 3 kabuli and 3 desi lines at Ludhiana; and 16 kabuli and 7 desi lines at New Delhi were tolerant or resistant to ascochyta blight reaction.

Iran: The nursery was grown at 4 sites, and 3 of them were in Maragheh. The susceptible check was rated at 5, 3, 7 and 7 at Gonbad, Maragheh-1, Maragheh-2 and Maragheh-3, respectively. All the test entries exhibited ratings between 1 and 5, and were resistant/ tolerant to ascochyta blight.

Table 3.12.1. Reaction of chickpea entries to Ascochyta blight in CIABN-94.

Entry No.	Name	Pedigree	Origin	Algeria		Bulgaria	India		
				Guelma	Oued Smar	Toshevo	Hisar	Ludhiana	New Delhi
1	ILC 72	-	Spain	1	6	3	5	5	7
2	ILC 200	-	USSR	1	9	5	5	6	3
3	ILC 3279	-	USSR	1	3	5	5	6	7
4	FLIP 84-87C	X80TH176/ILC72 X ILC215	ICARDA/ICRISAT	1	6	9	9	6	6
5	FLIP 84-92C	X80TH176/ILC72 X ILC215	ICARDA/ICRISAT	1	6	5	5	5	4
6	FLIP 84-182C	X80TH176/ILC72 X ILC215	ICARDA/ICRISAT	1	5	5	5	7	7
7	FLIP 88-83C	X84TH15/FLIP82-100C X ILC200	ICARDA/ICRISAT	1	4	3	9	7	5
8	FLIP 88-85C	X85TH143/ILC629 X FLIP82-144C	ICARDA/ICRISAT	1	4	7	7	7	9
9	FLIP 89-78C	X87TH67/FLIP82-87C X FLIP85-46C	ICARDA/ICRISAT	1	6	7	9	7	7
10	FLIP 90-56C	X87TH159/S85088 X ILC3856	ICARDA/ICRISAT	1	2	5	3	7	7
11	FLIP 90-58C	X87TH318/(Pl.Se.Be.81-41C X FLIP81-79C) X FLIP85-18C	ICARDA/ICRISAT	1	3	5	7	7	5
12	FLIP 90-76C	X86TH303/(ILC171 X FLIP82-127C) X ILC171	ICARDA/ICRISAT	1	6	7	5	9	5
13	FLIP 90-85C	X86TH148/FLIP84-46C X ILC3870	ICARDA/ICRISAT	1	5	5	5	9	4
14	FLIP 90-112C	X88TH129/ILC3856 X ILC4296	ICARDA/ICRISAT	1	6	7	7	9	3
15	FLIP 91-8C	X87TH346/(FLIP84-48C X ILC4293) X FLIP84-48C	ICARDA/ICRISAT	1	5	3	5	9	5
16	FLIP 91-14C	X88TH216/FLIP85-122C X FLIP85-112C	ICARDA/ICRISAT	1	5	5	3	9	4
17	FLIP 91-23C	X87TH3/ILC482 X FLIP84-78C	ICARDA/ICRISAT	1	7	5	7	8	9
18	FLIP 91-62C	X89TH29/ILC3777 X FLIP84-92C	ICARDA/ICRISAT	1	6	5	3	9	9
19	FLIP 91-150C	X87TH318/(Pl.Se.Be.81-41C X FLIP81-79C) X FLIP85-18C	ICARDA/ICRISAT	1	5	7	6	9	4
20	FLIP 91-196C	X87TH34/FLIP83-15C X FLIP84-109C	ICARDA/ICRISAT	1	3	7	5	7	7
21	FLIP 92-13C	X89TH240/(FLIP82-59C X FLIP84-145C) X FLIP82-59C	ICARDA/ICRISAT	1	7	7	3	7	7
22	FLIP 92-16C	X88TH330/(ILC1920 X FLIP83-48C) X ILC1920	ICARDA/ICRISAT	1	4	5	5	9	3
23	FLIP 92-18C	X88TH176/FLIP85-122C X FLIP85-137C	ICARDA/ICRISAT	1	6	5	3	9	6

Cont'd. ...

Table 3.12.1. Cont'd. ...

Entry No.	Name	Pedigree	Origin	Algeria		Bulgaria Toshevo	India		
				Guelma	Oued Smar		Hisar	Ludhiana	New Delhi
24	FLIP 92-34C	X89TH37/ILC3520 X FLIP84-92C	ICARDA/ICRISAT	1	5	7	3	9	7
25	FLIP 92-52C	X89TH243/(FLIP84-124C X FLIP84-81C) X ILC6005	ICARDA/ICRISAT	1	6	5	3	8	7
26	FLIP 92-64C	X89TH177/ILC6055 X FLIP85-122C	ICARDA/ICRISAT	1	5	7	5	6	6
27	FLIP 92-70C	X89TH156/ILC571 X FLIP85-122C	ICARDA/ICRISAT	1	6	7	3	5	6
28	FLIP 92-72C	X89TH156/ILC571 X FLIP85-122C	ICARDA/ICRISAT	1	4	5	3	6	5
29	FLIP 92-78C	X89TH177/ILC6055 X FLIP85-122C	ICARDA/ICRISAT	1	6	7	5	7	7
30	FLIP 92-113C	X89TH141/ILC1934 X FLIP85-122C	ICARDA/ICRISAT	1	5	5	5	7	5
31	FLIP 92-132C	X89TH49/ILC4297 X FLIP84-102C	ICARDA/ICRISAT	1	7	5	5	8	4
32	FLIP 92-133C	X89TH50/ILC4297 X FLIP82-150C	ICARDA/ICRISAT	1	6	5	6	8	7
33	FLIP 92-139C	X89TH189/FLIP84-43C X FLIP85-122C	ICARDA/ICRISAT	1	5	5	5	6	5
34	FLIP 92-151C	X89TH165/UC15 X FLIP84-92C	ICARDA/ICRISAT	1	6	7	4	9	4
35	FLIP 92-152C	X88TH176/FLIP85-122C X FLIP85-137C	ICARDA/ICRISAT	1	4	5	5	7	9
36	FLIP 92-155C	X89TH24/ILC2371 X FLIP84-92C	ICARDA/ICRISAT	1	5	5	5	7	7
37	FLIP 92-159C	X89TH7/ILC1254 X FLIP82-150C	ICARDA/ICRISAT	1	4	5	9	7	6
38	FLIP 92-181C	X88TH204/(FLIP82-59C X FLIP84-145C) X FLIP82-59C	ICARDA/ICRISAT	1	5	7	5	7	8
39	FLIP 92-187C	X90TH137/FLIP84-176C X FLIP84-155C	ICARDA/ICRISAT	1	6	5	7	9	9
40	FLIP 92-189C	X89TH95/ILC100 X FLIP82-150C	ICARDA/ICRISAT	1	6	3	7	6	5
41	ICC 4475	P - 5496	Iran	-	-	-	-	4	5
42	ICC 12004	NEC - 2861	Unknown	-	-	-	7	5	6
43	ICC 13269	-	-	-	-	-	9	6	3
44	ICC 13416	-	-	-	-	-	9	6	5
45	ICC 13508	-	-	-	-	-	9	6	3
46	ICC 13555	-	-	-	-	-	9	6	3
47	FLIP 87-505C	H 208 X E 100Y-1	ICARDA/ICRISAT	-	-	-	7	8	8
48	FLIP 87-506C	H 208 X E 100Y-1	ICARDA/ICRISAT	-	-	-	5	5	7
49	FLIP 87-507C	H 208 X E 100Y-2	ICARDA/ICRISAT	-	-	-	7	6	4
50	FLIP 87-508C	H 208 X E 100Y-2	ICARDA/ICRISAT	-	-	-	5	6	7
51	ILC 263	(Susceptible repeated check)	Turkey	1	9	9	9	9	9

Cont'd. ...

Table 3.12.1 Cont'd. ...

Entry	Name	Iran				Italy	Pakistan	Portugal	Spain	Syria				Turkey	
		Gonbad	Mara- gheh1	Mara- gheh2	Mara- gheh3	Tolen- tino	Islam- abad	Elvas	Valla- dolid	Al- Ghab	Heimo	Izra'a	Tel- Hadya	Diyar- bakir	Erzu- rum
1	ILC 72	1	1	1	1	9	5	4	1	3	8	1	7	1	3
2	ILC 200	1	3	1	1	9	7	2	1	3	7	1	5	1	3
3	ILC 3279	1	3	1	1	7	7	3	1	3	7	1	7	1	3
4	FLIP 84-87C	1	1	1	1	9	9	3	1	3	6	1	6	3	3
5	FLIP 84-92C	1	3	1	1	9	7	3	1	3	6	1	6	2	4
6	FLIP 84-182C	1	3	1	1	9	5	3	1	3	7	1	5	2	3
7	FLIP 88-83C	1	3	1	1	9	8	3	1	3	4	1	5	3	3
8	FLIP 88-85C	1	1	1	1	9	7	2	1	3	6	1	6	1	4
9	FLIP 89-78C	1	3	1	1	9	7	3	1	3	5	1	5	1	3
10	FLIP 90-56C	1	1	1	1	7	7	2	1	3	6	1	7	2	2
11	FLIP 90-58C	3	1	1	1	7	6	2	1	3	6	1	4	2	3
12	FLIP 90-76C	1	3	1	1	9	8	2	1	3	5	1	5	2	3
13	FLIP 90-85C	1	3	1	1	9	7	3	1	3	5	1	5	2	3
14	FLIP 90-112C	1	1	1	1	9	7	2	1	3	4	1	6	2	3
15	FLIP 91-8C	1	1	1	1	9	7	1	1	3	6	1	5	2	3
16	FLIP 91-14C	1	3	1	1	9	8	3	1	3	5	1	6	2	3
17	FLIP 91-23C	1	3	1	1	9	8	2	1	3	8	1	5	3	3
18	FLIP 91-62C	1	3	1	1	9	7	3	1	3	7	1	6	2	3
19	FLIP 91-150C	1	3	1	1	9	6	3	1	3	5	1	5	2	3
20	FLIP 91-196C	1	3	1	1	9	8	3	1	3	5	1	5	2	3
21	FLIP 92-13C	1	1	1	1	9	9	4	1	3	8	1	7	1	3
22	FLIP 92-16C	1	3	1	1	9	9	3	1	3	6	1	4	1	3
23	FLIP 92-18C	1	1	1	1	9	9	2	1	3	7	1	6	1	3
24	FLIP 92-34C	1	3	1	1	9	9	2	1	3	7	1	6	1	3
25	FLIP 92-52C	1	3	1	1	9	9	2	1	3	6	1	6	1	3

Cont'd. ...

Table 3.12.1 Cont'd. ...

Entry	Name	Iran			Italy	Pakistan	Portugal	Spain	Syria			Turkey			
		Gonbad	Mara- gheh1	Mara- gheh2	Mara- gheh3	Tolen- tino	Islam- abad	Elvas	Valla- dolid	Al- Ghab	Heimo	Izra'a	Tel- Hadya	Diyar- bakir	Erzu- rum
26	FLIP 92-64C	1	3	1	1	9	8	3	1	3	8	1	7	1	3
27	FLIP 92-70C	1	3	1	1	9	9	2	1	3	8	1	5	1	3
28	FLIP 92-72C	1	3	1	1	9	9	2	1	3	8	1	7	1	3
29	FLIP 92-78C	1	3	1	1	9	9	2	1	3	7	1	5	1	3
30	FLIP 92-113C	1	3	1	1	9	8	2	1	3	6	1	6	1	3
31	FLIP 92-132C	1	3	1	1	9	9	2	1	3	6	1	5	2	3
32	FLIP 92-133C	1	3	1	1	9	9	2	1	3	7	1	6	1	3
33	FLIP 92-139C	1	3	1	1	9	9	3	1	3	7	1	4	1	3
34	FLIP 92-151C	1	1	1	1	9	8	2	1	3	7	1	6	1	3
35	FLIP 92-152C	1	1	1	1	9	9	1	1	3	5	1	5	1	3
36	FLIP 92-155C	1	3	1	1	9	6	3	1	3	6	1	5	1	3
37	FLIP 92-159C	1	1	1	1	9	8	2	1	3	5	1	6	1	3
38	FLIP 92-181C	1	3	1	1	9	7	4	1	3	8	1	6	3	3
39	FLIP 92-187C	1	5	1	1	9	8	4	1	3	8	1	6	3	3
40	FLIP 92-189C	1	3	1	1	9	9	2	1	3	5	1	4	3	3
41	ICC 4475	-	1	1	1	-	7	1	1	-	-	-	7	-	-
42	ICC 12004	-	1	1	1	-	7	3	1	-	-	-	5	-	-
43	ICC 13269	-	3	3	3	-	7	6	1	-	-	-	5	-	-
44	ICC 13416	-	3	1	1	-	7	5	1	-	-	-	5	-	-
45	ICC 13508	-	3	1	1	-	7	5	1	-	-	-	4	-	-
46	ICC 13555	-	1	1	1	-	6	3	1	-	-	-	4	-	-
47	FLIP 87-505C	-	3	1	1	-	9	1	1	-	-	-	6	-	-
48	FLIP 87-506C	-	1	1	1	-	9	2	1	-	-	-	5	-	-
49	FLIP 87-507C	-	5	1	1	-	8	1	1	-	-	-	5	-	-
50	FLIP 87-508C	-	3	1	1	-	8	1	1	-	-	-	6	-	-
51	ILC 263 (S.CH)	5	3	7	7	9	9	5	1	3	9	1	9	8	4

Italy: CIABN-A was conducted at Tolentino. All the entries took 7 or 9 and were susceptible.

Pakistan: The nursery was sown at Islamabad. Only two entries, ILC 72 and FLIP 84-182C showed tolerant reaction (rating 5).

Portugal: The nursery was sown at Elvas. All the test entries including the susceptible check rated between 1 and 5 except ICC 13269 which was rated 6.

Spain: The nursery was grown at Valladolid. There was no disease development and all the entries including susceptible check were rated at 1.

Syria: The nursery was sown at Al Ghab, Heimo, Izra'a and Tel Hadya. There was no disease development at Al Ghab and all the entries including susceptible check were rated 3. Susceptible check took 9 rating at Heimo and Tel Hadya. Eleven kabuli entries at Heimo, and 19 kabuli entries at Tel Hadya in addition to 7 desi entries were also tolerant (rating ≤ 5) at Tel Hadya. There was no disease infestation at Izra'a and all the entries including susceptible check were rated at 1.

Turkey: The nursery was conducted at Diyarbakir and Erzurum. The susceptible check 8 rating at Diyarbakir, and 4 at Erzurum. All the test entries showed reaction between 1 and 4.

On the basis of all the locations reporting ascochyta blight score, none of the kabuli types was with rating 5 or less across locations. Entry FLIP 90-85C was tolerant (rating ≤ 5) across 17 locations. FLIP 84-182C, FLIP 88-83C, FLIP 91-8C, FLIP 91-14C, FLIP 92-16C, FLIP 92-139C and FLIP 92-152C were tolerant across 16 locations. Among desi types FLIP 87-506C was tolerant across eight sites, and ICC 4475, ICC 12004, ICC 13416, ICC 13508, and FLIP 87-507C were tolerant across 7 sites.

3.13. CHICKPEA INTERNATIONAL FUSARIUM WILT NURSERY (CIFWN)

Material

The CIFWN included 30 test entries and one susceptible check (ILC 1929) 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 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 six sets of nursery were sent to cooperators in 20 countries and the data were reported from 9 locations in 5 countries (Table 3.13.1.).

Table 3.13.1. Reaction of chickpea entries to Fusarium wilt in CIFWN-94.

No.	Name	Pedigree	Origin	Algeria		India				Pakistan	Sudan	Spain
				Guelma	Oued Smar	Badna-pur	Berham-pur	Dholi	Pant-Nagar	Dokri	Hude-iba	Valla-dolid
1	ILC 211	-	India	7	5	9	9	9	8	5	8	4
2	ILC 240	-	Afghanistan	1	1	9	7	6	6	1	5	4
3	ILC 336	12-071-02574	Iran	9	3	9	9	9	9	3	8	4
4	ILC 837	RPIP (K) 12-071-03794	Iran	9	7	9	9	9	9	-	9	3
5	ILC 851	RPIP (K) 12-071-03810	Iran	9	9	9	6	5	7	2	6	3
6	ILC 858	RPIP (K) 12-071-03816	Iran	9	5	9	8	8	7	-	5	1
7	ILC 860	RPIP (K) 12-071-3819	Iran	9	9	9	9	9	9	9	9	3
8	ILC 871	RPIP (K) 12-071-3836	Iran	9	9	9	9	9	9	-	9	3
9	ILC 911	RPIP (K) 12-071-3884	Iran	9	1	9	9	9	8	-	8	3
10	ILC 6055	Sonora 80	USA	1	1	9	8	9	9	-	9	3
11	FLIP 82-78C	X79TH219/ILC201 X ILC3279	ICARDA/ICRISAT	9	1	9	4	8	7	-	5	4
12	FLIP 82-180C	X79TH220/ILC72 X ILC480	ICARDA/ICRISAT	7	1	9	7	9	8	-	8	3
13	FLIP 84-32C	X81TH105/ILC72 X ILC484	ICARDA/ICRISAT	9	5	9	9	9	9	3	8	4
14	FLIP 84-34C	X81TH9/ILC480 X ILC202	ICARDA/ICRISAT	9	1	9	7	7	5	1	5	3
15	FLIP 84-43C	X81TH16/ILC480 X ILC3279	ICARDA/ICRISAT	7	1	9	6	8	6	-	5	3
16	FLIP 84-46C	X81TH55/ILC1920 X ILC2956	ICARDA/ICRISAT	9	1	9	4	6	7	1	5	3
17	FLIP 84-65C	X79TH220/ILC72 X ILC480	ICARDA/ICRISAT	9	5	9	6	8	7	-	6	3
18	FLIP 84-88C	X80TH177/ILC195 X ILC482	ICARDA/ICRISAT	9	1	9	9	8	8	2	8	4
19	FLIP 84-97C	X80TH181/ILC3279 X ILC1108	ICARDA/ICRISAT	9	1	9	8	8	8	-	6	2
20	FLIP 85-20C	BG 209 X ILC72	ICARDA/ICRISAT	7	1	9	5	8	5	-	1	3
21	FLIP 85-29C	X81TH106/ILC72 X ICC4935	ICARDA/ICRISAT	4	1	9	7	9	6	-	3	4
22	FLIP 85-30C	X81TH106/ILC72 X ICC4935	ICARDA/ICRISAT	4	1	9	5	7	6	-	3	4
23	FLIP 85-35C	X81TH114/ILC191 X ICC4935	ICARDA/ICRISAT	7	1	9	8	9	7	-	6	3
24	FLIP 85-130C	ICC25 X ILC202	ICARDA/ICRISAT	7	7	9	7	8	7	5	7	3
25	UC 15	-	USA	2	1	9	1	4	5	3	4	4
26	UC 27	-	USA	1	1	9	7	7	5	-	5	4
27	BE SEL 81-48	-	Tunisia	1	1	9	9	8	9	1	7	3
28	BE SEL 81-103 -	Tunisia		1	1	9	8	9	9	-	9	4
29	FTA(82) 29	-	Unknown	1	1	9	8	9	9	1	6	3
30	ICCV 2	-	ICRISAT/India	1	1	9	7	5	7	2	4	2
31-46	ILC 1929 (Susceptible repeated check)		Syria	9	7	9	9	9	9	3	9	4

Results and Discussion

The results are presented countrywise.

Algeria: The nursery was grown at Guelma and Oued Smar. The susceptible check was rated at 9 and 7, respectively. Ten entries at Guelma and 25 entries at Oued Smar showed tolerant reaction (rating ≤ 5).

India: The nursery was grown at Badnapur, Berhampur, Dholi and Pant Nagar. The disease reaction was high and the susceptible check in all the locations was rated at 9. All the entries at Badnapur including check were rated at 9. At Berhampur, 5 entries took 1-5 rating. Three entries at Dholi were rated at 4 or 5. At Pant Nagar, 4 entries were rated at 5.

Pakistan: The susceptible check was rated at 3 at Dokri. Except ILC 860 which took rating of 9, all others were rated between 1 and 5.

Sudan: The susceptible check took rating of 9 at Hudeiba. One, 2, 2, and 7 entries took rating of 1, 3, 4 and 5 respectively.

Spain: The susceptible check took rating of 4 at Valladolid. One, 2, 16 and 11 test entries took rating of 1, 2, 3 and 4 respectively.

On the basis of all the locations reporting *Fusarium* wilt score, UC 15 was tolerant across 8 out of 9 locations, entry ICCV 2 was tolerant across 6 locations and entries ILC 240, FLIP 84-34C, FLIP 84-46C, FLIP 85-20C, FLIP 85-30C, UC 27 were rated tolerant across 5 locations.

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.

Thirteen sets of leaf miner nursery were distributed to cooperators in 9 countries and the results were received for 4 sets from 4 countries.

Results and Discussion

The results are presented in Table 3.14.1 and discussed below.

Table 3.14.1. Reaction of chickpea entries to leaf miner in CILMN-94.

Name	Pedigree	Origin	<u>Italy</u> Tarquinia	<u>Lebanon</u> Terbol	<u>Syria</u> Tel- Hadya	<u>Turkey</u> Bornova	<u>Freq.</u> < =5
ILC 316	-	Iran	9	5	5	9	2
ILC 394	-	Iran	9	3	5	9	2
ILC 655	-	Iran	9	3	5	9	2
ILC 822	-	Iran	9	3	5	9	2
ILC 992	-	Iran	9	3	4	7	2
ILC 1003	-	Iran	9	3	6	9	1
ILC 1009	-	Iran	9	3	5	9	2
ILC 1048	-	Iran	9	3	5	5	3
ILC 1216	-	Iran	9	3	5	9	2
ILC 3800	L-1852	Mexico	9	1	3	9	2
ILC 3828	Pch 65	Morocco	9	3	5	7	2
ILC 5351	PRT 82-A-140-B	Portugal	8	5	5	9	2
ILC 5580	ARI 00379	Cyprus	9	5	5	9	2
ILC 5600	PARC 1041-1	Pakistan	9	3	5	7	2
ILC 5609	PARC 1042-3	Pakistan	9	3	5	9	2
ILC 5614	PARC 1045-1	Pakistan	9	5	5	9	2
ILC 5615	PARC 1046-1	Pakistan	9	5	5	9	2
ILC 5641	PARC 1060-3	Pakistan	9	5	5	9	2
ILC 5648	PARC 1062-5	Pakistan	9	3	5	9	2
ILC 5664	PARC 1071-4	Pakistan	9	3	6	7	1
ILC 5665	PARC 1071-5	Pakistan	9	3	5	9	2
ILC 5682	PARC 1079-2	Pakistan	9	3	5	9	2
ILC 5901	K-1154	USSR	6	1	3	9	2
ILC 7510	ICC 9205	Iran	9	3	5	7	2
ILC 7534	ICC 9259	Iran	9	3	5	9	2
ILC 7618	ICC 9415	Iran	9	3	5	7	2
ILC 7647	ICC 9450	Iran	9	3	6	9	1
ILC 7831	ICC 13130	India	9	3	5	9	2
ILC 7872	ICC 13272	Iran	9	3	5	9	2
ILC 7974	ICC 13527	Iran	9	5	5	9	2
ILC 3397 (Repeated susceptible check)		Mexico	9	5	7	9	1

Italy: At Tarquinia, all the entries including the susceptible check were susceptible with rating 8 or 9.

Lebanon: At Terbol, 8 entries including susceptible check took rating of 5. Two entries, ILC 3800 and ILC 5901 took 1 rating and 16 other entries were rated at 3.

Syria: At Tel Hadya, the susceptible check was rated at 7. Two other entries, ILC 3800 and ILC 5901 were rated at 3; one entry was rated at 4; 24 entries were rated at 5; and 3 at 6.

Turkey: At Bornova, only one entry, ILC 1048 took a score of 5 against susceptible check which was rated at 9. All other entries were scored at 7 or 9.

3.15. CHICKPEA INTERNATIONAL COLD TOLERANCE NURSERY (CICTN)

Material

The Chickpea International Cold Tolerance Nursery (CICTN) comprised 47 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 four sets of CICTN were distributed to cooperators in 17 countries, however, data were reported for 3 locations from 3 countries.

Results and Discussion

The results for cold tolerant reaction for the locations reporting data are presented in Table 3.15.1. At Valladolid in Spain, the susceptible check took rating of 5. Three, 15, 27 and 2 entries took rating of 1, 2, 3 and 4 respectively.

At Tel Hadya in Syria, the susceptible check was scored at 8. All other entries exhibited cold reaction of 2 or 3. At Erzurum in Turkey, all the entries including the susceptible check were rated between 1 and 4.

Table 3.15.1. Reaction of chickpea entries to cold in CICTN-94.

Entry No.	Name	Pedigree	Origin	Spain Valla-dolid	Syria Tel-Hadya	Turkey Erzurum	Freq. < =5
1	ILC 1071	-	Iran	2	3	1	3
2	ILC 1251	-	Iran	3	3	2	3
3	ILC 1256	-	Afghanistan	3	3	2	3
4	ILC 1444	-	Afghanistan	3	3	2	3
5	ILC 1455	-	Afghanistan	2	2	2	3
6	ILC 1464	-	Afghanistan	3	2	2	3
7	ILC 1875	-	India	3	3	2	3
8	ILC 3287	-	Pakistan	1	3	2	3
9	ILC 3465	-	Spain	3	2	2	3
10	ILC 3470	-	Spain	2	2	1	3
11	ILC 3598	-	India	3	3	2	3
12	ILC 3746	-	Nepal	3	3	2	3
13	ILC 3747	-	Nepal	4	3	3	3
14	ILC 3857	-	Morocco	3	3	4	3
15	ILC 3861	-	Morocco	3	2	2	3
16	ILC 5638	-	Pakistan	3	3	2	3
17	ILC 5663	-	Pakistan	2	3	1	3
18	ILC 5667	-	Pakistan	2	2	2	3
19	ILC 5947	-	Pakistan	2	3	3	3
20	ILC 5948	-	Pakistan	3	3	1	3
21	ILC 5951	-	Pakistan	2	2	1	3
22	ILC 5953	-	Pakistan	3	2	3	3
23	ILC 8262	ILC3470	ICARDA	3	2	2	3
24	ILC 482-205	ILC482	ICARDA	2	3	1	3

Cont'd. ...

Table 3.15.1. Cont'd. ...

Entry	Name	Pedigree	Origin	Spain Valla- dolid	Syria Tel- Hadya	Turkey Erzurum	Freq. < = 5
25	ILC 8568	ILC482 (Mut.) Sel. M17033	ICARDA	2	2	3	3
26	ILC 8617	ILC482 (Mut.)	ICARDA	3	2	1	3
27	FLIP 81-62C	X77SD184/X75TA173 X NEX139	ICARDA/ICRISAT	3	2	2	3
28	FLIP 82-6C	X79TH221/ILC72 X ILC1922	ICARDA/ICRISAT	3	3	1	3
29	FLIP 82-85C	X79TH118/ILC1920 X ILC195	ICARDA/ICRISAT	2	3	3	3
30	FLIP 82-97C	X79TH23/ILC262 X ILC783	ICARDA/ICRISAT	2	3	1	3
31	FLIP 82-115C	X80TH199/14TH-1T/ILC3279 X IC78184	ICARDA/ICRISAT	3	3	2	3
32	FLIP 82-131C	X79TH23/ILC262 X ILC783	ICARDA/ICRISAT	3	3	1	3
33	FLIP 82-132C	X79TH23/ILC262 X ILC783	ICARDA/ICRISAT	1	3	2	3
34	FLIP 82-245C	X79TH50/ILC591 X ILC200	ICARDA/ICRISAT	3	3	1	3
35	FLIP 83-22C	X80TH177-BTH/ILC195 X ILC482	ICARDA/ICRISAT	3	3	1	3
36	FLIP 83-90C	X79TH123/ILC1929 X ILC200	ICARDA/ICRISAT	3	3	1	3
37	FLIP 84-107C	X81TH44/ILC1920 X ILC187	ICARDA/ICRISAT	3	3	3	3
38	FLIP 84-112C	X81TH53/ILC1920 X ILC2506	ICARDA/ICRISAT	3	3	2	3
39	FLIP 84-176C	X80TH199/ILC3279 X IC78184	ICARDA/ICRISAT	2	3	2	3
40	FLIP 85-4C	X82TH66/ILC2593 X ILC3279	ICARDA/ICRISAT	3	3	2	3
41	FLIP 85-49C	X83TH27/FLIP82-72C X FLIP82-81C	ICARDA/ICRISAT	1	3	1	3
42	FLIP 85-81C	X83TH81/ILC2593 X FLIP81-67C	ICARDA/ICRISAT	2	3	2	3
43	FLIP 85-83C	X80TH113/ILC1920 X ILC202	ICARDA/ICRISAT	2	3	2	3
44	FLIP 86-86C	X83TH18/FLIP81-57C X FLIP82-72C	ICARDA/ICRISAT	4	2	2	3
45	FLIP 87-37C	X83TH23/FLIP82-69C X FLIP82-72C	ICARDA/ICRISAT	3	3	2	3
46	FLIP 87-82C	X84TH139/ILC3307 X FLIP82-64C	ICARDA/ICRISAT	2	3	2	3
47	FLIP 90-92C	X87TH276/(ILC1919 X FLIP84-18C) X FLIP83-47C	ICARDA/ICRISAT	3	3	2	3
48-72	ILC 533 (Susceptible check repeated after every 2 test entries).		Egypt	5	8	3	2

4. LENTIL INTERNATIONAL TRIALS AND NURSERIES

Twelve lentil international trials and nurseries were available to cooperators in 1993/94 season. These included yield trials, screening nurseries, stress nurseries, and segregating populations. 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 - 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, 17 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 sets of trials were distributed to cooperators in 21 countries. The results were received for 13 trials from 10 countries and are reported. The agronomic practices employed at different locations are given in Table 4.1.1.

Table 4.1.1. Agronomic details of entries in LIYT-E-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Canada						
Saskatoon	10.05.94	16.08.94	-/90/-	-	Linuron	California
China						
Shanxi-1	21.04.94	20.08.94	90/45/-	-	-	Loc. Variety
Shanxi-2	19.04.94	15.08.94	-/375/-	-	-	Loc. Variety
Shanxi-3	05.05.94	18.07.94	-/50/-	-	-	Loc. Variety
Ethiopia						
Alemtena	26.07.94	-	-/50/-	-	-	NEL-2704
Ghinchi	10.08.94	-	-	-	-	NEL-358
India						
Almora	10.11.93	07.05.94	20/40/-	-	-	VL 4
Iran						
Karaj	-	-	-	-	-	-
Morocco						
Domaine	02.12.93	12.05.94	20/50/-	-	-	ILL 4605
Pakistan						
Faisalabad	11.11.93	20.04.94	20/60/-	-	-	Masoor 85
Qatar						
Rawdat Harma	02.11.93	16.04.94	90/150/-	-	-	-
Sudan						
Hudeiba	17.11.93	-	43/-/-	-	-	-
Syria						
Tel Hadya	10.12.93	12.05.94	-/50/-	-	-	ILL 4401

Results and Discussion

On an average over locations, the entry means ranged from 68 to 77 days for days to flowering (Table 4.1.2), 122 to 129 days for days to maturity (Table 4.1.3) and 30 to 39 cm for plant height (Table 4.1.4). The highest seed yields (Table 4.1.5) were obtained at Domaine in Morocco (2240 kg/ha) and were followed by Faisalabad in Pakistan (1805 kg/ha). The seed yields at Alemtena in Ethiopia, and Karaj in Iran were less than 300 kg/ha.

On an average over locations, the five best yielding entries included 87S15, 74TA441xPant L 639, FLIP 87-70L, FLIP 89-67L and FLIP 89-53L with respective seed yields of 1042, 1038, 1028, 1018, and 1018 kg/ha.

The ANOVA for seed yield revealed that at 2 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 4.1.6. The entries, FLIP 87-72L, FLIP 89-67L, and 74TA441xPant L 639 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 4.1.7), 74TA441xPant L 639 ranked number 1 and was closely followed by FLIP 86-39L, FLIP 89-53L, FLIP 87-72L and 162 with seed yields of 1117, 1079, 1071, 1052, and 1029 kg/ha, respectively.

Table 4.1.2 Time to flowering (days) of entries in the LIYT-E-94 conducted at different locations.

Entry Name	Acc. NO. (ILL)	Pedigree	Origin	CANADA		CHINA		ETHIOPIA		INDIA	IRAN
				Saskatoon	Shanxi-1	Shanxi-2	Shanxi-3	Alemtena	Ghinch/ Holetta	Almora	Karaj
L1282	2581	L1282	INDIA	26	48	30	33	38	62	117	128
LL1	2582	2582	INDIA	26	50	43	33	40	61	117	125
162	4403	4403	PAKISTAN	26	49	31	33	40	63	114	127
FLIP86-16L	6002	ILL4349 X ILL4605	ICARDA	27	51	41	39	41	65	106	125
FLIP86-38L	6024	ILL262 X ILL3458	ICARDA	25	51	43	34	41	61	114	125
FLIP86-39L	6025	ILL1 X ILL936	ICARDA	26	49	29	35	40	61	116	124
FLIP87-66L	6256	ILL4406 X ILL262	ICARDA	25	50	29	34	40	64	116	124
FLIP87-70L	6260	ILL2526 X ILL253	ICARDA	26	49	28	34	39	60	111	124
FLIP87-72L	6262	ILL2526 X ILL4354	ICARDA	25	49	30	34	42	62	114	125
FLIP87-75L	6265	ILL4380 X ILL99	ICARDA	26	50	32	34	40	63	114	125
FLIP88-34L	6458	ILL5584 X ILL2501	ICARDA	25	50	30	34	42	63	110	124
FLIP88-35L	6459	ILL5562 X ILL3493	ICARDA	25	50	30	34	39	63	114	124
FLIP88-41L	6465	ILL4400 X ILL4605	ICARDA	28	51	43	38	43	66	105	124
FLIP88-43L	6467	ILL4605 X ILL2582	ICARDA	26	51	31	34	41	63	105	124
FLIP89-53L	6811	ILL2578 X ILL5588	ICARDA	26	48	29	35	43	66	118	125
FLIP89-55L	6813	ILL3527 X ILL1744	ICARDA	26	50	28	33	41	64	120	124
FLIP89-58L	6816	ILL3527 X ILL5071	ICARDA	27	49	30	33	42	66	111	124
FLIP89-60L	6818	ILL4225 X ILL353	ICARDA	26	49	30	36	39	63	105	125
FLIP89-67L	6825	ILL4407 X ILL99	ICARDA	26	51	32	34	46	66	117	125
87515	7162	ILL4404 X ILL2501	PAKISTAN	25	51	29	34	38	63	113	124
87519	7163	ILL1 X ILL2573	PAKISTAN	27	50	43	34	39	62	112	124
74TA441 X PANTL639	7165	ILL5538 X ILL2573	PAKISTAN	26	50	29	33	40	62	117	124
FLIP92-45L	7210	ILL6003 X ILL5745	ICARDA	26	51	29	36	41	65	104	124
Local Check				26	50	46	34	43	71	121	132
Location Mean				26	50	33	34	41	64	113	125
S.E. of Mean					0		1	1	1	2	1
Prob. of Significance					.00		.00	.00	.00	.00	.00
L.S.D. at 5%					0		2	2	3	5	1
C.V. %				One Rep.	1	One Rep.	4	3	3	3	1

Cont'd. ...

Table 4.1.2 Cont'd. . .

Entry Name	MOROCCO	PAKISTAN	QATAR	SUDAN	SYRIA	Overall Mean
	Domaine	Faisalabad (NIAB)	Rawdat Harma	Hudeiba	Tel Hadya	
L1282	123	109	99	65	84	75
LL1	112	107	101	70	80	75
162	108	106	105	53	81	74
FLIP86-16L	108	96	74	-	74	70
FLIP86-38L	106	105	89	-	80	73
FLIP86-39L	108	116	102	-	79	74
FLIP87-66L	112	113	108	-	81	75
FLIP87-70L	110	112	96	-	82	73
FLIP87-72L	112	111	105	-	79	74
FLIP87-75L	110	117	105	-	80	75
FLIP88-34L	103	116	108	-	80	74
FLIP88-35L	119	106	100	-	79	74
FLIP88-41L	103	86	78	-	76	70
FLIP88-43L	103	86	82	-	76	68
FLIP89-53L	127	112	110	-	88	77
FLIP89-55L	106	114	90	-	83	73
FLIP89-58L	118	119	114	-	79	76
FLIP89-60L	108	107	96	-	80	72
FLIP89-67L	119	116	98	-	77	76
87515	108	109	105	65	82	73
87519	103	111	100	-	81	74
74TA441 X PANTL639	103	110	103	79	84	73
FLIP92-45L	112	85	73	49	73	68
Local Check	103	107	-	41	90	-
Location Mean	110	107	97	60	80	
S.E. of Mean	0	1	2		2	
Prob. of Significance	.00	.00	.00		.00	
L.S.D. at 5%	0	2	6		4	
C.V. %	0	1	3	One Rep.	3	

* The mean has been calculated excluding the locations with incomplete data.

Table 4.1.3 Time to maturity (days) of entries in the LIYT-E-94 conducted at different locations.

Entry Name	CHINA			ETHIOPIA		INDIA	IRAN	MOROCCO
	Shanxi-1	Shanxi-2	Shanxi-3	Alemtena	Ghinchi/ Holetta	Almora	Karaj	Domaine
L1282	93	77	66	77	127	170	181	159
LL1	93	77	66	77	130	171	183	144
162	93	75	66	78	130	171	183	145
FLIP86-16L	93	78	74	89	130	173	185	141
FLIP86-38L	93	81	67	80	126	174	182	146
FLIP86-39L	86	80	68	79	133	171	180	148
FLIP87-66L	93	76	66	80	133	172	183	143
FLIP87-70L	92	79	66	80	127	174	182	150
FLIP87-72L	93	79	68	82	127	175	181	149
FLIP87-75L	91	80	67	82	133	171	182	144
FLIP88-34L	93	77	66	79	130	172	188	141
FLIP88-35L	93	78	67	80	133	172	185	150
FLIP88-41L	93	79	71	81	126	173	181	141
FLIP88-43L	93	79	66	78	126	175	185	143
FLIP89-53L	92	78	71	78	131	171	185	150
FLIP89-55L	93	76	66	79	127	171	177	143
FLIP89-58L	93	76	66	90	133	172	181	149
FLIP89-60L	86	78	69	77	128	172	183	147
FLIP89-67L	93	80	68	89	133	173	182	149
87515	93	77	66	77	130	171	184	149
87519	93	80	67	77	128	172	186	143
74TA441 X PANTL639	91	76	66	78	124	168	183	146
FLIP92-45L	93	80	70	92	133	174	182	145
Local Check	69	81	67	79	131	169	191	134
Location Mean	91	78	68	81	129	172	183	146
S.E. of Mean	7	2	1	1	2	1	2	1
Prob. of Significance	.94	.81	.00	.00	.03	.00	.01	.00
L.S.D. at 5%	NS	NS	3	4	6	3	5	3
C.V. %	13	5	3	3	3	1	2	1

Cont'd. ...

Table 4.1.3 Cont'd. ...

Entry Name	PAKISTAN	QATAR	SYRIA	Overall Mean
	Faisalabad (NIAB)	Rawdat Harma	Tel Hadya	
L1282	160	154	120	126
LL1	162	156	121	125
162	158	157	124	125
FLIP86-16L	146	142	118	124
FLIP86-38L	153	140	118	124
FLIP86-39L	167	152	120	126
FLIP87-66L	164	158	120	126
FLIP87-70L	162	143	119	125
FLIP87-72L	163	156	119	126
FLIP87-75L	168	143	118	125
FLIP88-34L	168	156	119	126
FLIP88-35L	157	147	120	126
FLIP88-41L	141	140	119	122
FLIP88-43L	143	144	119	123
FLIP89-53L	162	158	120	127
FLIP89-55L	167	141	119	124
FLIP89-58L	169	157	121	128
FLIP89-60L	159	147	118	124
FLIP89-67L	169	157	122	129
87515	160	156	120	126
87519	164	153	121	126
74TA441 X PANTL639	162	149	119	124
FLIP92-45L	142	149	121	126
Local Check	158	-	127	-
Location Mean	159	150	120	
S.E. of Mean	1	2	1	
Prob. of Significance	.00	.00	.00	
L.S.D. at 5%	2	7	3	
C.V. %	1	2	1	

Table 4.1.4 Plant height (cm) of entries in the LIYT-E-94 conducted at different locations.

Entry Name	CANADA	CHINA			ETHIOPIA		INDIA	IRAN
	Saskatoon	Shanxi-1	Shanxi-2	Shanxi-3	Alemtena	Ghinch/ Holetta	Almora	Karaj
L1282	22	28	30	35	26	21	36	21
LL1	23	26	30	35	27	20	35	23
162	23	30	30	35	27	20	40	25
FLIP86-16L	33	39	31	40	40	25	42	34
FLIP86-38L	25	32	31	37	29	18	38	21
FLIP86-39L	23	30	31	37	26	19	35	20
FLIP87-66L	25	28	30	35	27	20	39	18
FLIP87-70L	21	23	30	35	29	17	41	19
FLIP87-72L	23	33	31	35	28	24	34	23
FLIP87-75L	21	31	31	35	27	21	34	19
FLIP88-34L	24	30	30	35	27	16	41	18
FLIP88-35L	21	27	30	35	23	17	31	19
FLIP88-41L	25	22	31	40	29	19	45	21
FLIP88-43L	25	37	31	35	27	20	46	24
FLIP89-53L	25	26	31	40	30	23	36	21
FLIP89-55L	24	23	30	35	26	17	37	18
FLIP89-58L	23	30	30	35	27	17	32	24
FLIP89-60L	21	23	31	37	24	16	34	19
FLIP89-67L	27	27	32	35	31	22	42	20
87515	20	32	30	35	24	15	35	19
87519	23	30	31	35	27	18	39	21
74TA441 X PANTL639	20	23	29	35	26	18	33	16
FLIP92-45L	25	33	32	40	32	23	39	23
Local Check	32	52	32	35	29	21	34	34
Location Mean	24	30	31	36	28	20	37	22
S.E. of Mean		1	1	1	2	2	3	1
Prob. of Significance		.00	.47	.00	.00	.02	.16	.00
L.S.D. at 5%		2	NS	2	5	5	NS	4
C.V. %	One Rep.	4	4	3	11	16	16	10

Cont'd. ...

Table 4.1.4 Cont'd. ...

Entry Name	MOROCCO	PAKISTAN	QATAR	SYRIA	Overall Mean
	Domaine	Faisalabad (NIAB)	Rawdat Harma	Tel Hadya	
L1282	40	47	48	30	32
LL1	50	43	53	27	33
162	50	48	53	28	34
FLIP86-16L	50	44	45	40	39
FLIP86-38L	52	37	35	33	32
FLIP86-39L	42	41	43	31	31
FLIP87-66L	50	47	50	30	33
FLIP87-70L	40	39	40	30	30
FLIP87-72L	40	41	48	31	33
FLIP87-75L	48	39	33	34	31
FLIP88-34L	42	43	43	29	31
FLIP88-35L	42	39	40	29	30
FLIP88-41L	53	38	30	38	33
FLIP88-43L	50	40	38	34	34
FLIP89-53L	44	47	50	32	34
FLIP89-55L	43	37	43	29	30
FLIP89-58L	50	46	38	28	32
FLIP89-60L	42	36	45	30	30
FLIP89-67L	55	45	50	32	35
87515	52	39	45	31	31
87519	55	45	43	30	33
74TA441 X PANTL639	43	39	43	29	30
FLIP92-45L	50	42	38	34	34
Local Check	50	51	-	33	-
Location Mean	47	42	43	31	
S.E. of Mean	1	2	7	2	
Prob. of Significance	.00	.00	.64	.00	
L.S.D. at 5%	4	4	NS	6	
C.V. %	5	6	21	11	

Table 4.1.5 Seed yield (Y=kg/ha) and rank (R) of entries in the LIYT-E-94 conducted at different locations.

Entry Name	CANADA		CHINA				ETHIOPIA			
	Saskatoon		Shanxi-1		Shanxi-2		Alemtena		Ghinchil/ Holetta	
	Y	R	Y	R	Y	R	Y	R	Y	R
L1282	826	24	139	24	510	12	137	19	325	15
LL1	1069	19	347	15	313	23	202	15	354	14
162	1096	18	243	22	524	7	201	16	300	17
FLIP86-16L	1880	2	938	1	458	14	508	1	260	20
FLIP86-38L	1541	6	868	2	424	16	497	2	596	3
FLIP86-39L	1334	9	347	19	563	6	185	17	504	6
FLIP87-66L	1207	12	451	10	521	8	232	11	315	16
FLIP87-70L	1203	13	278	21	697	2	323	7	262	19
FLIP87-72L	1200	14	590	4	695	3	119	23	517	5
FLIP87-75L	879	23	417	12	396	20	202	14	433	8
FLIP88-34L	884	22	382	13	618	5	337	6	175	22
FLIP88-35L	1171	15	382	13	229	24	105	24	381	11
FLIP88-41L	1671	3	486	6	625	4	298	8	265	18
FLIP88-43L	1428	7	451	9	517	11	204	13	173	23
FLIP89-53L	1339	8	451	11	521	8	254	9	417	10
FLIP89-55L	1213	11	208	23	698	1	388	5	673	2
FLIP89-58L	1165	16	347	15	521	8	126	20	425	9
FLIP89-60L	1227	10	312	20	458	13	120	22	169	24
FLIP89-67L	1644	4	521	5	417	17	246	10	554	4
87515	1031	20	347	15	438	15	123	21	256	21
87519	1150	17	347	15	333	22	155	18	363	13
74TA441 X PANTL639	958	21	694	3	372	21	393	4	490	7
FLIP92-45L	1576	5	486	6	410	19	228	12	377	12
Local Check	2361	1	486	8	417	18	486	3	927	1
Location Mean	1294		438		486		256		396	
S.E. of Mean	140.38		1.06		15.98		44.83		86.49	
Prob. of Significance	.00		.00		.00		.00		.00	
L.S.D. at 5%	399.61		3.01		45.50		127.69		246.21	
T.E > L. Check	0		5		12		0		0	
C.V. %	10.79		.42		5.69		29.96		37.81	

Cont'd. ...

Table 4.1.5 Cont'd. ...

Entry Name	INDIA		IRAN		MOROCCO		PAKISTAN		QATAR		SYRIA		Overall Mean	
	Almora		Karaj		Domaine		Faisalabad (NIAB)		Rawdat Harma		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
L1282	717	17	160	18	1633	24	2583	2	1108	6	1122	17	842	21
LL1	1017	9	324	6	2233	16	2396	5	1025	9	934	23	929	12
162	833	14	277	10	2283	14	2576	3	1180	2	730	24	931	11
FLIP86-16L	400	23	240	13	2317	11	889	22	717	16	1081	19	881	14
FLIP86-38L	833	13	128	19	2333	9	1229	20	1108	7	1351	12	992	6
FLIP86-39L	867	11	233	14	2150	17	1694	16	875	12	2054	1	982	8
FLIP87-66L	1100	8	101	21	2317	11	1688	17	717	17	1372	11	911	13
FLIP87-70L	1333	5	295	8	2033	18	2229	6	1233	1	1426	9	1028	3
FLIP87-72L	533	22	601	2	2500	4	2014	9	517	20	1531	8	983	7
FLIP87-75L	567	21	128	20	2350	7	1389	19	792	15	1736	3	844	20
FLIP88-34L	1200	7	162	17	2633	1	2174	7	808	13	1293	14	970	9
FLIP88-35L	600	19	98	22	2033	18	1549	18	667	18	1668	6	807	22
FLIP88-41L	367	24	226	15	2517	3	799	23	1042	8	1059	20	850	17
FLIP88-43L	767	15	302	7	2450	6	1708	15	480	21	1051	21	867	15
FLIP89-53L	983	10	253	11	2583	2	2014	10	642	19	1741	2	1018	5
FLIP89-55L	850	12	78	23	2350	7	646	24	933	10	1297	13	848	18
FLIP89-58L	583	20	448	3	1817	23	1993	11	480	22	1391	10	845	19
FLIP89-60L	717	16	330	5	1867	22	1722	13	808	13	1733	4	860	16
FLIP89-67L	1350	4	335	4	2283	14	1712	14	900	11	1241	15	1018	4
87515	1600	2	243	12	2333	9	2701	1	1158	3	1232	16	1042	1
87519	1317	6	70	24	2300	13	2125	8	1130	4	1020	22	937	10
74TA441 X PANTL639	1683	1	291	9	2000	20	1778	12	1117	5	1639	7	1038	2
FLIP92-45L	667	18	182	16	1983	21	1139	21	342	23	1116	18	773	23
Local Check	1400	3	1505	1	2450	5	2569	4	—	—	1722	5	—	—
Location Mean	928		292		2240		1805		845		1356			
S.E. of Mean	203.55		79.13		200.03		71.98		193.42		200.34			
Prob. of Significance	.00		.00		.09		.00		.11		.00			
L.S.D. at 5%	579.45		225.25		NS		204.90		NS		570.30			
T.E > L. Check	0		0		—		0		—		0			
C.V. %	37.97		46.94		15.47		6.91		29.75		25.59			

Table 4.1.6. The five heaviest seed yielding entries at the individual locations in the LIYT-E-94.

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Canada					
Saskatoon	Local check	FLIP86-16L	FLIP88-41L	FLIP89-67L	FLIP92-45L
China					
Shanxi-1	FLIP86-16L	FLIP86-38L	74TA441xP*	FLIP87-72L	FLIP89-67L
Shanxi-2	FLIP89-55L	FLIP87-70L	FLIP87-72L	FLIP88-41L	FLIP88-34L
Ethiopia					
Alemtena	FLIP86-16L	FLIP86-38L	Local check	74TA441xP*	FLIP89-55L
Ghinchi	Local check	FLIP89-55L	FLIP86-38L	FLIP89-67L	FLIP87-72L
India					
Almora	74TA441xP*	87S 15	Local check	FLIP89-67L	FLIP87-70L
Iran					
Karaj	Local check	FLIP87-72L	FLIP89-58L	FLIP89-67L	FLIP89-60L
Morocco					
Domaine	FLIP88-34L	FLIP89-53L	FLIP88-41L	FLIP87-72L	Local check
Pakistan					
Faisalabad	87S 15	L 1282	162	Local check	LL 1
Qatar					
Rawdat Harma	FLIP87-70L	162	87S 15	87S 19	74TA441xP*
Syria					
Tel Hadya	FLIP86-39L	FLIP89-53L	FLIP87-75L	FLIP89-60L	Local check

* = Pant L639

Table 4.1.7. The mean seed yield (Y=kg/ha) and rank (R) of the common entries in LIYT-E during 1992/93 and 1993/94.

Entry Name	1992/93		1993/94		Mean	
	y	R	y	R	y	R
L1282	1129	3	842	17	986	8
LL1	1049	10	929	9	989	7
162	1127	4	931	8	1029	5
FLIP 86-16L	936	14	881	11	909	14
FLIP 86-39L	1176	2	982	6	1079	2
FLIP 87-66L	944	12	911	10	928	13
FLIP 87-70L	941	13	1028	2	985	9
FLIP 87-72L	1120	6	983	5	1052	4
FLIP 87-75L	889	17	844	16	867	17
FLIP 88-34L	1076	8	970	7	1023	6
FLIP 88-35L	997	11	807	18	902	15
FLIP 88-41L	785	18	850	14	818	18
FLIP 88-43L	1058	9	867	12	963	11
FLIP 89-53L	1123	5	1018	3	1071	3
FLIP 89-58L	920	15	845	15	883	16
FLIP 89-60L	1080	7	860	13	970	10
FLIP 89-67L	891	16	1018	3	955	12
74TA441XPANTL639	1196	1	1038	1	1117	1

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

Material

The material for the Lentil International Screening Nursery-Large Seed comprised of 35 test entries and one local check which was to be used by the cooperator.

Methods and Management

The material was sown in a simple lattice design with two replications. The suggested plot size was single row 4 m long with interrow spacing of 25 cm. Sixty nine sets of screening nursery were sent to cooperators in 29 countries and the results were received for 31 locations from 13 countries. The agronomic data received from cooperators 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 entry means across locations varied from 81 to 96 days for time to flowering, 123 to 135 days for time to maturity, and 28 to 35 cm for plant height.

Seed yields of different entries at various locations are given in Table 4.2.5. The location mean was highest at Ankara in Turkey (4269 kg/ha) and lowest at Izra'a in Syria (80 kg/ha). The ANOVA of the experimental design revealed that at Chengdu, and Dingxi in China; Gallina in Italy; Mshuger and Rabba in Jordan; Jema'a Shain in Morocco; Cordoba in Spain; Aleppo-T.H.), Gelline, Hama, Izra'a, and Tel Hadya in Syria; and Ankara and Erzurum in Turkey 19, 4, 28, 1, 2, 3, 3, 7, 8, 5, 1, 17, 2 and 3 test entries, respectively, outyielded the local check by a significant margin. The five heaviest yielders across locations included 78S 26002, FLIP 88-1L, FLIP 92-8L, FLIP 92-15L, and FLIP 90-3C and yielded 1524, 1506, 1504, 1459, and 1432 kg/ha, respectively. The five heaviest yielders at each location are given in Table 4.2.6.

Table 4.2.1. Agronomic details of entries in the LISH-L-94 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
ALGERIA	Guelma	14-DEC-93	15-JUN-94	-	200	-	-	-	
ALGERIA	Khroub	30-JAN-94	06-JUN-94	-	45	-	-	Igran	Pyrie 229
ALGERIA	Tiaret	16-JAN-94	14-JUN-94	-	46	-	-	Igran	Syrie 229
CANADA	Manitoba	-	-	-	-	-	-	-	Balkan 755
CANADA	Saskatoon	10-MAY-94	16-AUG-94	-	-	-	-	-	-
CHINA	Chengdu	02-NOV-94	26-MAY-95	8	53	-	-	-	Laird
CHINA	Dingxi	24-MAR-94	20-JUL-94	30	45	-	-	-	Jingying Bington
CHINA	Shanxi	21-APR-94	08-AUG-94	90	45	-	-	-	Local lentil
CHINA	Shanxi-1	07-MAY-94	-	-	50	-	-	-	-
ETHIOPIA	Debre Zeit	29-JUL-94	-	-	-	-	-	-	-
ETHIOPIA	Ghinch/ Holetta	11-AUG-94	-	-	-	-	-	-	NEH 358
INDIA	New Delhi	24-NOV-93	25-APR-94	20	40	-	-	Stomp	NEL 358
IRAN	Karaj	16-APR-94	20-JUL-94	40	70	-	-	Treflan	L-4076
IRAN	Karaj-2	-	-	-	-	-	-	-	Qazvin
IRAN	Maragheh	28-MAR-94	14-JUL-94	30	60	-	-	Tecto-Actellic	-
IRAN	Qazvin	03-APR-94	-	-	50	-	-	-	Ziba
IRAN	Zandjan	13-APR-94	02-AUG-94	50	150	-	-	Treflan, Carbor	Qazvin
ITALY	Gallina	06-JAN-94	20-JUN-94	24	72	-	-	-	Local pop. of Zandjan
ITALY	Tolentino	-	-	-	-	-	-	-	"Ustica" Sicilian
JORDAN	Mshuger	18-NOV-93	31-MAY-94	-	-	-	-	Lanit, Gozathion	-
JORDAN	Rabba	17-NOV-93	31-MAY-94	-	-	-	-	Fusilade, Lanit	Jordan-1
MOROCCO	Jema'a Shain	02-DEC-93	04-MAY-94	20	50	40	-	-	Jordan 2
NEW ZEALAND	Lincoln	-	20-JAN-95	150	-	-	-	Cyanazine (Bladex)	L 56
SLOVAKIA	Piestany	22-APR-94	20-JUL-94	-	-	-	-	Dual, Bladex	FLIP87-21
SPAIN	Cordoba	02-DEC-93	21-JUN-94	-	-	-	-	Rogor 40	RELKA
SYRIA	Aleppo-T.H.	20-NOV-93	03-MAY-94	-	50	-	-	-	MAGDA
SYRIA	Gelline	02-JAN-94	02-JUN-94	20	50	-	-	-	-
SYRIA	Hama	18-DEC-93	19-MAY-94	-	50	-	-	-	-
SYRIA	Heimo	30-NOV-93	25-MAY-94	-	50	-	-	-	-
SYRIA	Izra'a	13-JAN-94	01-JUN-94	-	50	-	-	-	KURDI 1
SYRIA	Tel Hadya	-	-	-	-	-	-	-	-

Table 4.2.2 Time to flowering (days) of entries in the LISN-L-94 conducted at different locations.

Entry Name	Acc. NO.	Pedigree	Origin	ALGERIA			CANADA
				Guelma	Khroub	Tiaret	Saskatoon
323	323	323	YUGOSLAVIA	130	97	99	49
465	465	465	CHILE	126	104	105	-
468	468	468	CHILE	130	104	106	50
SLL	4400	ILL4400	SYRIA	126	97	107	50
78S26002	5582	ILL5582	JORDAN	126	90	104	47
FLIP86-10L	5996	ILL466 X ILL212	ICARDA	126	86	103	48
FLIP86-12L	5998	ILL4349 X ILL4605	ICARDA	126	89	98	50
FLIP86-51L	6037	ILL4349 X ILL4605	ICARDA	126	87	97	-
FLIP87-16L	6206	ILL8 X ILL212	ICARDA	130	88	98	47
FLIP87-17L	6207	ILL8 X ILL212	ICARDA	126	86	95	47
FLIP88-1L	6425	ILL5582 X ILL4349	ICARDA	126	87	99	47
FLIP88-7L	6431	ILL5582 X SH4901	ICARDA	130	86	100	47
FLIP88-41L	6465	ILL4400 X ILL4605	ICARDA	130	92	96	51
FLIP90-2L	6971	ILL9 X ILL4380	ICARDA	126	97	100	47
FLIP90-3L	6972	ILL28 X ILL851	ICARDA	126	92	104	48
FLIP90-5L	6974	ILL262 X ILL2126	ICARDA	126	90	97	50
FLIP90-7L	6976	ILL30 X ILL851	ICARDA	126	95	104	50
FLIP90-11L	6980	ILL4400 X ILL5428	ICARDA	126	86	96	48
FLIP90-12L	6981	ILL4400 X ILL4349	ICARDA	130	88	94	47
FLIP90-13L	6982	ILL4400 X ILL5582	ICARDA	126	90	98	50
FLIP90-14L	6983	ILL2168 X ILL5426	ICARDA	126	92	95	48
FLIP91-8L	7134	ILL5744 X ILL262	ICARDA	126	86	98	50
FLIP91-9L	7135	ILL5744 X ILL262	ICARDA	126	93	90	48
FLIP91-12L	7138	ILL5744 X ILL4605	ICARDA	130	96	97	47
PETROVSKAJA6	7157	ILL7157	RUSSIA	126	107	106	93
PETROVSKAJA4/10	7159	7159	RUSSIA	126	106	107	93
PETROVSK JUBILEE	7160	7160	RUSSIA	126	104	105	-
FLIP92-2L	7167	ILL5815 X ILL5523	ICARDA	126	93	95	49
FLIP92-3L	7168	ILL5676 X ILL4354	ICARDA	126	95	103	48
FLIP92-8L	7173	ILL5582 X ILL707	ICARDA	130	87	101	-
FLIP92-10L	7175	ILL5582 X ILL707	ICARDA	130	88	98	47
FLIP92-11L	7176	ILL5582 X ILL707	ICARDA	130	90	98	47
FLIP92-12L	7177	ILL5582 X ILL707	ICARDA	130	90	95	47
FLIP92-14L	7179	ILL5743 X ILL5698	ICARDA	126	89	99	48
FLIP92-15L	7180	ILL5588 X ILL5714	ICARDA	126	95	90	47
Local Check				130	89	103	93
Location Mean				127	93	99	52
S.E. of Mean							
L.S.D. at 5%							
L.S.D. for T.E. in S.B.							
L.S.D. for T.E. in D.B.							
C.V. %				One Rep.	One Rep.	One Rep.	One Rep.

Cont'd. ...

Table 4.2.2 Cont'd. ...

Entry Name	CHINA				ETHIOPIA		INDIA	IRAN
	Chengdu	Dingxi	Shanxi	Shanxi-1	Debre Zeit	Ghinch/ Holetta	New Delhi	Karaj
323	181	72	60	45	63	104	107	43
465	181	71	61	50	69	111	111	48
468	179	72	60	46	65	111	98	47
SLL	183	71	60	41	69	101	105	42
78S26002	181	72	52	43	54	70	88	41
FLIP86-10L	184	71	51	42	54	70	90	42
FLIP86-12L	161	71	65	55	59	86	75	45
FLIP86-51L	162	70	60	55	48	70	74	47
FLIP87-16L	179	72	51	44	58	78	94	42
FLIP87-17L	179	72	52	43	58	82	90	45
FLIP88-1L	179	71	52	42	58	81	90	40
FLIP88-7L	178	71	52	44	55	70	87	42
FLIP88-41L	163	72	54	45	47	70	73	42
FLIP90-2L	179	71	53	44	59	70	91	41
FLIP90-3L	181	72	54	42	53	89	99	45
FLIP90-5L	181	71	60	42	62	95	106	47
FLIP90-7L	176	71	66	49	66	106	88	50
FLIP90-11L	183	72	52	44	67	88	105	44
FLIP90-12L	183	71	53	42	60	75	92	47
FLIP90-13L	180	72	66	41	62	88	95	46
FLIP90-14L	181	71	52	39	59	70	91	42
FLIP91-8L	179	71	68	48	73	99	108	50
FLIP91-9L	181	74	52	46	57	86	100	44
FLIP91-12L	181	71	53	42	66	95	99	46
PETROVSKAJA6	187	72	67	66	78	106	112	52
PETROVSKAJA4/10	179	71	67	76	71	111	110	52
PETROVSK JUBILEE	179	70	68	44	79	104	108	45
FLIP92-2L	183	73	52	43	57	91	88	46
FLIP92-3L	179	71	53	43	64	93	96	47
FLIP92-8L	181	71	50	43	57	70	91	39
FLIP92-10L	173	71	52	43	57	73	90	40
FLIP92-11L	181	71	52	41	59	73	91	42
FLIP92-12L	161	72	52	39	47	70	85	40
FLIP92-14L	181	71	53	42	59	89	96	42
FLIP92-15L	186	71	52	46	48	86	84	40
Local Check	179	71	68	41	49	70	81	48
Location Mean	178	71	57	45	60	86	94	44
S.E. of Mean	1	1	0	4	3	7	3	3
L.S.D. at 5%	1	2	1	9	7	13	7	7
L.S.D. for T.E. in S.B.	1	2	1	9	7	13	7	7
L.S.D. for T.E. in D.B.	1	2	1	9	7	13	7	7
C.V. %	0	1	1	9	5	8	3	7
Efficiency %	100	121	106	100	100	100	103	101

Cont'd. ...

Table 4.2.2 Cont'd. ...

Entry Name	IRAN				ITALY		JORDAN	
	Karaj-2	Maragheh	Qazvin	Zandjan	Gallina	Tolentino	Mshuger	Rabba
323	129	56	52	63	89	78	105	123
465	136	58	51	61	99	75	118	126
468	131	59	51	66	102	79	112	126
SL1	132	56	52	62	91	75	104	123
78S26002	129	49	50	65	90	70	94	117
FLIP86-10L	124	47	50	58	87	70	96	120
FLIP86-12L	128	54	52	61	94	73	94	107
FLIP86-51L	132	52	51	59	85	72	98	110
FLIP87-16L	131	47	50	61	85	71	98	119
FLIP87-17L	127	50	52	60	85	69	94	116
FLIP88-1L	129	51	50	60	84	69	96	117
FLIP88-7L	131	48	51	59	85	68	94	117
FLIP88-41L	128	49	51	61	80	70	96	107
FLIP90-2L	126	52	51	60	90	69	97	120
FLIP90-3L	128	52	50	60	92	73	98	118
FLIP90-5L	128	56	51	65	87	76	104	121
FLIP90-7L	131	59	53	63	99	75	104	123
FLIP90-11L	130	52	49	67	89	73	104	121
FLIP90-12L	130	51	51	60	89	73	96	120
FLIP90-13L	131	54	52	59	92	75	101	121
FLIP90-14L	128	51	51	61	90	68	96	111
FLIP91-8L	125	56	50	59	100	78	100	121
FLIP91-9L	124	51	51	59	90	72	97	117
FLIP91-12L	130	55	50	61	97	76	106	124
PETROVSKAJA6	132	64	51	60	104	82	113	131
PETROVSKAJA4/10	137	64	52	67	107	80	116	131
PETROVSK JUBILEE	136	58	51	62	106	77	118	131
FLIP92-2L	131	54	51	62	89	74	99	117
FLIP92-3L	129	52	51	58	91	72	103	123
FLIP92-8L	131	49	51	61	85	71	98	111
FLIP92-10L	126	45	52	57	86	70	96	117
FLIP92-11L	126	53	51	61	88	68	94	117
FLIP92-12L	128	50	51	61	86	70	95	107
FLIP92-14L	129	55	51	61	91	73	97	121
FLIP92-15L	130	44	51	54	88	72	104	119
Local Check	135	60	50	59	104	70	96	118
Location Mean	130	53	51	61	92	73	101	119
S.E. of Mean	2	3	1	3	1	2	3	2
L.S.D. at 5%	5	6	3	6	2	3	5	4
L.S.D. for T.E. in S.B.	5	6	3	7	3	3	6	4
L.S.D. for T.E. in D.B.	5	6	3	7	2	3	5	4
C.V. %	2	6	2	5	1	2	2	2
Efficiency %	111	100	105	107	117	100	95	101

Cont'd. ...

Table 4.2.2 Cont'd. ...

Entry Name	MOROCCO	SLOVAKIA	SYRIA					
	Jema'a Shain	Piestany	Aleppo-T.H.	Gelline	Hama	Heimo	Izra'a	Tel Hadya
323	103	52	120	102	97	125	94	94
465	100	52	121	105	100	135	98	91
468	106	55	121	108	98	138	98	97
SLL	100	52	119	103	97	128	97	93
78S26002	103	47	119	93	92	126	93	88
FLIP86-10L	98	50	119	95	92	125	91	88
FLIP86-12L	94	53	116	93	91	118	95	81
FLIP86-51L	89	52	113	90	86	109	91	80
FLIP87-16L	100	52	119	95	94	124	95	93
FLIP87-17L	103	45	118	96	92	123	96	89
FLIP88-1L	103	47	119	95	92	123	95	88
FLIP88-7L	98	47	120	92	92	122	91	89
FLIP88-41L	92	53	110	89	85	124	90	79
FLIP90-2L	100	48	119	96	93	127	92	88
FLIP90-3L	98	52	121	99	93	125	91	91
FLIP90-5L	100	53	117	102	97	126	96	94
FLIP90-7L	103	48	117	101	96	131	95	94
FLIP90-11L	100	52	117	99	97	127	95	95
FLIP90-12L	98	47	116	98	92	125	92	88
FLIP90-13L	103	53	119	103	96	119	92	94
FLIP90-14L	91	48	121	96	92	124	93	89
FLIP91-8L	98	52	121	101	96	125	95	94
FLIP91-9L	103	48	119	96	92	125	94	90
FLIP91-12L	103	47	121	102	97	129	96	96
PETROVSKAJA6	108	52	119	111	103	137	101	98
PETROVSKAJA4/10	108	52	119	110	103	135	97	96
PETROVSK JUBILEE	108	60	119	111	103	135	99	96
FLIP92-2L	100	52	119	97	93	126	96	89
FLIP92-3L	103	50	118	102	95	127	95	94
FLIP92-8L	106	47	121	96	93	123	90	89
FLIP92-10L	98	47	121	95	92	123	92	90
FLIP92-11L	96	47	117	95	93	124	94	89
FLIP92-12L	94	47	120	92	89	120	89	86
FLIP92-14L	98	47	115	95	94	123	96	92
FLIP92-15L	100	47	120	97	92	127	94	87
Local Check	96	52	119	100	96	124	92	94
Location Mean	100	50	118	99	94	126	94	90
S.E. of Mean			2	1	1	4	2	1
L.S.D. at 5%			5	2	2	9	4	3
L.S.D. for T.E. in S.B.			5	3	2	9	4	3
L.S.D. for T.E. in D.B.			5	3	2	9	4	3
C.V. %			2	1	1	3	2	1
Efficiency %	One Rep.	One Rep.	100	128	100	106	129	100

Cont'd ...

Table 4.2.2 Cont'd. ...

Entry Name	TURKEY			Overall Mean
	Ankara	Erzurum	Haymana	
323	-	69	67	89
465	198	70	75	93
468	197	73	69	92
SLL	197	79	65	89
78S26002	198	70	56	85
FLIP86-10L	196	73	55	84
FLIP86-12L	197	70	69	84
FLIP86-51L	196	70	60	81
FLIP87-16L	194	67	53	85
FLIP87-17L	198	68	54	85
FLIP88-11L	197	68	55	85
FLIP88-7L	198	69	54	84
FLIP88-41L	198	72	60	81
FLIP90-2L	197	74	59	86
FLIP90-3L	196	73	60	86
FLIP90-5L	198	75	64	88
FLIP90-7L	196	71	66	89
FLIP90-11L	197	72	62	87
FLIP90-12L	198	73	58	85
FLIP90-13L	198	72	63	88
FLIP90-14L	196	69	55	84
FLIP91-8L	198	71	65	89
FLIP91-9L	198	71	61	86
FLIP91-12L	196	69	63	89
PETROVSKAJA6	198	77	78	96
PETROVSKAJA4/10	198	75	78	96
PETROVSK JUBILEE	195	74	78	94
FLIP92-2L	197	70	61	86
FLIP92-3L	197	67	61	88
FLIP92-8L	198	69	60	84
FLIP92-10L	198	68	54	84
FLIP92-11L	197	74	61	84
FLIP92-12L	197	74	53	81
FLIP92-14L	198	75	61	86
FLIP92-15L	198	69	59	85
Local Check	197	71	65	-
Location Mean	197	71	62	
S.E. of Mean		3	2	
L.S.D. at 5%		7	5	
L.S.D. for T.E. in S.B.		7	5	
L.S.D. for T.E. in D.B.		7	5	
C.V. %		5	4	
Efficiency %		100	100	

* The mean has been calculated excluding the locations with incomplete data.

Table 4.2.3 Time to maturity (days) of entries in the LISN-L-94 conducted at different locations.

Entry Name	CHINA				ETHIOPIA		INDIA
	Chengdu	Dingxi	Shanxi	Shanxi-1	Debre Zeit	Ghinchil/ Holetta	New Delhi
323	210	131	107	104	-	142	149
465	208	135	107	103	-	146	149
468	207	132	107	104	-	147	142
SLL	210	129	107	103	-	140	148
79S26002	207	124	104	104	113	138	142
FLIP86-10L	207	135	104	103	115	134	142
FLIP86-12L	207	131	107	104	111	132	126
FLIP86-51L	201	133	107	104	112	132	135
FLIP87-16L	206	133	104	104	112	138	142
FLIP87-17L	206	126	104	104	108	134	140
FLIP88-1L	206	124	104	103	109	144	141
FLIP88-7L	209	130	104	104	105	138	138
FLIP88-41L	210	131	104	104	98	132	119
FLIP90-2L	210	124	104	104	111	144	140
FLIP90-3L	208	135	104	103	122	144	148
FLIP90-5L	211	134	107	103	-	144	148
FLIP90-7L	208	130	107	104	-	140	144
FLIP90-11L	210	131	104	103	121	140	147
FLIP90-12L	207	132	104	104	117	144	140
FLIP90-13L	212	131	107	104	117	144	143
FLIP90-14L	207	137	104	104	117	144	136
FLIP91-8L	208	132	108	103	-	136	149
FLIP91-9L	207	132	104	104	120	144	145
FLIP91-12L	206	135	104	103	121	138	144
PETROVSKAJA6	210	136	115	109	-	146	151
PETROVSKAJA4/10	210	135	115	117	-	147	149
PETROVSK JUBILEE	213	137	115	104	-	144	150
FLIP92-2L	207	135	104	103	116	144	138
FLIP92-3L	211	137	104	104	-	140	141
FLIP92-8L	207	133	104	104	118	134	142
FLIP92-10L	207	135	104	103	110	144	140
FLIP92-11L	207	123	104	253	114	144	143
FLIP92-12L	207	133	104	104	108	132	134
FLIP92-14L	211	134	104	104	119	144	143
FLIP92-15L	212	135	104	104	-	140	136
Local Check	207	134	110	103	118	144	135
Location Mean	208	132	106	108	114	141	142
S.E. of Mean	3	4	One Rep.	35	4	4	3
L.S.D. at 5%	5	8		73	9	8	5
L.S.D. for T.E. in S.B	5	8		73	9	8	5
L.S.D. for T.E. in D.B	5	8		73	9	8	5
C.V. %	1	3		33	4	3	2
Efficiency %	100	119		100	106	100	110

Cont'd.

Table 4.2.3 Cont'd. ...

Entry Name	IRAN				ITALY		JORDAN
	Karaj	Karaj-2	Maragheh	Qazvin	Zandjan	Gallina	Mshuger
323	70	187	98	78	101	127	153
465	77	186	102	80	105	138	155
468	80	190	101	79	105	130	153
SLL	79	185	100	81	102	125	154
78S26002	77	183	92	81	105	125	152
FLIP86-10L	74	182	93	81	100	122	153
FLIP86-12L	74	186	92	79	100	129	152
FLIP86-51L	81	186	94	81	100	120	152
FLIP87-16L	75	183	93	83	102	125	152
FLIP87-17L	87	183	93	67	100	122	149
FLIP88-1L	74	183	93	82	99	121	152
FLIP88-7L	68	183	93	80	99	122	148
FLIP88-41L	79	182	91	79	101	116	146
FLIP90-2L	75	183	94	80	100	125	147
FLIP90-3L	71	184	93	80	100	130	152
FLIP90-5L	71	184	100	80	106	124	153
FLIP90-7L	72	185	96	83	107	135	154
FLIP90-11L	72	187	96	79	103	124	153
FLIP90-12L	74	185	93	80	99	123	150
FLIP90-13L	74	185	99	78	99	130	155
FLIP90-14L	72	184	92	79	102	126	152
FLIP91-8L	79	184	100	80	99	137	150
FLIP91-9L	73	181	96	80	99	126	153
FLIP91-12L	74	184	96	83	98	135	152
PETROVSKAJA6	88	191	106	78	102	139	157
PETROVSKAJA4/10	89	197	102	80	110	140	152
PETROVSK JUBILEE	87	196	106	74	109	140	157
FLIP92-2L	74	183	100	81	101	126	151
FLIP92-3L	73	181	97	66	99	127	154
FLIP92-8L	82	183	92	80	101	123	153
FLIP92-10L	74	183	95	81	101	122	148
FLIP92-11L	76	183	93	82	102	124	154
FLIP92-12L	78	184	91	80	102	119	152
FLIP92-14L	76	184	98	80	100	126	148
FLIP92-15L	74	186	96	81	101	123	150
Local Check	77	192	103	81	101	138	148
Location Mean	76	185	96	79	102	127	152
S.E. of Mean	6	2	2	5	3	2	2
L.S.D. at 5%	12	5	5	9	5	3	4
L.S.D. for T.E. in S.B	13	5	5	10	5	4	4
L.S.D. for T.E. in D.B	12	5	5	10	5	3	4
C.V. %	7	1	2	6	2	1	1
Efficiency %	131	100	126	112	138	118	97

Cont'd.

Table 4.2.3 Cont'd. ...

Entry Name	JORDAN	MOROCCO	SLOVAKIA	SYRIA			
	Rabba	Jema'a Shain	Piestany	Aleppo-T.H.	Gelline	Hama	Heimo
323	152	147	89	150	130	126	166
465	155	152	89	152	131	128	171
468	157	151	97	151	133	129	171
SLL	155	150	97	149	129	129	171
78S26002	151	148	89	149	128	124	162
FLIP86-10L	147	143	81	149	129	124	163
FLIP86-12L	150	145	97	144	126	123	162
FLIP86-51L	147	147	81	143	125	123	159
FLIP87-16L	150	145	85	148	128	125	162
FLIP87-17L	149	147	97	148	131	124	161
FLIP88-11L	150	147	81	148	128	124	163
FLIP88-7L	149	144	89	151	126	124	163
FLIP88-41L	147	137	89	134	127	117	159
FLIP90-2L	149	145	89	150	131	126	165
FLIP90-3L	151	147	97	152	129	128	162
FLIP90-5L	152	148	89	145	129	129	165
FLIP90-7L	152	145	89	146	134	130	171
FLIP90-11L	151	147	89	147	130	129	169
FLIP90-12L	151	147	89	143	126	128	163
FLIP90-13L	155	149	89	148	131	130	162
FLIP90-14L	149	147	89	153	125	126	163
FLIP91-8L	152	147	89	151	130	126	166
FLIP91-9L	154	149	89	149	128	126	162
FLIP91-12L	149	147	97	152	129	127	165
PETROVSKAJA6	168	159	97	150	132	131	171
PETROVSKAJA4/10	168	150	89	151	132	130	175
PETROVSK JUBILEE	168	159	89	147	131	131	175
FLIP92-2L	151	148	89	148	129	125	164
FLIP92-3L	152	152	97	148	130	127	169
FLIP92-8L	151	145	89	152	125	127	164
FLIP92-10L	149	147	89	151	131	125	163
FLIP92-11L	147	147	81	146	128	124	168
FLIP92-12L	149	147	89	159	124	123	158
FLIP92-14L	150	149	97	145	129	125	168
FLIP92-15L	150	149	97	150	131	126	167
Local Check	149	146	97	149	126	129	163
Location Mean	152	148	90	148	129	126	166
S.E. of Mean	2	1	1	4	3	1	2
L.S.D. at 5%	3	2	2	8	5	3	5
L.S.D. for T.E. in S.B	3	2	2	8	5	3	5
L.S.D. for T.E. in D.B	3	2	2	8	5	3	5
C.V. %	1	1	1	3	2	1	1
Efficiency %	100	100	100	100	114	108	100

Cont'd. ...

Table 4.2.3 Cont'd. ...

Entry Name	SYRIA		TURKEY		Overall Mean
	Izra'a	Tel Hadya	Erzurum	Haymana	
323	133	131	117	95	129
465	143	133	121	97	131
468	-	131	122	103	131
SLL	138	133	120	83	129
70S26002	133	128	118	91	127
FLIP86-10L	134	127	122	91	126
FLIP86-12L	136	124	122	93	126
FLIP86-51L	129	124	124	92	126
FLIP87-16L	-	128	119	86	127
FLIP87-17L	-	126	119	91	126
FLIP88-1L	138	127	122	92	127
FLIP88-7L	134	126	117	90	126
FLIP88-41L	131	120	116	93	123
FLIP90-2L	134	127	120	90	127
FLIP90-3L	133	128	121	95	129
FLIP90-5L	-	133	119	88	129
FLIP90-7L	138	127	123	97	130
FLIP90-11L	-	132	119	90	128
FLIP90-12L	132	130	121	92	127
FLIP90-13L	134	132	121	94	129
FLIP90-14L	134	124	121	90	127
FLIP91-8L	132	128	116	90	129
FLIP91-9L	-	128	121	91	128
FLIP91-12L	130	129	118	93	129
PETROVSKAJA6	144	125	124	110	134
PETROVSKAJA4/10	-	128	124	110	135
PETROVSK JUBILEE	146	128	125	111	134
FLIP92-2L	138	127	120	93	128
FLIP92-3L	135	128	120	91	128
FLIP92-8L	130	128	122	91	127
FLIP92-10L	133	125	120	91	127
FLIP92-11L	136	128	121	93	134
FLIP92-12L	130	124	119	89	126
FLIP92-14L	138	129	119	95	129
FLIP92-15L	137	128	118	92	128
Local Check	134	128	120	101	-
Location Mean	135	128	120	94	
S.E. of Mean	4	3	2	2	
L.S.D. at 5%	8	5	4	5	
L.S.D. for T.E. in S.B	15	5	4	5	
L.S.D. for T.E. in D.B	11	5	4	5	
C.V. %	2	2	2	2	
Efficiency %	47	109	100	179	

* The mean has been calculated excluding the locations with incomplete data.

Table 4.2.4 Plant height (cm) of entries in the LISN-L-94 conducted at different locations.

Entry Name	ALGERIA			CANADA		CHINA	
	Guelma	Khroub	Tiaret	Saskatoon	Chengdu	Shanxi	Shanxi-1
323	35	30	29	28	42	31	45
465	40	35	26	27	43	40	45
468	40	37	24	29	40	41	45
SLL	30	30	28	26	40	36	45
78S26002	30	32	25	21	39	33	45
FLIP86-10L	35	30	24	22	37	28	45
FLIP86-12L	30	35	26	30	41	37	45
FLIP86-51L	35	37	22	32	39	34	45
FLIP87-16L	20	32	25	24	36	25	45
FLIP87-17L	20	32	26	23	37	24	45
FLIP88-1L	35	27	24	23	37	25	45
FLIP88-7L	30	32	24	24	37	26	45
FLIP88-41L	35	30	26	25	33	24	45
FLIP90-2L	35	30	23	25	38	25	45
FLIP90-3L	35	35	24	29	42	33	45
FLIP90-5L	28	30	30	24	40	28	45
FLIP90-7L	35	36	26	29	41	33	45
FLIP90-11L	28	40	24	24	38	31	45
FLIP90-12L	30	32	28	22	37	22	45
FLIP90-13L	28	37	25	28	41	30	45
FLIP90-14L	40	35	25	25	41	34	45
FLIP91-8L	30	35	26	26	45	32	45
FLIP91-9L	30	30	25	27	34	30	42
FLIP91-12L	30	32	28	26	38	29	45
PETROVSKAJA6	40	30	25	34	39	61	45
PETROVSKAJA4/10	40	32	28	33	40	57	45
PETROVSK JUBILEE	40	35	25	33	45	54	45
FLIP92-2L	30	27	24	24	38	28	45
FLIP92-3L	30	37	22	26	43	30	45
FLIP92-8L	35	32	25	22	40	31	45
FLIP92-10L	35	30	22	25	36	28	45
FLIP92-11L	30	30	23	21	36	32	45
FLIP92-12L	30	35	27	22	35	31	45
FLIP92-14L	30	32	24	25	37	30	45
FLIP92-15L	40	33	28	26	40	40	45
Local Check	28	30	22	43	39	40	45
Location Mean		33	25	26	39	33	45
S.E. of Mean					2	2	1
L.S.D. at 5t					5	5	1
L.S.D. for T.E. in S.B					6	5	1
L.S.D. for T.E. in D.B					6	5	1
C.V. %					5	7	1
Efficiency %	One Rep.	One Rep.	One Rep.	One Rep.	56	101	100

Cont'd

Table 4.2.4 Cont'd. ...

Entry Name	ETHIOPIA	INDIA	IRAN				
	Ghinchil/ Holetta	New Delhi	Karaj	Karaj-2	Maragheh	Qazvin	Zandjan
323	22	43	27	28	20	22	22
465	23	36	27	31	22	21	18
468	24	41	28	39	23	22	21
SLL	26	41	26	25	21	26	22
78S26002	24	41	23	26	20	24	23
FLIP86-10L	21	33	21	21	19	24	18
FLIP86-12L	20	46	26	30	20	19	19
FLIP86-51L	21	40	30	20	23	18	18
FLIP87-16L	23	34	23	19	21	22	16
FLIP87-17L	22	36	23	19	20	22	17
FLIP88-1L	17	39	23	23	19	19	19
FLIP88-7L	21	32	22	19	21	24	19
FLIP88-41L	18	34	25	20	19	22	23
FLIP90-2L	21	44	20	22	20	22	17
FLIP90-3L	18	46	29	30	20	21	20
FLIP90-5L	22	38	26	28	21	22	22
FLIP90-7L	26	43	29	37	26	20	20
FLIP90-11L	23	35	28	28	22	23	18
FLIP90-12L	22	37	24	24	19	24	17
FLIP90-13L	24	48	26	30	22	24	20
FLIP90-14L	19	37	27	30	21	21	19
FLIP91-8L	25	35	26	27	20	23	18
FLIP91-9L	20	37	25	25	20	22	18
FLIP91-12L	26	38	24	25	22	23	18
PETROVSKAJA6	20	44	32	46	26	21	18
PETROVSKAJA4/10	22	47	27	39	25	18	20
PETROVSK JUBILEE	22	48	33	45	25	23	26
FLIP92-2L	19	44	21	22	19	21	18
FLIP92-3L	24	45	27	31	24	25	21
FLIP92-8L	23	40	21	21	20	22	18
FLIP92-10L	25	39	26	25	20	23	18
FLIP92-11L	20	39	26	24	20	23	19
FLIP92-12L	21	42	26	23	20	22	21
FLIP92-14L	23	43	28	27	22	22	21
FLIP92-15L	22	42	32	26	22	19	23
Local Check	22	52	28	34	19	25	22
Location Mean	22	41	26	28	21	22	20
S.E. of Mean	2	4	4	3	2	2	3
L.S.D. at 5%	5	8	9	6	5	4	5
L.S.D. for T.E. in S.B	5	9	9	7	5	5	5
L.S.D. for T.E. in D.D	5	9	9	7	5	4	5
C.V. %	10	10	16	11	11	9	13
Efficiency %	122	125	101	117	100	158	100

Cont'd. ...

Table 4.2.4 Cont'd. ...

Entry Name	ITALY	JORDAN	MOROCCO	SLOVAKIA	SYRIA		
	Gallina	Mshuger	Rabba	Jema'a Shain	Piestany	Aleppo-T.H.	Gelline
323	26	36	37	50	25	30	29
465	26	32	35	50	25	29	28
468	28	34	43	60	25	25	27
SLL	22	33	38	60	24	26	28
78S26002	21	27	32	40	20	31	28
FLIP86-10L	25	30	34	45	23	32	32
FLIP86-12L	25	34	32	50	24	27	28
FLIP86-51L	23	34	42	30	24	30	36
FLIP87-16L	26	29	30	40	24	31	29
FLIP87-17L	27	31	38	55	21	28	27
FLIP88-1L	24	28	34	50	25	32	31
FLIP88-7L	23	30	36	60	20	31	32
FLIP88-41L	22	26	27	60	21	32	31
FLIP90-2L	21	28	40	50	21	27	29
FLIP90-3L	24	25	42	55	21	25	27
FLIP90-5L	23	34	38	40	24	28	27
FLIP90-7L	23	34	39	40	24	29	32
FLIP90-11L	23	30	37	50	26	27	33
FLIP90-12L	25	31	37	65	20	29	31
FLIP90-13L	25	34	34	60	22	27	31
FLIP90-14L	24	31	38	55	20	29	33
FLIP91-8L	22	29	34	45	25	29	26
FLIP91-9L	25	28	39	45	20	30	32
FLIP91-12L	24	31	39	45	21	25	27
PETROVSKAJA6	29	39	46	50	30	33	29
PETROVSKAJA4/10	29	31	42	60	25	33	29
PETROVSK JUBILEE	28	38	43	35	20	33	30
FLIP92-2L	24	31	35	50	16	28	30
FLIP92-3L	23	31	37	40	21	27	34
FLIP92-8L	25	30	33	60	20	30	31
FLIP92-10L	24	28	33	55	21	26	33
FLIP92-11L	27	28	38	50	24	31	27
FLIP92-12L	25	29	36	65	22	30	27
FLIP92-14L	25	34	38	55	20	29	36
FLIP92-15L	23	31	42	65	20	27	30
Local Check	25	25	30	45	30	27	34
Location Mean	25	31	37	51	23	29	30
S.E. of Mean	1	3	5		1	4	3
L.S.D. at 5%	3	5	10		2	7	7
L.S.D. for T.E. in S.B	3	6	10		2	10	7
L.S.D. for T.E. in D.B	3	5	10		2	9	7
C.V. %	5	7	12	One Rep.	4	11	11
Efficiency %	89	140	111		126	67	100

Cont'd

Table 4.2.4 Cont'd. ...

Entry Name	SYRIA				TURKEY	
	Hama	Heimo	Izra'a	Tel Hadya	Erzurum	Overall Mean
323	35	42	22	38	12	31
465	30	43	21	40	15	32
468	28	48	-	37	18	33
SLL	25	40	23	33	14	31
78S26002	33	40	20	34	12	29
FLIP86-10L	25	37	22	32	13	28
FLIP86-12L	28	40	25	38	11	30
FLIP86-51L	30	41	24	35	15	31
FLIP87-16L	30	40	-	37	13	28
FLIP87-17L	33	41	-	30	12	29
FLIP88-1L	30	40	21	33	12	29
FLIP88-7L	25	38	24	28	14	28
FLIP88-41L	28	38	22	37	12	28
FLIP90-2L	35	42	23	33	13	29
FLIP90-3L	30	42	25	32	11	30
FLIP90-5L	25	43	-	31	13	29
FLIP90-7L	35	43	23	29	16	32
FLIP90-11L	30	45	-	32	17	30
FLIP90-12L	25	39	22	40	12	30
FLIP90-13L	30	40	26	38	10	31
FLIP90-14L	25	39	20	36	13	30
FLIP91-8L	28	44	25	32	19	30
FLIP91-9L	28	40	-	34	16	29
FLIP91-12L	30	43	21	36	13	29
PETROVSKAJA6	30	48	21	41	19	35
PETROVSKAJA4/10	30	48	-	44	14	34
PETROVSK JUBILEE	25	51	24	36	18	34
FLIP92-2L	25	41	23	35	11	28
FLIP92-3L	28	41	25	30	12	30
FLIP92-8L	30	42	26	39	12	30
FLIP92-10L	30	45	22	30	9	29
FLIP92-11L	30	42	22	34	12	29
FLIP92-12L	30	40	25	33	13	30
FLIP92-14L	30	44	24	38	11	31
FLIP92-15L	28	40	23	36	19	32
Local Check	35	45	21	31	17	-
Location Mean	29	42	23	35	14	
S.E. of Mean	2	3	2	3	4	
L.S.D. at 5%	4	6	5	6	7	
L.S.D. for T.E. in S.B	4	6	8	7	7	
L.S.D. for T.E. in D.B	4	6	7	7	7	
C.V. %	6	7	7	8	24	
Efficiency %	100	100	24	164	108	

* The mean has been calculated excluding the locations with incomplete data.

Table 4.2.5 Seed yield (y=kg/ha) and rank (R) of entries in the LISN-L-94 conducted at different locations.

Entry Name	ALGERIA				CANADA		CHINA			
	Guelma		Tiaret		Saskatoon		Chengdu		Dingxi	
	Y	R	Y	R	Y	R	Y	R	Y	R
323	2590	6	825	5	1631	2	236	33	637	7
465	1804	28	250	36	1013	20	295	30	303	18
468	1969	24	575	18	1179	9	910	9	943	1
SLL	2271	17	580	17	1079	13	246	31	483	11
78S26002	2984	1	595	16	1062	15	990	7	245	23
FLIP86-10L	1924	25	485	28	808	30	997	6	917	2
FLIP86-12L	1466	34	395	32	455	36	338	29	139	36
FLIP86-51L	1595	32	390	33	666	35	866	13	575	9
FLIP87-16L	2200	19	490	27	1115	11	894	10	150	35
FLIP87-17L	2132	21	445	29	825	29	1283	2	295	19
FLIP88-1L	2336	15	555	20	799	31	1255	3	277	20
FLIP88-7L	2848	3	415	30	1061	16	1040	5	185	30
FLIP88-41L	2476	8	380	34	840	27	447	24	179	31
FLIP90-2L	2345	14	410	31	899	26	868	12	162	33
FLIP90-3L	2748	5	575	18	1209	8	849	15	269	21
FLIP90-5L	1841	26	735	6	1030	17	706	16	344	17
FLIP90-7L	2010	23	615	15	1178	10	338	28	250	22
FLIP90-11L	2205	18	550	21	1081	12	559	19	788	3
FLIP90-12L	1785	30	535	23	739	33	875	11	194	28
FLIP90-13L	1212	35	670	10	1251	7	454	23	245	23
FLIP90-14L	2293	16	530	24	1024	18	589	18	175	32
FLIP91-8L	2399	12	640	12	722	34	495	20	481	12
FLIP91-9L	2464	10	705	7	907	25	354	27	678	5
FLIP91-12L	2955	2	510	25	1297	5	455	22	523	10
PETROVSKAJA6	1638	31	650	11	1523	3	127	36	358	16
PETROVSKAJA4/10	1792	29	630	13	1264	6	172	34	191	29
PETROVSK JUBILEE	1835	27	510	26	1435	4	239	32	236	25
FLIP92-2L	2475	9	620	14	1022	19	400	25	221	27
FLIP92-3L	2440	11	690	8	754	32	479	21	733	4
FLIP92-8L	2350	13	935	1	1008	21	930	8	381	13
FLIP92-10L	2794	4	340	35	993	23	865	14	227	26
FLIP92-11L	2109	22	685	9	831	28	1219	4	151	34
FLIP92-12L	1174	36	545	22	1076	14	1575	1	376	14
FLIP92-14L	2165	20	835	4	1000	22	617	17	370	15
FLIP92-15L	2530	7	835	3	960	24	363	26	665	6
Local Check	1472	33	895	2	1967	1	136	35	602	8
Location Mean	2156		584		1047		652		387	
S.E. of Mean	752		35		148		199		50	
L.S.D. at 5%	1519		72		292		397		103	
L.S.D. for T.E. in S.B	1561		72		310		414		103	
L.S.D. for T.E. in D.B	1549		72		305		409		103	
T.E > L. Check	0		0		0		19		4	
C.V. %	33		6		13		28		13	
Efficiency %	105		100		200		117		100	

Cont'd

Table 4.2.5 Cont'd. ...

Entry Name	CHINA		ETHIOPIA				INDIA		IRAN	
	Shanxi		Debre Zeit		Ghinchi/ Holetta		New Delhi		Karaj	
	Y	R	Y	R	Y	R	Y	R	Y	R
323	4802	2	-	-	390	29	784	18	435	20
465	3333	11	190	30	245	32	968	12	377	26
468	3958	4	725	20	1586	2	200	32	613	10
SLL	3334	10	57	34	133	35	192	33	681	8
78S26002	1874	26	1548	9	1498	3	1146	6	732	7
FLIP86-10L	1872	28	1559	5	778	21	920	14	137	33
FLIP86-12L	834	36	201	27	179	34	340	29	107	35
FLIP86-51L	1460	32	302	26	244	33	702	22	910	3
FLIP87-16L	1460	31	1004	14	1159	10	1233	4	378	25
FLIP87-17L	1252	34	1963	2	699	25	1044	10	376	27
FLIP88-1L	1458	33	1604	4	635	26	1588	3	995	1
FLIP88-7L	1873	27	775	18	813	19	384	27	487	18
FLIP88-41L	2291	23	201	28	99	36	946	13	635	9
FLIP90-2L	3124	13	1551	7	1462	4	1074	8	386	24
FLIP90-3L	2916	16	1226	10	1044	12	407	25	432	21
FLIP90-5L	2501	20	193	29	724	23	339	30	499	16
FLIP90-7L	2500	21	144	32	708	24	278	31	195	32
FLIP90-11L	2293	22	738	19	1219	9	358	28	112	34
FLIP90-12L	1250	35	711	21	1245	6	879	15	425	23
FLIP90-13L	2708	19	953	15	1245	7	1049	9	468	19
FLIP90-14L	1876	24	1642	3	1258	5	1112	7	63	36
FLIP91-8L	3751	6	186	31	1091	11	447	24	559	13
FLIP91-9L	2710	17	824	17	958	15	563	23	547	14
FLIP91-12L	3126	12	1555	6	898	16	775	19	496	17
PETROVSKAJA6	4167	3	497	23	735	22	192	34	357	28
PETROVSKAJA4/10	3748	9	354	25	473	28	181	35	333	30
PETROVSK JUBILEE	2709	18	120	33	306	31	122	36	303	31
FLIP92-2L	3751	7	847	16	864	17	869	16	589	11
FLIP92-3L	2917	15	428	24	802	20	403	26	582	12
FLIP92-8L	3957	5	691	22	965	13	814	17	431	22
FLIP92-10L	1667	29	1121	11	857	18	1233	5	822	6
FLIP92-11L	1666	30	1442	9	1227	8	710	21	826	5
FLIP92-12L	1875	25	1033	13	962	14	1027	11	521	15
FLIP92-14L	3750	8	1093	12	490	27	771	20	937	2
FLIP92-15L	2934	14	-	-	317	30	1872	1	333	29
Local Check	5833	1	2904	1	1636	1	1702	2	898	4
Location Mean	2709		893		832		767		499	
S.E. of Mean	12		535		231		321		376	
L.S.D. at 5%	25		1102		457		649		764	
L.S.D. for T.E. in S.B	26		1108		482		665		779	
L.S.D. for T.E. in D.B	25		1106		475		660		775	
T.E > L. Check	0		0		C		0		0	
C.V. %	0		59		25		40		73	
Efficiency %	102		100		161		104		102	

Cont'd.

Table 4.2.5 Cont'd. ...

Entry Name	IRAN								ITALY	
	Karaj-2		Maragheh		Qazvin		Zandjan		Gallina	
	Y	R	Y	R	Y	R	Y	R	Y	R
323	1159	11	509	10	152	16	282	34	1090	27
465	401	30	301	22	146	21	377	32	1362	15
468	825	19	463	13	134	25	732	14	1596	10
SLL	647	26	444	15	150	19	907	7	1804	8
78S26002	1248	9	536	6	132	26	482	30	1122	25
FLIP86-10L	726	22	376	24	169	14	626	22	1261	19
FLIP86-12L	111	35	248	35	151	18	935	5	819	34
FLIP86-51L	130	34	337	32	151	17	847	8	1580	12
FLIP87-16L	695	24	342	29	156	15	253	35	1491	13
FLIP87-17L	764	21	522	7	90	32	577	24	1126	24
FLIP88-1L	2046	4	515	9	75	35	683	18	2138	4
FLIP88-7L	195	33	491	11	127	27	620	23	1880	7
FLIP88-41L	672	25	341	30	206	7	800	11	1300	16
FLIP90-2L	1121	13	636	3	169	13	520	29	650	36
FLIP90-3L	2052	3	578	4	123	29	672	19	2044	5
FLIP90-5L	1834	5	678	2	214	6	544	28	1044	31
FLIP90-7L	1141	12	557	5	134	24	326	33	1082	28
FLIP90-11L	778	20	433	17	181	10	575	25	734	35
FLIP90-12L	355	32	337	31	92	31	627	21	1987	6
FLIP90-13L	645	27	407	20	144	22	802	10	1045	30
FLIP90-14L	918	16	451	14	188	8	1016	2	1261	18
FLIP91-8L	1388	7	295	34	173	11	556	26	894	33
FLIP91-9L	1079	15	521	8	110	30	993	3	1380	14
FLIP91-12L	1167	10	225	36	73	36	452	31	2528	2
PETROVSKAJAG	838	18	342	28	124	28	720	15	2179	3
PETROVSKAJA4/10	68	36	359	25	216	4	0	36	1283	17
PETROVSK JUBILEE	386	31	353	26	78	34	810	9	1584	11
FLIP92-2L	695	23	443	16	143	23	698	17	1231	20
FLIP92-3L	885	17	421	19	183	9	544	27	1139	22
FLIP92-8L	636	28	342	27	150	20	769	12	1798	9
FLIP92-10L	1094	14	424	18	170	12	704	16	1018	32
FLIP92-11L	2059	2	327	33	236	2	740	13	1104	26
FLIP92-12L	1429	6	378	23	230	3	928	6	1198	21
FLIP92-14L	1347	8	404	21	259	1	648	20	1135	23
FLIP92-15L	562	29	489	12	89	33	942	4	2552	1
Local Check	2806	1	746	1	216	5	1058	1	1049	29
Location Mean	969		435		154		660		1402	
S.E. of Mean	412		80		63		308		3	
L.S.D. at 5%	840		160		127		613		5	
L.S.D. for T.E. in S.B	851		167		132		643		5	
L.S.D. for T.E. in D.B	848		165		130		635		5	
T.E > L. Check	0		0		0		0		28	
C.V. %	42		17		38		43		0	
Efficiency %	101		121		113		136		102	

Cont'd. ...

Table 4.2.5 Cont'd. ...

Entry Name	JORDAN				MOROCCO		NEW ZEALAND		SLOVAKIA	
	Mshuger		Rabba		Jema'a Shain		Lincoln		Piestany	
	Y	R	Y	R	Y	R	Y	R	Y	R
323	1010	13	2697	28	1900	25	4538	2	615	26
465	345	34	2134	31	1500	33	2181	16	195	35
468	1669	1	1964	32	1625	32	3081	5	270	33
SLL	925	17	3207	17	2000	19	1816	24	430	27
78S26002	632	27	3436	12	2350	5	2180	17	2720	2
FLIP86-10L	447	32	3475	10	2050	18	1983	20	1348	9
FLIP86-12L	225	36	912	36	1750	29	-	-	350	31
FLIP86-51L	767	24	2679	29	2350	5	-	-	1300	13
FLIP87-16L	527	29	3296	16	2750	1	2328	14	1305	12
FLIP87-17L	1008	14	2753	27	1825	28	-	-	1485	7
FLIP88-1L	881	18	3969	5	2550	2	1884	22	1215	16
FLIP88-7L	850	21	3351	15	2150	12	2668	9	1480	8
FLIP88-41L	588	28	3092	21	2350	5	1600	25	1025	19
FLIP90-2L	1438	2	3493	9	2100	16	-	-	1550	5
FLIP90-3L	1074	10	3080	22	2150	12	2245	15	1335	10
FLIP90-5L	1316	4	3200	18	2000	19	2479	11	700	24
FLIP90-7L	1136	9	2930	24	1950	23	1375	27	40	36
FLIP90-11L	1013	12	3655	7	2300	8	2153	18	2640	3
FLIP90-12L	837	23	2765	26	2150	12	1507	26	785	22
FLIP90-13L	1006	15	2865	25	1950	24	1848	23	730	23
FLIP90-14L	1252	7	3104	20	2300	8	1968	21	1135	17
FLIP91-8L	867	20	2148	30	2100	16	2893	8	1978	4
FLIP91-9L	878	19	4010	4	2175	11	3401	4	843	21
FLIP91-12L	649	26	3878	6	1850	27	2913	7	1510	6
PETROVSKAJA6	719	25	1473	33	1325	35	0	30	680	25
PETROVSKAJA4/10	490	31	1104	34	1350	34	31	28	375	29
PETROVSK JUBILEE	279	35	934	35	1325	35	0	29	220	34
FLIP92-2L	1315	5	3505	8	1750	29	-	-	1115	18
FLIP92-3L	520	30	3426	13	2000	19	2126	19	360	30
FLIP92-8L	843	22	3423	14	2000	19	3490	3	1245	14
FLIP92-10L	1340	3	3053	23	2450	3	-	-	1240	15
FLIP92-11L	443	33	4097	3	1900	25	2538	10	1330	11
FLIP92-12L	1270	6	3473	11	2400	4	2351	13	295	32
FLIP92-14L	1200	8	4821	1	2150	12	2448	12	425	28
FLIP92-15L	1033	11	4722	2	2250	10	2994	6	1000	20
Local Check	969	16	3136	19	1725	31	5943	1	4275	1
Location Mean	882		3035		2022		2303		1098	
S.E. of Mean	269		693		349		684		72	
L.S.D. at 5%	535		1384		719		1410		148	
L.S.D. for T.E. in S.B	561		1445		719		1445		148	
L.S.D. for T.E. in D.B	553		1427		719		1432		148	
T.E > L. Check	1		2		3		0		0	
C.V. %	28		21		17		29		7	
Efficiency %	132		121		100		102		100	

Cont'd.

Table 4.2.5 Cont'd. ...

Entry Name	SPAIN		SYRIA							
	Cordoba		Aleppo-T.H.		Gelline		Hama		Heimo	
	Y	R	Y	R	Y	R	Y	R	Y	R
323	2350	15	1535	17	574	23	191	28	2786	11
465	1194	33	1903	3	184	34	71	32	1609	30
468	2150	20	1281	33	297	31	2	34	2522	18
SLL	2661	8	1203	34	377	30	98	30	2317	25
78S26002	2983	4	1501	20	1362	3	332	15	2579	15
FLIP86-10L	1372	30	1634	12	1058	8	364	13	1873	28
FLIP86-12L	2422	13	1304	32	291	32	0	36	579	36
FLIP86-51L	2267	18	1515	19	467	26	238	22	1353	34
FLIP87-16L	1011	34	1467	22	836	15	492	7	2362	23
FLIP87-17L	2556	10	1103	35	1256	5	248	18	2571	16
FLIP88-1L	2428	12	1454	25	1556	2	495	6	2846	9
FLIP88-7L	1650	28	1734	8	1151	7	280	16	2432	21
FLIP88-41L	1972	22	2313	1	950	11	593	3	1317	35
FLIP90-2L	2133	21	1704	9	1185	6	430	9	3089	1
FLIP90-3L	2167	19	1621	14	769	18	241	20	2549	17
FLIP90-5L	1406	29	1606	16	464	27	202	27	2672	14
FLIP90-7L	900	35	2007	2	660	19	211	24	1866	29
FLIP90-11L	1372	31	1385	29	554	24	160	29	2782	12
FLIP90-12L	2361	14	1896	4	636	21	336	14	3000	5
FLIP90-13L	2756	7	1331	30	528	25	540	5	2902	8
FLIP90-14L	1733	26	1635	11	939	12	444	8	2399	22
FLIP91-8L	3072	3	1870	7	419	28	279	17	2333	24
FLIP91-9L	2783	5	1613	15	957	10	419	10	2082	27
FLIP91-12L	1739	25	1330	31	626	22	240	21	2486	19
PETROVSKAJA6	1889	23	1881	5	0	35	0	35	1531	31
PETROVSKAJA4/10	2317	17	1453	26	222	33	74	31	1392	33
PETROVSK JUBILEE	1839	24	1687	10	0	36	53	33	1471	32
FLIP92-2L	2578	9	1878	6	798	17	236	23	2437	20
FLIP92-3L	1217	32	1454	24	383	29	247	19	2259	26
FLIP92-8L	3122	2	1631	13	1352	4	686	1	2918	7
FLIP92-10L	556	36	1531	18	858	14	366	12	2808	10
FLIP92-11L	3389	1	1457	23	972	9	564	4	3009	4
FLIP92-12L	2556	10	1491	21	1674	1	638	2	3055	3
FLIP92-14L	2350	15	1423	27	907	13	409	11	2679	13
FLIP92-15L	2756	6	1406	28	831	16	207	26	3062	2
Local Check	1706	27	1007	36	644	20	207	25	2988	6
Location Mean	2103		1562		742		295		2359	
S.E. of Mean	659		366		164		146		326	
L.S.D. at 5%	1358		753		326		291		662	
L.S.D. for T.E. in S.B	1358		753		344		303		675	
L.S.D. for T.E. in D.B	1358		753		339		300		671	
T.E > L. Check	3		7		8		5		0	
C.V. %	31		23		20		46		13	
Efficiency %	100		100		159		118		102	

Cont'd. ...

Table 4.2.5 Cont'd. ...

Entry Name	SYRIA				TURKEY				Overall Mean	
	Izra'a		Tel Hadya		Ankara		Erzurum			
	Y	R	Y	R	Y	R	Y	R	Y	R
323	64	17	1721	4	5143	5	1037	3	1376	10
465	35	29	1037	33	3286	31	879	9	949	32
468	37	20	1055	32	2857	32	1002	4	1201	25
SLL	51	21	1304	25	3704	30	677	20	1185	27
78S26002	103	9	1766	3	5999	2	738	13	1524	1
FLIP86-10L	90	12	1519	15	4827	11	415	31	1202	24
FLIP86-12L	61	20	417	36	1642	34	381	34	622	35
FLIP86-51L	47	23	1074	30	4572	15	516	27	1096	29
FLIP87-16L	2	36	1665	8	4964	8	665	22	1235	21
FLIP87-17L	39	27	1516	16	4786	12	443	29	1223	22
FLIP88-1L	142	3	1770	2	5536	3	455	28	1506	2
FLIP88-7L	42	26	1689	6	4286	22	437	30	1257	18
FLIP88-41L	76	16	1495	17	5428	4	646	23	1239	20
FLIP90-2L	115	8	1539	13	4358	20	672	21	1393	8
FLIP90-3L	401	1	1453	20	5107	6	793	12	1432	5
FLIP90-5L	8	35	1602	11	3928	28	695	18	1216	23
FLIP90-7L	44	25	1150	29	4393	19	583	25	1081	30
FLIP90-11L	21	34	1425	21	4286	22	708	17	1265	17
FLIP90-12L	123	6	1484	18	4287	21	355	35	1198	26
FLIP90-13L	213	2	1631	10	6142	1	395	32	1309	15
FLIP90-14L	23	33	1549	12	4214	25	817	11	1270	16
FLIP91-8L	34	31	1259	26	4714	13	997	5	1332	14
FLIP91-9L	35	30	1325	24	4714	13	725	14	1353	13
FLIP91-12L	76	15	1193	28	4536	16	940	7	1353	12
PETROVSKAJA6	48	22	1421	22	2643	33	918	8	1052	31
PETROVSKAJA4/10	24	32	628	35	1498	36	395	33	815	34
PETROVSK JUBILEE	62	19	651	34	1499	35	1176	1	815	33
FLIP92-2L	121	7	1213	27	4964	8	721	15	1357	11
FLIP92-3L	81	14	1346	23	3821	29	835	10	1145	28
FLIP92-8L	100	10	2169	1	5036	7	610	24	1504	3
FLIP92-10L	87	13	1464	19	4500	17	321	36	1251	19
FLIP92-11L	138	4	1689	7	4250	24	710	16	1401	7
FLIP92-12L	136	5	1538	14	4429	18	1053	2	1381	9
FLIP92-14L	47	24	1652	9	4928	10	571	26	1418	6
FLIP92-15L	64	18	1699	5	4214	25	694	19	1459	4
Local Check	99	11	1059	31	4107	27	960	6		
Location Mean	80		1393		4269		693			
S.E. of Mean	79		210		781		28			
L.S.D. at 5%	158		412		1609		57			
L.S.D. for T.E. in S.B	166		439		1609		58			
L.S.D. for T.E. in D.B	164		432		1609		58			
T.E > L. Check	1		17		2		3			
C.V. %	91		13		18		4			
Efficiency %	127		358		100		104			

* The mean has been calculated excluding the locations with incomplete data.

Table 4.2.6. The five heaviest seed yielding entries at the individual locations in the LISN-L-94.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
ALGERIA	Guelma	78S26002	FLIP91-12L	FLIP88-7L	FLIP92-10L	FLIP90-3L
ALGERIA	Tiaret	FLIP92-8L	Local Check	FLIP92-15L	FLIP92-14L	323
CANADA	Saskatoon	Local Check	323	PETROVSKAJA6	PETROVSK JUBILEE	FLIP91-12L
CHINA	Chengdu	FLIP92-12L	FLIP87-17L	FLIP88-1L	FLIP92-11L	FLIP88-7L
CHINA	Dingxi	468	FLIP86-10L	FLIP90-11L	FLIP92-3L	FLIP91-9L
CHINA	Shanxi	Local Check	323	PETROVSKAJA6	468	FLIP92-8L
ETHIOPIA	Debre Zeit	Local Check	FLIP87-17L	FLIP90-14L	FLIP88-1L	FLIP86-10L
ETHIOPIA	Ghinch1/ Holetta	Local Check	468	78S26002	FLIP90-2L	FLIP90-14L
INDIA	New Delhi	FLIP92-15L	Local Check	FLIP88-1L	FLIP87-16L	FLIP92-10L
IRAN	Karaj	FLIP88-1L	FLIP92-14L	FLIP86-51L	Local Check	FLIP92-11L
IRAN	Karaj-2	Local Check	FLIP92-11L	FLIP90-3L	FLIP88-1L	FLIP90-5L
IRAN	Maragheh	Local Check	FLIP90-5L	FLIP90-2L	FLIP90-3L	FLIP90-7L
IRAN	Qazvin	FLIP92-14L	FLIP92-11L	FLIP92-12L	PETROVSKAJA4/10	Local Check
IRAN	Zandjan	Local Check	FLIP90-14L	FLIP91-9L	FLIP92-15L	FLIP86-12L
ITALY	Gallina	FLIP92-15L	FLIP91-12L	PETROVSKAJA6	FLIP88-1L	FLIP90-3L
JORDAN	Mshuger	468	FLIP90-2L	FLIP92-10L	FLIP90-5L	FLIP92-2L
JORDAN	Rabba	FLIP92-14L	FLIP92-15L	FLIP92-11L	FLIP91-9L	FLIP88-1L
MOROCCO	Jema'a Shain	FLIP87-16L	FLIP88-1L	FLIP92-10L	FLIP92-12L	78S26002
						FLIP88-41L
						FLIP86-51L
						468
NEW ZEALAND	Lincoln	Local Check	323	FLIP92-8L	FLIP91-9L	
SLOVAKIA	Piestany	Local Check	78S26002	FLIP90-11L	FLIP91-8L	FLIP90-2L
SPAIN	Cordoba	FLIP92-11L	FLIP92-8L	FLIP91-8L	78S26002	FLIP91-9L
SYRIA	Aleppo-T.H.	FLIP88-41L	FLIP90-7L	465	FLIP90-12L	PETROVSKAJA6
SYRIA	Gelline	FLIP92-12L	FLIP88-1L	78S26002	FLIP92-8L	FLIP87-17L
SYRIA	Hama	FLIP92-8L	FLIP92-12L	FLIP88-41L	FLIP92-11L	FLIP90-13L
SYRIA	Helmo	FLIP90-2L	FLIP92-15L	FLIP92-12L	FLIP92-11L	FLIP90-12L
SYRIA	Izra'a	FLIP90-3L	FLIP90-13L	FLIP88-1L	FLIP92-11L	FLIP92-12L
SYRIA	Tel Hadya	FLIP92-8L	FLIP88-1L	78S26002	323	FLIP92-15L
TURKEY	Ankara	FLIP90-13L	78S26002	FLIP88-1L	FLIP88-41L	323
TURKEY	Erzurum	PETROVSK JUBILEE	FLIP92-12L	323	468	FLIP91-8L

4.3. 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. Most of the test entries in this nursery were developed at ICARDA through hybridization and were selected based on their superior performance at ICARDA sites in Syria and Lebanon.

Methods and Management

The material comprising 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.

Forty eight sets of the nursery were supplied to different cooperators in 24 countries but the results were received from 23 locations in 13 countries. The agronomic data received from the cooperators are presented in Table 4.3.1.

Results and Discussion

The entry means varied from 84 to 94 days for time to flowering (Table 4.3.2), 120 to 129 days for days to maturity (Table 4.3.3), and 26 to 32 cm for plant height (Table 4.3.4).

The ANOVA for the experiment revealed that at 4 out of 18 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 90-41L was the top yielder with an average yield of 1619 kg/ha and was followed by FLIP 92-34L, FLIP 92-28L, 81S15, and FLIP 92-19L with seed yield of 1582, 1556, 1554 and 1547 kg/ha, respectively (Table 4.3.5). The five heaviest seed yielding entries at different locations are given in Table 4.3.6.

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

Material

The material for the Lentil International Screening Nursery - Early comprised of 35 test entries and a local check which was to be added by the cooperator. Most of the test entries originated from the hybridization and were the selections from the progenies developed at ICARDA.

Table 4.3.1. Agronomic details of entries in the LISN-S-94 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
ALGERIA	Khroub	30-JAN-94	06-JUN-94	-	50	-	-	Igran	Syrie 289
CANADA	Manitoba	25-MAY-94	30-AUG-94	-	-	-	-	-	Eston
CANADA	Saskatoon	10-MAY-94	16-AUG-94	-	-	-	-	-	Eston
CHINA	Hebei	08-MAY-94	07-AUG-94	-	-	-	-	-	Vangjiao Riadou
IRAN	Karaj	16-APR-94	20-JUL-94	40	70	-	-	Treflan	Ziba
IRAN	Karaj-2	-	-	-	-	-	-	-	-
IRAN	Maragheh	28-MAR-94	10-JUL-94	30	60	-	-	Tecto, Actellic	Ziba
IRAN	Qazvin	08-MAR-94	-	-	50	-	-	-	Green Qazvin
ITALY	Gallina	26-JAN-94	20-JUN-94	24	72	-	-	-	"Vistica" Sicilian
ITALY	Tolentino	-	-	-	-	-	-	-	-
LEBANON	Tel Amara	05-DEC-93	20-MAY-94	-	-	-	-	-	Talia 2
MOROCCO	Jema'a Shain	02-DEC-93	03-MAY-94	20	50	-	-	-	Nylon
NEW ZEALAND	Lincoln	-	20-JAN-95	150	-	-	-	Cyanazine	Rajah
SAUDI ARABIA	Derab	11-DEC-93	-	150	100	-	-	-	-
SLOVAKIA	Piestany	22-APR-94	20-JUL-94	-	-	-	-	Dual, Bladex	NELKA
SPAIN	Cordoba	02-DEC-93	21-JUN-94	-	-	-	-	Rogor 40	MAGDA
SYRIA	Aleppo-T.H.	20-NOV-93	06-MAY-94	-	50	-	-	-	-
SYRIA	Gelline	02-JAN-94	01-JUN-94	20	50	-	-	-	-
SYRIA	Hama	18-DEC-93	17-MAY-94	-	50	-	-	-	-
SYRIA	Heimo	30-NOV-93	22-MAY-94	-	50	-	-	-	Horani 1
SYRIA	Izra'a	12-JAN-94	01-JUN-94	-	50	-	-	-	-
SYRIA	Tel Hadya	-	-	-	-	-	-	-	-
TURKEY	Diyarbakir	21-NOV-93	03-JUN-94	30	60	-	-	-	Yerli Kirmizi

Table 4.3.2. Time to flowering (days) of entries in LISN-S-94 conducted at different locations

Entry Name	Acc. NO.	Pedigree	Origin	ALGERIA	CANADA	CHINA	IRAN
				Khroub	Saskatoon	Hebei	Karaj
662	662	662	TURKEY	102	50	51	48
759	759	759	IRAN	97	49	51	45
78S26013	5588	5588	JORDAN	86	47	51	45
FLIP84-43L	5714	ILL500 X ILL1719	ICARDA	87	49	51	49
FLIP84-51L	5722	ILL883 X ILL470	ICARDA	88	47	51	41
81S15	5883	UJL197 X ILL4400	JORDAN	89	47	51	44
FLIP87-55L	6245	ILL4400 X ILL703	ICARDA	89	49	51	44
FLIP87-68L	6258	ILL4353 X ILL4400	ICARDA	86	48	51	41
FLIP87-74L	6264	ILL4353 X ILL4400	ICARDA	86	48	51	43
FLIP89-20L	6778	ILL5588 X ILL5582	ICARDA	88	47	51	45
FLIP89-26L	6784	ILL5588 X ILL262	ICARDA	86	48	51	46
FLIP89-31L	6789	ILL5588 X ILL5582	ICARDA	97	47	51	47
FLIP89-39L	6797	ILL223 X 79SH4901	ICARDA	93	47	51	41
FLIP89-60L	6818	ILL4225 X ILL353	ICARDA	88	47	51	42
FLIP90-22L	6991	ILL5588 X ILL223	ICARDA	88	47	51	45
FLIP90-25L	6994	ILL5588 X ILL99	ICARDA	92	48	51	45
FLIP90-27L	6996	ILL19 X ILL223	ICARDA	86	48	51	42
FLIP90-30L	6999	ILL2578 X ILL99	ICARDA	86	48	51	43
FLIP90-33L	7002	ILL784 X ILL99	ICARDA	88	47	51	46
FLIP90-36L	7005	ILL788 X ILL5588	ICARDA	87	47	51	45
FLIP90-40L	7009	80S42188 X ILL223	ICARDA	88	47	51	45
FLIP90-41L	7010	80S42188 X ILL223	ICARDA	86	47	51	43
FLIP90-43L	7012	ILL4354 X ILL1880XILL813	ICARDA	89	48	51	44
FLIP91-11L	7127	ILL5582 X ILL574	ICARDA	86	47	51	41
FLIP92-16L	7181	ILL5684 X ILL4401	ICARDA	89	47	51	45
FLIP92-17L	7182	ILL5684 X ILL4401	ICARDA	88	47	51	44
FLIP92-18L	7183	ILL4354 X ILL4605XILL4349	ICARDA	89	48	51	45
FLIP92-19L	7184	ILL4354 X ILL4605XILL4349	ICARDA	88	47	51	43
FLIP92-20L	7185	ILL4354 X ILL4605XILL4349	ICARDA	95	47	51	45
FLIP92-27L	7192	ILL5588 X ILL5883	ICARDA	87	47	51	44

Cont'd. ...

Table 4.3.2 Time to flowering (days) of entries in the LISN-S-94 conducted at different locations.

Entry Name	Acc. NO.	Pedigree	Origin	ALGERIA	CANADA	CHINA	IRAN
				Khroub	Saskatoon	Hebei	Karaj
FLIP92-28L	7193	ILL5588 X ILL5883	ICARDA	88	47	51	43
FLIP92-34L	7199	ILL1939 X ILL5883	ICARDA	90	47	51	44
FLIP92-36L	7201	ILL5879 X ILL5714	ICARDA	86	47	51	41
FLIP92-37L	7202	ILL5879 X ILL5722	ICARDA	90	47	51	45
FLIP92-39L	7204	ILL5676 X ILL1880	ICARDA	89	47	51	47
FLIP92-46L	7211	ILL6005 X ILL5753	ICARDA	86	49	51	42
FLIP92-48L	7213	ILL5583 X ILL5726	ICARDA	90	47	51	43
FLIP92-49L	7214	ILL5690 X ILL5673	ICARDA	87	47	51	42
FLIP92-50L	7215	ILL5737 X ILL5726	ICARDA	86	49	51	47
FLIP92-54L	7219	ILL4605 X ILL2581	ICARDA	90	49	51	42
FLIP93-1L	7502	ILL5588 X ILL5883	ICARDA	88	48	51	47
FLIP93-8L	7509	ILL5538 X ILL5673	ICARDA	86	49	51	43
FLIP93-9L	7510	ILL1939 X ILL5729	ICARDA	88	48	51	46
FLIP93-10L	7511	ILL1939 X ILL5729	ICARDA	97	49	51	47
FLIP93-12L	7513	ILL5538 X ILL5782	ICARDA	90	47	51	44
FLIP93-17L	7518	ILL5737 X ILL6015	ICARDA	97	47	51	49
FLIP93-20L	7521	ILL5883 X ILL5779	ICARDA	85	47	51	44
FLIP93-34L	7535	ILL1939 X ILL6015	ICARDA	89	48	51	45
Local Check				86	46	51	50
Location Mean				89	48	51	44
S.E. of Mean							2
L.S.D. at 5%							3
L.S.D. for T.E. in S.B.							3
L.S.D. for T.E. in D.B.							3
C.V. %							4
Efficiency %							100

Cont'd. ...

Table 4.3.2. Cont'd. ...

Entry Name	IRAN			ITALY		LEBANON	SAUDI ARABIA	SPAIN
	Karaj-2	Maragheh	Qazvin	Gallina	Tolentino	Tel Amara	Derab	Cordoba
662	134	57	66	105	77	131	103	121
759	131	59	67	92	75	130	96	122
78S26013	130	57	68	85	73	128	85	128
FLIP84-43L	130	54	67	88	74	130	92	118
FLIP84-51L	130	53	68	80	68	129	95	127
81S15	131	54	67	83	72	127	86	126
FLIP87-55L	128	58	67	89	75	127	88	124
FLIP87-68L	127	51	67	80	68	124	86	120
FLIP87-74L	125	50	66	79	68	120	92	121
FLIP89-20L	130	58	68	84	74	123	89	124
FLIP89-26L	130	59	67	85	74	129	89	125
FLIP89-31L	129	57	68	83	73	129	89	118
FLIP89-39L	129	54	68	79	68	124	89	120
FLIP89-60L	127	50	67	80	67	120	86	117
FLIP90-22L	131	58	66	85	73	127	89	124
FLIP90-25L	129	58	66	84	72	128	89	118
FLIP90-27L	129	58	67	82	71	126	86	125
FLIP90-30L	127	58	67	100	73	124	87	127
FLIP90-33L	129	55	66	84	71	122	86	124
FLIP90-36L	131	58	68	85	74	127	88	119
FLIP90-40L	130	56	67	80	74	130	100	122
FLIP90-41L	129	58	67	84	73	128	90	118
FLIP90-43L	129	55	68	97	72	130	89	125
FLIP91-1L	125	49	66	80	68	121	88	122
FLIP92-16L	130	58	67	87	74	130	89	124
FLIP92-17L	129	55	67	86	74	120	87	124
FLIP92-18L	131	59	65	83	74	132	86	128
FLIP92-19L	129	56	67	84	72	129	97	117
FLIP92-20L	132	59	67	82	73	128	92	121
FLIP92-27L	129	58	67	84	73	130	102	121

Cont'd. ...

Table 4.3.2 Cont'd. ...

Entry Name	IRAN			ITALY		LEBANON	SAUDI ARABIA	SPAIN
	Karaj-2	Maragheh	Qazvin	Gallina	Tolentino	Tel Amara	Derab	Cordoba
FLIP92-28L	131	54	62	86	72	132	82	122
FLIP92-34L	131	54	66	85	72	128	89	122
FLIP92-36L	127	55	66	89	71	128	85	125
FLIP92-37L	129	56	68	84	74	128	90	126
FLIP92-39L	130	53	67	80	71	123	93	122
FLIP92-46L	128	57	67	86	69	120	86	116
FLIP92-48L	127	58	68	82	72	123	89	119
FLIP92-49L	127	55	67	82	70	123	86	124
FLIP92-50L	130	52	67	81	71	120	91	122
FLIP92-54L	127	56	67	90	67	113	91	120
FLIP93-1L	131	54	67	86	73	129	92	128
FLIP93-8L	129	59	67	83	68	128	96	125
FLIP93-9L	130	59	67	85	74	131	85	129
FLIP93-10L	129	58	66	91	75	131	89	120
FLIP93-12L	130	57	67	85	74	123	100	120
FLIP93-17L	130	55	66	89	76	133	90	129
FLIP93-20L	131	58	66	85	72	131	87	127
FLIP93-34L	129	56	67	84	74	127	88	120
Local Check	134	65	68	86	77	127	86	72
Location Mean	129	56	67	85	72	127	90	122
S.E. of Mean	2	2	1	4	1	One Rep.	5	11
L.S.D. at 5%	3	4	2	7	2		10	23
L.S.D. for T.E. in S.B.	3	5	2	7	2		10	23
L.S.D. for T.E. in D.B.	3	5	2	7	2		10	23
C.V. %	1	4	2	4	2		5	9
Efficiency %	104	108	100	100	106		118	100

Cont'd. ...

Table 4.3.2. Cont'd. ...

Entry Name	SYRIA						TURKEY	Overall Mean
	Aleppo-T.H.	Gelline	Hama	Heimo	Izra'a	Tel Hadya	Diyarbakir	
662	115	111	104	133	94	-	135	94
759	120	103	96	126	98	95	140	92
78S26013	113	99	96	126	93	93	136	89
FLIP84-43L	118	101	97	126	92	95	-	90
FLIP84-51L	112	98	94	124	89	87	-	88
81S15	118	98	94	122	94	89	-	88
FLIP87-55L	120	100	95	123	92	91	-	89
FLIP87-68L	118	88	87	113	91	81	145	85
FLIP87-74L	119	88	61	113	92	81	139	84
FLIP89-20L	113	100	95	125	91	91	141	89
FLIP89-26L	111	100	92	123	93	89	141	89
FLIP89-31L	119	99	95	125	92	94	-	89
FLIP89-39L	115	99	92	125	91	87	-	87
FLIP89-60L	118	89	84	114	94	81	135	85
FLIP90-22L	120	98	94	126	93	92	141	89
FLIP90-25L	119	95	92	121	92	89	137	88
FLIP90-27L	119	97	91	121	92	88	-	88
FLIP90-30L	121	98	91	124	92	89	140	89
FLIP90-33L	117	96	92	119	95	88	-	87
FLIP90-36L	118	98	95	126	92	92	140	89
FLIP90-40L	115	98	91	120	94	88	136	89
FLIP90-41L	115	96	91	122	91	86	134	88
FLIP90-43L	118	99	95	125	93	93	143	89
FLIP91-1L	117	91	82	110	92	80	134	84
FLIP92-16L	117	100	95	125	92	91	143	89
FLIP92-17L	114	99	95	127	92	93	135	88
FLIP92-18L	119	99	93	126	93	94	142	89
FLIP92-19L	119	99	95	122	93	92	139	89
FLIP92-20L	116	100	95	125	91	93	141	89
FLIP92-27L	119	99	94	125	95	93	136	90

Table 4.3.2 Cont'd. ...

Entry Name	SYRIA						TURKEY	Overall Mean
	Aleppo-T.H.	Gelline	Hama	Heimo	Izra'a	Tel Hadya	Diyarbakir	
FLIP92-28L	117	98	92	126	92	89	142	88
FLIP92-34L	118	97	94	121	92	89	-	88
FLIP92-36L	119	97	49	124	93	88	135	85
FLIP92-37L	119	95	92	122	91	87	135	89
FLIP92-39L	111	92	87	113	91	83	134	86
FLIP92-46L	118	95	93	118	92	85	138	87
FLIP92-48L	120	97	88	120	92	85	135	87
FLIP92-49L	118	94	91	118	92	87	135	87
FLIP92-50L	115	92	85	116	90	85	134	86
FLIP92-54L	120	92	85	109	92	79	138	85
FLIP93-1L	117	99	95	126	93	93	-	90
FLIP93-8L	120	97	91	121	91	86	-	88
FLIP93-9L	119	99	94	124	94	90	142	90
FLIP93-10L	121	99	97	124	92	91	142	90
FLIP93-12L	116	96	92	123	95	89	-	89
FLIP93-17L	117	103	99	126	95	95	-	91
FLIP93-20L	118	100	94	122	91	90	-	89
FLIP93-34L	119	99	93	123	92	89	-	88
Local Check	119	97	91	125	90	90	147	-
Location Mean	118	97	91	122	92	89	139	
S.E. of Mean	3	1	10	2	2	1	One Rep.	
L.S.D. at 5%	6	2	19	4	3	2		
L.S.D. for T.E. in S.B.	6	2	20	4	3	2		
L.S.D. for T.E. in D.B.	3	1	10	2	2	1		
C.V. %	100	114	101	100	129	111		
Efficiency %								

* The mean has been calculated excluding the locations with incomplete data.

Table 4.3.3. Time to maturity (days) of entries in LISN-S-94 conducted at differant locations

Entry Name	ALGERIA	CHINA	IRAN			ITALY	
	Khroub	Hebei	Karaj	Karaj-2	Maragheh	Qazvin	Gallina
662	129	87	86	185	90	98	129
759	128	87	73	183	88	96	125
78S26013	120	87	77	183	84	98	116
FLIP84-43L	125	87	74	185	84	93	119
FLIP84-51L	124	87	74	186	87	91	118
81S15	123	87	72	183	86	92	117
FLIP87-55L	125	87	74	184	87	95	123
FLIP87-68L	119	88	73	182	83	91	123
FLIP87-74L	119	88	70	182	81	91	113
FLIP89-20L	122	87	75	183	83	92	123
FLIP89-26L	121	87	74	183	86	93	118
FLIP89-31L	121	87	72	156	84	98	117
FLIP89-39L	123	89	74	185	81	98	123
FLIP89-60L	119	86	70	178	85	91	113
FLIP90-22L	121	87	72	184	83	98	117
FLIP90-25L	121	87	68	183	83	94	115
FLIP90-27L	121	87	74	183	84	92	118
FLIP90-30L	122	87	72	183	86	97	118
FLIP90-33L	121	87	72	184	87	98	117
FLIP90-36L	121	87	71	184	83	97	117
FLIP90-36L	121	87	75	184	88	96	117
FLIP90-40L	120	87	75	184	88	96	117
FLIP90-40L	122	88	74	183	85	98	116
FLIP90-41L	122	88	74	183	85	98	116
FLIP90-43L	120	87	74	184	85	96	120
FLIP90-43L	120	88	72	182	80	90	115
FLIP91-1L	121	87	71	183	88	95	116
FLIP92-16L	121	87	75	184	87	99	119
FLIP92-17L	120	87	75	184	87	99	119
FLIP92-17L	119	87	71	183	84	95	118
FLIP92-18L	121	87	68	184	81	95	119
FLIP92-19L	121	87	75	184	84	93	118
FLIP92-20L	121	87	75	184	84	93	118
FLIP92-20L	120	87	72	184	84	96	120
FLIP92-27L	120	87	72	184	84	96	120

Cont'd. ...

Table 4.3.3 Cont'd. ...

Entry Name	ALGERIA	CHINA	IRAN				ITALY
	Khroub	Hebei	Karaj	Karaj-2	Maragheh	Qazvin	Gallina
FLIP92-28L	119	86	74	181	84	96	119
FLIP92-34L	122	87	75	183	87	93	119
FLIP92-36L	121	87	74	184	83	97	122
FLIP92-37L	124	87	75	186	89	99	120
FLIP92-39L	121	87	72	185	83	92	117
FLIP92-46L	121	87	73	184	84	95	119
FLIP92-48L	121	87	69	185	84	94	117
FLIP92-49L	120	85	68	181	83	93	113
FLIP92-50L	119	89	74	184	85	92	117
FLIP92-54L	119	86	74	183	86	95	115
FLIP93-1L	119	86	73	183	91	93	122
FLIP93-8L	118	87	68	179	85	93	114
FLIP93-9L	122	87	72	184	85	93	119
FLIP93-10L	125	86	73	185	83	98	126
FLIP93-12L	124	86	75	184	86	93	118
FLIP93-17L	129	87	74	180	88	95	122
FLIP93-20L	121	87	75	183	82	95	115
FLIP93-34L	122	87	77	184	87	95	117
Local Check	121	89	74	193	90	98	124
Location Mean	122	87	73	183	85	95	118
S.E. of Mean		1	2	6	2	2	3
L.S.D. at 5%		1	5	12	5	4	5
L.S.D. for T.E. in S.B		1	5	12	5	5	5
L.S.D. for T.E. in D.B		1	5	12	5	4	5
C.V. %		1	3	3	3	2	2
Efficiency %		133	100	100	104	112	100

Cont'd. ...

Table 4.3.3. Cont'd. ...

Entry Name	LEBANON	MOROCCO	SLOVAKIA	SYRIA		
	Tel Amara	Jema'a Shain	Piestany	Aleppo-T.H.	Gelline	Hama Heimo
662	166	159	90	144	129	133 171
759	164	149	84	147	125	125 167
78S26013	165	137	95	142	125	124 163
FLIP84-43L	165	147	95	98	126	125 165
FLIP84-51L	165	145	90	137	125	125 166
81S15	164	149	90	149	127	125 169
FLIP87-55L	164	139	95	153	127	125 166
FLIP87-68L	164	143	95	145	124	124 158
FLIP87-74L	162	142	87	146	124	117 155
FLIP89-20L	164	144	90	162	126	125 162
FLIP89-26L	165	147	95	140	125	125 164
FLIP89-31L	165	147	90	150	126	125 165
FLIP89-39L	164	147	82	142	127	124 166
FLIP89-60L	160	139	87	149	127	116 158
FLIP90-22L	165	147	82	151	126	125 163
FLIP90-25L	166	143	90	148	126	124 161
FLIP90-27L	165	145	82	150	127	124 163
FLIP90-30L	166	143	95	155	126	125 165
FLIP90-33L	165	146	90	147	126	125 160
FLIP90-36L	164	146	85	147	124	125 166
FLIP90-40L	165	143	90	143	125	125 161
FLIP90-41L	164	144	90	143	125	125 162
FLIP90-43L	165	147	90	146	125	125 163
FLIP91-1L	161	143	82	147	125	115 157
FLIP92-16L	166	147	90	145	124	124 162
FLIP92-17L	164	147	95	140	126	125 165
FLIP92-18L	164	146	90	149	126	125 163
FLIP92-19L	166	148	90	147	127	125 163
FLIP92-20L	162	147	85	141	126	125 162
FLIP92-27L	165	148	95	149	126	124 161

Cont'd. ...

Table 4.3.3 Cont'd. ...

Entry Name	LEBANON	MOROCCO	SLOVAKIA	SYRIA			
	Tel Amara	Jema'a Shain	Piestany	Aleppo-T.H.	Gelline	Hama	Heimo
FLIP92-28L	165	143	87	146	125	125	164
FLIP92-34L	166	147	85	146	125	125	162
FLIP92-36L	163	145	90	149	125	125	164
FLIP92-37L	164	145	85	150	125	124	163
FLIP92-39L	163	145	82	135	124	124	158
FLIP92-46L	164	145	95	148	126	125	165
FLIP92-48L	166	141	90	149	125	125	162
FLIP92-49L	163	143	87	148	123	118	164
FLIP92-50L	164	145	95	143	125	120	159
FLIP92-54L	161	139	95	152	125	118	158
FLIP93-1L	163	147	87	146	125	125	167
FLIP93-8L	162	145	95	152	125	121	160
FLIP93-9L	164	147	90	149	125	125	162
FLIP93-10L	164	145	95	153	125	124	165
FLIP93-12L	164	147	90	145	126	125	161
FLIP93-17L	159	146	85	145	126	125	165
FLIP93-20L	164	145	90	146	127	125	162
FLIP93-34L	163	146	90	150	126	125	161
Local Check	163	145	85	148	126	124	164
Location Mean	164	145	89	146	126	124	163
S.E. of Mean		0		12	1	1	2
L.S.D. at 5%		1		24	3	2	4
L.S.D. for T.E. in S.B		1		24	3	2	4
L.S.D. for T.E. in D.B		1		24	3	2	4
C.V. %	One Rep.	0	One Rep.	8	1	1	1
Efficiency %		100		102	105	101	100

Cont'd. ...

Table 4.3.3. Cont'd. ...

Entry Name	SYRIA	TURKEY	Overall Mean
	Tel Hadya	Diyarbakir	
662	135	186	129
759	129	183	125
78S26013	124	177	123
FLIP84-43L	129	-	121
FLIP84-51L	126	-	123
81S15	126	-	124
FLIP87-55L	127	-	125
FLIP87-68L	124	193	122
FLIP87-74L	119	185	120
FLIP89-20L	124	192	124
FLIP89-26L	126	195	123
FLIP89-31L	125	-	122
FLIP89-39L	127	-	123
FLIP89-60L	119	178	120
FLIP90-22L	124	184	123
FLIP90-25L	123	191	122
FLIP90-27L	125	-	123
FLIP90-30L	126	194	124
FLIP90-33L	123	-	123
FLIP90-36L	123	185	123
FLIP90-40L	123	193	123
FLIP90-41L	123	193	123
FLIP90-43L	125	195	123
FLIP91-1L	119	180	120
FLIP92-16L	124	192	123
FLIP92-17L	123	180	124
FLIP92-17L	126	194	123
FLIP92-18L	126	184	123
FLIP92-19L	124	184	122
FLIP92-20L	124	179	124
FLIP92-27L			

Entry Name	SYRIA	TURKEY	Overall Mean
	Tel Hadya	Diyarbakir	
FLIP92-28L	126	193	123
FLIP92-34L	126	-	123
FLIP92-36L	126	193	124
FLIP92-37L	123	193	124
FLIP92-39L	121	181	121
FLIP92-46L	126	193	124
FLIP92-48L	123	191	122
FLIP92-49L	121	178	121
FLIP92-50L	119	178	122
FLIP92-54L	120	196	122
FLIP93-1L	127	-	123
FLIP93-8L	121	-	122
FLIP93-9L	125	194	123
FLIP93-10L	126	193	125
FLIP93-12L	124	-	123
FLIP93-17L	129	-	124
FLIP93-20L	126	-	123
FLIP93-34L	124	-	124
Local Check	127	191	-
Location Mean	125	188	
S.E. of Mean	1		
L.S.D. at 5%	3		
L.S.D. for T.E. in S.B	3		
L.S.D. for T.E. in D.B	3		
C.V. %	1		
Efficiency %	118		

* The mean has been calculated excluding the locations with incomplete data.

Table 4.3.4. Plant height (cm) of entries in LISN-S-94 conducted at different locations

Entry Name	ALGERIA	CANADA	CHINA	IRAN			
	Khroub	Saskatoon	Hebei	Karaj	Karaj-2	Maragheh	Qazvin
662	30	23	32	19	28	23	30
759	35	24	31	25	25	20	32
78S26013	33	26	30	22	28	26	38
FLIP84-43L	30	27	29	21	34	19	35
FLIP84-51L	30	25	34	22	35	22	32
81S15	35	28	34	23	28	25	36
FLIP87-55L	37	27	29	25	25	21	34
FLIP87-68L	27	26	30	23	20	22	36
FLIP87-74L	27	22	30	22	17	19	32
FLIP89-20L	30	28	32	17	24	21	33
FLIP89-26L	28	26	33	22	28	23	35
FLIP89-31L	35	25	31	23	28	22	33
FLIP89-39L	35	29	36	25	36	22	39
FLIP89-60L	30	25	31	23	17	22	34
FLIP90-22L	30	24	31	21	27	22	38
FLIP90-25L	35	24	29	22	24	22	35
FLIP90-27L	33	28	35	21	20	22	38
FLIP90-30L	37	30	34	19	30	19	38
FLIP90-33L	35	19	33	24	28	23	35
FLIP90-36L	30	21	29	25	27	23	35
FLIP90-40L	30	27	36	22	28	23	35
FLIP90-41L	35	31	34	23	26	21	36
FLIP90-43L	30	27	33	23	27	23	39
FLIP91-1L	33	23	32	24	22	20	35
FLIP92-16L	33	24	30	23	27	22	34
FLIP92-17L	30	23	32	23	27	22	30
FLIP92-18L	30	25	33	17	25	21	40
FLIP92-19L	32	23	30	20	24	19	35
FLIP92-20L	33	24	31	24	26	20	36
FLIP92-27L	30	25	30	21	33	23	40

Cont'd. ...

Table 4.3.4 Cont'd. ...

Entry Name	ALGERIA	CANADA	CHINA	IRAN			
	Khroub	Saskatoon	Hebei	Karaj	Karaj-2	Maragheh	Qazvin
FLIP92-28L	35	22	30	19	23	20	36
FLIP92-34L	30	24	29	18	26	22	34
FLIP92-36L	32	23	31	19	29	21	33
FLIP92-37L	30	23	31	23	23	22	37
FLIP92-39L	28	24	30	24	22	22	34
FLIP92-46L	30	24	30	23	21	23	34
FLIP92-48L	30	21	32	21	26	22	36
FLIP92-49L	30	22	26	23	19	19	35
FLIP92-50L	27	33	36	24	23	24	36
FLIP92-54L	28	25	27	23	23	16	35
FLIP93-1L	30	23	30	21	31	21	34
FLIP93-8L	27	19	29	21	20	23	33
FLIP93-9L	30	24	30	24	31	26	36
FLIP93-10L	30	23	28	25	34	23	31
FLIP93-12L	30	23	33	21	26	22	35
FLIP93-17L	30	22	33	23	25	23	33
FLIP93-20L	30	31	30	20	32	23	37
FLIP93-34L	35	27	34	22	26	22	37
Local Check	33	32	36	19	36	22	37
Location Mean	31	24	31	22	26	22	35
S.E. of Mean			3	3	3	2	3
L.S.D. at 5%			5	7	6	4	6
L.S.D. for T.E. in S.B			5	7	6	4	6
L.S.D. for T.E. in D.B			5	7	6	4	6
C.V. %			8	15	11	10	8
Efficiency %			109	103	107	100	122

Cont'd. ...

Table 4.3.4. Cont'd. ...

Entry Name	ITALY	LEBANON	MOROCCO	NEW ZEALAND	SLOVAKIA	SYRIA
	Gallina	Tel Amara	Jema'a Shain	Lincoln	Piestany	Aleppo-T.H. Gelline
662	30	37	30	24	17	26
759	30	39	40	25	25	31
78S26013	33	42	60	23	24	29
FLIP84-43L	29	33	60	25	21	31
FLIP84-51L	33	30	55	23	25	28
81S15	31	39	40	25	24	32
FLIP87-55L	30	33	25	27	22	25
FLIP87-68L	29	36	35	21	25	30
FLIP87-74L	30	32	40	19	19	28
FLIP89-20L	31	32	50	26	23	32
FLIP89-26L	31	39	50	24	22	25
FLIP89-31L	29	36	55	22	21	28
FLIP89-39L	30	43	35	27	18	26
FLIP89-60L	24	32	30	17	21	31
FLIP90-22L	31	40	50	22	24	27
FLIP90-25L	29	42	50	22	23	31
FLIP90-27L	30	33	40	21	22	29
FLIP90-30L	27	41	60	24	22	28
FLIP90-33L	30	32	40	25	22	29
FLIP90-36L	31	38	55	21	22	28
FLIP90-40L	32	40	50	27	22	28
FLIP90-41L	31	42	50	26	20	25
FLIP90-43L	26	42	50	24	22	30
FLIP91-1L	31	42	40	21	23	26
FLIP92-16L	32	37	50	22	22	27
FLIP92-17L	28	41	50	26	26	27
FLIP92-18L	29	41	50	23	18	32
FLIP92-19L	29	36	40	21	23	27
FLIP92-20L	30	41	35	24	23	31
FLIP92-27L	30	37	60	25	23	30

Cont'd. ...

Table 4.3.4 Cont'd. ...

Entry Name	ITALY	LEBANON	MOROCCO	NEW ZEALAND	SLOVAKIA	SYRIA	
	Gallina	Tel Amara	Jema'a Shain	Lincoln	Piestany	Aleppo-T.H.	Gelline
FLIP92-28L	31	35	60	26	23	33	34
FLIP92-34L	30	30	50	26	18	30	32
FLIP92-36L	32	42	50	23	23	28	28
FLIP92-37L	31	35	40	21	26	31	32
FLIP92-39L	29	30	50	20	23	29	27
FLIP92-46L	26	33	40	22	21	29	30
FLIP92-48L	32	39	50	23	23	29	33
FLIP92-49L	27	30	40	19	21	30	28
FLIP92-50L	31	42	40	26	28	26	29
FLIP92-54L	28	35	20	13	22	27	32
FLIP93-1L	31	40	50	27	23	29	37
FLIP93-8L	30	42	50	18	19	32	36
FLIP93-9L	33	42	50	26	25	30	35
FLIP93-10L	30	35	50	26	23	29	34
FLIP93-12L	31	32	40	22	19	30	30
FLIP93-17L	29	40	35	23	22	26	30
FLIP93-20L	29	41	50	29	18	31	30
FLIP93-34L	28	36	55	23	21	29	31
Local Check	30	40	40	28	22	26	30
Location Mean	30	37	46	23	22	29	31
S.E. of Mean	2			2	2	3	5
L.S.D. at 5%	4			8	3	5	10
L.S.D. for T.E. in S.B	4	One Rep.	One Rep.	9	3	5	10
L.S.D. for T.E. in D.B	4			9	3	5	10
C.V. %	6			10	7	9	15
Efficiency %	145			101	103	101	100

Cont'd. ...

Table 4.3.4. Cont'd. ...

Entry Name	SYRIA			TURKEY	Overall Mean
	Hama	Heimo	Tel Hadya	Diyarbakir	
662	25	39	30	25	28
759	25	43	36	32	31
78S26013	30	38	32	21	32
FLIP84-43L	25	41	32	-	30
FLIP84-51L	25	40	36	-	31
81S15	30	45	39	-	32
FLIP87-55L	28	37	35	-	29
FLIP87-68L	25	42	29	34	29
FLIP87-74L	25	38	30	26	27
FLIP89-20L	25	34	33	29	29
FLIP89-26L	30	39	35	32	31
FLIP89-31L	28	40	34	-	31
FLIP89-39L	25	38	34	-	31
FLIP89-60L	28	35	26	23	27
FLIP90-22L	28	42	37	31	31
FLIP90-25L	28	41	34	27	31
FLIP90-27L	28	38	36	-	29
FLIP90-30L	25	38	35	31	31
FLIP90-33L	35	45	34	-	30
FLIP90-36L	30	43	34	29	31
FLIP90-40L	30	43	35	31	32
FLIP90-41L	30	44	35	32	32
FLIP90-43L	30	41	34	29	31
FLIF91-1L	30	39	29	23	29
FLIP92-16L	30	40	35	32	31
FLIP92-17L	25	44	34	26	31
FLIP92-18L	30	39	35	30	30
FLIP92-19L	28	39	32	31	29
FLIP92-20L	28	39	37	33	30
FLIP92-27L	30	37	36	24	32

Table 4.3.4 Cont'd. ...

Entry Name	SYRIA			TURKEY	Overall Mean
	Hama	Heimo	Tel Hadya	Diyarbakir	
FLIP92-28L	28	43	32	30	31
FLIP92-34L	28	48	36	-	30
FLIP92-36L	28	42	31	28	31
FLIP92-37L	25	35	35	31	29
FLIP92-39L	30	37	33	25	29
FLIP92-46L	25	42	30	29	28
FLIP92-48L	28	36	33	30	30
FLIP92-49L	28	35	33	21	27
FLIP92-50L	25	38	34	23	31
FLIP92-54L	25	34	30	26	26
FLIP93-11L	28	40	32	-	31
FLIP93-8L	30	37	30	-	28
FLIP93-9L	28	46	36	32	32
FLIP93-10L	28	39	37	29	31
FLIP93-12L	25	41	22	-	28
FLIP93-17L	25	43	31	-	29
FLIP93-20L	35	47	38	-	32
FLIP93-34L	30	46	37	-	32
Local Check	30	37	41	32	-
Location Mean	28	40	34	28	
S.E. of Mean	2	4	4	One Rep.	
L.S.D. at 5%	4	8	7		
L.S.D. for T.E. in S.B	4	8	7		
L.S.D. for T.E. in D.B	4	8	7		
C.V. %	7	9	10		
Efficiency %	100	132	127		

* The mean has been calculated excluding the locations with incomplete data.

Table 4.3.5. Seed yield (y=kg/ha) and rank (R) of entries in LISN-S-94 conducted at different locations

Entry Name	CANADA		CHINA		IRAN					
	Saskatoon		Hebei		Karaj		Karaj-2		Maragheh	
	Y	R	Y	R	Y	R	Y	R	Y	R
662	918	35	-	-	826	14	92	49	683	3
759	632	46	430	47	491	33	1048	10	450	24
78S26013	1136	25	2056	12	351	41	1116	8	317	43
FLIP84-43L	1317	12	1030	34	1086	3	582	33	620	5
FLIP84-51L	788	41	939	38	889	9	1123	7	327	42
B1S15	1195	20	1068	33	634	21	991	12	507	13
FLIP87-55L	1152	23	2168	11	780	15	930	15	610	6
FLIP87-68L	525	48	2029	13	515	31	269	45	577	7
FLIP87-74L	467	49	2450	5	321	43	244	47	707	1
FLIP89-20L	1565	3	1326	25	933	6	689	31	480	16
FLIP89-26L	1024	30	732	41	962	5	838	21	400	34
FLIP89-31L	1271	16	3095	1	359	40	1246	3	293	44
FLIP89-39L	1343	8	2538	4	668	19	472	40	467	20
FLIP89-60L	902	37	643	44	597	24	351	42	537	12
FLIP90-22L	1540	4	1477	18	541	29	721	30	377	38
FLIP90-25L	1032	28	1538	17	291	44	526	37	563	8
FLIP90-27L	1297	14	576	45	555	28	541	36	400	34
FLIP90-30L	1330	10	1225	27	399	38	893	17	213	48
FLIP90-33L	1207	18	1165	29	267	46	662	32	270	45
FLIP90-36L	1028	29	1014	35	527	30	891	18	423	30
FLIP90-40L	1265	17	94	48	278	45	559	34	423	30
FLIP90-41L	1340	9	1369	23	506	32	1183	5	563	8
FLIP90-43L	887	38	1468	20	565	27	869	19	360	40
FLIP91-1L	698	42	1000	36	826	13	383	41	463	21
FLIP92-16L	1145	24	1306	26	336	42	480	39	237	47
FLIP92-17L	1570	2	2266	9	883	10	901	16	547	11
FLIP92-18L	1301	13	1452	21	568	26	788	23	377	38
FLIP92-19L	1363	7	2339	8	422	37	766	26	507	14
FLIP92-20L	1447	6	1110	31	480	36	1060	9	473	19
FLIP92-27L	922	34	1847	15	486	34	855	20	430	28

Cont'd. ...

Table 4.3.5 Cont'd. ...

Entry Name	CANADA		CHINA		IRAN					
	Saskatoon		Hebei		Karaj		Karaj-2		Maragheh	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-28L	922	33	2382	6	703	17	772	25	410	32
FLIP92-34L	1180	21	1858	14	678	18	746	27	197	49
FLIP92-36L	905	36	974	37	863	11	1013	11	427	29
FLIP92-37L	1009	31	2354	7	933	7	722	29	703	2
FLIP92-39L	869	40	1095	32	160	49	169	48	460	22
FLIP92-46L	669	44	1110	30	264	47	283	43	403	33
FLIP92-48L	985	32	1475	19	615	22	944	14	480	16
FLIP92-49L	685	43	438	46	253	48	743	28	440	27
FLIP92-50L	1296	15	2947	2	827	12	278	44	267	46
FLIP92-54L	585	47	910	40	995	4	268	46	453	23
FLIP93-1L	1116	26	2241	10	483	35	774	24	547	10
FLIP93-8L	667	45	937	39	386	39	488	38	476	18
FLIP93-9L	1529	5	663	43	580	25	1185	4	503	15
FLIP93-10L	1197	19	1369	24	1220	1	949	13	350	41
FLIP93-12L	880	39	1206	28	904	8	558	35	447	26
FLIP93-17L	1178	22	1742	16	728	16	1297	2	640	4
FLIP93-20L	1039	27	676	42	645	20	821	22	380	37
FLIP93-34L	1323	11	1389	22	611	23	1155	6	400	34
Local Check	2362	1	2660	3	1157	2	1847	1	447	25
Location Mean	1102		1469		619		757		450	
S.E. of Mean	220		656		244		248		93	
L.S.D. at 5%	433		1289		483		500		189	
L.S.D. for T.E. in S.B	451		1356		498		503		189	
L.S.D. for T.E. in D.B	447		1331		495		502		189	
T.E > L. Check	0		0		0		0		4	
C.V. %	19		41		37		32		21	
Efficiency %	124		127		110		100		100	

Cont'd. ...

Table 4.3.5. Cont'd. ...

Entry Name	IRAN		ITALY		LEBANON		MOROCCO		NEW ZEALAND	
	Qazvin		Gallina		Tel Amara		Jema'a Shain		Lincoln	
	Y	R	Y	R	Y	R	Y	R	Y	R
662	737	15	544	49	1100	46	1570	48	1737	36
759	660	25	1353	23	1663	32	1883	47	1707	38
78S26013	735	17	2102	2	1388	42	2162	39	2895	6
FLIP84-43L	670	24	1316	25	1667	31	2265	29	2157	26
FLIP84-51L	401	48	1310	26	1733	27	2234	32	1522	42
81S15	793	12	1546	13	3296	2	2102	41	2554	8
FLIP87-55L	695	20	1251	33	1650	34	2255	30	3029	3
FLIP87-68L	921	7	955	41	883	49	2280	26	1539	41
FLIP87-74L	629	31	1807	4	1096	47	2380	19	2292	17
FLIP89-20L	611	35	657	48	1588	36	2322	22	1720	37
FLIP89-26L	853	9	1046	37	1729	28	2154	40	1876	34
FLIP89-31L	518	43	1703	6	1717	29	2512	6	2475	10
FLIP89-39L	970	4	1127	36	1900	22	1899	46	1573	40
FLIP89-60L	1030	2	1464	18	1217	44	2567	4	849	48
FLIP90-22L	873	8	1220	34	2000	18	2369	20	2507	9
FLIP90-25L	953	5	1196	35	1517	39	2472	10	2161	25
FLIP90-27L	640	29	1408	19	2104	14	2421	15	1684	39
FLIP90-30L	547	38	1350	24	2200	11	2654	3	2390	13
FLIP90-33L	521	42	1021	40	2646	5	2382	18	1930	32
FLIP90-36L	1160	1	1398	20	2125	13	2223	33	1475	43
FLIP90-40L	471	46	1371	22	1163	45	2764	1	2100	27
FLIP90-41L	621	33	1505	15	2733	4	2520	5	2986	5
FLIP90-43L	754	14	947	42	1421	41	2320	23	2020	29
FLIP91-1L	546	39	751	46	1050	48	2169	38	1769	35
FLIP92-16L	688	21	1600	12	1621	35	2464	13	2172	24
FLIP92-17L	635	30	1280	30	2242	10	2082	43	2454	11
FLIP92-18L	506	44	1026	39	1829	24	2319	24	2049	28
FLIP92-19L	680	23	2656	1	1950	19	2280	25	2212	21
FLIP92-20L	981	3	1301	27	1804	25	2360	21	2288	18
FLIP92-27L	523	41	1299	28	1775	26	2211	36	2210	22

Cont'd. ...

Table 4.3.5 Cont'd. ...

Entry Name	IRAN		ITALY		LEBANON		MOROCCO		NEW ZEALAND	
	Qazvin		Gallina		Tel Amara		Jema'a Shain		Lincoln	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-28L	407	47	1639	9	2054	15	2219	35	2254	20
FLIP92-34L	710	18	1465	17	1904	21	2762	2	3006	4
FLIP92-36L	539	40	1391	21	2275	9	2269	27	2351	15
FLIP92-37L	618	34	1638	10	1479	40	2490	8	2182	23
FLIP92-39L	653	27	1613	11	1563	37	1497	49	1345	46
FLIP92-46L	766	13	859	45	1675	30	2471	12	1442	44
FLIP92-48L	686	22	677	47	2638	6	2472	10	1353	45
FLIP92-49L	596	37	1651	8	2129	12	2394	17	2387	14
FLIP92-50L	610	36	1283	29	2025	17	2220	34	4228	1
FLIP92-54L	809	11	1526	14	1346	43	2246	31	795	49
FLIP93-1L	708	19	1807	5	2929	3	2269	27	1983	30
FLIP93-8L	651	28	1272	31	1908	20	2405	16	1081	47
FLIP93-9L	333	49	1266	32	2350	8	2051	44	2257	19
FLIP93-10L	497	45	1041	38	2608	7	2432	14	2407	12
FLIP93-12L	735	16	2096	3	1558	38	1951	45	2887	7
FLIP93-17L	656	26	914	43	1875	23	2097	42	2313	16
FLIP93-20L	820	10	1502	16	2033	16	2183	37	1954	31
FLIP93-34L	940	6	1671	7	1650	33	2503	7	1903	33
Local Check	621	32	869	44	3492	1	2473	9	3374	2
Location Mean	639		1341		1884		2286		2119	
S.E. of Mean	264		309		557		292		516	
L.S.D. at 5%	421		628		1129		587		1040	
L.S.D. for T.E. in S.B	673		628		1129		595		1048	
L.S.D. for T.E. in D.B	566		628		1129		593		1046	
T.E > L. Check	0		16		0		0		0	
C.V. %	29		23		30		13		24	
Efficiency %	92		100		100		101		100	

Cont'd. ...

Table 4.3.5. Cont'd. ...

Entry Name	SLOVAKIA		SPAIN		SYRIA					
	Piestany		Cordoba		Aleppo-T.H.		Gelline		Hama	
	Y	R	Y	R	Y	R	Y	R	Y	R
662	350	48	2889	6	1402	35	274	49	0	49
759	140	49	2511	19	1935	6	516	47	184	39
78S26013	973	35	2506	20	1220	37	1144	20	409	13
FLIP84-43L	795	45	1683	46	2512	1	767	41	294	31
FLIP84-51L	2070	11	2828	7	2023	5	1062	23	179	40
81S15	1600	21	1944	38	1153	44	1299	10	367	21
FLIP87-55L	800	44	2728	10	1644	21	1004	24	342	26
FLIP87-68L	1675	17	2061	35	1713	18	863	33	146	42
FLIP87-74L	1395	29	2628	13	1842	10	612	45	71	46
FLIP89-20L	873	42	2417	22	2170	2	955	29	298	29
FLIP89-26L	1305	31	1606	47	1089	48	1173	17	608	1
FLIP89-31L	1835	15	1900	41	1727	16	1170	18	544	6
FLIP89-39L	1460	28	2517	18	1215	39	763	42	232	38
FLIP89-60L	2045	13	1539	48	1769	13	985	26	66	47
FLIP90-22L	2195	9	2006	36	1404	34	976	27	259	34
FLIP90-25L	1535	22	2356	28	1559	25	832	37	344	25
FLIP90-27L	2480	4	2367	27	2071	3	1481	2	555	5
FLIP90-30L	2295	6	2383	25	1200	40	1149	19	372	20
FLIP90-33L	2705	3	2500	21	2053	4	1242	15	419	11
FLIP90-36L	965	36	2211	33	1189	41	1331	9	415	12
FLIP90-40L	1240	33	3211	1	1872	9	1101	22	598	2
FLIP90-41L	2265	7	1750	44	1880	8	1400	6	439	10
FLIP90-43L	955	37	2300	30	1530	28	974	28	394	16
FLIP91-1L	1485	26	2994	5	1218	38	1136	21	86	45
FLIP92-16L	1075	34	2317	29	1553	26	830	38	279	32
FLIP92-17L	1610	19	2611	15	1547	27	920	30	383	18
FLIP92-18L	460	46	1939	39	1702	19	875	32	449	9
FLIP92-19L	1810	16	2994	4	1717	17	834	35	256	35
FLIP92-20L	1975	14	2194	34	1513	29	809	40	396	15
FLIP92-27L	1250	32	2700	11	1572	24	1193	16	333	27

Cont'd. ...

Table 4.3.5 Cont'd. ...

Entry Name	SLOVAKIA		SPAIN		SYRIA					
	Piešťany		Cordoba		Aleppo-T.H.		Gelline		Hama	
	Y	R	Y	R	Y	R	Y	R	Y	R
FLIP92-28L	2460	5	3089	3	1126	45	1364	7	485	8
FLIP92-34L	1530	23	3161	2	1408	33	1253	13	510	7
FLIP92-36L	1500	25	1922	40	1800	11	1335	8	386	17
FLIP92-37L	2060	12	2567	17	1773	12	532	46	271	33
FLIP92-39L	937	38	2572	16	1599	23	919	31	112	44
FLIP92-46L	905	40	2656	12	1644	20	815	39	295	30
FLIP92-48L	1505	24	2789	9	1499	31	1466	3	405	14
FLIP92-49L	1375	30	2378	26	1435	32	1244	14	148	41
FLIP92-50L	1615	18	2272	31	800	49	704	43	128	43
FLIP92-54L	3020	2	2417	22	1906	7	378	48	41	48
FLIP93-1L	1610	19	1967	37	1156	43	1255	12	374	19
FLIP93-8L	400	47	2817	8	1165	42	833	36	311	28
FLIP93-9L	860	43	1717	45	1250	36	1415	5	588	4
FLIP93-10L	2200	8	1856	42	1096	47	1276	11	234	37
FLIP93-12L	915	39	2417	24	1100	46	624	44	349	23
FLIP93-17L	1475	27	1411	49	1727	15	843	34	348	24
FLIP93-20L	2130	10	2617	14	1640	22	1429	4	241	36
FLIP93-34L	895	41	2267	32	1738	14	990	25	359	22
Local Check	4020	1	1767	43	1503	30	1698	1	591	3
Location Mean	1531		2352		1558		1021		324	
S.E. of Mean	177		592		325		162		131	
L.S.D. at 5%	360		1200		644		317		260	
L.S.D. for T.E. in S.B	360		1200		663		332		268	
L.S.D. for T.E. in D.B	360		1200		659		328		266	
T.E > L. Check	0		5		2		0		0	
C.V. %	12		25		20		15		39	
Efficiency %	100		100		108		149		107	

Cont'd. ...

Table 4.3.5. Cont'd. ...

Entry Name	SYRIA				TURKEY		Overall Mean	
	Heimo		Tel Hadya		Diyarbakir			
	Y	R	Y	R	Y	R	Y	R
662	1866	43	1145	45	733	25	1008	48
759	2922	20	1295	39	933	20	1211	40
78S26013	1361	7	1743	11	800	22	1473	16
FLIP84-43L	3218	11	1313	37	-	-	1392	26
FLIP84-51L	3518	3	1237	41	-	-	1452	20
81S15	2989	18	1895	4	-	-	1554	4
FLIP87-55L	3864	1	1441	31	-	-	1511	10
FLIP87-68L	1595	47	1142	46	600	30	1104	46
FLIP87-74L	939	49	835	49	667	28	1142	44
FLIP89-20L	2727	26	1638	20	1467	5	1352	32
FLIP89-26L	2882	21	1867	5	1200	13	1338	34
FLIP89-31L	3264	10	1837	6	-	-	1523	6
FLIP89-39L	2133	39	1314	36	-	-	1254	38
FLIP89-60L	2085	41	1189	42	267	32	1200	42
FLIP90-22L	2748	25	1705	15	1267	11	1465	17
FLIP90-25L	2620	30	1383	34	1133	16	1334	35
FLIP90-27L	2670	28	1665	17	-	-	1521	7
FLIP90-30L	2987	19	1731	13	1000	19	1504	12
FLIP90-33L	2341	38	1663	18	-	-	1489	13
FLIP90-36L	3072	14	1784	7	2067	1	1389	27
FLIP90-40L	2605	32	1449	30	1733	2	1405	25
FLIP90-41L	2590	34	1609	24	1200	13	1619	1
FLIP90-43L	2721	27	1439	32	1000	19	1278	36
FLIP91-1L	1742	44	1271	40	733	25	1161	43
FLIP92-16L	3181	12	2186	1	1267	11	1385	28
FLIP92-17L	2857	23	1612	23	733	25	1509	11
FLIP92-18L	2359	37	1618	22	1333	9	1261	37
FLIP92-19L	2574	36	1721	14	1400	7	1547	5
FLIP92-20L	2574	35	1767	8	1467	5	1464	18
FLIP92-27L	3015	15	1745	10	200	34	1407	24

Table 4.3.5 Cont'd. ...

Entry Name	SYRIA				TURKEY		Overall Mean	
	Heimo		Tel Hadya		Diyarbakir			
	Y	R	Y	R	Y	R	Y	R
FLIP92-28L	3338	8	1644	19	1133	16	1556	3
FLIP92-34L	3123	13	1683	16	-	-	1582	2
FLIP92-36L	3399	5	1301	38	800	22	1480	14
FLIP92-37L	2647	29	1625	21	1333	9	1453	19
FLIP92-39L	1626	46	1078	48	600	30	1073	47
FLIP92-46L	1687	45	1181	43	1447	6	1126	45
FLIP92-48L	3300	9	1764	9	1667	3	1474	15
FLIP92-49L	2599	33	1568	25	667	28	1377	29
FLIP92-50L	1990	42	1163	44	200	34	1357	31
FLIP92-54L	1488	48	1338	35	733	25	1226	39
FLIP93-1L	3515	4	1740	12	-	-	1515	8
FLIP93-8L	2874	22	1490	26	-	-	1202	41
FLIP93-9L	2607	31	1456	29	1133	16	1372	30
FLIP93-10L	2102	40	1479	27	467	31	1434	21
FLIP93-12L	2992	16	1117	47	-	-	1346	33
FLIP93-17L	3670	2	1389	33	-	-	1410	23
FLIP93-20L	2756	24	2010	2	-	-	1513	9
FLIP93-34L	2989	17	1456	28	-	-	1428	22
Local Check	3378	6	1933	3	1133	16	-	-
Location Mean	2696		1524		704			
S.E. of Mean	370		283					
L.S.D. at 5%	727		554					
L.S.D. for T.E. in S.B	759		580					
L.S.D. for T.E. in D.B	751		574					
T.E > L. Check	0		0					
C.V. %	13		17					
Efficiency %	135		148					

One Rep.

Table 4.3.6. The five heaviest seed yielding entries at the individual locations in the LISN-S-94.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
CANADA	Saskatoon	Local Check	FLIP92-17L	FLIP89-20L	FLIP90-22L	FLIP93-9L
CHINA	Hebei	FLIP89-31L	FLIP92-50L	Local Check	FLIP89-39L	FLIP87-74L
IRAN	Karaj	FLIP93-10L	Local Check	FLIP84-43L	FLIP92-54L	FLIP89-26L
IRAN	Karaj-2	Local Check	FLIP93-17L	FLIP89-31L	FLIP93-9L	FLIP90-41L
IRAN	Maragheh	FLIP87-74L	FLIP92-37L	662	FLIP93-17L	FLIP84-43L
IRAN	Qazvin	FLIP90-36L	FLIP89-60L	FLIP92-20L	FLIP89-39L	FLIP90-25L
ITALY	Gallina	FLIP92-19L	78S26013	FLIP93-12L	FLIP87-74L	FLIP93-1L
LEBANON	Tel Amara	Local Check	81S15	FLIP93-1L	FLIP90-41L	FLIP90-33L
MOROCCO	Jema'a Shain	FLIP90-40L	FLIP92-34L	FLIP90-30L	FLIP89-60L	FLIP90-41L
NEW ZEALAND	Lincoln	FLIP92-50L	Local Check	FLIP87-55L	FLIP92-34L	FLIP90-41L
SLOVAKIA	Piestany	Local Check	FLIP92-54L	FLIP90-33L	FLIP90-27L	FLIP92-28L
SPAIN	Cordoba	FLIP90-40L	FLIP92-34L	FLIP92-28L	FLIP92-19L	FLIP91-1L
SYRIA	Aleppo-T.H.	FLIP84-43L	FLIP89-20L	FLIP90-27L	FLIP90-33L	FLIP84-51L
SYRIA	Gelline	Local Check	FLIP90-27L	FLIP92-48L	FLIP93-20L	FLIP93-9L
SYRIA	Hama	FLIP89-26L	FLIP90-40L	Local Check	FLIP93-9L	FLIP90-27L
SYRIA	Heimo	FLIP87-55L	FLIP93-17L	FLIP84-51L	FLIP93-1L	FLIP92-36L
SYRIA	Tel Hadya	FLIP92-16L	FLIP93-20L	Local Check	81S15	FLIP89-26L
TURKEY	Diyarbakir	FLIP90-36L	FLIP90-40L	FLIP92-48L	FLIP89-20L	FLIP92-20L

Methods and Management

The material comprising 36 entries was suggested to be sown in a 6x6 simple lattice 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.

Thirty eight sets of nursery were distributed to cooperators in 19 countries and data were returned from 14 locations in 8 countries. The details of the agronomic practices supplied by the cooperators are given in Table 4.4.1.

Table 4.4.1. Agronomic details of entries in LISN-E-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
China						
Dingxi	24.03.94	20.07.94	30/45/-	-	-	Loc. Lentil
Ethiopia						
Ghinch	16.08.94	-	-	-	-	NEL-358
India						
Almora	11.11.93	07.05.94	20/40/-	-	-	VL 4
Jammu	20.01.94	20.05.94	-	-	-	L-9/12
Jammu	20.01.94	20.05.94	-	-	-	L-9/12
New Delhi	24.11.93	20.04.94	20/40/-	-	Stomp	PKVL-1
Iran						
Karaj	16.04.94	20.07.94	40/70/-	-	-	Qazvin
Maragheh	20.03.94	06.07.94	30/60/-	-	-	Ziba
Qazvin	08.03.94	-	-/50/-	-	-	Qazvin
Sanandag	-	-	-	-	-	-
Pakistan						
Faisalabad	17.11.93	20.04.94	20/60/-	-	-	Masoor
Slovakia						
Piestany	22.04.94	20.07.94	-	-	Dual, Bladex	-
Sudan						
Hudeiba	17.11.93	-	43/-/-	-	Folimat	Selaim
Syria						
Tel Hadya	10.12.93	12.05.94	-/50/-	-	-	Precoz

Results and Discussion

The location means for entries for 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 entries FLIP 92-47L, JLS-1, Sehere 74-3, JL-1, FLIP 92-54L and FLIP 94-2L took least time to flower (62 to 64 days) and time to mature (107-109 days).

The five heaviest yielding lines across the locations included FLIP 92-50L, FLIP 92-42L, FLIP 93-44L, FLIP 93-36L and FLIP 94-5L with seed yields of 1514, 1149, 1139, 1122, and 1113 kg/ha, respectively (Table 4.4.5).

Table 4.4.2 Time to flowering (days) of entries in the LISN-E-94 conducted at different locations.

Entry Name	Acc. NO.	Pedigree	Origin	CHINA	ETHIOPIA	INDIA	
				Dingxi	Ghinchil/ Holetta	Almora	New Delhi
PANTL406	2501	2501	INDIA	68	58	118	80
PANTL639	2573	2573	INDIA	69	95	127	89
FLIP86-50L	6036	ILL4349 X ILL4605	ICARDA	69	64	110	76
FLIP88-42L	6466	ILL4605 X ILL5506	ICARDA	69	63	107	72
FLIP89-71L	6829	ILL4407 X ILL4605	ICARDA	69	56	118	83
FLIP91-1L	7127	ILL5582 X ILL574	ICARDA	68	56	113	80
86591	7164	ILL4354 X ILL101	PAKISTAN	68	57	119	83
FLIP92-39L	7204	ILL5676 X ILL1880	ICARDA	68	60	122	88
FLIP92-40L	7205	ILL5582 X ILL5700	ICARDA	69	70	131	90
FLIP92-41L	7206	ILL5582 X ILL5700	ICARDA	69	71	127	88
FLIP92-42L	7207	ILL5507 X ILL5698	ICARDA	68	78	128	92
FLIP92-46L	7211	ILL6005 X ILL5753	ICARDA	65	75	128	87
FLIP92-47L	7212	ILL4354 X ILL6003	ICARDA	69	56	107	68
FLIP92-48L	7213	ILL5583 X ILL5726	ICARDA	69	68	126	90
FLIP92-50L	7215	ILL5737 X ILL5726	ICARDA	69	74	119	86
FLIP92-52L	7217	ILL3527 X ILL5732	ICARDA	71	63	106	72
FLIP92-54L	7219	ILL4605 X ILL2581	ICARDA	68	56	106	75
FLIP93-36L	7537	ILL7537	ICARDA	69	70	128	86
FLIP93-37L	7538	ILL7538	ICARDA	68	57	108	88
FLIP93-38L	7539	ILL7539	ICARDA	68	62	126	87
FLIP93-42L	7543	ILL7543	ICARDA	71	56	123	77
FLIP93-44L	7545	ILL7545	ICARDA	69	64	126	87
FLIP93-45L	7546	ILL7546	ICARDA	68	67	126	88
FLIP93-46L	7547	ILL7547	ICARDA	68	66	128	84
FLIP93-47L	7548	ILL7548	ICARDA	69	59	127	86
FLIP93-49L	7550	ILL7550	ICARDA	68	57	118	78
SEHORE 74-3	7554	ILL7554	INDIA	66	56	114	74
LENS-830	7555	ILL7555	INDIA	69	55	110	78
JL-1	7556	ILL7556	INDIA	71	53	110	74
JLS-1	7557	ILL7557	INDIA	69	56	111	75
FLIP94-1L	7616	ILL7616	ICARDA	68	58	109	76
FLIP94-2L	7617	ILL7617	ICARDA	71	56	127	74
FLIP94-3L	7618	ILL7618	ICARDA	68	72	128	88
FLIP94-4L	7619	ILL7619	ICARDA	68	78	125	92
FLIP94-5L	7620	ILL7620	ICARDA	68	73	129	89
Local Check				69	58	126	69
Location Mean				68	64	120	82
S.E. of Mean				1	4	2	3
L.S.D. at 5%				3	7	7	5
L.S.D. for T.E. in S.B.				3	8	--	5
L.S.D. for T.E. in D.B.				3	7	--	5
C.V. %				2	5	1	3
Efficiency %				149	110	110	115

Cont'd.

Table 4.4.2 Cont'd. ...

Entry Name	IRAN				PAKISTAN	SLOVAKIA	SYRIA	Overall Mean
	Karaj	Maragheh	Qazvin	Sanandag	Faisalabad (NIAB)	Piestany	Tel Hadya	
PANTL406	41	53	68	23	91	44	81	66
PANTL639	41	61	68	25	93	46	90	75
FLIP86-50L	43	63	67	25	82	52	81	66
FLIP88-42L	42	63	67	25	82	53	79	66
FLIP89-71L	42	53	67	21	98	47	86	67
FLIP91-1L	41	54	67	23	104	46	80	65
86591	40	56	67	20	104	47	86	67
FLIP92-39L	41	54	67	22	105	47	84	68
FLIP92-40L	40	57	67	22	111	47	90	72
FLIP92-41L	41	55	67	25	105	47	87	71
FLIP92-42L	41	51	67	23	107	48	87	72
FLIP92-46L	42	56	68	24	108	52	87	72
FLIP92-47L	42	54	67	21	80	47	80	62
FLIP92-48L	41	57	67	22	107	47	85	71
FLIP92-50L	44	57	67	25	104	52	85	71
FLIP92-52L	42	55	67	25	80	52	80	65
FLIP92-54L	42	59	68	24	79	48	80	64
FLIP93-36L	41	55	66	24	97	47	91	70
FLIP93-37L	41	54	67	23	98	47	85	66
FLIP93-38L	41	56	68	23	108	46	84	69
FLIP93-42L	41	54	68	24	97	47	88	67
FLIP93-44L	42	54	67	24	107	47	88	70
FLIP93-45L	39	54	68	22	107	44	87	70
FLIP93-46L	41	55	68	23	106	47	87	70
FLIP93-47L	40	54	67	24	107	47	86	70
FLIP93-49L	41	55	67	25	99	47	85	67
SEHORE 74-3	40	52	68	23	96	47	81	65
LENS-830	42	53	67	21	97	47	85	65
JL-1	40	53	67	25	93	47	80	64
JLS-1	42	52	68	23	85	47	80	63
FLIP94-1L	39	52	67	23	98	44	82	65
FLIP94-2L	40	53	67	21	96	47	83	66
FLIP94-3L	41	56	67	24	105	47	89	71
FLIP94-4L	40	53	68	23	106	48	90	73
FLIP94-5L	40	54	67	21	110	47	90	72
Local Check	47	64	67	27	95	51	93	-
Location Mean	41	55	67	23	99	48	85	
S.E. of Mean	1	2	3	2	3	0	1	
L.S.D. at 5%	2	5	7	3	7	0	2	
L.S.D. for T.E. in S.B.	3	5	7	3	7	0	2	
L.S.D. for T.E. in D.B.	3	5	7	3	7	0	2	
C.V. %	3	4	5	6	3	0	1	
Efficiency %	135	100	101	104	100	100	102	

Table 4.4.3 Time to maturity (days) of entries in the LISH-E-94 conducted at different locations.

Entry Name	CHINA	ETHIOPIA	INDIA		IRAN		
	Dingxi	Ghinchil/ Holetta	Almora	Jammu	New Delhi	Karaj	Maragheh
PANTL406	116	132	172	100	119	70	76
PANTL639	125	133	180	100	126	81	97
FLIP86-50L	125	127	174	100	116	74	86
FLIP88-42L	125	127	172	90	115	69	85
FLIP89-71L	116	136	171	90	124	71	75
FLIP91-1L	125	127	171	100	121	73	82
86591	125	127	173	100	120	69	80
FLIP92-39L	116	129	174	100	126	71	76
FLIP92-40L	125	133	179	90	127	74	81
FLIP92-41L	125	127	175	100	127	69	79
FLIP92-42L	116	137	177	100	129	74	82
FLIP92-46L	117	136	177	100	127	73	82
FLIP92-47L	125	127	173	100	116	74	78
FLIP92-48L	116	133	177	100	127	75	82
FLIP92-50L	125	127	170	90	124	74	80
FLIP92-52L	116	127	171	100	115	72	79
FLIP92-54L	125	127	172	100	115	73	82
FLIP93-36L	125	127	178	100	120	74	83
FLIP93-37L	116	127	170	100	127	67	80
FLIP93-38L	116	136	173	100	123	72	84
FLIP93-42L	116	131	170	90	122	67	77
FLIP93-44L	125	136	173	90	127	70	81
FLIP93-45L	116	135	173	100	124	72	81
FLIP93-46L	125	134	178	90	121	74	82
FLIP93-47L	125	136	177	100	125	71	80
FLIP93-49L	116	132	170	100	121	66	79
SEHORE 74-3	116	128	172	100	118	71	75
LENS-830	116	127	174	90	120	71	78
JL-1	116	127	169	90	118	67	76
JLS-1	125	127	172	90	117	71	76
FLIP94-1L	116	126	174	90	117	68	76
FLIP94-2L	116	127	175	100	116	71	76
FLIP94-3L	125	132	179	100	127	76	80
FLIP94-4L	116	127	171	90	125	69	76
FLIP94-5L	116	131	177	90	128	68	78
Local Check	116	127	175	100	115	72	95
Location Mean	120	130	174	96	122	72	80
S.E. of Mean	0	3	1.5		2	3	3
L.S.D. at 5%	0	5	4.5		4	6	5
L.S.D. for T.E. in S.B	0	6	—	One Rep.	4	6	5
L.S.D. for T.E. in D.B	0	6	—		4	6	5
C.V. %	0	2	10		2	4	3
Efficiency %	100	103	—		100	110	100

Cont'd.

Table 4.4.3 Cont'd. ...

Entry Name	IRAN		PAKISTAN	SLOVAKIA	SYRIA	Overall Mean
	Qazvin	Sanandag	Faisalabad (NIAB)	Piestany	Tel Hadya	
PANTL406	92	62	150	81	117	109
PANTL639	105	67	150	84	137	117
FLIP86-50L	95	65	136	89	123	110
FLIP88-42L	94	64	137	84	121	108
FLIP89-71L	96	62	150	81	119	110
FLIP91-1L	91	60	156	81	119	110
86591	98	65	152	89	120	111
FLIP92-39L	94	65	154	89	121	111
FLIP92-40L	92	62	158	89	125	113
FLIP92-41L	96	65	154	89	125	112
FLIP92-42L	97	62	155	89	124	113
FLIP92-46L	94	63	155	89	125	113
FLIP92-47L	92	62	136	89	122	109
FLIP92-48L	95	67	154	89	125	113
FLIP92-50L	96	60	154	81	122	110
FLIP92-52L	92	61	138	82	119	107
FLIP92-54L	97	62	136	81	120	109
FLIP93-36L	96	64	155	89	125	112
FLIP93-37L	96	64	150	89	120	110
FLIP93-38L	98	61	155	89	120	113
FLIP93-42L	94	61	152	81	119	108
FLIP93-44L	94	60	156	89	123	112
FLIP93-45L	93	61	156	84	125	112
FLIP93-46L	94	67	155	89	123	112
FLIP93-47L	94	62	154	85	125	114
FLIP93-49L	97	65	152	81	120	110
SEMORE 74-3	93	60	151	81	118	108
LENS-830	98	64	149	81	120	109
JL-1	92	60	148	81	118	107
JLS-1	97	60	140	81	119	107
FLIP94-1L	95	62	153	81	117	108
FLIP94-2L	89	60	152	81	118	109
FLIP94-3L	98	65	154	89	122	113
FLIP94-4L	96	65	155	89	119	109
FLIP94-5L	95	61	155	81	124	111
Local Check	96	65	150	82	128	-
Location Mean	95	63	151	85	122	
S.E. of Mean	5	0	1	0	1	
L.S.D. at 5%	11	0	1	0	3	
L.S.D. for T.E. in S.B	11	0	1	0	3	
L.S.D. for T.E. in D.B	11	0	1	0	3	
C.V. %	5	0	0	0	1	
Efficiency %	107	100	118	100	116	

Table 4.4.4 Plant height (cm) of entries in the LISN-E-94 conducted at different locations.

Entry Name	ETHIOPIA	INDIA		IRAN			
	Ghinchil/ Holetta	Almora	New Delhi	Karaj	Maragheh	Qazvin	Sanandag
PANTL406	14	47	37	23	18	32	20
PANTL639	23	45	41	26	22	34	25
FLIP86-50L	23	65	42	23	23	33	23
FLIP88-42L	16	35	38	23	21	31	20
FLIP89-71L	20	37	44	21	18	29	18
FLIP91-1L	20	44	49	25	20	33	18
86591	20	42	47	22	19	33	23
FLIP92-39L	18	49	46	25	22	33	20
FLIP92-40L	17	49	39	27	21	33	22
FLIP92-41L	21	43	38	20	22	30	21
FLIP92-42L	19	38	38	24	17	32	17
FLIP92-46L	19	51	38	24	18	34	16
FLIP92-47L	19	43	41	28	24	32	22
FLIP92-48L	19	37	40	23	22	33	18
FLIP92-50L	20	47	45	26	19	34	20
FLIP92-52L	19	42	45	24	18	27	19
FLIP92-54L	13	37	42	22	20	33	17
FLIP93-36L	19	42	44	24	23	32	22
FLIP93-37L	17	30	42	25	17	30	14
FLIP93-38L	21	42	44	25	21	32	20
FLIP93-42L	18	47	38	24	17	32	15
FLIP93-44L	22	42	39	26	19	34	13
FLIP93-45L	23	45	39	29	23	31	20
FLIP93-46L	20	45	45	24	22	33	21
FLIP93-47L	21	43	36	24	18	34	17
FLIP93-49L	18	37	45	24	18	30	18
SEHORE 74-3	16	35	37	27	20	33	18
LENS-030	17	35	37	26	19	31	20
JL-1	20	35	42	26	16	32	17
JLS-1	16	40	38	21	16	32	20
FLIP94-1L	16	31	44	19	21	31	17
FLIP94-2L	16	41	45	25	18	32	17
FLIP94-3L	22	53	34	26	19	33	21
FLIP94-4L	18	33	36	23	17	28	18
FLIP94-5L	25	36	42	22	22	30	20
Local Check	17	37	42	25	20	34	20
Location Mean	19	42	41	24	20	32	19
S.E. of Mean	2	3	4	3	2	2	0
L.S.D. at 5%	5	8	9	7	5	4	1
L.S.D. for T.E. in S.B	5	—	9	7	5	4	1
L.S.D. for T.E. in D.B	5	—	9	7	5	4	1
C.V. %	13	13	10	14	12	5	2
Efficiency %	100	—	113	100	105	129	100

Cont'd. ...

Table 4.4.4 Cont'd. ...

Entry Name	PAKISTAN	SLOVAKIA	SYRIA	Overall Mean
	Faisalabad (NIAB)	Piestany	Tel Hadya	
PANTL406	34	26	31	27
PANTL639	49	22	47	32
FLIP86-50L	32	21	39	31
FLIP88-42L	33	19	35	26
FLIP89-71L	38	27	36	28
FLIP91-1L	28	26	37	29
86591	43	22	34	29
FLIP92-39L	36	25	38	30
FLIP92-40L	35	20	38	29
FLIP92-41L	33	20	39	28
FLIP92-42L	32	20	33	26
FLIP92-46L	36	18	36	28
FLIP92-47L	33	30	42	30
FLIP92-48L	37	19	37	28
FLIP92-50L	33	25	35	30
FLIP92-52L	36	20	33	27
FLIP92-54L	28	25	40	26
FLIP93-36L	41	27	41	30
FLIP93-37L	31	26	33	25
FLIP93-38L	39	20	37	29
FLIP93-42L	29	24	33	27
FLIP93-44L	36	20	41	28
FLIP93-45L	37	25	43	30
FLIP93-46L	36	22	41	30
FLIP93-47L	43	23	40	29
FLIP93-49L	28	21	33	26
SEHORE 74-3	33	21	30	26
LENS-830	32	24	34	27
JL-1	37	18	32	27
JLS-1	28	22	35	25
FLIP94-1L	34	20	33	26
FLIP94-2L	36	21	35	27
FLIP94-3L	31	25	36	29
FLIP94-4L	31	18	37	25
FLIP94-5L	37	23	35	29
Local Check	48	30	34	-
Location Mean	35	23	36	
S.E. of Mean	3	1	3	
L.S.D. at 5%	5	2	6	
L.S.D. for T.E. in S.B	5	2	6	
L.S.D. for T.E. in D.B	5	2	6	
C.V. %	7	3	8	
Efficiency %	121	103	100	

Table 4.4.5 Seed yield (y=kg/ha) and rank (R) of entries in the LISH-E-94 conducted at different locations.

Entry Name	CHINA		ETHIOPIA		INDIA				IRAN	
	Dingxi		Ghinchil/ Holetta		Almora		New Delhi		Karaj	
	Y	R	Y	R	Y	R	Y	R	Y	R
PANTL406	338	32	244	32	1050	7	2585	2	494	25
PANTL639	1547	17	1053	3	300	33	731	25	544	21
FLIP86-50L	1239	20	247	31	300	32	511	31	728	9
FLIP88-42L	1573	16	0	36	850	10	391	36	339	36
FLIP89-71L	577	30	334	26	750	14	1468	6	550	19
FLIP91-1L	1576	15	476	19	600	23	1405	7	422	32
86591	1047	24	365	23	1150	4	1233	10	700	11
FLIP92-39L	1597	14	489	18	1000	8	1078	15	572	18
FLIP92-40L	2069	6	441	20	500	25	1310	8	756	5
FLIP92-41L	1098	22	665	9	600	22	1227	11	456	29
FLIP92-42L	3227	2	653	10	650	17	1121	13	706	10
FLIP92-46L	1522	18	777	6	600	21	685	27	600	15
FLIP92-47L	1428	19	593	13	400	31	484	34	844	3
FLIP92-48L	721	27	538	17	700	15	1020	18	728	8
FLIP92-50L	5628	1	1355	1	1150	2	1724	5	589	17
FLIP92-52L	1819	11	360	24	450	27	763	24	622	14
FLIP92-54L	1183	21	260	29	300	34	665	29	678	12
FLIP93-36L	2513	3	642	11	1100	5	1020	17	472	26
FLIP93-37L	1081	23	312	27	800	12	998	19	494	24
FLIP93-38L	1835	10	270	28	450	28	765	23	356	34
FLIP93-42L	710	28	550	16	800	11	668	28	472	26
FLIP93-44L	1598	13	962	4	650	19	1847	4	661	13
FLIP93-45L	2010	7	667	8	400	30	1112	14	978	2
FLIP93-46L	997	25	568	14	250	35	717	26	728	7
FLIP93-47L	1940	8	949	5	650	16	933	20	533	22
FLIP93-49L	257	36	668	7	1150	3	922	21	339	35
SEHORE 74-3	306	33	47	35	500	24	1153	12	461	28
LENS-830	948	26	145	33	1100	6	3125	1	733	6
JL-1	294	34	50	34	200	36	1279	9	428	31
JLS-1	640	29	440	21	450	29	858	22	444	30
FLIP94-1L	263	35	559	15	650	20	500	32	400	33
FLIP94-2L	1779	12	343	25	500	26	490	33	544	20
FLIP94-3L	1900	9	414	22	650	18	1047	16	772	4
FLIP94-4L	412	31	256	30	800	13	660	30	589	16
FLIP94-5L	2506	4	1060	2	900	9	455	35	511	23
Local Check	2231	5	596	12	1250	1	1972	3	1139	1
Location Mean	1456		509		683		1081		594	
S.E. of Mean	101		241		190		874		190	
L.S.D. at 5%	204		481		548		1745		392	
L.S.D. for T.E. in S.B	211		504		—		1823		392	
L.S.D. for T.E. in D.B	209		497		—		1801		392	
T.E > L. Check	4		1		—		0		0	
C.V. %	7		44		—		75		32	
Efficiency %	108		128		—		122		100	

Table 4.4.5 Cont'd.

Entry Name	MARAGHEH		IRAN		SANANDAG		PAKISTAN		SLOVAKIA		SYRIA		Overall Mean	
	Maragheh		Qazvin		Sanandag		Faisalabad (NIAB)		Piestany		Tel Hadya			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
PANTL406	403	13	445	28	246	34	1311	3	2305	6	844	36	876	17
PANTL639	251	31	380	33	169	36	1147	9	2405	5	1467	27	921	12
FLIP86-50L	419	11	585	22	676	5	464	34	2280	7	1739	18	787	23
FLIP88-42L	538	4	850	5	507	19	560	31	1875	15	1166	33	714	27
FLIP89-71L	346	17	420	29	380	28	1193	7	240	35	1581	23	681	30
FLIP91-1L	316	22	625	19	467	25	1061	15	3665	2	1521	24	1051	8
86591	288	25	780	9	538	14	1086	14	2035	11	1430	28	918	14
FLIP92-39L	352	16	775	10	514	16	1137	10	475	31	2194	5	889	16
FLIP92-40L	508	6	420	30	677	4	881	23	1838	16	2175	9	1001	9
FLIP92-41L	320	21	790	8	484	22	1104	13	1490	19	1857	15	896	15
FLIP92-42L	402	14	625	19	511	18	1134	11	2205	9	1895	13	1149	2
FLIP92-46L	278	26	450	26	361	30	1290	4	270	34	1506	26	760	25
FLIP92-47L	413	12	385	32	675	6	615	27	1655	17	1952	12	836	18
FLIP92-48L	468	8	630	18	468	24	449	35	1040	27	2228	4	794	20
FLIP92-50L	299	24	655	16	541	13	493	33	2535	4	1840	17	1514	1
FLIP92-52L	320	20	725	13	587	11	582	30	3475	3	1869	14	995	10
FLIP92-54L	251	30	610	21	375	29	558	32	0	36	1848	16	582	33
FLIP93-36L	569	1	715	14	658	7	1034	18	1915	13	2183	7	1122	4
FLIP93-37L	186	35	505	25	256	33	842	24	1035	28	1514	25	695	28
FLIP93-38L	382	15	660	15	324	31	1156	8	1300	23	1694	20	788	22
FLIP93-42L	187	34	540	23	435	26	1012	19	2130	10	1417	29	789	21
FLIP93-44L	538	3	825	6	1001	1	756	26	1230	25	2628	1	1139	3
FLIP93-45L	548	2	950	1	621	9	595	29	2035	11	2382	3	1081	6
FLIP93-46L	450	9	445	27	522	15	408	36	1880	14	2180	8	809	19
FLIP93-47L	446	10	920	2	731	3	832	25	1415	22	2583	2	1074	7
FLIP93-49L	302	23	650	17	224	35	1565	2	1180	26	932	35	738	26
SEHORE 74-3	218	32	190	36	478	23	1287	5	450	32	1322	30	539	35
LENS-830	267	27	420	30	566	12	1045	17	1235	24	1615	22	945	11
JL-1	324	19	365	34	495	20	940	22	420	33	1685	21	544	34
JLS-1	258	28	540	24	492	21	978	20	1485	20	1194	32	685	29
FLIP94-1L	202	33	885	3	310	32	598	28	1505	18	1166	34	634	32
FLIP94-2L	253	29	860	4	605	10	1048	16	710	29	1705	19	765	24
FLIP94-3L	490	7	290	35	404	27	1120	12	2275	8	1267	31	920	13
FLIP94-4L	184	36	745	11	655	8	952	21	535	30	2035	10	674	31
FLIP94-5L	530	5	735	12	748	2	1225	6	1440	21	2103	6	1113	5
Local Check	338	18	820	7	513	17	1634	1	6137	1	2005	11	-	-
Location Mean	357		617		506		947		1669		1745			
S.E. of Mean	75		362		127		106		100		246			
L.S.D. at 5%	149		746		253		211		206		491			
L.S.D. for T.E. in S.B	156		746		264		220		206		513			
L.S.D. for T.E. in D.B	154		746		261		218		206		507			
T.E > L. Check	6		0		1		0		0		2			
C.V. %	19		59		23		10		6		13			
Efficiency %	131		100		123		119		100		120			

The five heaviest yielding entries at individual locations are given in Table 4.4.6.

Table 4.4.6. The five heaviest seed yielding entries at the individual locations in the LISN-E-4.

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
China					
Dingxi	FLIP92-50L	FLIP92-42L	FLIP93-36L	FLIP94-5L	Local check
Ethiopia					
Ghinchi	FLIP92-50L	FLIP94-5L	Pant L639	FLIP93-44L	FLIP93-47L
India					
Almora	Local check	FLIP92-50L	FLIP93-49L	86591	FLIP93-36L
New Delhi	Lens-830	Pant L406	Local check	FLIP93-44L	FLIP92-50L
Iran					
Karaj	Local check	FLIP93-45L	FLIP92-47L	FLIP94-3L	FLIP92-40L
Maragheh	FLIP93-36L	FLIP93-45L	FLIP93-44L	FLIP88-42L	FLIP94-5L
Qazvin	FLIP93-45L	FLIP93-47L	FLIP94-1L	FLIP94-2L	FLIP88-42L
Sanandag	FLIP93-44L	FLIP94-5L	FLIP93-47L	FLIP92-40L	FLIP86-50L
Pakistan					
Faisalabad	Local check	FLIP93-49L	Pant L406	FLIP92-46L	Sehore 74-3
Slovakia					
Piestany	Local check	FLIP91-1L	FLIP92-52L	FLIP92-50L	Pant L639
Syria					
Tel Hadya	FLIP93-44L	FLIP93-47L	FLIP93-45L	FLIP92-48L	FLIP92-39L

4.5. LENTIL INTERNATIONAL F₆ NURSERIES (LIF₆N)

There were four different Lentil International F₆ Nurseries namely, Lentil International F₆ Nursery - Large (LIF₆N-L), Lentil International F₆ Nursery -Small (LIF₆N-S), and Lentil International F₆ Nursery - Early (LIF₆N-E) and Lentil International F₆ Nursery - Cold Tolerance (LIF₆N-CT).

Material

The material for LIF₆N-L, LIF₆N-S, LIF₆N-CT, and LIF₆N-E included 18, 15, 13, and 8 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 4.5.1. 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.

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. Twenty four, 11, 6, and 16 nurseries were supplied to cooperators in various countries for LIF₆N-L, LIF₆N-S, LIF₆N-CT, and LIF₆N-E, respectively.

Results and Discussion

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

Table 4.5.1. Details of different Lentil International F₆ Nurseries conducted during 1993/94.

LIF ₆ N-Large		LIF ₆ N-Small		LIF ₆ N-Cold Tolerance		LIF ₆ N-Early	
Cross no.	Parentage	Cross no.	Parentage	Cross no.	Parentage	Cross no.	Parentage
89-157	ILL5699 X ILL6199	89-193	ILL5588 X ILL6021	89-96	ILL 323 X ILL2130	90-13	ILL5888 X ILL 358
89-158	ILL5821 X ILL 468	89-196	ILL5715 X ILL5722	89-116	ILL1878 X ILL2126	90-14	ILL5888 X ILL1939
89-160	ILL5873 X ILL 468	89-198	ILL5715 X ILL6239	89-118	ILL1878 X ILL4399	90-24	ILL5888 X ILL4605
89-169	ILL2126 X ILL5699	89-201	ILL5854 X ILL6021	89-123	ILL4965 X ILL2126	90-34	ILL 358 X ILL3614
89-175	ILL5671 X ILL5699	89-203	ILL5854 X ILL6049	89-131	ILL669 X ILL2130	90-62	ILL2580 X ILL6472
89-182	ILL5821 X ILL5699	89-205	ILL4399 X ILL6021	89-135	ILL669 X ILL6155	90-70	ILL4405 X ILL1677
89-225	ILL6243 X ILL5728	89-209	ILL5700 X ILL6021	89-160	ILL5873 X ILL 468	90-71	ILL4405 X ILL3614
90-157	ILL 468 X ILL 298	89-214	ILL6218 X ILL5604	89-169	ILL2126 X ILL5699	90-72	ILL4405 X ILL5748
90-161	ILL2126 X ILL5845	89-217	ILL6220 X ILL1939	89-205	ILL4399 X ILL6021	ILL 4605/Precoz	
90-163	ILL4400 X ILL 298	89-224	ILL6243 X ILL5604	90-157	ILL 468 X ILL 298	Local check	
90-175	ILL5773 X ILL 298	89-232	ILL6246 X ILL1939	90-161	ILL2126 X ILL5845		
90-178	ILL6212 X ILL 298	89-234	ILL6246 X ILL5604	90-163	ILL4400 X ILL 298		
90-182	ILL5668 X ILL5845	89-235	ILL6246 X ILL5728	90-227	ILL4400 X ILL4738		
90-201	ILL6199 X ILL6435	89-239	ILL6453 X ILL5604	Syrian Local (ILL 4400)			
90-207	ILL6428 X ILL6435	89-240	ILL6453 X ILL5728	Local check			
90-213	ILL6431 X ILL6435	Syrian Local Small (ILL 4401)					
90-225	ILL4349 X ILL6155	Local check					
90-227	ILL4400 X ILL4738						
Syrian Local Large (ILL 4400)							
Local check							

4.6. LENTIL INTERNATIONAL ASCOCHYTA BLIGHT NURSERY (LIABN)

Material

The LIABN included 21 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.

Fifteen sets of LIABN were distributed to cooperators in 10 countries, and the data were, however, received for 5 sets from 5 countries.

Results and Discussion

The results for different locations in different countries are presented in Table 4.6.1 and discussed below.

Algeria: At Guelma all entries including the susceptible check took 1 rating.

Bulgaria: At Toshevo, the susceptible check was rated 5. Among the best entries, 1, 13, 8 entries took rating of 1, 3 and 5, respectively.

India: At Jammu, the susceptible check was rated 7. Among the best entries, 11, 9, 2 entries took rating of 3, 5 and 7, respectively.

Morocco: At Jema'a Shain, all the entries including the susceptible check were rated 1.

Syria: At Tel Hadya, all the entries including the susceptible check took rating of 1 or 2.

Table 4.6.1. Reaction of lentil entries in LIABN-94 to Ascochyta blight (1=highly resistant, 9 = highly susceptible).

Entry No.	Entry Name	Accession No. (ILL)	Parentage	Origin	Algeria Guelma	Bulgaria Toshevo	India Jammu	Morocco Jema'a Shain	Syria Tel-Hadya	Freq. <=4
1	ILL 358	358	-	Mexico	1	3	3	1	1	5
2	ILL2439	2439	-	Ethiopia	1	3	5	1	1	4
3	UJL81-129	5244	-	Jordan	1	5	5	1	1	3
4	LENKA	5480	-	Czechoslovakia	1	3	3	1	1	5
5	78S26013	5588	-	Jordan	1	3	7	1	1	4
6	78S26033	5597	-	Syria	1	5	3	1	1	4
7	78S26052	5604	-	Turkey	1	3	5	1	1	4
8	FLIP84-11L	5684	ILL 253 x ILL 470	ICARDA	1	5	5	1	1	3
9	FLIP84-43L	5714	ILL 500 x ILL1719	ICARDA	1	3	3	1	1	5
10	FLIP84-44L	5715	ILL 500 x ILL1719	ICARDA	1	5	5	1	1	3
11	FLIP84-55L	5725	ILL 610 x ILL 784	ICARDA	1	5	3	1	1	4
12	FLIP84-85L	5755	ILL 445 x ILL 470	ICARDA	1	3	3	1	1	5
13	FLIP85-33L	5871	ILL 176 x ILL 35	ICARDA	1	3	5	1	1	4
14	FLIP86-12L	5998	ILL4349 x ILL4605	ICARDA	1	3	7	1	2	4
15	FLIP87-68L	6258	ILL4353 x ILL4400	ICARDA	1	3	5	1	1	4
16	FLIP88-41L	6468	ILL4400 x ILL4605	ICARDA	1	5	3	1	1	4
17	FLIP93-7L	7508	ILL5538 x ILL5673	ICARDA	1	5	3	1	1	4
18	FLIP93-11L	7512	ILL5538 x ILL5715	ICARDA	1	5	5	1	1	3
19	FLIP93-13L	7514	ILL5538 x ILL5805	ICARDA	1	3	5	1	1	4
20	FLIP93-16L	7517	ILL5604 x ILL6015	ICARDA	1	3	3	1	1	5
21	FLIP93-35L	7536	ILL4380 x ILL4605	ICARDA	-	3	3	1	1	4
22	Local check	-	-	-	1	1	3	1	1	5
23-34	Susc. check	2580	-	India	1	5	7	1	2	3

4.7. LENTIL INTERNATIONAL FUSARIUM WILT NURSERY (LIFWN)

Material

The LIFWN included 28 test entries, one repeated susceptible check and one susceptible local check to be added by the cooperator. The test 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.

Thirty five sets of LIFWN were distributed to cooperators in 19 countries and the data were received from 9 locations in 7 countries.

Results and Discussion

The results obtained from different countries and locations are presented in Table 4.7.1 and discussed here.

Algeria: At Guelma, all the entries including the susceptible check took rating of 1.

Bulgaria: At Toshevo, the susceptible check took 9 rating. Nine entries were found tolerant or resistant (rating = 3 or 5).

Ethiopia: The susceptible check was rated 9 at Debre Zeit and 7 at Akaki. Among the test entries, 3, 1, 4, 2, and 9 took rating of 1,2,3,4 and 5, respectively, at Debre Zeit. At Akaki, 4, 10, 12 entries were rated as 1, 3, and 5 respectively.

India: At Pant Nagar, the susceptible check was rated at 9. Among test entries, 1, 1, 2 and 16 with 1, 3, 4 and 5 rating, respectively, were tolerant.

Nepal: At Khumaltar, only four entries, FLIP 85-33L, FLIP 86-39L, FLIP 90-7L and FLIP 90-36L were tolerant or resistant (rating = 5 or 3).

Slovakia: At Piestany, the susceptible check was rated at 7. Four, 13 and 11 test entries with 1, 3 and 5 rating were tolerant.

Syria: At Izra'a and Hama, the susceptible check took the score as 7. One, 7 and 17 test entries were rated as resistant (with rating 3, 4 or 5) at Izra'a. At Hama, however, all the entries except 162 (which took rating of 5) exhibited 1 or 3 rating.

Some entries including FLIP 85-33L, FLIP 86-38L, FLIP 87-68L, FLIP 88-34L and FLIP 90-7L were relatively tolerant at more locations as compared to others.

Table 4.7.1. Reaction of lentil entries in LIFWN-94 to Fusarium wilt.

Entry No.	Entry Name	Accession No. (ILL)	Parentage	Origin	Algeria	Bulgaria	Ethiopia		India	Nepal	Slovakia	Syria	
					Guelma	Toshevo	Debre Zeit	Akaki	Pant-Nagar	Khum-altar	Piestany	Izra'a	Hama
1	162	4403	-	Pakistan	1	5	7	1	3	9	5	6	5
2	78S26013	5588	-	Jordan	1	7	7	5	5	9	3	5	3
3	FLIP84-43L	5714	ILL 500 x ILL1719	ICARDA	1	7	5	5	5	9	5	4	3
4	FLIP85-33L	5871	ILL 176 x ILL 35	ICARDA	1	5	1	3	7	3	1	5	3
5	81S15	5883	UJL197 x ILL4400	Jordan	1	5	9	3	5	9	3	6	3
6	FLIP86-38L	6024	ILL 262 x ILL3458	ICARDA	1	3	1	3	5	7	5	4	1
7	FLIP86-39L	6025	ILL 1 x ILL 936	ICARDA	1	9	5	7	5	5	3	5	3
8	FLIP87-68L	6258	ILL4353 x ILL4400	ICARDA	1	7	2	7	4	9	3	4	3
9	FLIP88-3L	6427	ILL5506 x ILL5582	ICARDA	1	9	3	3	9	9	5	4	3
10	FLIP88-34L	6458	ILL5584 x ILL2501	ICARDA	1	7	4	1	4	9	3	7	1
11	FLIP89-20L	6778	ILL5588 x ILL5582	ICARDA	1	7	3	5	5	9	3	5	3
12	FLIP89-31L	6789	ILL5588 x ILL5582	ICARDA	1	9	5	5	7	9	5	5	3
13	FLIP89-39L	6797	ILL223 x 79SH4901	ICARDA	1	9	5	7	5	9	3	5	3
14	FLIP89-52L	6810	ILL2573 x ILL1861	ICARDA	1	5	7	3	5	9	5	5	3
15	FLIP89-53L	6811	ILL2578 x ILL5588	ICARDA	1	7	9	5	1	9	3	5	3
16	FLIP89-60L	6818	ILL4225 x ILL 353	ICARDA	1	5	5	3	5	7	3	5	3
17	FLIP90-7L	6976	ILL 30 x ILL 851	ICARDA	1	5	3	5	7	3	1	3	3
18	FLIP90-22L	6991	ILL5588 x ILL 223	ICARDA	1	5	3	3	5	9	5	5	3
19	FLIP90-25L	6994	ILL5588 x ILL 99	ICARDA	1	7	7	3	9	7	7	5	3
20	FLIP90-36L	7005	ILL 788 x ILL5588	ICARDA	1	9	7	5	5	5	3	4	3
21	FLIP90-43L	7012	(ILL4354 x ILL1880)X ILL813	ICARDA	1	7	5	3	5	9	5	5	3
22	FLIP91-1L	7127	ILL5582 x ILL 574	ICARDA	1	7	5	5	5	9	3	5	1
23	FLIP92-15L	7180	ILL5588 x ILL5714	ICARDA	1	7	5	5	7	9	3	4	3
24	FLIP92-27L	7192	ILL5588 x ILL5883	ICARDA	1	7	4	5	6	7	5	5	3
25	FLIP92-28L	7193	ILL5588 x ILL5883	ICARDA	1	7	7	3	5	9	3	5	3
26	FLIP92-34L	7199	ILL1939 x ILL5883	ICARDA	1	7	7	1	9	9	5	4	3
27	FLIP92-39L	7204	ILL5676 x ILL1880	ICARDA	1	9	5	5	5	9	5	5	3
28	FLIP93-1L	7502	ILL5588 x ILL5883	ICARDA	1	7	9	5	5	9	1	5	3
29	Local check				1	3	1	1	-	-	1	6	3
30-45	Susc. check	6031	ILL 101 x ILL 262	ICARDA	1	9	9	7	9	9	7	7	7

4.8. LENTIL INTERNATIONAL RUST NURSERY (LIRN)

Materials

The LIRN included 18 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.

Fifteen sets of LIRN were distributed to cooperators in 11 countries and results were received back from 9 cooperators in 6 countries.

Results and Discussion

At Guelma in Algeria, Jema'a Shain in Morocco, Valladolid in Spain, Tel Hadya in Syria, the susceptible check took rating of 1 and almost all other entries also showed a reaction of 1. Thus the results of other cooperators are presented in Table 4.8.1 and discussed locationwise.

All the test entries at Pant Nagar in India were tolerant with rating equal to 1, 3 or 5. The susceptible check was rated at 7.

At Jammu-1 and Jammu-2, the susceptible check took 9 rating. Eight and 5 entries in Jammu-1, and 9 and 5 entries in Jammu-2 showed a reaction of 3 and 5, respectively. At Kanpur, 6, 7 and 2 entries showed a reaction of 1, 3 and 5.

Across locations, ILL 5480, ILL 5883, ILL 6264 showed resistant reaction at 9 locations, and ILL 5746, ILL 6002, ILL 6024 and ILL 6209 at 8 locations.

4.9. LENTIL INTERNATIONAL COLD TOLERANCE NURSERY (LICTN)

Material

The LICTN included 14 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

Table 4.8.1. Reaction of lentil entries in LIRN-94 to rust.

Entry No.	Entry Name	Accession No. (ILL)	Parentage	Origin	Algeria	Ethiopia	India				Morocco	Spain	Syria
					Guelma	Akaki	Pant-Nagar	Jammu-1	Jammu-2	Kanpur	Jema'a Shain	Valladolid	Tel-Hadya
1	-	358	-	Mexico	1	1	3	7	7	1	1	1	1
2	-	857	-	Algeria	1	1	5	3	3	7	1	1	1
3	UJL81-129	5244	-	Jordan	1	1	1	5	5	1	1	1	1
4	LENKA	5480	-	Czechoslovakia	1	1	1	3	3	1	1	1	1
5	FLIP84-76L	5746	ILL 39 x ILL 984	ICARDA	1	1	5	3	3	3	1	1	1
6	FLIP84-83L	5753	ILL 20 x ILWL 1	ICARDA	1	3	1	7	5	3	1	1	1
7	FLIP84-112L	5782	ILL 883 x ILL 470	ICARDA	1	1	1	5	7	3	1	1	1
8	81S15	5883	UJL 197 x ILL4400	Jordan	1	1	1	3	3	1	1	1	2
9	FLIP86-16L	6002	ILL 4349 x ILL4605	ICARDA	1	1	3	5	3	3	1	1	1
10	FLIP86-38L	6024	ILL 262 x ILL3458	ICARDA	1	1	1	3	3	7	1	1	1
11	FLIP87-17L	6207	ILL 8 x ILL 212	ICARDA	1	1	3	5	5	1	1	1	1
12	FLIP87-19L	6209	ILL4349 x ILL4605	ICARDA	1	1	3	3	3	7	1	1	1
13	FLIP87-60L	6250	ILL 28 x ILL1853	ICARDA	1	3	3	7	5	3	1	1	1
14	FLIP87-74L	6264	ILL4353 x ILL4400	ICARDA	1	1	3	3	3	3	1	1	1
15	FLIP88-32L	6456	ILL4404 x ILL4354	ICARDA	1	1	5	5	5	5	1	1	1
16	FLIP92-52L	7217	ILL3527 x ILL5732	ICARDA	1	1	3	7	7	1	1	1	1
17	FLIP92-54L	7219	ILL4605 x ILL2581	ICARDA	1	1	5	7	7	3	5	1	1
18	FLIP93-3L	7504	ILL5684 x ILL5593	ICARDA	1	1	3	9	7	5	1	1	2
19	Local check	-	-	-	1	1	-	3	3	7	3	1	1
20-30	Susceptible Check	4401	-	Syria	1	5	7	9	9	7	1	1	1

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.

Twenty five sets of LICTN were distributed to cooperators in 15 countries, however, evaluation were reported from 5 locations in 5 countries.

Results and Discussion

The results are presented in Table 4.9.1 and discussed below.

At Toshevo (Bulgaria), the susceptible check took 7 rating. Ten test entries including the local check were rated at 3 and were tolerant.

At Almora (India), all the test entries (except the local check which took 3 rating and susceptible check which took 5 rating) were rated 9 on 1 to 9 scale.

At Maragheh (Iran), all the test entries (except ILL 1918 and susceptible check which took 7 rating) were rated as resistant or tolerant (rating $\leq$ 5).

At Tel Hadya (Syria) and Erzurum (Turkey), all entries were rated between 1 and 4.

Four entries, ILL 52, ILL 323, ILL 1878 and ILL 4400 showed reaction between 1 and 3 across locations and were more cold tolerant than others.

Table 4.9.1. Reaction of lentil entries in LICTN-94 to cold (1 = free, 9 = killed).

Entry No.	Entry Name	Accession No. (ILL)	Origin	<u>Bulgaria</u> Toshevo	<u>India</u> Almora	<u>Iran</u> Maragheh	<u>Syria</u> Tel Hadya	<u>Turkey</u> Erzurum	Freq. < =4
1	ILL 52	52	Iraq	3	9	3	2	3	4
2	ILL 323	323	Yugoslavia	3	9	3	2	2	4
3	ILL 465	465	Chile	5	9	3	2	2	3
4	ILL 468	468	Chile	5	9	1	2	2	3
5	ILL 590	590	Turkey	5	9	3	2	4	3
6	ILL 662	662	Turkey	3	9	5	2	3	3
7	ILL 759	759	Iran	3	9	5	2	4	3
8	ILL 780	780	Syria	3	9	5	2	3	3
9	ILL 857	857	Algeria	3	9	5	2	2	3
10	ILL 975	975	Chile	5	9	5	2	3	2
11	L21	1878	Turkey	3	9	1	2	3	4
12	ILL 1918	1918	Austria	3	9	7	2	3	3
13	SLL	4400	Syria	3	9	3	2	2	4
14	SPS(ILL669)	7553	ICARDA	7	9	5	2	4	2
15	Local check			3	3	1	2	1	5
16-24	Susc. check	2580	India	7	5	7	2	4	4

5. DRY PEAS

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.

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.

Seventy five sets of trial were distributed to cooperators in 39 countries and the results were returned from 21 sets covering 15 countries. The agronomic practices employed at different locations are shown in Table 5.1.1.

Results and Discussion

The entry means over locations for time to flowering (Table 5.1.2), time to maturity (Table 5.1.3) and plant height (Table 5.1.4), ranged from 72 to 96 days, 134-143 days, and 66 to 106 cm, respectively.

The mean seed yield at different locations (Table 5.1.5) revealed that highest seed yield was obtained at Valladolid in Spain (4593 kg/ha) and was followed by Elsenburg in South Africa (3610 kg/ha), and Chillan in Chile (3467 kg/ha). The ANOVA of the seed yield revealed that at 12 locations, some of the test entries 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, Syrian Local Aleppo, MG 104325, Local Sel 1690, Collegian and M 102029 were the heaviest yielders with seed yields of 2730, 2608, 2596, 2485, and 2452 kg/ha, respectively.

The entries, Syrian Local Aleppo and Local Selction 1690 occurred most frequently among the top five and seemed more adaptable than the others.

On the basis of average over two years for the common entries (Table 5.1.7), the five best entries included MG 104325 (2606 kg/ha), Local Sel. 1690 (2584 kg/ha), Syrian Local Aleppo (2580 kg/ha), MG 102256 (2556 kg/ha) and MG 102029 (2551 kg/ha).

Table 5.1.1. Agronomic details of entries in the PIAT-94 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
BOLIVIA	Paizumnai	28-JAN-94	10-JUN-94	18	46	-	-	-	ROVEALDA
BULGARIA	Toshevo	05-APR-94	19-JUL-94	-	60	-	-	-	Pleven 4
CANADA	Saskatoon	11-MAY-94	02-SEP-94	-	-	-	-	-	Express
CHILE	Chillan	27-JUN-94	20-DEC-94	-	90	-	14	Linuron	Botanica - INIA
CHINA	Chengdu	04-NOV-94	20-MAY-95	8.5	55	-	-	Omethoate:Deltametri	Twanjinwan No.2
CHINA	Shanxi	15-APR-94	09-AUG-94	50	120	-	-	Beetle Pesticide	Jinwan no.1
CYPRUS	Athalassa	17-NOV-93	13-JUN-94	40	40	-	-	Terbutrex	Kontemenos (P5210713)
LEBANON	Terbol	09-NOV-93	14-MAY-94	-	50	-	-	Kerb+Igran	Leb. Local
LIBYA	El Safsaf	28-NOV-93	30-JUN-94	-	-	-	-	-	Unknown
LIBYA	Sebha	30-NOV-93	21-APR-94	40	150	-	-	-	Hayst No.40 ITALY
LITHUANIA	Kedainiai	27-APR-94	02-AUG-94	40	60	-	-	Simazin	Neosipajuscijisca-1
PORTUGAL	Elvas	25-NOV-93	30-MAY-94	-	-	-	-	-	GP 1361 (Solcora)
SAUDI ARABIA	Derab	02-DEC-93	30-APR-94	150	100	-	-	-	-
SLOVAKIA	Piestany	13-APR-94	05-AUG-94	-	-	-	-	Pomer, Karate	JUNAK
SOUTH AFRICA	Elsenburg	16-MAY-94	27-OCT-94	20	10	-	-	Diiflufenican, Quizalofop-P-ethyl	Frilene
SPAIN	Valladolid	14-DEC-93	30-JUL-94	24	50	-	-	Influraline, Basagran, Decis	Esla - no. 24
SYRIA	Al Ghab	16-DEC-93	28-MAY-94	-	-	-	-	-	-
SYRIA	Gelline	02-JAN-94	14-MAY-94	2	5	-	-	-	-
SYRIA	Heimo	24-NOV-93	-	-	-	-	-	-	-
SYRIA	Idleb	20-NOV-93	-	15	26	-	-	Decis	Television
SYRIA	Tel Hadya	24-NOV-93	-	-	-	-	-	-	-

Table 5.1.2 Time to flowering (days) of entries in the PIAT-94 conducted at different locations.

Entry Name	Acc. NO.	Origin	BOLIVIA	BULGARIA	CHILE	CHINA
			Paírumnai	Toshevo	Chillan	Chengdu
SYRIAN LOCAL ALEPPO	8	SYRIA	57	59	108	142
LOCAL SEL 1690	21	SYRIA	55	59	107	142
K-129	77	GREECE	63	56	114	148
MG100446	108	GREECE	45	49	99	124
MG100726	119	GREECE	55	51	101	137
MG101831	141	ETHIOPIA	58	58	106	141
MG102029	149	NETHERLAND	52	51	101	139
MG102256	152	GERMANY	54	54	109	139
MG102469	160	U.K.	55	56	105	134
MG102521	164	U.K.	56	59	113	145
MG102703	173	INDIA	55	56	107	139
MG104325	178	AFGHANISTAN	55	56	108	141
G22763-2C	182	ETHIOPIA	56	58	114	145
COLLEGIAN	216	AUSTRALIA	55	56	107	139
LE25	252	INDIA	51	53	105	127
PS210713	267	U.S.A.	54	49	101	134
UMATILLA	281	U.S.A.	47	48	96	129
PS210158	284	U.S.A.	42	48	92	83
PS510571	291	U.S.A.	41	49	94	127
A0149	296	CHINA	55	57	109	145
DMR-3	372	INDIA	55	54	105	137
305PS210572	445	ETHIOPIA	51	51	94	127
G 22763-2C	447	ETHIOPIA	57	59	108	148
Local Check			46	55	105	137
Location Mean			53	54	105	135
S.E. of Mean			1	1	-	2
Prob. of Significance			.00	.00	.00	.00
L.S.D. at 5%			4	3	-	5
C.V. %			4	3	0	2

Cont'd. ...

Table 5.1.2 Cont'd. ...

Entry Name	CHINA	CYPRUS	LEBANON	LIBYA	LITHUANIA	PORTUGAL	SAUDI ARABIA
	Shanxi	Athalassa	Terbol	Sebha	Kedainiai	Elvas	Derab
SYRIAN LOCAL ALEPPO	45	117	138	73	67	127	65
LOCAL SEL 1690	46	119	139	76	66	127	68
K-129	44	145	150	88	61	133	84
MG100446	34	100	128	60	54	115	60
MG100726	39	109	129	70	59	114	67
MG101831	45	112	137	71	66	123	70
MG102029	38	107	140	62	60	114	65
MG102256	41	111	129	73	62	118	70
MG102469	45	112	135	77	65	124	66
MG102521	48	122	150	82	71	130	74
MG102703	40	110	134	71	64	125	66
MG104325	41	112	128	70	65	120	62
G22763-2C	47	117	139	78	66	125	73
COLLEGIAN	42	109	129	68	65	119	67
LE25	40	104	136	70	62	116	65
PS210713	39	105	135	67	62	115	65
UMATILLA	33	96	142	58	53	109	64
PS210158	33	90	112	54	51	109	59
PS510571	31	91	135	55	53	109	59
A0149	54	112	139	74	70	123	68
DMR-3	39	104	130	68	61	117	67
305PS210572	34	102	123	68	55	110	63
G 22763-2C	47	119	142	76	67	127	69
Local Check	51	108	146	70	61	115	-
Location Mean	42	110	135	70	62	119	67
S.E. of Mean	2	2	1	2	1	1	2
Prob. of Significance	.00	.00	.00	.00	.00	.00	.00
L.S.D. at 5%	4	5	2	6	1	4	6
C.V. %	7	3	1	5	1	2	5

Cont'd. ...

Table 5.1.2 Cont'd. ...

Entry Name	SLOVAKIA	SOUTH AFRICA	SYRIA					Overall Mean
	Piestany	Elsenburg	Al Ghab	Gelline	Heimo	Idleb	Tel Hadya	
SYRIAN LOCAL ALEPPO	42	73	100	95	116	38	121	88
LOCAL SEL 1690	43	75	105	95	111	48	121	89
K-129	39	89	106	104	136	38	136	96
MG100446	35	68	97	86	114	53	114	80
MG100726	40	71	99	89	118	56	115	84
MG101831	43	71	100	91	119	42	121	87
MG102029	37	70	98	84	115	56	115	84
MG102256	41	71	100	89	126	36	118	86
MG102469	42	70	99	92	116	44	119	86
MG102521	45	76	107	104	124	49	128	94
MG102703	42	75	96	91	116	36	120	86
MG104325	43	71	99	89	126	33	118	85
G22763-2C	40	70	99	95	123	33	122	89
COLLEGIAN	38	71	99	92	114	38	117	85
LE25	38	69	99	88	116	41	115	83
PS210713	40	67	96	85	114	50	115	83
UMATILLA	41	63	93	80	113	49	107	79
PS210158	39	57	92	77	102	51	105	72
PS510571	39	69	94	79	102	50	105	77
A0149	43	75	100	96	117	50	118	89
CMR-3	43	69	99	88	114	43	115	84
305PS210572	39	70	96	82	119	57	107	81
G 22763-2C	40	71	100	96	123	50	121	90
Local Check	41	68	100	88	119	39	115	-
Location Mean	41	71	99	90	117	45	117	
S.E. of Mean	2	3	2	1	3	2	0	
Prob. of Significance	.39	.00	.00	.00	.00	.00	.00	
L.S.D. at 5%	NS	8	4	3	8	5	1	
C.V. %	9	7	3	2	4	7	1	

Table 5.1.3 Time to maturity (days) of entries in the PIAT-94 conducted at different locations.

Entry Name	BOLIVIA	BULGARIA	CHILE	CHINA		LEBANON	LIBYA	LITHUANIA
	Paicunhai	Toshevo	Chillan	Chengdu	Shanxi	Terbol	Sebha	Kedainiai
SYRIAN LOCAL ALEPPO	95	90	147	187	113	188	115	85
LOCAL SEL 1690	98	91	148	188	115	189	115	86
K-129	99	90	160	191	115	188	122	82
MG100446	97	89	140	187	108	184	109	83
MG100726	94	90	140	185	109	186	115	85
MG101831	95	91	146	186	112	186	117	86
MG102029	97	88	145	189	108	190	113	82
MG102256	103	90	146	186	111	188	120	84
MG102469	102	92	142	188	114	188	115	87
MG102521	95	92	160	188	116	191	112	-
MG102703	98	90	148	187	115	190	115	85
MG104325	98	89	147	185	110	184	115	84
G22763-2C	99	91	160	188	110	190	124	87
COLLEGIAN	102	90	148	185	109	184	114	85
LE25	95	89	140	185	110	190	115	82
PS210713	100	88	146	185	109	188	113	81
UMATILLA	95	85	140	181	107	187	112	81
PS210158	93	83	140	170	108	184	112	81
PS510571	96	84	140	185	106	188	112	81
AO149	99	91	149	189	115	188	117	84
DMR-3	89	90	140	189	110	189	112	84
305PS210572	95	87	140	185	107	188	114	83
G 22763-2C	97	91	145	187	111	190	120	83
Local Check	93	89	145	185	115	190	115	82
Location Mean	97	89	146	186	111	188	115	84
S.E. of Mean	2	1	1	1	1	1	2	1
Prob. of Significance	.02	.00	.00	.00	.00	.00	.00	.00
L.S.D. at 5%	6	2	1	3	3	3	5	2
C.V. %	4	1	1	1	1	1	3	1

Cont'd. ...

Table 5.1.3 Cont'd. ...

Entry Name	PORTUGAL	SLOVAKIA	SOUTH AFRICA	SYRIA					Overall Mean
	Elvas	Piestany	Eisenburg	Al Ghab	Gelline	Heimo	Idleb	Tel Hadya	
SYRIAN LOCAL ALEPPO	175	103	110	155	125	177	175	161	141
LOCAL SEL 1690	175	104	112	156	125	177	173	164	142
K-129	172	102	133	155	126	203	181	171	147
MG100446	170	102	102	149	124	175	175	161	138
MG100726	170	102	106	150	126	174	173	162	139
MG101831	172	103	107	152	125	176	176	162	140
MG102029	173	102	106	151	125	177	173	162	140
MG102256	173	103	106	152	124	175	177	164	141
MG102469	175	103	106	155	125	177	178	165	142
MG102521	172	104	114	155	126	175	176	167	143
MG102703	173	103	112	153	124	175	177	165	142
MG104325	172	103	107	150	124	174	169	161	139
G22763-2C	173	103	104	152	124	177	172	163	142
COLLEGIAN	172	102	107	151	124	172	174	160	140
LE25	170	102	106	152	125	174	173	162	139
PS210713	170	102	101	150	124	167	167	157	138
UMATILLA	170	103	95	147	123	167	164	160	136
PS210158	170	103	96	148	124	169	166	158	134
PS510571	170	102	103	147	124	167	165	158	136
AO149	172	104	112	152	124	174	172	159	141
DMR-3	173	103	103	154	125	177	176	163	140
305PS210572	170	103	106	150	124	172	170	162	138
G 22763-2C	175	102	107	152	126	177	175	162	141
Local Check	172	103	103	155	125	177	173	160	-
Location Mean	172	103	106	152	125	175	173	162	
S.E. of Mean	1	0	One Rep.	1	1	1	0	1	
Prob. of Significance	.01	.01		.00	.21	.00	.00	.00	
L.S.D. at 5%	3	1		2	NS	3	1	3	
C.V. %	1	1	One Rep.	1	1	1	0	1	

* The mean has been calculated excluding the locations with incomplete data.

Table 5.1.4 Plant height (cm) of entries in the PIAT-94 conducted at different locations.

Entry Name	BOLIVIA	BULGARIA	CHINA		CYPRUS	LEBANON	LIBYA	LITHUANIA
	Pairumnai	Toshevo	Chengdu	Shanxi	Athalassa	Terbol	Sebha	Kedainiai
SYRIAN LOCAL ALEPPO	83	91	132	129	92	104	123	76
LOCAL SEL 1690	65	101	123	125	88	108	123	109
K-129	61	106	137	118	92	108	112	83
MG100446	51	86	122	94	90	102	87	93
MG100726	73	77	120	100	85	93	135	101
MG101831	82	117	127	100	78	114	180	104
MG102029	58	89	110	107	80	86	122	84
MG102256	86	93	142	98	92	98	148	99
MG102469	68	142	118	133	92	107	187	99
MG102521	59	116	130	130	83	104	125	101
MG102703	58	98	122	114	88	108	138	109
MG104325	75	107	126	111	87	102	187	110
G22763-2C	58	117	178	98	87	95	126	95
COLLEGIAN	72	108	120	85	97	103	123	103
LE25	34	47	57	68	68	43	95	72
PS210713	35	46	61	53	77	32	102	60
UMATILLA	51	86	132	75	75	82	98	80
PS210158	51	75	175	74	73	87	138	91
PS510571	60	78	137	95	65	85	127	92
A0149	65	111	183	123	87	101	143	94
DMR-3	57	98	135	102	90	104	132	102
305PS210572	54	86	145	85	87	80	107	86
G 22763-2C	53	122	168	106	85	103	118	100
Local Check	66	60	149	100	65	42	92	95
Location Mean	62	94	131	101	83	91	128	93
S.E. of Mean	4	8	4	11	6	6	15	6
Prob. of Significance	.00	.00	.00	.00	.03	.00	.00	.00
L.S.D. at 5%	11	24	13	30	18	16	42	18
C.V. %	11	16	6	18	13	11	20	11

Cont'd. ...

Table 5.1.4 Cont'd. ...

Entry Name	PORTUGAL	SAUDI ARABIA	SLOVAKIA	SOUTH AFRICA	SYRIA					Overall Mean
	Elvas	Derab	Piestany	Elsenburg	Al Ghab	Gelline	Heimo	Idieb	Tel Hadya	
SYRIAN LOCAL ALEPPO	121	64	112	83	137	130	97	67	74	101
LOCAL SEL 1690	105	64	107	77	132	110	92	65	85	99
K-129	96	65	117	68	133	102	42	60	58	92
MG100446	96	88	105	77	125	123	82	62	78	92
MG100726	112	71	112	76	147	124	84	67	61	96
MG101831	124	71	113	80	142	131	90	62	91	106
MG102029	112	58	108	69	143	125	95	68	71	93
MG102256	126	52	103	74	155	122	85	72	85	102
MG102469	109	80	112	69	158	82	92	77	84	106
MG102521	121	63	107	67	135	100	67	70	57	96
MG102703	111	78	103	66	125	120	73	60	75	97
MG104325	119	85	103	77	145	130	88	65	87	106
G22763-2C	115	87	111	72	127	108	78	68	93	101
COLLEGIAN	123	57	112	75	152	126	87	63	80	99
LE25	98	61	112	44	113	45	48	57	57	66
PS210713	77	44	115	52	83	120	52	53	69	67
UMATILLA	90	52	117	66	110	122	78	53	67	85
PS210158	104	40	113	65	130	122	70	60	67	90
PS510511	105	81	108	67	113	87	75	53	56	87
A0149	129	57	118	64	153	108	98	70	71	105
DMR-3	105	64	105	74	152	102	98	68	86	98
305PS210572	101	62	107	83	107	107	85	53	71	88
G 22763-2C	112	64	115	76	123	102	78	58	79	98
Local Check	62	-	120	50	87	70	65	60	48	-
Location Mean	108	66	111	70	130	109	79	63	73	
S.E. of Mean	7	3	5		10	3	6	2	0	
Prob. of Significance	.00	.00	.59		.00	.00	.00	.00	.00	
L.S.D. at 5%	19	8	15		28	7	18	4	1	
C.V. %	11	7	8	One Rep.	13	4	14	4	1	

Table 5.1.5 Seed yield (Y=kg/ha) and rank (R) of entries in the PIAT-94 conducted at different locations.

Entry Name	BOLIVIA		BULGARIA		CANADA		CHILE		CHINA	
	Pairumnai		Toshevo		Saskatoon		Chillan		Chengdu	
	Y	R	Y	R	Y	R	Y	R	Y	R
SYRIAN LOCAL ALEPPO	1330	1	3333	1	3945	4	4333	3	3240	11
LOCAL SEL 1690	1200	4	3063	2	3822	5	4090	7	3458	8
K-129	560	24	2465	17	2871	17	3312	15	961	24
MG100446	1235	3	2708	12	2846	18	4392	2	3388	9
MG100726	804	19	2215	21	2966	14	3528	14	2276	15
MG101831	913	14	2708	12	3356	11	3778	11	3731	5
MG102029	1046	10	2986	5	3992	2	4142	6	2159	16
MG102256	1240	2	3028	3	3777	6	3892	9	3900	4
MG102469	1174	5	2917	7	3638	7	4257	5	2149	17
MG102521	787	20	1479	24	2679	21	4306	4	1242	22
MG102703	1144	7	2549	15	2923	15	2115	22	1131	23
MG104325	968	13	2806	9	3474	10	3024	18	4943	1
G22763-2C	1167	6	2854	8	3962	3	3920	8	1621	20
COLLEGIAN	1004	11	2778	10	3234	13	3819	10	4753	2
LE25	623	23	2500	16	2800	20	2889	19	1930	19
PS210713	817	17	2722	11	2647	22	2080	23	3007	12
UMATILLA	979	12	1868	22	2830	19	2066	24	2393	14
PS210158	771	21	2264	20	2129	24	2653	20	2634	13
PS510571	1134	8	1778	23	2896	16	2316	21	3587	6
A0149	856	15	2382	19	3484	9	3253	17	3520	7
DMR-3	809	18	2646	14	2216	23	3587	13	1437	21
305PS210572	848	16	2396	18	3254	12	3281	16	3265	10
G 22763-2C	704	22	3007	4	3629	8	4559	1	2132	18
Local Check	1048	9	2944	6	4349	1	3615	12	4014	3
Location Mean	965		2600		3238		3467		2786	
S.E. of Mean	73.83		169.63		301.78		489.13		257.40	
Prob. of Significance	.00		.00		.00		.00		.00	
L.S.D. at 5%	210.16		482.89		859.08		1392.39		732.72	
T.E > L. Check	1		0		0		0		2	
C.V. %	13.25		11.30		16.14		24.44		16.00	

Cont'd. ...

Table 5.1.5 Cont'd. ...

Entry Name	CHINA		CYPRUS		LEBANON		LIBYA			
	Shanxi		Athalassa		Terbol		El Safsaf		Sebha	
	Y	R	Y	R	Y	R	Y	R	Y	R
SYRIAN LOCAL ALEPPO	3889	7	2985	1	3287	4	743	20	2417	16
LOCAL SEL 1690	3750	9	2806	4	3176	5	861	11	2752	9
K-129	9722	1	2321	10	3796	2	1533	4	554	24
MG100446	3056	17	2242	13	1907	21	1063	8	2867	5
MG100726	2778	21	2110	17	2815	10	851	12	2472	15
MG101831	4028	3	1401	24	2833	9	1546	3	1619	23
MG102029	2986	18	2655	5	2852	8	703	22	2699	10
MG102256	3542	13	2396	9	2796	11	1282	6	2806	6
MG102469	4028	3	2303	11	2370	18	838	13	1858	21
MG102521	2222	24	2506	8	2676	12	726	21	1836	22
MG102703	3819	8	2877	3	3852	1	1379	5	2774	8
MG104325	2847	20	2924	2	3019	7	539	23	4087	1
G22763-2C	3681	11	2568	7	3130	6	1835	2	2778	7
COLLEGIAN	3125	15	2618	6	2657	13	773	19	2698	11
LE25	3542	14	1731	21	2417	17	889	10	2561	14
PS210713	3958	6	2283	12	1370	24	439	24	2620	12
UMATILLA	3750	10	1470	23	2472	16	778	18	2052	18
PS210158	2986	19	1819	19	2583	14	1092	7	3461	2
PS510571	3125	15	1610	22	1898	22	796	16	2573	13
A0149	4028	5	2225	14	2528	15	799	15	3053	3
DMR-3	4375	2	1949	18	2213	19	828	14	1864	20
305PS210572	2639	22	2169	15	1981	20	796	17	2880	4
G 22763-2C	3611	12	2160	16	3741	3	1883	1	2216	17
Local Check	2431	23	1753	20	1620	23	993	9	2048	19
Location Mean	3663		2245		2666		998		2481	
S.E. of Mean	1389.68		254.48		490.47		388.42		254.12	
Prob. of Significance	.45		.00		.05		.51		.00	
L.S.D. at 5%	NS		724.41		1396.21		NS		723.40	
T.E > L. Check	—		8		7		—		8	
C.V. %	65.71		19.63		31.86		67.38		17.74	

Cont'd. ...

Table 5.1.5 Cont'd. ...

Entry Name	LITHUANIA		PORTUGAL		SAUDI ARABIA		SLOVAKIA		SOUTH AFRICA	
	Kedainiai		Elvas		Derab		Piestany		Elsenburg	
	Y	R	Y	R	Y	R	Y	R	Y	R
SYRIAN LOCAL ALEPPO	1958	5	2903	6	1323	16	840	2	4441	5
LOCAL SEL 1690	1861	9	3319	3	1493	11	746	4	4000	9
K-129	1569	20	354	24	1869	2	615	10	—	—
MG100446	1792	13	3063	4	1405	14	596	12	4242	7
MG100726	1542	21	2063	18	994	22	497	17	3434	14
MG101831	1653	17	2924	5	1450	13	441	21	3898	11
MG102029	2139	2	2708	9	1502	10	731	5	3867	12
MG102256	1681	15	2458	14	1460	12	410	23	3671	13
MG102469	1347	23	1937	20	1076	21	865	1	4342	6
MG102521	1306	24	2326	17	1144	19	417	22	2810	18
MG102703	1625	18	2493	12	1095	20	402	24	4678	2
MG104325	1611	19	3361	2	1811	7	455	20	4176	8
G22763-2C	1708	14	2431	16	801	23	480	18	4840	1
COLLEGIAN	1667	16	2483	13	1336	15	589	13	4571	3
LE25	1958	6	2049	19	1553	8	535	16	3159	15
PS210713	1833	10	1622	21	1864	3	691	7	2649	20
UMATILLA	1819	11	2535	11	1837	5	553	15	2512	21
PS210158	2264	1	1597	22	1258	17	748	3	2132	23
PS510571	1792	12	868	23	1256	18	467	19	2678	19
A0149	1472	22	2708	8	1871	1	712	6	3116	16
DMR-3	1875	8	2458	14	1813	6	643	8	2326	22
305PS210572	1903	7	2802	7	1848	4	581	14	2967	17
G 22763-2C	1972	4	2667	10	1530	9	625	9	4538	4
Local Check	2000	3	3792	1	—	—	602	11	3980	10
Location Mean	1764		2413		1460		593		3610	
S.E. of Mean	225.35		510.19		301.36		93.62		205.73	
Prob. of Significance	.41		.01		0.37		.02		.00	
L.S.D. at 5%	NS		1452.33		NS		266.50		586.36	
T.E > L. Check	—		0		—		0		3	
C.V. %	22.12		36.62		35.74		27.32		9.87	

Cont'd. ...

Table 5.1.5 Cont'd. ...

Entry Name	SPAIN						SYRIA						Overall Mean	
	Valladolid		Al Ghab		Gelline		Heimo		Idleb		Tel Hadys			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
SYRIAN LOCAL ALEPPO	6000	2	4286	3	1483	10	2757	2	1540	17	2000	6	2730	1
LOCAL SEL. 1690	6071	1	1952	23	1535	5	2421	6	2037	13	1500	19	2596	3
K-129	5653	4	3333	13	1036	23	2599	4	821	23	1003	24	2004	22
MG100446	5139	9	3714	7	1444	12	1975	16	2198	9	1666	16	2434	7
MG100726	4236	14	3025	6	1491	8	2056	14	2156	12	2167	4	2192	17
MG101831	4563	13	3097	5	1433	13	2121	12	2944	2	1481	21	2441	6
MG102029	5705	3	2603	19	1297	17	2758	1	1492	18	1889	7	2452	5
MG102256	4203	15	2921	15	1302	16	1492	22	2360	8	1504	20	2422	9
MG102469	5181	6	4333	2	1499	7	2523	5	2452	6	1736	15	2425	8
MG102521	4198	16	2778	17	1038	22	2048	15	451	24	1131	23	1865	23
MG102703	4929	11	2190	22	1446	11	1840	19	2451	7	1542	18	2229	15
MG104325	5160	7	3587	9	1284	18	1774	21	2648	4	1843	13	2608	2
G22763-2C	3208	22	2603	19	1203	19	1835	20	1468	19	1583	17	2242	14
COLLEGIAN	5028	10	3111	14	1117	21	2201	10	2846	3	1856	11	2485	4
LE25	3118	23	5111	1	1547	4	1424	24	1865	14	2250	2	2164	18
PS210713	5146	8	3571	11	1708	1	2706	3	3467	1	2503	1	2356	12
UMATILLA	3639	19	2492	21	1589	3	2241	9	2192	10	2116	5	2084	20
PS210158	5632	5	2905	16	1332	14	1930	17	1340	21	1870	10	2164	19
PS510571	3597	20	3413	12	1607	2	2304	7	1340	20	1875	9	2012	21
A0149	4181	17	3635	8	960	24	2260	8	1790	15	1824	14	2377	11
DMR-3	3792	18	3984	4	1507	6	1842	18	2183	11	1889	7	2196	16
305PS210572	4642	12	2690	18	1490	9	2185	11	2602	5	2250	2	2325	13
G 22763-2C	3323	21	3587	10	1327	15	2108	13	1548	16	1843	12	2409	10
Local Check	2851	24	1652	24	1160	20	1473	23	1327	22	1289	22	—	—
Location Mean	4593		3257		1368		2120		1980		1782			
S.E. of Mean	529.16		467.55		118.85		238.10		547.73		227.23			
Prob. of Significance	.00		.00		.00		.00		.08		.00			
L.S.D. at 5%	1516.28		1330.94		338.33		677.78		NS		646.06			
T.E. of L. Check	13		14		7		11		—		6			
C.V. %	17.92		24.86		15.05		19.46		47.92		22.08			

* The mean has been calculated excluding the locations with incomplete data.

Table 5.1.6. The five heaviest seed yielding entries at the individual locations in the PIAT-94.

Country	Location	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
BOLIVIA	Pairumnai	SYRIAN LOCAL ALEPPO	MG102256	MG100446	LOCAL SEL 1690	MG102469
BULGARIA	Toshevo	SYRIAN LOCAL ALEPPO	LOCAL SEL 1690	MG102256	G 22763-2C	MG102029
CANADA	Saskatoon	Local Check	MG102029	G22763-2C	SYRIAN LOCAL ALEPPO	LOCAL SEL 1690
CHILE	Chillan	G 22763-2C	MG100446	SYRIAN LOCAL ALEPPO	MG102521	MG102469
CHINA	Chengdu	MG104325	COLLEGIAN	Local Check	MG102256	MG101831
CHINA	Shanxi	DMR-3	A0149	MG101831	MG102469	PS210713
CYPRUS	Athalassa	SYRIAN LOCAL ALEPPO	MG104325	MG102703	LOCAL SEL 1690	MG102029
LEBANON	Terbol	MG102703	K-129	G 22763-2C	SYRIAN LOCAL ALEPPO	LOCAL SEL 1690
LIBYA	El Safsaf	G 22763-2C	G22763-2C	MG101831	K-129	MG102703
LIBYA	Sebha	MG104325	PS210158	A0149	305PS210572	MG100446
LITHUANIA	Kedainiai	PS210158	MG102029	Local Check	G 22763-2C	LE25
						SYRIAN LOCAL ALEPPO
PORTUGAL	Elvas	Local Check	MG104325	LOCAL SEL 1690	MG100446	MG101831
SAUDI ARABIA	Derab	A0149	K-129	PS210713	305PS210572	UMATILLA
SLOVAKIA	Piestany	MG102469	SYRIAN LOCAL ALEPPO	PS210158	LOCAL SEL 1690	MG102029
SOUTH AFRICA	Eisenburg	G22763-2C	MG102703	COLLEGIAN	G 22763-2C	SYRIAN LOCAL ALEPPO
SPAIN	Valladolid	LOCAL SEL 1690	SYRIAN LOCAL ALEPPO	MG102029	K-129	PS210158
SYRIA	Al Ghab	LE25	MG102469	SYRIAN LOCAL ALEPPO	DMR-3	MG101831
SYRIA	Gelline	PS210713	PS510571	UMATILLA	LE25	LOCAL SEL 1690
SYRIA	Heimo	MG102029	SYRIAN LOCAL ALEPPO	PS210713	K-129	MG102469
SYRIA	Idleb	PS210713	MG101831	COLLEGIAN	MG104325	305PS210572
SYRIA	Tel Hadya	PS210713	305PS210572		MG100726	UMATILLA
			LE25			

Table 5.1.7. The mean seed yield (Y = kg/ha) and rank (R) of the common entries in PIAT-93 and PIAT-94.

Entry Name	PIAT-93		PIAT-94		Mean	
	y	R	y	R	y	R
Syrian Local Aleppo	2429	8	2730	1	2580	3
Local Sel. 1690	2571	5	2596	3	2584	2
K-129	1868	17	2004	17	1936	17
MG 100446	2225	13	2434	7	2330	9
MG 100726	2462	6	2192	13	2327	10
MG 101831	2454	7	2441	6	2448	7
MG 102029	2650	2	2452	5	2551	5
MG 102256	2689	1	2422	9	2556	4
MG 102469	2330	10	2425	8	2378	8
MG 102703	2323	11	2229	12	2276	13
MG 104325	2604	3	2608	2	2606	1
G 22763-2C	2360	9	2242	11	2301	12
Collegian	2589	4	2485	4	2537	6
Le 25	1928	16	2164	14	2046	15
PS 210713	2269	12	2356	10	2313	11
Umatilla	1966	15	2084	15	2025	16
PS 510571	2153	14	2012	16	2083	14

6. FORAGE LEGUME INTERNATIONAL TRIALS

For the first time three different International Lathyrus Adaptation Trials with different species, including, *Lathyrus sativus* (ILAT-LS), *Lathyrus cicera* (ILAT-LC), *Lathyrus ochrus* (ILAT-LO), and four different International Vetch Adaptation Trials with different species, including, *Vicia sativa* (IVAT-VS), *Vicia narbonensis* (IVAT-VN), *Vicia ervilia* (IVAT-VE), *Vicia dasycarpa* (IVAT-VD) were developed and distributed to the cooperators.

Materials

The material for each of these trials comprised 15 test entries that were developed at ICARDA, and one local check to be added by the cooperator. These entries were selected on the basis of their superior performance either in international, regional or local trials.

Methods and management

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

6.1. INTERNATIONAL LATHYRUS ADAPTATION TRIAL- *Lathyrus sativus* (ILAT-LS)

Fifty five sets of the trial were sent to cooperators in 29 countries and the results were received for 18 sets for 11 countries. The agronomic information received from cooperators is given in Table 6.1.1.

Results and Discussion

The entry means over locations varied from 92 to 98 for time to flowering (Table 6.1.2), from 146 to 151 for time to maturity (Table 6.1.3), from 53 to 60 cm for plant height (Table 6.1.4), from 808 to 1209 kg/ha for seed yield (Table 6.1.5), and from 3142 to 5283 kg/ha for biological yield (Table 6.1.6). The seed yield at Izra'a was the lowest (89 kg/ha). The Sel. No. 531 gave the highest yield (1209 kg/ha) and was followed by Sel. Nos. -533, -510, -522, and -529 with seed yields of 1189, 1182, 1161, and 1156, respectively. The top five entries with high biological yield included, Sel. No. -522, -519, -587, and -527 with biological yield of 5283, 4963, 4894, 4662, and 4632 kg/ha, respectively (Table 6.1.6). The five heaviest yielders across locations are given in Table 6.1.7).

Table 6.1.1. Agronomic details of entries in the ILAT-LS-94 conducted at different locations.

Country	Location	Planting Date	Harvesting Date	Fertilizer (kg/ha)			Irrigation	Insecticide/Fungicide/Herbicide	Local Check
				N	P	K			
ALGERIA	Setif	23-NOV-93	19-JUN-94	50	100	-	-	Igran	VS. HIFA
AUSTRALIA	Mallet	15-JUN-94	21-NOV-94	-	15	-	-	Bladex, Fusilade, Le-Mat, Lorsban	L.S. 463
CHINA	Xining	07-APR-94	15-SEP-94	20	51	-	-	-	Bai Jiandou
INDIA	Berhampore	21-DEC-93	05-APR-94	20	40	-	-	-	Nirmal
INDIA	Kanpur	26-NOV-93	07-APR-94	-	-	-	-	-	Pusa-24
INDIA	New Delhi	16-NOV-93	15-APR-94	-	-	-	-	Pendimethalin, Endosulphan	Pusa-24
INDIA	Raipur	17-NOV-93	29-MAR-94	18	46	-	-	Merochrotophos	Pusa 24 (Selection)
IRAQ	Telaifar	19-DEC-93	-	-	-	-	-	-	-
ITALY	Tolentino	-	-	-	-	-	-	-	Local
LEBANON	Kfardan	18-NOV-93	25-MAY-94	-	50	-	-	-	L.S. Acc. 347
LEBANON	Terbol	20-NOV-93	25-MAY-94	-	50	-	-	-	L.S. Acc 347
PORTUGAL	Elvas	28-OCT-93	03-JUN-94	-	50	-	-	Terbutryne, Propyzamide	453
SAUDI ARABIA	Derab	08-NOV-93	15-APR-94	50	300	-	-	Linuron, Pendimethalin	-
SYRIA	Aleppo-T.H.	05-DEC-93	17-MAY-94	-	40	-	-	-	Aleppo 2
SYRIA	Izra'a	-	-	-	-	-	-	-	-
TURKEY	Erzurum	14-APR-94	14-AUG-94	-	6	-	-	-	-
TURKEY	Haymana	07-APR-94	04-JUL-94	-	10	-	-	Linurex, Desis	-
TURKEY	Pasinler (Erzurum)	12-APR-94	10-AUG-94	-	60	-	-	-	-

Table 6.1.2 Time to flowering (days) of entries in the ILAT-LS-94 conducted at different locations.

Entry Name	Origin	ALGERIA	AUSTRALIA	CHINA	INDIA			
		Setif	Mallet	Xining	Berhampore	Kanpur	New Delhi	Raipur
587	SYRIA	143	85	51	91	61	87	47
504	ETHIOPIA	144	90	58	84	59	95	56
505	ETHIOPIA	143	90	59	90	62	93	58
508	ETHIOPIA	147	89	58	86	62	93	58
510	ETHIOPIA	143	88	58	81	59	87	55
516	ETHIOPIA	148	97	60	90	61	102	65
519	ETHIOPIA	145	89	59	83	62	100	61
520	ETHIOPIA	144	88	59	81	59	98	59
522	ETHIOPIA	146	89	60	77	59	97	65
527	ETHIOPIA	147	93	59	80	59	98	64
528	ETHIOPIA	147	91	59	85	61	94	55
529	ETHIOPIA	143	86	53	82	62	87	50
530	ETHIOPIA	145	91	59	89	62	99	59
531	ETHIOPIA	146	89	58	81	61	95	54
533	ETHIOPIA	144	89	59	87	62	96	58
Local Check		145	96	61	80	57	88	59
Location Mean		145	90	58	84	61	94	58
S.E. of Mean			-	1	1	1	2	2
Prob. of Significance			.00	.00	.00	.04	.00	.00
L.S.D. at 5%			-	2	2	3	5	4
C.V. %		One Rep.	0	2	1	3	3	5

Cont'd. ...

Table 6.1.2 Cont'd. ...

Entry Name	IRAQ	ITALY	LEBANON		PORTUGAL	SAUDI ARABIA	SYRIA	
	Telaifar	Tolentino	Kfardan	Terbol	Elvas	Derab	Aleppo-T.H.	Izra'a
587	116	122	136	129	143	47	110	89
504	116	124	139	134	143	53	112	89
505	116	126	139	136	146	54	113	90
508	118	126	138	135	147	51	111	88
510	117	125	138	135	144	53	112	88
516	117	130	144	142	147	55	116	88
519	118	126	139	135	145	55	113	90
520	118	125	141	136	147	54	112	90
522	117	126	139	137	146	50	113	89
527	119	127	140	136	145	55	112	87
528	119	126	139	135	144	55	112	89
529	117	121	137	129	143	50	110	86
530	116	127	141	135	145	54	112	90
531	116	125	140	134	144	51	112	88
533	116	125	141	136	146	53	112	89
533	.	143	137	129	148	-	86	88
Local Check	117	127	139	134	145	53	110	89
Location Mean	1	1	1	1	1	1	0	1
S.E. of Mean	.03	.00	.00	.00	.00	.00	.00	.72
Prob. of Significance	2	2	3	2	2	4	1	NS
L.S.D. at 5%	1	1	1	1	1	4	1	3
C.V. %								

Cont'd. ...

Table 6.1.2 Cont'd. ...

Entry Name	TURKEY			Overall Mean
	Erzurum	Haymana	Pasinler (Erzurum)	
507	68	56	71	92
504	69	58	73	94
505	70	57	74	95
508	69	58	74	95
510	70	57	73	94
516	74	57	76	98
519	70	58	74	96
520	69	56	73	95
522	70	57	73	95
527	70	58	75	96
528	70	58	74	95
529	68	57	71	92
530	70	58	74	96
531	69	57	73	94
533	70	57	73	95
Local Check	-	57	-	-
Location Mean	70	57	74	
S.E. of Mean	0	1	1	
Prob. of Significance	.00	.66	.00	
L.S.D. at 5%	1	NS	1	
C.V. %	1	2	1	

Table 6.1.3 Time to maturity (days) of entries in the ILAT-LS-94 conducted at different locations.

Entry Name	ALGERIA	AUSTRALIA	CHINA	INDIA		IRAQ	LEBANON	
	Setif	Mallet	Xining	Kanpur	New Delhi	Telafar	Kfardan	Terbol
587	162	150	127	81	134	171	186	180
504	160	151	130	82	139	169	184	180
505	160	151	129	82	136	169	187	182
508	162	154	133	79	136	170	188	183
510	161	151	130	78	133	170	186	182
516	160	154	132	80	140	169	188	189
519	165	154	131	80	138	170	187	183
520	163	153	130	79	140	170	187	184
522	164	153	131	78	136	153	186	182
527	160	154	129	80	136	170	187	183
528	163	154	130	80	140	151	187	182
529	164	152	133	79	138	169	186	181
530	161	152	130	81	140	153	187	182
531	163	154	127	82	140	172	187	181
533	163	154	130	81	141	169	188	183
Local Check	160	156	-	76	134	-	186	180
Location Mean	162	153	130	80	138	166	187	182
S.E. of Mean		-	1	2	1	7	1	1
Prob. of Significance		.00	.00	.90	.00	.46	.00	.00
L.S.D. at 5%		-	3	NS	4	NS	2	2
C.V. %	One Rep.	0	1	5	2	8	1	1

Cont'd. ...

Table 6.1.3 Cont'd. ...

Entry Name	PORTUGAL	SAUDI ARABIA	SYRIA		TURKEY	Overall Mean
	Elvas	Derab	Aleppo-T.H.	Izra'a	Haymana	
587	194	149	160	113	86	148
504	195	151	162	114	88	149
505	196	155	164	114	88	150
508	195	154	161	113	88	150
510	195	154	162	111	88	149
516	198	151	163	-	88	151
519	196	156	163	114	88	151
520	196	155	163	114	88	151
522	196	154	163	113	88	149
527	196	153	164	116	88	150
528	195	154	163	113	88	149
529	196	153	162	112	81	149
530	196	154	164	114	88	149
531	197	151	162	114	83	150
533	196	153	164	113	88	151
Local Check	198	-	135	113	88	-
Location Mean	196	153	161	113	87	
S.E. of Mean	1	1	1	1	1	
Prob. of Significance	.06	.03	.00	.76	.00	
L.S.D. at 5%	NS	4	2	NS	2	
C.V. %	1	1	1	2	2	

* The mean has been calculated excluding the locations with incomplete data.

Table 6.1.4 Plant height (cm) of entries in the ILAT-LS-94 conducted at different locations.

Entry Name	ALGERIA	AUSTRALIA	CHINA	INDIA					IRAQ
	Setif	Mallet	Xining	Berhampore	Kanpur	New Delhi	Raipur	Telafar	
S87	41	28	77	126	32	75	58	59	
S04	44	28	80	129	21	89	57	61	
S05	35	25	86	131	21	98	62	61	
S08	39	26	87	128	31	98	62	59	
S10	48	25	88	132	32	81	60	61	
S16	42	28	81	128	32	98	63	57	
S19	40	23	100	129	26	94	66	63	
S20	42	30	88	131	28	89	63	69	
S22	39	28	85	132	28	85	56	57	
S27	45	24	95	130	34	88	66	59	
S28	38	26	105	128	29	87	50	56	
S29	47	28	83	129	28	87	53	64	
S30	48	30	96	130	22	90	66	63	
S31	43	29	81	131	35	99	61	64	
S33	40	27	83	131	28	103	64	64	
Local Check	47	27	-	131	31	72	60	-	
Location Mean	42	27	87	130	29	90	61	61	
S.E. of Mean	-	-	11	1	5	7	3	2	
Prob. of Significance	-	.00	.90	.00	.51	.11	.04	.01	
L.S.D. at 5%	-	-	NS	2	NS	NS	9	5	
C.V. %	One Rep.	0	21	1	27	13	9	4	

Cont'd. ...

Table 6.1.4 Cont'd.

Entry Name	LEBANON		PORTUGAL	SAUDI ARABIA	SYRIA		TURKEY		TURKEY	Overall Mean
	Kfardan	Terbol	Elvas	Derab	Aleppo-T.H.	Izra'a	Erzurum	Haymana	Pasinler (Erzurum)	
587	57	68	65	77	48	12	32	22	32	53
504	60	73	63	97	47	14	28	23	30	56
505	59	76	68	104	47	11	34	23	31	57
508	57	70	80	107	48	15	31	23	29	58
510	58	72	65	116	45	15	28	21	29	57
516	41	65	72	96	46	12	33	22	26	55
519	57	77	70	104	40	11	32	24	28	58
520	46	68	73	114	47	12	30	22	27	58
522	60	79	75	124	48	12	32	23	31	58
527	58	83	77	108	50	13	35	22	28	60
528	53	76	70	96	48	12	35	23	28	56
529	46	69	68	99	43	11	30	21	30	55
530	60	77	77	102	48	10	34	22	30	59
531	55	74	75	100	45	13	35	20	29	58
533	53	71	72	108	48	13	33	21	29	58
Local Check	51	73	77	-	38	13	-	24	-	-
Local Mean	54	73	72	103	46	12	32	22	29	-
S.E. of Mean	2	4	3	6	4	1	2	1	1	-
Prob. of Significance	.00	.14	.05	.01	.66	.23	.06	.31	.06	-
L.S.D. at 5%	6	NS	10	19	NS	NS	NS	SN	NS	-
C.V. %	7	9	8	11	13	15	9	9	7	-

Table 6.1.5 Seed yield (Y=kg/ha) and rank (R) of entries in the ILAT-LS-94 conducted at different locations

Entry Name	ALGERIA		AUSTRALIA		CHINA		INDIA			
	Setif		Mallet		Xining		Berhampore		Kanpur	
	Y	R	Y	R	Y	R	Y	R	Y	R
587	1210	4	880	2	315	16	991	10	325	16
504	885	13	972	1	639	3	991	10	531	10
505	940	11	833	3	583	7	694	15	1111	2
508	1006	9	787	5	509	10	1019	9	1044	3
510	1088	6	694	12	565	8	1111	8	803	6
516	732	15	539	16	426	12	676	16	1003	5
519	900	12	694	11	611	5	1167	7	1014	4
520	1310	1	787	5	426	11	1519	2	797	7
522	1211	3	741	10	685	2	769	14	519	12
527	872	14	556	15	361	14	1482	3	453	14
528	1135	5	602	14	620	4	1815	1	556	9
529	1085	7	833	4	602	6	1407	5	528	11
530	943	10	741	9	407	13	1296	6	333	15
531	1240	2	787	5	537	9	982	12	517	13
533	1067	8	648	13	324	15	963	13	758	8
Local Check	247	16	787	8	1806	1	1463	4	1197	1
Location Mean	992		748		589		1146		718	
S.E. of Mean	136.80		61.72		332.59		75.98		227.46	
Prob. of Significance	.00		.00		.42		.00		.14	
L.S.D. at 5%	395.11		178.51		NS		219.45		NS	
T.E > L. Check	15		1		—		1		—	
C.V. %	23.89		14.07		97.88		11.48		54.87	

Cont'd. ...

Table 6.1.5 Cont'd. ...

Entry Name	INDIA				IRAQ		LEBANON			
	New Delhi		Raipur		Telafar		Kfardan		Terbol	
	Y	R	Y	R	Y	R	Y	R	Y	R
587	726	16	352	15	1626	10	2067	6	2352	2
504	910	10	815	2	2189	4	2180	4	1968	6
505	1017	8	759	3	2352	2	1010	16	1800	8
508	778	14	741	4	1546	11	2410	2	1785	10
510	910	11	583	11	2694	1	1739	10	1778	12
516	882	12	250	16	1752	9	1467	12	560	16
519	778	15	657	6	1465	12	1411	14	1657	14
520	1115	2	620	8	2119	6	1483	11	1574	15
522	1021	7	593	10	2083	7	2242	3	1850	7
527	1024	6	463	13	1113	15	2149	5	1996	5
528	1014	9	657	7	1328	14	1441	13	1787	9
529	816	13	444	14	1754	8	1958	9	2306	3
530	1035	4	574	12	1387	13	1343	15	1769	13
531	1035	4	611	9	2276	3	2000	8	2041	4
533	1382	1	694	5	2141	5	2044	7	1778	11
Local Check	1069	3	991	1	—	—	2514	1	2648	1
Location Mean	969		613		1855		1841		1853	
S.E. of Mean	139.80		102.18		27.70		379.11		160.94	
Prob. of Significance	.24		.00		.00		.25		.00	
L.S.D. at 5%	NS		295.10		80.25		NS		464.82	
T.E. > L. Check	—		0		—		—		0	
C.V. %	24.98		28.88		2.59		35.66		15.04	

Cont'd. ...

Table 6.1.5 Cont'd. ...

Entry Name	PORTUGAL		SAUDI ARABIA		SYRIA				TURKEY	
	Elvas		Derab		Aleppo-T.H.		Izra'a		Erzurum	
	Y	R	Y	R	Y	R	Y	R	Y	R
587	1299	16	2324	12	738	2	78	11	694	8
504	1615	6	2175	13	647	7	187	1	583	15
505	1465	12	2392	10	474	12	61	13	676	10
508	1559	8	2669	3	335	16	107	3	824	3
510	1931	3	2408	9	715	4	45	14	648	14
516	1351	15	1378	15	417	14	—	—	672	12
519	1690	5	2654	4	463	13	94	6	706	7
520	1505	10	2593	5	408	15	81	8	676	10
522	1543	9	2554	7	629	9	99	5	667	13
527	1866	4	2040	14	638	8	110	2	770	4
528	1577	7	2772	1	574	10	89	7	883	1
529	1370	14	2388	11	878	1	80	9	746	5
530	1417	13	2735	2	728	3	73	12	709	6
531	2024	2	2487	8	686	6	42	15	824	2
533	2031	1	2562	6	562	11	78	10	681	9
Local Check	1496	11	—	—	710	5	103	4	—	—
Location Mean	1609	—	2409	—	600	—	89	—	717	—
S.E. of Mean	228.94	—	334.06	—	128.89	—	41.76	—	101.11	—
Prob. of Significance	.43	—	.40	—	.25	—	.70	—	.84	—
L.S.D. at 5%	NS	—	NS	—	NS	—	NS	—	NS	—
T.E. > L. Check	—	—	—	—	—	—	—	—	—	—
C.V. %	24.65	—	24.02	—	37.21	—	60.62	—	24.41	—

Cont'd. ...

Table 6.1.5 Cont'd. ...

Entry Name	TURKEY					
	Haymana		Pasinler (Erzurum)		Overall Mean	
	Y	R	Y	R	Y	R
587	708	7	691	3	1081	11
504	727	6	526	13	1147	6
505	727	4	843	1	1105	10
508	606	15	580	9	1137	8
510	731	3	520	14	1182	3
516	556	16	267	15	808	15
519	662	10	611	7	1071	12
520	708	7	596	8	1140	7
522	810	2	657	5	1161	4
527	653	12	546	11	1061	13
528	662	10	531	12	1122	9
529	671	9	713	2	1156	5
530	625	14	556	10	1037	14
531	648	13	646	6	1209	1
533	727	5	667	4	1189	2
Local Check	949	1	—	—	1323	
Location Mean	698		597			
S.E. of Mean	59.06		109.23			
Prob. of Significance	.02		.25			
L.S.D. at 5%	170.57		NS			
T.E. > L. Check	0					
C.V. %	14.65		31.71			

* The mean has been calculated excluding the locations with incomplete data.

Table 6.1.6 Biological yield (Y=kg/ha) and rank (R) of entries in the ILAT-LS-94 conducted at different locations

Entry Name	CHINA		LEBANON				SAUDI ARABIA		TURKEY	
	Xining		Kfardan		Terbol		Derab		Erzurum	
	Y	R	Y	R	Y	R	Y	R	Y	R
587	4630	16	6669	1	6556	2	10556	5	1296	2
504	7963	8	6084	5	5454	11	8715	13	870	13
505	8889	3	3282	16	5500	10	9792	9	1491	1
508	6481	12	6651	2	5704	8	9792	8	898	12
510	7778	9	5069	10	5289	12	9375	10	963	11
516	7037	11	4067	14	1920	16	6806	15	556	15
519	8704	5	4556	12	5515	9	12222	1	1111	7
520	5926	15	4632	11	5130	14	11667	3	1056	9
522	8889	3	6252	3	6185	6	11736	2	1222	4
527	6296	14	5215	9	6472	4	10625	4	1000	10
528	8148	7	4284	13	6361	5	10417	6	852	14
529	9074	2	6007	6	6472	3	8681	14	1287	3
530	8148	6	4009	15	5244	13	10417	6	1065	8
531	7222	10	5427	8	5800	7	8785	12	1157	6
533	6296	13	5511	7	5089	15	9132	11	1176	5
Local Check	14019	1	6212	4	7157	1	—	—	—	—
Location Mean	7844		5245		5615		9914		1067	
S.E. of Mean	1932.33		862.76		489.11		1431.60		199.22	
Prob. of Significance	.36		.20		.00		.50		.27	
L.S.D. at 5%	NS		NS		1412.65		NS		NS	
T.E > L. Check	—		—		0		—		—	
C.V. %	42.67		28.49		15.09		25.01		32.35	

Cont'd. ...

Table 6.1.6 Cont'd. ...

Entry Name	TURKEY					
	Haymana		Pasinler (Erzurum)		Overall Mean	
	Y	R	Y	R	Y	R
587	1653	2	1278	3	4662	4
504	1542	4	972	12	4514	9
505	1574	3	1519	1	4578	6
508	1375	13	1000	11	4557	8
510	1505	5	944	13	4417	12
516	1148	16	463	15	3142	15
519	1472	8	1157	7	4963	2
520	1426	11	1037	10	4410	13
522	1472	7	1222	4	5283	1
527	1356	14	1037	9	4572	7
528	1491	6	870	14	4632	5
529	1438	10	1296	2	4894	3
530	1338	15	1065	8	4469	10
531	1384	12	1167	6	4420	11
533	1468	9	1176	5	4264	14
Local Check	2222	1	—	—	—	—
Location Mean	1491		1080			
S.E. of Mean	110.80		196.47			
Prob. of Significance	.00		.19			
L.S.D. at 5%	320.03		NS			
T.E > L. Check	0					
C.V. %	12.87		31.50			

Table 6.1.7. The five heaviest seed yielding entries at the individual locations in the ILAT-LS-94.

Country	Selection No.				
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria					
Setif	520	531	522	587	528
Australia					
Mallet	504	587	505	529	508,531,520
China					
Xining	Local check	522	504	528	519
India					
Berhampore	528	520	527	Local check	529
Kanpur	Local check	505	508	519	516
New Delhi	533	520	Local check	530,531	
Raipur	Local check	504	505	508	533
Iraq					
Telaifar	510	505	531	504	533
Lebanon					
Kfardan	Local check	508	522	504	527
Terbol	Local check	587	529	531	527
Portugal					
Elvas	533	531	510	527	519
Saudi Arabia					
Derab	528	530	508	519	520
Syria					
Izra'a	504	527	508	Local check	522
Aleppo-TH	529	587	530	510	Local check
Turkey					
Erzurum	528	531	508	527	529
Haymana	Local check	522	510	505	533
Pasinler	505	529	587	533	522

6.2. INTERNATIONAL LATHYRUS ADAPTATION TRIAL- *Lathyrus cicera* (ILAT-LC)

Thirty nine sets of the trial were sent to cooperators in 22 countries and the results were received for 10 sets from 8 countries. The agronomic information received from cooperators is given in Table 6.2.1.

Results and Discussion

The entry means over locations varied from 107 to 117 for time to flowering (Table 6.2.2), from 132 to 149 for time to maturity (Table 6.2.3), from 44 to 54 cm for plant height (Table 6.2.4), from 1816 to 2295 kg/ha for seed yield (Table 6.2.5), and from 5399 to 6830 kg/ha for biological yield (Table 6.2.6). The seed yields at Derab in Saudi Arabia and Kanpur in India were the lowest (≤ 240 kg/ha). The Sel. No. 493 gave the highest yield (2295 kg/ha) and was followed by Sel. Nos. -491, -500, -486, and -495 with seed yields of 2225, 2195, 2177, and 2116, respectively.

Table 6.2.1. Agronomic details of entries in ILAT-LC-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
India						
Kanpur	26.11.93	07.04.94	-	-	-	Pusa-24
Raipur	18.11.93	-	18/46/-	-	Monochro- tophos	PLS 1
Iraq						
Rabiaa	21.12.93	-	-	-	-	-
Italy						
Tolentino	20.12.93	25.07.94	-	-	-	Local
Lebanon						
Kfardan	18.11.93	25.05.94	-/50/-	-	-	<i>L. sativus</i> Acc. 347
Terbol	20.11.93	25.05.94	-/50/-	-	-	<i>L. sativus</i> Acc. 347
Portugal						
Elvas	27.10.93	06.05.94	-/50/-	-	Propizamide Terbutryne	Gai da Gramica 8617
Saudi Arabia						
Derab	-	-	-	-	-	-
Syria						
Tel Hadya	05.12.93	17.05.94	-/40/-	-	-	Aleppo 2
Turkey						
Haymana	07.04.94	13.07.94	-/100/-	-	Linuron, Decis	-

The top five entries with high biological yield included, Sel. No. 500, -491, -492, -493, and -487 with biological yield of 6830, 6705, 6382, 6235, and 6225 kg/ha, respectively (Table 6.2.6). The five heaviest yielders across locations are given in Table 6.2.7.

Table 6.2.2 Time to flowering (days) of entries in the ILAT-LC-94 conducted at different locations.

Entry Name	Origin	INDIA	IRAQ	ITALY	LEBANON		PORTUGAL	SAUDI ARABIA
		Kanpur	Rabiah	Tolentino	Kfardan	Terbol	Elvas	Derab
501	SYRIA	-	125	130	144	137	142	123
486	AUSTRALIA	114	124	122	138	127	135	114
487	GREECE	120	124	120	138	125	135	113
488	GREECE	117	123	120	134	124	135	113
489	GREECE	116	123	122	138	127	135	115
490	GREECE	116	124	122	138	127	135	112
491	GREECE	121	124	121	136	125	135	110
492	GREECE	117	122	122	135	123	135	117
493	GREECE	112	123	122	138	127	135	101
494	GREECE	112	121	121	137	125	135	110
495	GREECE	116	122	122	135	124	135	118
496	GREECE	115	123	121	138	127	135	114
497	GREECE	121	124	121	137	125	135	115
498	GREECE	120	125	121	138	127	135	113
500	AUSTRALIA	123	124	120	136	124	135	112
Local Check		117	-	143	138	129	141	-
Location Mean		117	123	123	137	126	136	113
S.E. of Mean		2.93	1	1	0	0	1	3
Prob. of Significance		0.00	.00	.00	.00	.00	.00	.02
L.S.D. at 5%		7.25	2	2	1	1	3	8
C.V. %		3.61	1	1	1	0	2	4

Cont'd. ...

Table 6.2.2 Cont'd. ...

Entry Name	SYRIA	TURKEY	Overall Mean
	Aleppo-T.H.	Haymana	
501	114	65	122
486	112	61	117
487	112	61	116
488	111	61	115
489	111	61	116
490	111	64	116
491	111	62	115
492	113	60	116
493	111	61	114
494	113	61	116
495	118	61	116
496	111	61	116
497	113	61	116
498	110	61	116
500	112	62	116
Local Check	85	61	-
Location Mean	110	62	
S.E. of Mean	2	1	
Prob. of Significance	.00	.05	
L.S.D. at 5%	4	3	
C.V. %	2	2	

Table 6.2.3. Time to maturity (days) of entries in the ILAT-LC-94 conducted at different locations.

Entry Name	INDIA	IRAQ	LEBANON		SAUDI ARABIA	SYRIA	TURKEY	Overall Mean
	Kanpur	Rabiaa	Kfardan	Terbol	Derab	Aleppo-T.H.	Haymana	
501	-	176	182	177	158	164	97	159
486	138	176	178	175	159	160	92	157
487	133	178	179	175	158	163	92	158
488	136	175	179	175	159	157	92	157
489	137	175	180	175	158	159	92	156
490	134	177	178	175	159	160	92	157
491	137	176	179	175	159	159	92	156
492	132	176	181	175	158	160	92	157
493	137	176	179	175	159	159	89	156
494	138	175	179	177	157	160	92	156
495	137	175	180	175	161	157	92	156
496	132	176	179	175	158	161	92	157
497	135	177	180	175	158	162	92	158
498	137	178	179	175	158	157	92	156
500	135	177	180	175	158	162	92	158
Local Check	136	-	186	181	-	131	89	-
Location Mean	136	176	180	176	159	158	92	
S.E. of Mean	0.94	1	1	-	1	2	-	
Prob. of Significance	0.00	.01	.00	.00	.82	.00	.00	
L.S.D. at 5%	2.33	2	2	-	4	7	-	
C.V. %	1.00	1	1	0	1	3	0	

Table 6.2.4 Plant height (cm) of entries in the ILAT-LC-94 conducted at different locations.

Entry Name	INDIA	IRAQ	LEBANON		PORTUGAL	SAUDI ARABIA	SYRIA	TURKEY	Overall Mean
	Kanpur	Rabiaa	Kfardan	Terbol	Elvas	Derab	Aleppo-T.H.	Haymana	
501	28	65	44	68	62	38	37	22	45
486	34	68	62	68	76	51	44	23	54
487	23	69	58	68	66	47	43	23	50
488	34	66	63	72	71	65	42	22	54
489	30	65	54	72	72	48	40	21	50
490	31	66	58	72	62	57	45	21	51
491	28	71	58	74	70	58	42	25	53
492	41	68	66	73	77	58	42	25	56
493	48	58	57	69	67	50	40	23	51
494	44	66	63	69	68	47	45	25	54
495	36	67	62	73	77	44	43	22	54
496	38	71	54	72	72	49	42	21	53
497	38	72	56	68	67	55	39	21	52
498	39	68	59	66	67	53	49	22	53
500	30	67	60	75	69	49	38	24	51
Local Check	29	-	56	76	70	-	47	21	-
Location Mean	34	67	58	71	70	51	42	23	
S.E. of Mean	4.61	2	4	3	4	5	4	1	
Prob. of Significance	0.08	.05	.08	.30	.13	.14	.76	.00	
L.S.D. at 5%	NS	7	NS	NS	NS	NS	NS	2	
C.V. %	18.99	6	12	7	9	18	16	6	

Table 6.2.5 Seed yield (Y=kg/ha) and rank (R) of entries in the ILAT-LC-94 conducted at different locations

Entry Name	INDIA		IRAQ		LEBANON				PORTUGAL	
	Kanpur		Rabiaa		Kfardan		Terbol		Elvas	
	Y	R	Y	R	Y	R	Y	R	Y	R
501	-	-	1767	8	3340	7	3676	14	3892	7
486	0	15	2391	5	3434	4	4074	6	4024	5
487	-	-	1276	15	3523	3	3796	11	3310	12
488	15	4	2633	3	3032	13	3778	12	2847	15
489	-	-	1544	11	2592	16	4074	6	3198	13
490	0	12	3106	2	3329	8	3954	9	3438	11
491	0	13	1880	7	3125	12	4333	1	4707	1
492	0	16	1920	6	3258	10	3815	10	4262	3
493	21	3	3311	1	3380	5	4167	5	3781	8
494	31	2	1372	13	3361	6	3991	8	3970	6
495	0	11	2522	4	2707	15	3500	15	4647	2
496	0	14	1761	9	3211	11	4194	4	3726	9
497	-	-	1752	10	3745	2	4222	3	2994	14
498	-	-	1530	12	3324	9	3750	13	3601	10
500	-	-	1346	14	4287	1	4259	2	4200	4
Local Check	2329	1	-	-	2949	14	2935	16	2674	16
Location Mean	240		2007		3287		3907		3704	
S.E. of Mean	298.25		29.37		291.01		165.11		275.66	
Prob. of Significance	0.01		.00		.08		.00		.00	
L.S.D. at 5%	779.01		85.07		NS		476.88		796.15	
T.E > L. Check	0		-		-		15		10	
C.V. %	194.70		2.53		15.33		7.32		12.89	

Cont'd. ...

Table 6.2.5 Cont'd. ...

Entry Name	SAUDI ARABIA		SYRIA		TURKEY		Overall Mean	
	Derab		Aleppo-T.H.		Haymana			
	Y	R	Y	R	Y	R	Y	R
501	43	2	558	15	111	16	1912	13
486	41	3	861	8	468	12	2177	4
487	15	15	728	12	495	9	1878	14
488	22	12	868	7	454	13	1948	12
489	36	6	768	10	500	8	1816	15
490	39	4	576	14	352	15	2113	6
491	34	7	886	5	616	4	2225	2
492	25	10	871	6	630	3	2111	7
493	15	14	817	9	597	6	2295	1
494	17	13	1054	1	699	1	2067	8
495	24	11	946	3	472	11	2116	5
496	28	9	678	13	495	9	2013	10
497	31	8	946	4	611	5	2043	9
498	50	1	992	2	444	14	1955	11
500	36	5	742	11	500	7	2195	3
Local Check	—	—	494	16	685	2	—	—
Location Mean	30	—	799	—	508	—	—	—
S.E. of Mean	11.41	—	149.05	—	56.96	—	—	—
Prob. of Significance	.55	—	.34	—	.00	—	—	—
L.S.D. at 5%	NS	—	NS	—	164.52	—	—	—
T.E > L. Check	—	—	—	—	0	—	—	—
C.V. %	63.60	—	32.31	—	19.42	—	—	—

* The mean has been calculated excluding the locations with incomplete data.

Table 6.2.6 Biological yield (Y=kg/ha) and rank (R) of entries in the ILAT-LC-94 conducted at different locations.

Entry Name	LEBANON				PORTUGAL		SAUDI ARABIA		TURKEY		Overall Mean	
	Kfardan		Terbol		Elvas		Derab		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
501	7476	8	8231	12	11458	5	1406	7	810	16	5876	9
486	7209	11	8231	13	10764	11	1059	12	1352	13	5723	11
487	8120	2	8500	7	10903	10	2049	3	1556	7	6225	5
488	7185	12	8250	11	9097	16	1042	13	1421	10	5399	15
489	6094	16	7528	16	10694	12	1493	5	1625	4	5487	13
490	7157	13	8389	9	10139	14	1244	11	1216	15	5629	12
491	7287	9	9389	2	12778	1	2587	1	1486	8	6705	2
492	7824	3	8759	5	12222	2	1348	9	1755	2	6382	3
493	7750	5	8778	4	11806	4	1354	8	1486	9	6235	4
494	7222	10	8204	14	11181	8	1024	14	1611	6	5848	10
495	6562	15	7667	15	11042	9	660	15	1380	12	5462	14
496	6917	14	8685	6	11319	6	1337	10	1264	14	5905	7
497	7667	6	8324	10	10347	13	1458	6	1625	4	5884	8
498	7796	4	8500	8	11250	7	2170	2	1394	11	6222	6
500	9463	1	9120	3	11875	3	1997	4	1694	3	6830	1
Local Check	7620	7	9546	1	9167	15	—	—	1843	1	7044	
Location Mean	7459		8506		11003		1474		1470			
S.E. of Mean	564.01		458.40		588.21		269.14		146.68			
Prob. of Significance	.10		.21		.01		.00		.01			
L.S.D. at 5%	NS		NS		1698.89		782.38		423.65			
T.E > L. Check	—		—		10		—		0			
C.V. %	13.10		9.33		9.26		30.55		17.29			

Table 6.2.7. The five heaviest seed yielding entries at the individual locations in the ILAT-LC-94.

Country	Selection No.				
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
India					
Kanpur	Local check	494	493	488	-
Iraq					
Rabiaa	493	490	488	495	486
Lebanon					
Kfardan	500	497	487	486	493
Terbol	491	500	497	496	493
Portugal					
Elvas	491	495	492	500	486
Saudi Arabia					
Derab	498	501	486	490	500
Syria					
Aleppo-TH	494	498	495	497	491
Turkey					
Haymana	494	Local check	492	491	497

6.3. INTERNATIONAL LATHYRUS ADAPTATION TRIAL- *Lathyrus ochrus* (ILAT-LO)

Thirty five sets of the trial were sent to cooperators in 19 countries and the results were received for 10 sets from 8 countries. The agronomic information received from cooperators is given in Table 6.3.1.

Table 6.3.1. Agronomic details of entries in ILAT-LO-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Ethiopia						
Ghinchi	07.07.94	-	43/46/-	-	-	Ghinchi L.
India						
Kanpur	26.11.93	07.04.94	-	1	-	Pusa-24
Iraq						
Rabiaa	21.12.93	-	-	-	-	-
Telafar	19.12.93	-	-	-	-	-
Lebanon						
Kfardan	18.11.93	25.05.94	-/50/-	-	-	<i>L. sativus</i> Acc. 347
Terbol	20.11.93	25.05.94	-/50/-	-	-	<i>L. sativus</i> Acc. 347
Portugal						
Elvas	21.10.93	09.05.94	-/50/-	-	Propizamide Terbutryne	Acc. 8726
Saudi Arabia						
Derab	-	-	-	-	-	-
Syria						
Tel Hadya	05.12.93	02.05.94	-/40/-	-	-	Aleppo 2
Turkey						
Haymana	08.04.94	05.07.94	18/46/-	-	Linurex, Decis	-

Results and Discussion

The entry means over locations varied from 107 to 113 for time to flowering (Table 6.3.2), from 150 to 154 for time to maturity (Table 6.3.3), from 59 to 68 cm for plant height (Table 6.3.4), from 1239 to 1969 kg/ha for seed yield (Table 6.3.5), and from 5557 to 6712 kg/ha for biological yield (Table 6.3.6). The seed yields at Derab in Saudi Arabia (37 kg/ha), Kanpur in India (381 kg/ha) and Hymana in Turkey (264 kg/ha) were very low. The Sel. No. 542 gave the highest seed yield (1969 kg/ha) and was followed by Sel. Nos. -540, -538, -547, and -550 with seed yields of 1545, 1506, 1473, and 1397 kg/ha, respectively. The top five entries with high biological yield included, Sel. No. 551, -550, -549, -538, and -185 with biological yield of 6712, 6488, 6482, 6472, and 6457 kg/ha, respectively (Table 6.3.6). The five heaviest yielders across locations are given in Table 6.3.7.

Table 6.3.2 Time to flowering (days) of entries in the ILAT-LO-94 conducted at different locations.

Entry Name	Origin	ETHIOPIA	INDIA	IRAQ		LEBANON		PORTUGAL
		Ghinch/ Holetta	Kanpur	Rabiaa	Telafar	Kfardan	Terbol	Elvas
185	GERMANY	87	-	125	121	137	129	145
537	GREECE	79	114	126	123	130	121	141
538	GREECE	85	122	123	86	132	125	145
539	GREECE	83	117	125	120	136	129	134
540	GREECE	86	116	125	121	133	125	138
541	GREECE	83	116	125	120	133	125	141
542	GREECE	81	121	124	120	132	123	134
543	GREECE	83	117	124	121	132	123	134
545	CYPRUS	79	112	124	121	128	119	134
546	CYPRUS	86	112	124	123	136	129	145
547	CYPRUS	90	116	124	120	137	131	145
548	CYPRUS	88	115	125	121	135	125	141
549	CYPRUS	90	121	124	120	138	129	145
550	CYPRUS	85	120	125	122	136	129	145
551	CYPRUS	89	123	125	120	136	126	145
Local Check		100	82	-	-	138	129	138
Location Mean		86	115	125	118	134	126	141
S.E. of Mean		1	3	1	9	1	0	2
Prob. of Significance		.00	.00	.83	.42	.00	.00	.00
L.S.D. at 5%		3	9	NS	NS	2	0	6
C.V. %		2	4	1	13	1	0	2

Cont'd. ...

Table 6.3.2 Cont'd. ...

Entry Name	SAUDI ARABIA	SYRIA	TURKEY	Overall Mean
	Derab	Aleppo-T.H.	Haymana	
185	103	111	60	113
537	93	108	51	108
538	99	109	56	107
539	104	110	57	111
540	101	108	52	110
541	98	109	60	111
542	95	109	57	108
543	96	108	54	108
545	101	107	58	108
546	106	110	55	113
547	104	111	55	113
548	102	111	53	111
549	103	111	57	113
550	101	111	57	112
551	103	111	57	112
Local Check	-	87	-	-
Location Mean	101	108	56	
S.E. of Mean	2	0	4	
Prob. of Significance	.02	.00	.88	
L.S.D. at 5%	7	1	NS	
C.V. %	4	1	11	

Table 6.3.3 Time to maturity (days) of entries in the ILAT-LO-94 conducted at different locations.

Entry Name	ETHIOPIA	INDIA	IRAQ		LEBANON		SAUDI ARABIA	SYRIA	TURKEY	Overall Mean
	Ghinehi/ Holetta	Kanpur	Rabiaa	Telafar	Kfardan	Terbol	Derab	Aleppo-T.H.	Haymana	
185		-	166	157	178	175	159	151	88	154
537	154	138	164	158	179	172	159	149	88	152
538	148	133	167	159	178	171	159	147	88	153
539	154	136	162	156	181	175	159	149	88	153
540	151	137	165	159	178	174	159	148	88	152
541	147	134	167	159	178	174	159	149	88	153
542	152	137	165	158	183	170	159	148	88	152
543	146	132	164	157	181	174	159	148	88	152
545	149	137	164	157	174	169	159	147	88	150
546	144	138	166	162	178	174	159	150	88	154
547	155	137	166	161	180	175	159	149	88	154
548	158	132	166	160	180	173	159	152	88	154
549	154	135	166	159	178	175	159	151	88	154
550	159	137	164	158	178	175	159	149	88	153
551	153	135	165	157	178	175	159	149	88	153
551	156	135	165	157	178	175	159	149	88	153
Local Check	156	107	-	-	184	180	-	135	-	-
Location Mean	159	133	165	158	179	174	159	148	88	
S.E. of Mean	152	1	1	1	1	1	-	1	-	
Prob. of Significance	2	.00	.41	.00	.00	.00	-	.00	-	
L.S.D. at 5%	.00	3	NS	2	4	2	-	2	-	
C.V. %	6	1	1	1	1	1	0	1	0	
	2									

* The mean has been calculated excluding the locations with incomplete data.

[illegible]

Table 6.3.5 Seed yield (Y=kg/ha) and rank (R) of entries in the ILAT-LO-94 conducted at different locations

Entry Name	ETHIOPIA		INDIA		IRAQ				LEBANON	
	Ghinch/ Holetta		Kanpur		Rabiah		Telafar		Kfardan	
	Y	R	Y	R	Y	R	Y	R	Y	R
185	751	13	—	—	1061	10	904	14	2543	7
537	1031	4	316	9	1180	8	1113	8	2742	5
538	1178	3	—	—	1039	12	987	12	2907	2
539	977	6	15	3	1039	14	1006	11	2149	15
540	1344	2	—	—	1267	4	1137	5	2850	3
541	960	7	315	6	989	15	1139	4	2762	4
542	900	8	315	6	1039	12	852	15	3042	1
543	838	10	316	9	1193	7	1122	6	1907	16
545	988	5	21	2	1559	2	1465	3	2495	8
546	713	15	221	4	1178	9	1122	6	2222	14
547	784	12	308	5	2070	1	1863	1	2579	6
548	669	16	315	6	1226	5	1106	9	2394	12
549	724	14	—	—	1220	6	1096	10	2450	11
550	868	9	—	—	1543	3	1467	2	2491	9
551	794	11	—	—	1043	11	965	13	2453	10
Local Check	2804	1	2329	1	—	—	—	—	2392	13
Location Mean	1020	—	381	—	1243	—	1156	—	2524	—
S.E. of Mean	136.72	—	789.23	—	25.87	—	48.23	—	213.80	—
Prob. of Significance	.00	—	.43	—	.00	—	.00	—	.07	—
L.S.D. at 5%	394.88	—	NS	—	74.94	—	139.71	—	NS	—
T.E > L. Check	0	—	—	—	—	—	—	—	—	—
C.V. %	23.21	—	210.81	—	3.61	—	7.23	—	14.67	—

Cont'd. ...

Table 6.3.5 Cont'd. ...

Entry Name	LEBANON		PORTUGAL		SAUDI ARABIA		SYRIA		TURKEY		Overall Mean	
	Terbol		Elvas		Derab		Aleppo-T.H.		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
185	2861	5	2944	4	8	15	776	10	269	6	1346	9
537	2694	9	2480	10	56	3	706	15	231	11	1359	7
538	3000	2	3005	3	43	7	1137	1	255	8	1506	3
539	2787	7	2643	8	28	10	751	12	292	5	1297	12
540	2917	3	3007	2	68	2	922	4	394	1	1545	2
541	2667	10	2678	6	48	6	754	11	231	12	1359	8
542	3102	1	7563	1	49	5	865	6	306	4	1969	1
543	2870	4	2799	5	33	9	854	7	327	2	1327	10
545	2361	14	2328	14	83	1	940	3	190	14	1379	6
546	2565	12	2336	13	37	8	715	14	259	7	1239	15
547	2287	15	2670	7	22	13	656	16	327	3	1473	4
548	2741	8	2501	9	54	4	827	9	176	15	1299	11
549	2657	11	2253	16	27	11	850	8	222	13	1278	13
550	2806	6	2423	11	21	14	715	13	236	10	1397	5
551	2556	13	2413	12	23	12	913	5	244	9	1267	14
Local Check	1926	16	2290	15	—	—	990	2	—	—	—	—
Location Mean	2675		2896		37		836		264			
S.E. of Mean	176.39		1412.22		17.96		118.48		26.03			
Prob. of Significance	.01		.66		.34		.38		.00			
L.S.D. at 5%	509.46		NS		NS		NS		75.41			
T.E. > L. Check	13		—		—		—		—			
C.V. %	11.42		84.47		75.21		24.55		17.09			

* The mean has been calculated excluding the locations with incomplete data.

Table 6.3.6 Biological yield (Y=kg/ha) and rank (R) of entries in the ILAT-LO-94 conducted at different locations

Entry Name	LEBANON				PORTUGAL		SAUDI ARABIA		TURKEY		Overall Mean	
	Kfardan		Terbol		Elvas		Derab		Haymana		Y	R
	Y	R	Y	R	Y	R	Y	R	Y	R		
185	8029	11	9519	6	12778	1	990	13	972	7	6457	5
537	8391	8	8370	13	10556	12	1337	8	988	6	5928	11
538	8644	5	10343	1	10694	11	1785	3	894	12	6472	4
539	7474	13	10111	2	11389	5	1441	7	1046	3	6292	7
540	8634	6	9093	9	11667	3	1561	5	1139	1	6419	6
541	8658	4	9630	4	10764	10	1042	12	889	13	6197	8
542	8158	10	8694	10	8889	16	1146	10	898	9	5557	15
543	7194	14	8407	12	11389	5	1302	9	1035	4	5866	12
545	6936	15	8213	15	10417	13	1655	4	995	5	5643	14
546	7731	12	8352	14	11319	7	547	15	898	9	5770	13
547	9198	2	8583	11	11250	8	770	14	1060	2	6172	9
548	8403	7	9185	8	10347	14	1535	6	667	15	6027	10
549	8270	9	9963	3	11181	9	2101	2	896	11	6482	3
550	9065	3	9556	5	11806	2	1133	11	880	14	6488	2
551	9258	1	9509	7	11667	3	2208	1	917	8	6712	1
Local Check	6574	16	6454	16	9236	15	—	—	—	—	—	—
Location Mean	8164		8999		10959		1378		945			
S.E. of Mean	628.94		572.20		541.25		413.81		86.80			
Prob. of Significance	.13		.01		.00		.29		.14			
L.S.D. at 5%	NS		1652.62		1563.24		NS		NS			
T.E > L. Check	—		15		9		—		—			
C.V. %	13.34		11.01		8.55		46.44		15.91			

Table 6.3.7. The five heaviest seed yielding entries at the individual locations in the ILAT-LO-94.

Country	Selection No.				
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Ethiopia					
Ginchie	Local check	540	538	537	545
India					
Kanpur	Local check	545	539	546	547
Iraq					
Rabiaa	547	545	550	540	548
Telafar	547	550	545	541	540
Lebanon					
Kfardan	542	538	540	541	537
Terbol	542	538	540	543	185
Portugal					
Elvas	542	540	538	185	543
Saudi Arabia					
Derab	545	540	537	548	542
Syria					
Aleppo-TH	538	Local check	545	540	551
Turkey					
Haymana	540	543	547	542	539

6.4. INTERNATIONAL VETCH ADAPTATION TRIAL - *Vicia sativa* (IVAT-VS)

Forty nine sets of the trial were sent to cooperators in 28 countries and the results were received for 11 sets from 9 countries. The agronomic information received from cooperators is given in Table 6.4.1.

Results and Discussion

The entry means over locations varied from 94 to 106 for time to flowering (Table 6.4.2), from 151 to 163 for time to maturity (Table 6.4.3), from 39 to 54 cm for plant height (Table 6.4.4), from 876 to 1500 kg/ha for seed yield (Table 6.4.5), and from 4390 to 6352 kg/ha for biological yield (Table 6.4.6). The Sel. No. 2640 gave the highest seed yield (1500 kg/ha) and was followed by Sel. Nos. -2560 -2497, -2637, and -2483 with seed yields of 1490, 1466, 1425, and 1376 kg/ha, respectively. The top five entries with high biological yield included, Sel. No. 2642, -2640 -2556 -2639, and -2568 with biological yield of 6352, 6188, 6070, 5893, and 5709 kg/ha, respectively (Table 6.4.6). The five heaviest yielders across locations are given in Table 6.4.7.

Table 6.4.1. Agronomic details of entries in IVAT-VS-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Algeria						
Setif	23.11.93	08.06.94	50/100/-	-	Igran	-
Canada						
Saskatoon	11.05.94	21.10.94	-	-	-	Radley Pea
Cyprus						
Dromolaxia	29.11.93	15.05.94	70/100/-	-	-	<i>V. sativa</i>
Iraq						
Telafar	19.12.93	-	-	-	-	-
Italy						
Tolentino	11.03.94	18.07.94	-	-	-	Australian <i>Vicia</i> cv.
Lebanon						
Kfardan	18.11.93	20.05.94	-/50/-	-	-	Acc. 2541
Terbol	20.11.93	20.05.94	-/50/-	-	-	Acc. 2541
Saudi Arabia						
Riyadh	09.11.93	30.04.94	50/300/-	-	Linuron, Pendimethalin	-
Syria						
Tel Hadya	05.12.93	15.05.94	-/40/-	-	-	-
Turkey						
Erzurum	07.04.94	13.07.94	-/60/-	-	-	Elgi (L-147)
Haymana	07.04.94	12.07.94	-/100/-	-	Linuron, Decis	L-147

Table 6.4.2 Time to flowering (days) of entries in the IVAT-VS-94 conducted at different locations.

Entry Name	Origin	ALGERIA	CYPRUS	IRAQ	ITALY	LEBANON		SAUDI ARABIA
		Setif	Dromolaxia	Telafar	Tolentino	Kfardan	Terbol	Riyadh
2560	SYRIA	48	121	115	71	139	135	98
1448	ITALY	51	137	114	82	138	145	101
2556	CYPRUS	48	130	113	71	141	143	114
2558	UNKNOWN	47	121	114	74	139	137	106
2559	CYPRUS	48	126	113	72	135	137	115
2568	ITALY	52	137	114	83	141	145	-
2505	SYRIA	46	116	114	67	137	125	94
2637	SPAIN	47	121	115	72	138	131	102
2639	SPAIN	48	122	115	76	141	137	103
2638	SPAIN	48	123	114	77	142	139	113
2640	SPAIN	51	120	114	74	138	131	102
2504	SYRIA	49	120	115	69	138	131	101
2642	SPAIN	48	127	114	75	135	140	110
2497	SYRIA	49	121	115	71	141	131	100
2483	SYRIA	46	119	113	68	137	129	98
Local Check		48	118	-	68	140	135	-
Location Mean		48	124	114	73	139	136	104
S.E. of Mean		2	1	1	1	2	0	2
Prob. of Significance		.48	.00	.48	.00	.41	.00	.00
L.S.D. at 5%		NS	3	NS	3	NS	1	5
C.V. %		6	1	1	2	3	0	3

Cont'd. ...

Table 6.4.2 Cont'd. ...

Entry Name	SYRIA	TURKEY		Overall Mean
	Aleppo-T.H.	Erzurum	Haymana	
2560	116	82	56	98
1448	137	84	62	105
2556	128	84	57	102
2558	117	83	55	99
2559	122	83	56	99
2568	135	84	62	106
2505	111	83	54	95
2637	113	83	57	97
2639	116	84	57	100
2638	116	83	58	100
2640	113	82	56	98
2504	115	84	54	97
2642	120	83	58	100
2497	115	83	55	98
2483	115	81	56	96
Local Check	99	84	57	—
Location Mean	118	83	57	
S.E. of Mean	1	1	1	
Prob. of Significance	.00	.95	.00	
L.S.D. at 5%	2	NS	3	
C.V. %	1	3	4	

* The mean has been calculated excluding the locations with incomplete data.

Table 6.4.3 Time to maturity (days) of entries in the IVAT-VS-94 conducted at different locations.

Entry Name	ALGERIA	IRAQ	LEBANON		SAUDI ARABIA	SYRIA	TURKEY	Overall Mean
	Setif	Telafar	Kfardan	Terbol	Riyadh	Aleppo-T.H.	Haymana	
2560	170	157	179	178	156	156	88	155
1448	183	156	182	182	155	167	94	161
2556	173	156	182	183	165	163	88	158
2558	181	157	179	175	157	160	88	157
2559	178	157	180	178	160	160	88	157
2568	188	157	184	182	-	169	95	163
2505	173	156	176	173	153	158	84	153
2637	175	155	179	177	158	169	88	157
2639	175	157	182	182	162	167	88	159
2638	178	157	181	181	165	165	88	158
2640	163	157	179	178	158	170	88	156
2504	170	156	179	175	156	154	86	153
2642	178	157	182	179	161	168	88	159
2497	177	157	177	175	125	155	84	154
2483	169	156	176	173	159	153	86	152
Local Check	180	-	179	176	-	133	88	-
Location Mean	176	157	180	178	156	160	88	-
S.E. of Mean		1	1	1	9	2	1	
Prob. of Significance		.64	.00	.00	.36	.00	.00	
L.S.D. at 5%		NS	1	2	NS	5	4	
C.V. %	One Rep.	1	0	1	10	2	3	

* The mean has been calculated excluding the locations with incomplete data.

Table 6.4.4 Plant height (cm) of entries in the IVAT-VS-94 conducted at different locations.

Entry Name	ALGERIA	CYPRUS	IRAQ	LEBANON	SAUDI ARABIA	SYRIA	TURKEY	Overall Mean
	Setif	Dromolaxia	Telafar	Kiardan	Terbol	Riyadh	Aleppo-T.H.	
2560	45	65	38	69	78	97	45	52
1448	21	43	17	67	70	47	37	39
2556	38	58	35	76	88	101	63	55
2558	34	67	38	58	74	102	45	48
2559	40	52	38	66	60	93	32	44
2568	42	45	22	63	73	-	52	45
2505	38	65	36	67	66	72	42	48
2637	39	65	18	69	81	116	48	49
2639	43	68	14	77	87	92	48	52
2638	45	68	22	78	92	110	45	54
2640	38	62	20	75	86	112	45	50
2504	40	63	37	58	76	82	43	48
2642	39	58	20	78	83	97	57	51
2497	41	68	35	72	79	95	42	51
2483	45	65	33	63	71	96	43	49
Local Check	38	67	-	67	70	-	44	27
Location Mean	39	61	28	69	77	94	46	22
S.E. of Mean		3	1	5	5	7	3	1
Prob. of Significance		.00	.00	.11	.00	.00	.00	.00
L.S.D. at 5%		8	3	NS	14	20	10	4
C.V. %	One Rep.	8	7	13	11	13	13	11

* The mean has been calculated excluding the locations with incomplete data.

Table 6.4.5 Seed yield (Y=kg/ha) and rank (R) of entries in the IVAT-VS-94 conducted at different locations

Entry Name	ALGERIA		CANADA		CYPRUS		IRAQ		LEBANON	
	Setif		Saskatoon		Dromolaxia		Telafar		Kfardan	
	Y	R	Y	R	Y	R	Y	R	Y	R
2560	1693	1	1316	10	1601	10	1081	5	3136	4
1448	353	16	573	15	215	16	576	13	3348	1
2556	1351	8	1612	8	1285	13	1098	4	2543	10
2558	792	13	1726	5	1642	7	1170	1	2412	14
2559	1625	2	1031	12	965	14	917	9	2093	16
2568	496	15	899	13	444	15	900	10	2469	12
2505	1528	4	336	16	1635	9	1011	6	3119	5
2637	1342	9	1646	7	1771	1	606	12	2917	9
2639	1428	5	1891	4	1701	5	519	14	2297	15
2638	1206	11	1675	6	1701	4	513	15	2435	13
2640	1228	10	2066	2	1656	6	1117	2	3095	6
2504	1381	6	766	14	1563	11	1009	7	3016	7
2642	1096	12	1969	3	1528	12	700	11	2528	11
2497	1363	7	1461	9	1715	3	935	8	3157	3
2483	1556	3	1240	11	1639	8	1109	3	2978	8
Local Check	619	14	3287	1	1753	2	—	—	3269	2
Location Mean	1191		1468		1426		884		2801	
S.E. of Mean	173.67		193.56		172.23		24.62		224.75	
Prob. of Significance	.00		.00		.00		.00		.00	
L.S.D. at 5%	501.60		559.05		497.42		71.31		649.11	
T.E. > L. Check	11		0		0		—		0	
C.V. %	25.26		22.83		20.92		4.82		13.90	

Cont'd. ...

Table 6.4.5 Cont'd. ...

Entry Name	LEBANON		SAUDI ARABIA		SYRIA		TURKEY				Overall Mean	
	Terbol		Riyadh		Aleppo-T.H.		Erzurum		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
2560	2407	8	852	3	1432	2	389	15	356	13	1490	2
1448	1852	15	346	9	354	16	587	4	65	16	880	14
2556	1870	14	479	7	1450	1	578	5	444	7	1359	7
2558	2037	11	255	11	504	10	556	7	426	8	1252	10
2559	2574	7	347	8	515	9	620	2	394	10	1193	13
2560	1722	16			362	15	435	13	153	15	876	15
2505	2981	2	783	4	800	7	398	14	449	4	1362	6
2637	2907	3	537	6	518	8	667	1	449	4	1425	4
2639	1935	13	241	12	482	12	472	10	417	9	1238	11
2638	1963	12	199	13	428	14	606	3	583	1	1234	12
2640	2843	4	264	10	442	13	556	8	495	3	1500	1
2504	2741	5	881	2	878	6	454	11	292	14	1344	8
2642	2324	9	188	14	489	11	528	9	449	4	1290	9
2497	2583	6	676	5	1162	3	444	12	370	11	1466	3
2483	2111	10	978	1	1050	5	343	16	356	12	1376	5
Local Check	2991	1			1156	4	565	6	509	2		
Location Mean	2365		502		751		512		388			
S.E. of Mean	261.57		111.95		94.75		73.99		42.05			
Prob. of Significance	.01		.00		.00		.13		.00			
L.S.D. at 5%	755.48		325.44		273.65		NS		121.45			
T.E > L. Check	0				2				0			
C.V. %	19.16		38.64		21.84		25.02		18.77			

* The mean has been calculated excluding the locations with incomplete data.

Table 6.4.6 Biological yield (Y=kg/ha) and rank (R) of entries in the IVAT-VS-94 conducted at different locations

Entry Name	LEBANON				SAUDI ARABIA		TURKEY		Overall Mean	
	Kfardan		Terbol		Riyadh		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R
2560	8482	3	6204	15	9958	5	949	13	5212	10
1448	8836	2	7046	9	6139	13	486	16	5456	7
2556	8154	8	8898	1	12361	1	1157	9	6070	3
2558	5773	16	6231	14	5660	14	1167	8	4390	15
2559	7000	15	5880	16	8542	11	1319	6	4733	14
2568	7406	13	8833	2	—	—	889	14	5709	5
2505	7749	9	6796	11	10069	4	1069	10	5205	11
2637	7630	10	7796	6	9896	6	1375	4	5600	6
2639	8322	6	7935	5	9542	9	1421	3	5893	4
2638	7620	11	7269	8	9479	10	1429	2	5439	8
2640	8303	7	8741	3	11944	2	1519	1	6188	2
2504	7436	12	6954	10	9694	7	745	15	5045	12
2642	9481	1	8269	4	8507	12	1306	7	6352	1
2497	8354	5	6574	12	9549	8	958	12	5295	9
2483	7174	14	6361	13	11250	3	991	11	4842	13
Local Check	8393	4	7426	7	—	—	1366	5	—	—
Location Mean	7882		7326		9471		1134			
S.E. of Mean	493.10		520.38		993.63		156.25			
Prob. of Significance	.00		.00		.00		.00			
L.S.D. at 5%	1424.19		1502.97		2888.43		451.28			
T.E > L. Check	0		0		—		0			
C.V. %	10.84		12.30		18.17		23.86			

* The mean has been calculated excluding the locations with incomplete data.

Table 6.4.7. The five heaviest seed yielding entries at the individual locations in the IVAT-VS-94.

Country	Selection No.				
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria					
Setif	2560	2559	2483	2505	2639
Canada					
Saskatoon	Local check	2640	2642	2639	2558
Cyprus					
Dromolaxia	2637	Local check	2497	2638	2639
Iraq					
Telafar	2558	2640	2483	2556	2560
Lebanon					
Kfardan	1448	Local check	2497	2560	2505
Terbol	Local check	2505	2637	2640	2504
Saudi Arabia					
Riyadh	2483	2504	2560	2505	2497
Syria					
Aleppo-TH	2556	2560	2497	Local check	2483
Turkey					
Erzurum	2637	2559	2638	1448	2556
Haymana	2638	Local check	2640	2505, 2642, 2637	

6.5. INTERNATIONAL VETCH ADAPTATION TRIAL- *Vicia narbonensis* (IVAT-VN)

Forty two sets of the trial were sent to cooperators in 23 countries and the results were received for 11 sets from 8 countries. The agronomic information received from cooperators is given in Table 6.5.1.

Results and Discussion

The entry means over locations varied from 118 to 126 for time to flowering (Table 6.5.2), 165 to 168 for time to maturity (Table 6.5.3), 61 to 70 cm for plant height (Table 6.5.4), 1524 to 1828 kg/ha for seed yield (Table 6.5.5), and 5710 to 7727 kg/ha for biological yield (Table 6.5.6). The seed yields at Derab in Saudi Arabia (73 kg/ha), and Izra'a in Syria (432 kg/ha) were very low. The Sel. No. 2461 gave the highest seed yield (1828 kg/ha) and was followed by Sel. Nos. -2383, -2388, -2468, and -2390 with seed yields of 1825, 1801, 1764, and 1745 kg/ha, respectively. The top five entries with high biological yield included, Sel. Nos. -2466, -2461, -2468, -2465, and -2467 with biological yield of 7727, 7576, 7531, 7362, and 7338 kg/ha, respectively (Table 6.5.6). The five heaviest seed yielders across locations are given in Table 6.5.7.

Table 6.5.1. Agronomic details of entries in IVAT-VN-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Algeria						
Setif	23.11.93	08.06.94	50/100/-	-	Igran	Vs. Hifa
Canada						
Saskatoon	11.05.94	21.10.94	-	-	-	Radley Pea
Cyprus						
Dromolaxia	29.11.93	15.05.94	70/200/-	-	-	<i>V. sativa</i>
Iraq						
Rabiaa	21.12.93	-	-	-	-	-
Telafar	19.12.93	-	-	-	-	-
Lebanon						
Kfardan	18.11.93	20.05.94	-/50/-	-	-	Acc. 2541
Terbol	20.11.93	20.05.94	-/50/-	-	-	Acc. 2541
Saudi Arabia						
Derab	-	-	-	-	-	-
Syria						
Izra'a	27.12.93	-	-	-	-	-
Tel Hadya	05.12.93	15.05.94	-/40/-	-	-	-
Turkey						
Haymana	12.10.93	13.06.94	-/100/-	-	Linuron, Decis	L-628

Table 6.5.2 Time to flowering (days) of entries in the IVAT-VN-94 conducted at different locations.

Entry Name	Origin	ALGERIA	CYPRUS	IRAQ		LEBANON		SAUDI ARABIA
		Setif	Dromolaxia	Rabiaa	Telafar	Kfardan	Terbol	Derab
2561	SYRIA	144	113	117	122	133	127	93
2380	LEBANON	135	106	112	111	130	119	87
2383	LEBANON	139	110	108	111	131	123	89
2388	LEBANON	138	113	109	113	131	121	93
2390	LEBANON	145	106	120	116	131	120	90
2391	LEBANON	136	106	105	108	131	122	91
2392	LEBANON	143	106	113	114	131	121	92
2393	SYRIA	144	106	116	117	131	125	85
2461	TURKEY	151	114	118	113	134	127	93
2462	TURKEY	145	116	110	112	134	127	92
2464	TURKEY	144	112	113	111	134	125	93
2465	TURKEY	148	116	111	113	135	129	91
2466	TURKEY	150	119	121	115	137	131	92
2467	LEBANON	144	113	110	112	136	131	91
2468	LEBANON	144	116	106	108	135	129	93
Local Check		150	119	-	-	138	135	-
Location Mean		144	112	112	110	133	126	91
S.E. of Mean			2	1	2	1	0	2
Prob. of Significance			.00	.00	.00	.00	.00	.21
L.S.D. at 5%			5	2	5	2	1	NS
C.V. %		One Rep.	3	1	3	1	0	4

Cont'd. ...

Table 6.5.2 Cont'd. ...

Entry Name	SYRIA		TURKEY	Overall Mean
	Aleppo-T.H.	Izra'a	Haymana	
2561	112	79	197	124
2380	108	75	197	118
2383	109	82	197	120
2388	110	76	198	120
2390	109	75	197	121
2391	110	76	198	118
2392	110	76	198	120
2393	110	78	198	121
2461	112	80	198	124
2462	112	79	198	122
2464	111	78	199	122
2465	112	79	199	123
2466	114	81	199	126
2467	112	79	198	123
2468	111	76	199	122
Local Check	99	-	199	-
Location Mean	110	78	198	
S.E. of Mean	1	1	1	
Prob. of Significance	.00	.00	.29	
L.S.D. at 5%	2	3	NS	
C.V. %	1	2	1	

Table 6.5.3 Time to maturity (days) of entries in the IVAT-VN-94 conducted at different locations.

Entry Name	ALGERIA		IRAQ		LEBANON		SAUDI ARABIA	SYRIA	TURKEY	Overall Mean
	Setif	Rablaa	Telafar	Kfardan	Terbol	Derab	Aleppo-T.H.	Izra'a	Haymana	
2561	170	177	171	178	175	139	150	105	244	168
2380	169	171	165	176	171	138	150	104	243	165
2383	169	169	163	179	173	137	151	105	243	165
2388	170	171	166	179	172	137	148	103	243	165
2390	180	176	169	179	173	138	150	102	243	168
2391	168	173	163	177	171	136	149	103	245	165
2392	169	174	166	181	173	140	149	104	242	166
2393	170	174	168	178	175	137	151	104	244	167
2461	168	169	160	180	175	140	152	104	244	166
2462	169	176	168	178	176	139	151	106	244	167
2464	173	169	164	181	177	140	152	105	244	167
2465	169	173	166	180	177	139	151	103	244	167
2466	173	171	165	179	176	141	152	106	244	167
2467	170	175	168	181	176	137	151	104	243	167
2468	170	172	162	180	175	138	149	102	244	166
Local Check	170	-	-	179	177	-	134	-	244	-
Location Mean	170	173	166	179	175	138	149	104	244	
S.E. of Mean	One Rep.	1	1	1	0	1	1	1	0	
Prob. of Significance		.00	.00	.14	.00	.45	.00	.00	.05	
L.S.D. at 5%		4	3	NS	1	NS	2	2	1	
C.V. %		1	1	1	0	2	1	1	0	

Table 6.5.4 Plant height (cm) of entries in the IVAT-VN-94 conducted at different locations.

Entry Name	ALGERIA	CYPRUS	IRAQ		LEBANON		SAUDI ARABIA	SYRIA	SYRIA	TURKEY	Overall Mean
	Setif	Dromolaxia	Rablaa	Telafar	Kfardan	Ferbol	Derab	Aleppo-T.H.	Lera'a	Haymana	
2561	60	87	83	52	106	102	39	53	20	32	63
2380	58	100	81	56	92	98	42	53	22	31	63
2383	75	107	80	54	93	115	56	55	23	36	69
2388	61	100	83	48	96	123	34	58	25	35	67
2390	55	100	55	61	93	97	49	45	23	30	61
2391	60	107	91	50	79	100	46	53	25	32	64
2392	56	97	68	50	105	108	46	52	22	33	64
2393	63	100	83	58	88	105	40	56	24	34	65
2461	60	90	71	55	98	116	41	62	24	39	66
2462	72	97	66	54	97	109	53	55	22	35	66
2464	68	97	68	55	98	97	45	60	23	35	65
2465	58	90	81	57	95	107	45	55	24	39	65
2466	64	90	67	56	92	106	41	65	24	39	64
2467	70	100	81	55	102	108	50	63	25	39	69
2468	62	103	86	58	103	118	51	60	27	34	70
Local Check	45	73	.	.	66	73	.	38	.	41	—
Location Mean	62	96	76	55	94	105	45	55	23	35	
S.E. of Mean		4	1	2	5	7	6	5	1	3	
Prob. of Significance		.00	.00	.00	.00	.01	.50	.03	.01	.10	
L.S.D. at 5%		12	4	5	16	19	NS	13	3	NS	
C.V. %	One Rep.	8	3	6	10	11	23	14	8	13	

Table 6.5.5 Seed yield (Y=kg/ha) and rank (R) of entries in the IVAT-VN-94 conducted at different locations

Entry Name	ALGERIA		CANADA		CYPRUS		IRAQ			
	Setif		Saskatoon		Dromolaxia		Rabiaa		Telafar	
	Y.	R	Y	R	Y	R	Y	R	Y	R
2561	1403	12	1336	15	2375	5	770	13	641	14
2380	1439	10	1747	9	2385	4	1128	7	970	7
2383	1440	9	1326	16	2524	3	1533	1	1374	1
2388	1703	3	1971	6	2177	9	1354	5	1226	4
2390	1486	7	2043	3	3014	1	1017	9	885	10
2391	1635	4	1368	13	2556	2	1469	3	1183	5
2392	1456	8	1449	11	2229	8	620	15	589	15
2393	1954	1	1346	14	2375	5	978	11	887	9
2461	1422	11	2059	2	2080	11	1476	2	1324	2
2462	1365	13	1711	10	1917	14	1107	8	961	8
2464	1731	2	2036	4	2153	10	998	10	859	11
2465	1558	6	2024	5	2049	13	735	14	702	13
2466	1597	5	1774	7	1656	15	839	12	722	12
2467	1324	15	1379	12	2066	12	1394	4	1228	3
2468	1342	14	1773	8	2313	7	1194	6	1122	6
Local Check	557	16	2640	1	1174	16	—	—	—	—
Location Mean	1463		1749		2190		1108		978	
S.E. of Mean	179.94		198.58		202.73		26.83		21.12	
Prob. of Significance	.01		.00		.00		.00		.00	
L.S.D. at 5%	519.70		573.53		585.54		77.72		61.19	
T.E > L. Check	15		0		14		—		—	
C.V. %	21.30		19.67		16.03		4.20		3.74	

Cont'd. ...

Table 6.5.5 Cont'd. ...

Entry Name	LEBANON				SAUDI ARABIA		SYRIA			
	Kfardan		Terbol		Derab		Aleppo-T.H.		Izra'a	
	Y	R	Y	R	Y	R	Y	R	Y	R
2561	3611	2	3269	14	29	15	475	14	344	11
2380	2701	14	3565	10	200	1	544	13	583	2
2383	3424	4	4259	1	94	4	853	7	385	9
2388	3000	9	3769	7	55	8	890	5	444	6
2390	2750	13	4009	2	82	6	436	15	380	10
2391	2509	15	3861	5	48	11	588	12	650	1
2392	3737	1	3796	6	55	8	676	11	567	3
2393	2759	12	3519	11	35	14	711	9	565	4
2461	2963	10	3676	8	72	7	1099	2	244	15
2462	2441	16	3519	12	87	5	692	10	317	14
2464	3433	3	3954	3	38	13	744	8	333	12
2465	2917	11	3056	15	46	12	1010	4	519	5
2466	3204	7	3657	9	55	8	1401	1	420	7
2467	3130	8	3417	13	119	2	1096	3	330	13
2468	3399	5	3917	4	98	3	882	6	404	8
Local Check	3364	6	2611	16	--	--	401	16	--	--
Location Mean	3084		3616		73		781		432	
S.E. of Mean	522.74		279.75		40.67		180.29		132.19	
Prob. of Significance	.88		.05		.52		.02		.66	
L.S.D. at 5%	NS		807.99		NS		520.71		NS	
T.E. > L. Check			12				4			
C.V. %	29.36		13.40		92.72		39.97		52.97	

Cont'd. ...

Table 6.5.5 Cont'd. ...

Entry Name	TURKEY			
	Haymana		Overall Mean	
	Y	R	Y	R
2561	2576	13	1530	14
2380	2361	15	1602	13
2383	2861	10	1825	2
2388	3222	6	1801	3
2390	3097	7	1745	5
2391	2271	16	1649	10
2392	2688	11	1624	12
2393	3007	8	1649	11
2461	3694	3	1828	1
2462	2646	12	1524	15
2464	2396	14	1698	8
2465	3674	4	1662	9
2466	3861	1	1744	6
2467	3458	5	1722	7
2468	2965	9	1764	4
Local Check	3750	2	—	—
Location Mean	3033			
S.E. of Mean	478.74			
Prob. of Significance	.31			
L.S.D. at 5%	NS			
T.E. > L. Check	—			
C.V. %	27.34			

Table 6.5.6 Biological yield (Y=kg/ha) and rank (R) of entries in the IVAT-VN-94 conducted at different locations

Entry Name	LEBANON				SAUDI ARABIA		TURKEY		Overall Mean	
	Kfardan		Terbol		Derab		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R
2561	9852	3	9481	12	1435	13	5146	14	6479	12
2380	7880	12	9194	14	2163	8	4681	15	5980	14
2383	8742	8	11037	2	2361	6	5833	11	6993	7
2388	9176	7	10926	3	1250	15	6500	8	6963	8
2390	7519	13	10565	5	1944	10	6215	10	6561	10
2391	6997	16	9806	11	1435	14	4604	16	5710	15
2392	10075	2	9917	10	1806	12	5278	13	6769	9
2393	7324	14	9389	13	2269	7	6611	6	6398	13
2461	8648	9	10454	7	2500	2	8701	3	7576	2
2462	7252	15	10083	9	3102	1	5674	12	6528	11
2464	9607	4	10407	8	2130	9	6507	7	7163	6
2465	8630	10	8722	15	2500	3	9597	1	7362	4
2466	9537	5	10667	4	2454	4	8250	4	7727	1
2467	9435	6	10491	6	1898	11	7528	5	7338	5
2468	10311	1	11056	1	2361	5	6396	9	7531	3
Local Check	8476	11	7000	16	—	—	9097	2	—	—
Location Mean	8716		9950		2118		6664			
S.E. of Mean	1282.60		662.31		453.13		1046.72			
Prob. of Significance	.77		.02		.32		.03			
L.S.D. at 5%	3704.43		1912.89		1314.85		3023.16			
T.E > L. Check	0		14		—		0			
C.V. %	25.49		11.53		36.41		27.21			

Table 6.5.7. The five heaviest seed yielding entries at the individual locations in the IVAT-VN-94.

Country	Selection No.				
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria					
Setif	2393	2464	2388	2391	2466
Canada					
Saskatoon	Local check	2461	2390	2464	2465
Cyprus					
Dromolaxia	2390	2391	2383	2380	2393,2561
Iraq					
Rabiaa	2383	2461	2391	2467	2388
Telafar	2383	2461	2467	2388	2391
Lebanon					
Kfardan	2392	2561	2464	2383	2468
Terbol	2383	2390	2464	2468	2391
Saudi Arabia					
Derab	2380	2467	2468	2383	2462
Syria					
Izra'a	2391	2380	2392	2393	2465
Aleppo-TH	2466	2461	2467	2465	2388
Turkey					
Haymana	2466	Local check	2461	2465	2467

6.6. INTERNATIONAL VETCH ADAPTATION TRIAL- *Vicia ervilia* (IVAT-VE)

Forty five sets of the trial were sent to cooperators in 26 countries and the results were received for 10 sets from 8 countries. The agronomic information received from cooperators is given in Table 6.6.1.

Results and Discussion

The entry means over locations varied from 97 to 99 for time to flowering (Table 6.6.2), 138 to 140 for time to maturity (Table 6.6.3), 32 to 35 cm for plant height (Table 6.6.4), 851 to 1177 kg/ha for seed yield (Table 6.6.5), and 1839 to 2456 kg/ha for biological yield (Table 6.6.6). The seed yields at Ramtha in Jordan were very low (64 kg/ha). The Sel. No. 2521 gave the highest seed yield (1177 kg/ha) and was followed by Sel. Nos. -2563, -2520, -2519, and -2512 with seed yields of 1171, 1137, 1120, and 1071 kg/ha, respectively. The top five entries with high biological yield included, Sel. No. 2521, -2519, -2520, -2512, and -2508 with biological yield of 2456, 2388, 2306, 2259, and 2248 kg/ha, respectively (Table 6.6.6). The five heaviest seed yielders across locations are given in Table 6.6.7.

Table 6.6.1. Agronomic details of entries in IVAT-VE-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Algeria						
Setif	23.11.93	08.06.94	50/100/-	-	Igran	Vs. Hifa
Bulgaria						
Toshevo	06.04.94	20.07.94	-/60/-	-	Afalon, Galouf E125, Vastan	Rodopi
Canada						
Saskatoon	11.05.94	21.10.94	-	-	-	Radley Pea
Iraq						
Rabaa	21.12.93	-	-	-	-	-
Telafar	19.12.93	-	-	-	-	-
Jordan						
Ramtha	16.11.93	02.05.94	-/100/-	-	-	Kersaneh
Lebanon						
Kfardan	18.11.93	20.05.94	-/100/-	-	-	Acc. 2541
Terbol	20.11.93	20.05.94	-/50/-	-	-	Acc. 2541
Syria						
Tel Hadya	05.12.93	15.05.94	-/40/-	-	-	-
Turkey						
Haymana	08.04.94	28.06.94	-/100/-	-	Linuron, Decis	-

Table 6.6.2 Time to flowering (days) of entries in the IVAT-VE-94 conducted at different locations.

Entry Name	Origin	ALGERIA	BULGARIA	CANADA	IRAQ		JORDAN	LEBANON
		Setif	Toshevo	Saskatoon	Rabiaa	Telafar	Ramtha	Kfardan
2563	SYRIA	151	47	54	113	113	75	139
2508	CYPRUS	148	46	54	113	109	74	135
2509	CYPRUS	143	48	56	114	111	75	135
2510	CYPRUS	149	46	55	114	110	73	135
2511	CYPRUS	148	46	56	117	115	74	137
2512	CYPRUS	150	45	55	116	113	73	136
2513	CYPRUS	150	47	58	114	111	74	137
2514	CYPRUS	152	46	57	114	112	74	137
2515	CYPRUS	148	48	54	114	113	71	135
2516	CYPRUS	150	46	55	115	112	74	135
2517	CYPRUS	149	46	58	114	112	73	136
2518	SYRIA	150	46	56	116	113	71	134
2519	SYRIA	145	47	55	115	112	75	137
2520	SYRIA	148	48	56	114	113	74	138
2521	SYRIA	148	48	56	117	113	75	140
2521	SYRIA	146	51	64	-	-	71	141
Local Check		148	47	56	115	112	73	137
Location Mean			1		1	0	0	1
S.E. of Mean			.00		.00	.00	.00	.00
Prob. of Significance			1		2	1	1	2
L.S.D. at 5%			2		1	1	1	1
C.V. %								

Cont'd. ...

Table 6.6.2 Cont'd. ...

Entry Name	LEBANON	SYRIA	TURKEY	Overall Mean
	Terbol	Aleppo-T.H.	Haymana	
2563	125	110	55	98
2508	120	117	54	97
2509	120	118	52	97
2510	119	110	55	97
2511	121	109	55	98
2512	121	110	54	97
2513	120	111	55	98
2514	121	112	52	98
2515	119	111	54	97
2516	116	110	54	97
2517	121	113	55	98
2518	117	116	54	97
2519	129	109	55	98
2520	122	110	54	97
2521	129	110	57	99
Local Check	135	80	59	—
Location Mean	122	110	55	
S.E. of Mean	0	3	1.42	
Prob. of Significance	.00	.00	0.17	
L.S.D. at 5%	1	8	NS	
C.V. %	1	4	4.50	

Table 6.6.3 Time to maturity (days) of entries in the IVAT-VE-94 conducted at different locations.

Entry Name	ALGERIA	BULGARIA	IRAQ	JORDAN	LEBANON		SYRIA	TURKEY	Overall Mean	
	Setif	Toshevo	Rabina	Telafar	Ramtha	Kfardan	Terbol	Aleppo-T.H. Haymana		
2563	168	83	156	153	101	177	175	151	82	139
2508	170	81	159	153	102	175	169	156	78	139
2509	163	84	159	153	100	175	168	155	78	138
2510	170	82	158	154	103	175	169	151	79	138
2511	172	82	159	153	102	175	170	150	82	139
2512	170	83	157	154	102	176	170	151	79	138
2513	170	83	159	154	104	176	169	152	79	139
2514	172	83	158	153	102	175	168	151	79	138
2515	169	82	156	151	103	179	170	150	78	138
2516	169	82	158	154	103	175	168	151	78	138
2517	169	83	158	154	102	175	170	152	79	138
2518	173	82	157	152	101	175	169	154	79	138
2519	172	83	158	154	100	178	172	151	79	139
2520	172	83	160	153	103	177	175	151	79	140
2521	172	84	157	153	102	180	175	149	81	140
Local Check	173	87	-	-	101	181	177	121	83	-
Location Mean	170	83	158	153	102	176	171	150	80	-
S.E. of Mean		1	1	1	0	1	0	2	1.37	
Prob. of Significance	One Rep.	.00	.03	.31	.00	.00	.00	.00	0.37	
L.S.D. at 5%		1	2	NS	1	3	1	6	NS	
C.V. %		1	1	1	0	1	0	2	2.99	

Table 6.6.4 Plant height (cm) of entries in the IVAT-VE-94 conducted at different locations.

Entry Name	ALGERIA	BULGARIA	IRAQ		JORDAN	LEBANON		SYRIA	TURKEY	Overall Mean
	Setif	Toshevo	Rabiaa	Telafar	Ramtha	Kiardan	Terbol	Aleppo-T.H.	Haymana	
2563	34	31	36	27	14	52	50	39	18	33
2508	30	33	34	28	17	51	54	34	17	33
2509	28	27	35	33	15	54	50	33	18	32
2510	26	31	35	28	17	49	46	35	17	32
2511	28	30	36	37	18	42	48	36	16	32
2512	29	32	35	30	20	46	51	38	19	33
2513	29	29	35	31	17	49	50	33	18	32
2514	32	32	35	32	18	55	51	38	17	34
2515	29	26	36	30	14	52	48	34	18	32
2516	24	30	34	29	19	52	49	36	17	32
2517	35	31	35	31	17	50	49	35	18	33
2518	40	29	34	29	19	45	52	39	17	34
2519	26	29	33	28	17	50	47	35	18	32
2520	30	27	38	36	19	57	49	36	19	35
2521	28	28	36	32	18	42	46	35	19	32
Local Check	22	40	-	-	19	67	68	36	17	-
Location Mean	29	30	35	31	17	51	51	36	18	
S.E. of Mean		1	1	0	2	4	2	2	1	
Prob. of Significance		.00	.01	.00	.38	.08	.00	.62	.68	
L.S.D. at 5%		4	2	1	NS	NS	7	NS	NS	
C.V. %	One Rep.	8	4	2	17	15	9	10	9	

Table 6.6.5 Seed yield (Y=kg/ha) and rank (R) of entries in the IVAT-VE-94 conducted at different locations

Entry Name	ALGERIA		BULGARIA		CANADA		IRAQ			
	Setif		Toshevo		Saskatoon		Rabiaa		Telafar	
	Y	R	Y	R	Y	R	Y	R	Y	R
2563	1319	6	3000	3	856	2	1539	2	1237	1
2508	1000	15	2185	15	305	11	1228	6	928	8
2509	1501	2	2481	10	341	9	670	13	581	10
2510	1161	10	2315	14	262	13	626	14	569	11
2511	1071	13	2722	6	380	6	1267	5	1107	2
2512	1381	5	2500	8	380	6	985	9	1006	6
2513	1108	12	2481	9	266	12	1515	3	1080	4
2514	1311	7	2944	4	331	10	922	10	504	14
2515	1446	4	2352	13	188	15	698	11	556	12
2516	1060	14	1926	16	229	14	698	11	463	15
2517	1195	9	2481	11	175	16	1328	4	1096	3
2518	1140	11	2426	12	375	8	598	15	506	13
2519	1461	3	2648	7	665	4	1183	7	961	7
2520	1222	8	3074	2	463	5	1172	8	1070	5
2521	1536	1	2852	5	718	3	1591	1	624	9
Local Check	876	16	5889	1	2915	1	—	—	—	—
Location Mean	1237		2767		553		1068		819	
S.E. of Mean	144.36		264.49		76.19		23.17		26.99	
Prob. of Significance	.08		.00		.00		.00		.00	
L.S.D. at 5%	NS		763.89		220.07		67.13		78.18	
T.E > L. Check	—		0		0		—		—	
C.V. %	20.22		16.55		23.86		3.76		5.71	

Cont'd. ...

Table 6.6.5 Cont'd. ...

Entry Name	JORDAN		LEBANON				SYRIA		TURKEY		Overall Mean	
	Ramtha		Kfardan		Terbol		Aleppo-T.H.		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
2563	63	10	281	15	2324	15	825	1	271	15	1171	2
2508	45	14	361	3	2963	4	571	13	385	9	997	9
2509	77	4	370	1	2741	9	601	12	514	1	988	11
2510	33	16	314	9	2622	11	778	3	406	8	909	13
2511	87	3	311	10	2111	16	515	16	299	14	987	12
2512	68	7	332	4	2981	2	607	10	469	4	1071	5
2513	52	12	362	2	2602	12	517	15	361	11	1034	6
2514	51	13	321	7	2694	10	682	5	427	6	1019	7
2515	90	2	326	5	3000	1	818	2	469	3	994	10
2516	56	11	258	16	2935	5	526	14	358	12	851	15
2517	100	1	285	14	2537	13	617	9	372	10	1019	8
2518	63	9	305	13	2361	14	713	4	344	13	883	14
2519	63	8	307	12	2852	7	626	8	431	5	1120	4
2520	43	15	317	8	2981	3	601	11	420	7	1137	3
2521	70	5	307	11	2917	6	682	5	476	2	1177	1
Local Check	68	6	321	6	2796	8	674	7	260	16	—	—
Location Mean	64		317		2714		647		391			
S.E. of Mean	8.80		24.87		316.53		151.61		45.08			
Prob. of Significance	.00		.19		.74		.96		.01			
L.S.D. at 5t	25.40		NS		NS		NS		130.20			
T.E > L. Check	1		—		—		—		8			
C.V. %	23.72		13.57		20.20		40.58		19.95			

Table 6.6.6 Biological yield (Y=kg/ha) and rank (R) of entries in the IVAT-VE-94 conducted at different locations

Entry Name	JORDAN		LEBANON				TURKEY		Overall Mean	
	Ramtha		Kfardan		Terbol		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R
2563	758	12	761	2	6028	8	583	16	2033	10
2508	860	6	759	3	6398	6	976	2	2248	5
2509	688	14	756	4	5796	11	969	4	2052	8
2510	609	16	666	12	5833	10	760	11	1967	11
2511	960	4	662	13	5056	16	681	13	1839	15
2512	967	3	709	6	6407	5	951	5	2259	4
2513	827	9	701	8	5880	9	781	10	2047	9
2514	785	11	684	10	5537	15	851	9	1964	12
2515	843	8	673	11	6259	7	931	6	2176	6
2516	806	10	589	16	5750	12	698	12	1961	13
2517	1280	1	601	15	5546	14	881	7	2077	7
2518	687	15	622	14	5648	13	660	14	1904	14
2519	850	7	715	5	7009	3	976	3	2388	2
2520	758	13	705	7	6898	4	865	8	2306	3
2521	1021	2	690	9	7065	2	1049	1	2456	1
Local Check	941	5	828	1	7315	1	625	15	—	—
Location Mean	852		695		6152		827			
S.E. of Mean	75.50		40.03		607.80		67.31			
Prob. of Significance	.00		.02		.37		.00			
L.S.D. at 5%	218.29		115.60		NS		194.40			
T.E > L. Check	1		0		—		9			
C.V. %	15.36		9.97		17.11		14.09			

Table 6.6.7. The five heaviest seed yielding entries at the individual locations in the IVAT-VE-94.

Country	Selection No.				
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria					
Setif	2521	2509	2519	2515	2512
Bulgaria					
Toshevo	Local check	2520	2563	2514	2521
Canada					
Saskatoon	Local check	2563	2521	2519	2520
Iraq					
Rabiaa	2521	2563	2513	2517	2511
Telafar	2563	2511	2517	2513	2520
Jordan					
Ramtha	2517	2515	2511	2509	2521
Lebanon					
Kfardan	2509	2513	2508	2512	2515
Terbol	2515	2512	2520	2508	2516
Syria					
Aleppo-TH	2563	2515	2510	2518	2514,2521
Turkey					
Haymana	2509	2521	2515	2512	2519

6.7. INTERNATIONAL VETCH ADAPTATION TRIAL- *Vicia dasycarpa* (IVAT-VD)

Forty three sets of the trial were sent to cooperators in 22 countries and the results were received for 12 sets from 10 countries. The agronomic information received from cooperators is given in Table 6.7.1.

Results and Discussion

The entry means over locations varied from 138 to 140 for time to flowering (Table 6.7.2), from 177 to 179 for time to maturity (Table 6.7.3), from 75 to 82 cm for plant height (Table 6.7.4), from 1040 to 1326 kg/ha for seed yield (Table 6.7.5), and from 6524 to 7393 kg/ha for biological yield (Table 6.7.6). The Sel. No. 2455 gave the highest seed yield (1326 kg/ha) and was followed by Sel. Nos. -2446, -2451, -2431, and -2456 with seed yields of 1255, 1211, 1198, and 1183 kg/ha, respectively. The top five entries with high biological yield included, Sel. No. 2454, -2437, -2441, -2455, and -2446 with biological yield of 7393, 7360, 7338, 7266, and 7160 kg/ha, respectively (Table 6.7.6). The five heaviest yielders across locations are given in Table 6.7.7.

Table 6.7.1. Agronomic details of entries in IVAT-VD-94 conducted at different locations.

Country/ Location	Planting Date	Harvesting Date	Fertilizer (kg/ha) N/P/K	Irri- gation	Insecticide/ Herbicide/ Fungicide	Local Check
Algeria						
Setif	28.11.93	08.06.94	50/100/-	-	Igran	Vs. Hifa
Canada						
Saskatoon	11.05.94	21.10.94	-	-	-	Radley Pea
Cyprus						
Dromolaxia	29.11.93	15.05.94	70/200/-	-	-	-
Iraq						
Rabiaa	21.12.93	-	-	-	-	-
Telafar	19.12.93	-	-	-	-	-
Jordan						
Rabba	17.11.93	-	-/70/-	-	-	<i>V. sativa</i>
Lebanon						
Kfardan	18.11.93	20.05.94	-/50/-	-	-	Acc. 2541
Terbol	20.11.93	20.05.94	-/50/-	-	-	Acc. 2541
Portugal						
Elvas	28.10.93	01.06.94	-/50/50	-	Propizamide Terbutryne	Acc. 8746
Syria						
Tel Hadya	05.12.93	19.05.94	-/40/-	-	-	-
Turkey						
Haymana	12.10.93	20.06.94	-/100/-	-	-	-
U.S.A.						
California	25.11.95	01.04.96	-	8	-	Lana

Table 6.7.2 Time to flowering (days) of entries in the IVAT-VD-94 conducted at different locations.

Entry Name	Origin	ALGERIA	CYPRUS	IRAQ		JORDAN	LEBANON	
		Setif	Dromolaxia	Rabiaa	Telafar	Rabba	Kfardan	Terbol
2562	SYRIA	160	128	115	113	124	146	141
2424	SYRIA	172	128	118	111	119	146	141
2431	SYRIA	160	129	118	113	119	146	143
2456	JAPAN	162	130	117	112	124	147	143
2446	ITALY	158	131	116	112	124	148	143
2454	ITALY	165	129	116	114	124	146	143
2451	ITALY	161	129	118	112	122	146	143
2455	ALGERIA	161	128	117	113	122	146	141
2437	U.S.A.	160	130	116	113	124	150	144
2438	GREECE	158	131	117	113	119	150	145
2439	TURKEY	160	130	118	112	119	150	145
2445	TURKEY	160	129	118	111	119	146	143
2441	TURKEY	161	128	115	111	119	146	143
2442	ITALY	161	130	118	113	124	148	143
2457	ITALY	161	130	116	110	124	146	143
Local Check		161	129	-	-	115	138	135
Location Mean		161	129	117	112	121	147	142
S.E. of Mean			0	1	0	1	0	0
Prob. of Significance			.00	.03	.00	.00	.00	.00
L.S.D. at 5%			1	2	1	2	0	0
C.V. %		One Rep.	1	1	1	1	0	0

Cont'd. ...

Table 6.7.2 Cont'd. ...

Entry Name	PORTUGAL	SYRIA	TURKEY	U.S.A.	Overall Mean
	Elvas	Aleppo-T.H.	Haymana	California	
2562	148	121	200	126	138
2424	151	124	200	126	140
2431	145	120	198	126	138
2456	148	122	200	131	140
2446	150	120	200	128	139
2454	148	120	200	126	139
2451	148	121	200	128	139
2455	145	121	198	128	138
2437	148	120	199	128	139
2438	147	121	188	131	138
2439	151	122	200	120	139
2445	148	123	200	128	139
2441	148	120	199	126	138
2442	145	120	199	128	139
2442	145	120	200	126	138
2457	154	91	-	126	-
Local Check	148	119	199	127	
Location Mean	2	1	2	1	
S.E. of Mean	.06	.00	.01	.00	
Prob. of Significance	NS	3	5	3	
L.S.D. at 5%	2	2	2	1	
C.V. %					

Table 6.7.3 Time to maturity (days) of entries in the IVAT-VD-94 conducted at different locations.

Entry Name	ALGERIA	IRAQ		JORDAN	LEBANON		SYRIA	TURKEY	Overall Mean
	Setif	Rablaa	Telafer	Rabba	Kfardan	Terbol	Aleppo-T.H.	Haymana	
2562	173	175	165	136	187	181	164	244	178
2424	185	175	166	129	186	182	164	245	179
2431	173	173	163	129	185	181	165	245	177
2456	173	177	167	136	185	181	164	244	178
2446	170	173	165	136	185	182	165	248	178
2454	173	176	165	132	187	181	165	244	178
2451	173	178	165	136	185	182	165	245	179
2455	173	173	165	135	188	182	165	245	178
2437	173	176	165	132	187	183	164	245	178
2438	173	174	165	134	190	183	165	247	179
2439	173	177	165	134	188	183	166	245	179
2445	173	175	165	134	185	182	163	244	178
2441	173	173	167	129	186	182	165	244	177
2442	173	176	166	135	188	181	165	245	179
2457	173	176	165	136	189	182	164	245	179
Local Check	173	-	-	133	182	177	135	-	-
Location Mean	174	175	165	133	186	182	163	245	
S.E. of Mean		1	1	2	1	0	1	1	
Prob. of Significance		.10	.05	.20	.00	.00	.00	.19	
L.S.D. at 5%		NS	2	NS	2	1	2	NS	
C.V. %	One Rep.	1	1	3	1	0	1	1	

Table 6.7.4 Plant height (cm) of entries at different locations with IVAT-VD during 1993/94

Entry Name	ALGERIA	CYPRUS	IRAQ		JORDAN	LEBANON		SYRIA	TURKEY	Overall Mean
	Setif	Dromolaxia	Rablaa	Telafar	Rabba	Kfardan	Terbol	el Hadya-	Haymana	
2562	41	120	72	50	99	92	116	62	29	76
2424	38	130	70	49	95	119	132	58	30	80
2431	37	130	71	47	85	124	122	63	29	79
2456	38	120	74	55	103	104	114	57	31	77
2446	41	127	71	42	98	96	134	65	31	78
2454	40	135	80	57	88	118	110	58	28	79
2451	34	122	72	48	96	103	117	58	28	75
2455	32	120	70	41	91	93	122	73	33	75
2437	33	130	70	49	100	84	113	70	31	76
2438	37	125	72	61	94	117	110	70	30	79
2439	34	130	71	51	100	103	146	68	32	82
2445	31	125	71	48	98	89	135	60	27	76
2441	39	120	75	53	100	124	106	62	30	79
2442	38	120	70	46	93	97	151	65	29	79
2457	43	120	76	51	100	106	138	63	30	81
Local Check	44	125	-	-	83	57	71	62	-	-
Location Mean	38	125	72	50	95	102	121	63	30	
S.E. of Mean	One Rep.	1	2	1	4	5	3	6	2	
Prob. of Significance		.00	.01	.00	.06	.00	.00	.78	.68	
L.S.D. at 5%		2	5	2	NS	NS	9	NS	NS	
C.V. %		1	4	2	8	8	5	16	10	

Table 6.7.5 Seed yield (Y=kg/ha) and rank (R) of entries in the IVAT-VD-94 conducted at different locations

Entry Name	ALGERIA		CANADA		CYPRUS		IRAQ			
	Setif		Saskatoon		Dromolaxia		Rabiaa		Telafar	
	Y	R	Y	R	Y	R	Y	R	Y	R
2562	706	11	1550	13	1365	13	930	11	574	14
2424	506	16	1603	12	1538	5	928	12	715	9
2431	889	2	1739	9	1403	9	1046	6	843	7
2456	771	8	1453	14	1271	16	1202	1	954	1
2446	821	5	1906	4	1396	10	885	14	591	13
2454	818	6	1607	11	1528	6	1078	5	898	4
2451	604	15	2432	1	1604	3	1172	2	933	3
2455	929	1	1994	3	1604	3	1083	4	859	6
2437	771	8	1304	16	1309	15	946	9	669	10
2438	768	10	1337	15	1375	12	1128	3	946	2
2439	615	14	1653	10	1455	7	974	8	876	5
2445	646	12	1840	6	1316	14	822	15	531	15
2441	878	3	1797	7	1642	2	981	7	657	11
2442	822	4	1792	8	1438	8	931	10	652	12
2457	637	13	2013	2	1378	11	922	13	717	8
Local Check	806	7	1887	5	1736	1	—	—	—	—
Location Mean	749		1744		1450		1002		761	
S.E. of Mean	93.63		337.35		126.37		26.40		20.14	
Prob. of Significance	.13		.76		.37		.00		.00	
L.S.D. at 5%	NS		NS		NS		76.49		58.36	
T.E > L. Check	—		—		—		—		—	
C.V. %	21.65		33.50		14.99		4.56		4.58	

Cont'd. ...

Table 6.7.5 Cont'd. ...

Entry Name	JORDAN		LEBANON		PORTUGAL		SYRIA		TURKEY		Overall Mean			
	Rabba		Kfardan		Terbol		Elvas		Aleppo-T.H.		Haymana			
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
2562	403	15	1657	9	1574	6	1188	12	717	13	779	12	1040	15
2424	523	9	2159	2	1556	7	1557	4	1153	1	637	15	1171	6
2431	663	6	1884	4	1648	4	1544	5	683	16	832	10	1198	4
2456	883	3	1530	14	1602	5	1561	3	1079	4	708	13	1183	5
2446	990	2	1655	10	1972	2	1415	6	1119	3	1056	6	1255	2
2454	663	6	1563	11	1139	16	1303	9	815	10	792	11	1110	11
2451	440	12	1826	5	1380	12	1351	7	904	5	674	14	1211	3
2455	863	4	1785	7	1676	3	1700	1	879	7	1215	1	1326	1
2437	683	5	1901	3	1222	14	1244	11	819	9	1144	3	1092	13
2438	663	6	1554	13	1185	15	1100	15	1121	2	1065	5	1113	10
2439	423	14	1555	12	1380	13	1337	8	693	15	1132	4	1099	12
2445	383	16	1528	15	1491	8	1147	13	767	12	1158	2	1057	14
2441	507	10	1492	16	1407	11	1267	10	803	11	1038	8	1134	7
2442	477	11	1705	8	1417	10	1123	14	900	6	1047	7	1118	9
2457	423	13	1810	6	1472	9	1068	16	844	8	1028	9	1119	8
Local Check	1313	1	3002	1	2489	1	1605	2	696	14				
Location Mean	644		1788		1538		1344		875		954			
S.E. of Mean	128.40		164.88		155.11		116.98		100.01		130.56			
Prob. of Significance	.00		.00		.00		.01		.01		.03			
L.S.D. at 5%	370.84		476.22		447.98		337.87		288.84		378.22			
T.E. > L. Check	0		0		0		0		4					
C.V. %	34.54		15.97		17.47		15.07		19.81		23.71			

Table 6.7.6 Biological yield (Y=kg/ha) and rank (R) of entries in the IVAT-VD-94 conducted at different locations

Entry Name	JORDAN		LEBANON		PORTUGAL		TURKEY		U.S.A.		Overall Mean	
	Rabba		Kfardan		Terbol		Elvas		Haymana		California	
	Y	R	Y	R	Y	R	Y	R	Y	R	Y	R
2562	3490	9	7972	15	9722	1	9097	13	2853	12	8969	3
2424	2930	16	8829	6	8139	11	9792	4	2708	14	8211	6
2431	3277	12	9217	4	8222	9	10000	3	3424	10	7491	8
2456	3997	6	7337	16	9065	4	9792	4	2846	13	6111	16
2446	5597	2	8030	14	8907	6	9722	6	3882	5	6820	11
2454	3390	10	8296	13	9157	2	10347	2	2986	11	10180	1
2451	3053	15	8642	8	9028	5	9653	7	2618	15	6507	14
2455	4333	4	10746	1	8037	12	9514	8	4313	3	6656	12
2437	4327	5	10588	2	7870	13	9306	10	3815	7	8254	5
2438	3063	14	8531	10	7500	15	9028	15	3822	6	7467	9
2439	3177	13	8468	12	8898	7	9167	12	4319	2	8141	7
2445	3573	8	8602	9	9102	3	9097	13	4801	1	6891	10
2441	4480	3	8475	11	8231	8	9306	9	3949	4	9585	2
2442	3737	7	9835	3	8167	10	9236	11	3674	9	6552	13
2457	3370	11	9104	5	7759	14	8611	16	3743	8	8654	4
Local Check	11173	1	8806	7	7328	16	10833	1	—	—	6333	15
Location Mean	4185		8842		8446		9531		3584		7876	
S.E. of Mean	513.89		746.35		680.93		464.72		343.54		440.75	
Prob. of Significance	.00		.18		.46		.21		.00		.00	
L.S.D. at 5%	1484.21		NS		NS		NS		995.20		1272.99	
T.E > L. Check	0		—		—		—		—		7	
C.V. %	21.27		14.62		13.96		8.45		16.60		9.95	

Table 6.7.7. The five heaviest seed yielding entries at the individual locations in the IVAT-VD-94.

Country	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Algeria					
Setif	2455	2431	2441	2442	2446
Canada					
Saskatoon	2451	2457	2455	2446	Local check
Cyprus					
Dromolaxia	Local check	2441	2451,2455	-	2424
Iraq					
Rabiaa	2456	2451	2438	2455	2454
Telafar	2456	2438	2451	2454	2439
Jordan					
Rabba	Local check	2466	2456	2455	2437
Lebanon					
Kfardan	Local check	2424	2437	2431	2451
Terbol	Local check	2446	2455	2431	2456
Portugal					
Elvas	2455	Local check	2456	2424	2431
Syria					
Aleppo-TH	2424	2438	2446	2456	2451
Turkey					
Haymana		2455	2445	2437	24392438

Appendix I

Distribution of Legume International Nurseries and Trials during 1993/94.

Country	C I Y T - S P	I Y T W - M R	C I Y T - S L 1	C I Y T - S L 2	C C I Y T - L A	C I S N - W	C I S N - P	I S N - L 1	C I S N - L 2	C C I S N - L A	I F 4 N - M R	C I F 4 N - L	C 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
Algeria	7	11	0	0	0	3	0	0	0	0	0	0	5	0	4	0	1	31
Argentina	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Australia	0	1	1	2	2	0	1	0	1	2	0	0	0	1	1	0	0	12
Bangladesh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belize	0	0	1	0	1	0	0	0	0	1	0	0	0	0	1	0	0	4
Bhutan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolivia	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Bulgaria	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
Burundi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	2	0	0	2	2	0	1	2	2	1	0	1	0	1	0	0	0	14
Chile	3	3	0	0	3	3	0	0	1	2	0	0	0	0	0	0	3	18
China	3	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	7
Colombia	1	1	0	0	2	0	0	0	0	1	0	0	0	0	2	0	0	7
Cyprus	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Ecuador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	1	2	1	0	0	0	1	1	0	0	2	1	0	2	0	1	12
Eritria	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	3
Ethiopia	1	1	0	1	1	0	0	1	3	0	0	2	1	0	1	0	2	14
France	0	2	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	5
Greece	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Hungary	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	0	1	5
India	0	0	7	5	2	0	0	3	2	0	0	5	2	9	8	0	3	46
Iran	4	2	0	0	0	3	5	2	0	0	2	0	0	3	0	0	4	25
Iraq	2	3	0	0	0	2	0	0	0	0	3	0	1	0	1	2	0	14
Italy	2	5	0	0	1	5	1	0	0	1	5	1	2	1	1	3	2	30
Jordan	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Lebanon	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2

Cont'd. ...

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Country	C I Y T - S P	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	I S N - S L 1	C I S N - S L 2	C I S N - L A	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	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Lithuania	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
Morocco	0	3	0	0	0	2	0	0	0	0	2	0	2	0	1	1	0	11
Nepal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
New Zealand	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Oman	0	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	4
Pakistan	0	0	1	0	0	0	0	0	0	0	0	0	0	2	3	0	2	8
Peru	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Portugal	0	1	0	0	0	1	0	0	0	1	1	0	0	2	1	0	0	7
Qatar	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Saudi Arabia	0	0	2	0	0	0	5	2	0	0	0	0	0	0	3	1	3	16
Slovakia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
Spain	1	3	0	0	1	1	0	0	0	0	1	0	0	1	1	0	1	10
Sri Lanka	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sudan	0	0	1	2	0	0	0	0	1	0	0	1	0	0	1	0	0	6
Swaziland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syria	9	9	0	0	0	9	8	0	0	0	3	0	5	0	0	0	2	45
Thailand	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tunisia	0	0	0	0	0	4	4	0	0	0	0	0	0	1	0	0	0	9
Turkey	7	5	0	0	1	6	5	0	0	1	5	0	6	1	0	1	2	40
UAE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
USA	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0	1	2	7
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yemen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zambia	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
ICARDA-Syria	2	2	1	2	1	2	2	1	2	1	0	0	0	1	1	2	2	22
ICARDA-Lebanon	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	6
	48	61	20	20	21	50	34	15	15	16	25	12	26	24	36	13	34	470

Cont'd. ...

Country	L I Y T - E	L I S N - L	L I S N - S	L I S N - E	L I F 6 N - L	L I F 6 N - S	L I F 6 N - CT	L I F 6 N - E	L I C T N	L I A B N	L I F W N	L I R N	T O T A L
Algeria	1	5	1	0	0	0	0	0	1	1	1	1	11
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0
Australia	2	2	2	2	1	1	1	1	1	2	2	1	18
Bangladesh	0	0	0	2	0	0	0	1	0	0	0	1	4
Belize	0	0	0	0	0	0	0	0	0	0	0	0	0
Bhutan	1	0	1	0	0	0	0	0	0	0	0	0	2
Bolivia	0	1	0	0	1	0	0	0	0	0	0	0	2
Bulgaria	0	0	0	0	0	0	0	0	1	1	1	0	3
Burundi	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	1	2	2	0	0	0	0	0	0	1	0	0	6
Chile	0	4	3	3	0	0	0	0	0	0	0	1	11
China	4	4	2	1	0	0	0	0	0	0	0	0	11
Colombia	0	3	0	0	0	0	0	0	0	0	2	1	6
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0
Ecuador	0	1	1	0	0	0	0	0	0	0	0	0	2
Egypt	5	2	2	1	4	2	0	3	0	0	2	1	22
Eritria	1	1	1	0	0	0	0	0	0	0	0	0	3
Ethiopia	2	2	1	3	1	2	1	2	2	1	2	1	20
France	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	0	1	0	0	0	0	0	0	0	0	0	0	1
Hungary	0	1	0	0	1	0	0	0	1	0	1	0	4
India	3	2	0	4	3	0	0	2	1	3	4	5	27
Iran	1	6	5	4	0	0	0	0	8	0	0	0	24
Iraq	2	2	1	1	1	0	0	0	1	0	2	0	10
Italy	0	4	4	0	1	2	0	0	0	0	1	0	12
Jordan	0	2	0	0	2	0	0	0	0	0	0	0	4
Lebanon	0	0	1	0	0	0	0	0	0	0	0	0	1
Libya	0	0	0	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	2	0	3	0	0	0	1	1	0	1	0	8
Morocco	1	1	1	0	0	0	0	0	0	1	1	1	6

Cont'd. ...

Cont'd. ...

Country	L I Y T E	L I S N L	L I S N S	L I S N E	L I F 6 N L	L I F 6 N S	L I F 6 N CT	L I F 6 N E	L I C T N	L I A B N	L I F W N	L I R N	T O T A L
Nepal	1	0	0	2	0	0	0	0	0	0	1	0	4
New Zealand	0	1	1	0	0	0	0	0	0	0	0	0	2
Oman	2	0	0	2	0	0	0	2	0	0	0	0	6
Pakistan	4	0	0	3	0	0	0	1	0	3	4	0	15
Peru	0	2	0	1	1	0	0	0	1	0	0	0	5
Portugal	0	0	0	0	1	1	0	1	0	0	0	0	3
Qatar	1	0	0	0	0	0	0	0	0	0	0	0	1
Saudi Arabia	1	4	5	2	0	0	0	0	2	0	3	0	17
Slovakia	0	1	1	1	0	0	0	0	0	0	1	0	4
South Africa	0	0	1	1	0	0	0	0	0	0	0	0	2
Spain	0	1	1	0	1	1	1	0	0	1	1	1	8
Sri Lanka	1	0	0	0	0	0	0	0	0	0	0	0	1
Sudan	2	1	1	1	0	0	0	1	0	0	1	0	7
Swaziland	0	0	0	0	0	0	0	0	0	0	0	0	0
Syria	1	5	5	0	2	0	0	0	0	0	3	0	16
Thailand	0	0	0	0	0	0	0	0	0	0	0	0	0
Tunisia	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	3	1	0	3	1	1	0	2	0	0	0	11
UAE	1	0	0	0	0	0	0	0	0	0	0	0	1
U.K.	0	0	0	0	0	0	0	0	1	0	0	0	1
USA	0	0	0	0	0	0	1	0	1	0	0	0	2
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0
Yemen	0	0	0	0	0	0	0	0	0	0	0	0	0
Zambia	0	0	1	0	0	0	0	0	0	0	0	0	1
ICARDA-Syria	2	2	2	1	1	1	1	1	1	1	1	1	15
ICARDA-Terbol	0	1	1	0	0	0	0	0	0	0	0	0	2
	40	69	48	38	24	11	6	16	25	15	35	15	342

Cont'd. ...

Country	P I A T	I V A T - V S	I V A T - V N	I V A T - V E	I V A T - V D	I L A T - L S	I L A T - L C	I L A T - L O	T O T A L
Algeria	4	4	3	5	5	5	4	4	30
Argentina	0	0	0	0	0	0	0	0	0
Australia	1	2	2	1	1	2	1	1	10
Bangladesh	2	0	0	0	0	0	0	0	0
Belize	0	0	0	0	0	1	0	0	1
Bhutan	1	1	1	1	1	1	1	1	7
Bolivia	2	0	0	0	0	0	0	0	0
Bulgaria	1	0	0	1	0	0	0	0	1
Burundi	2	0	0	0	0	0	0	0	0
Canada	1	1	1	1	1	0	0	0	4
Chile	5	4	4	4	4	4	4	4	28
China	3	0	0	0	0	1	0	0	1
Colombia	1	1	0	0	0	0	0	0	1
Cyprus	1	1	1	1	1	0	0	0	4
Ecuador	2	1	0	0	0	0	0	1	2
Egypt	1	1	1	1	1	1	0	0	5
Eritria	0	0	0	0	0	1	0	0	1
Ethiopia	2	0	0	0	0	1	1	1	3
France	0	0	0	0	0	0	0	0	0
Greece	1	1	0	0	0	1	0	0	2
Hungary	0	0	1	1	1	1	1	0	5
India	3	1	0	0	0	5	2	1	9
Iran	0	1	1	1	1	1	1	1	7
Iraq	1	2	3	3	2	1	2	2	15
Italy	1	2	1	1	1	1	1	0	7
Jordan	4	0	0	2	2	2	0	0	6
Lebanon	0	0	0	0	0	0	0	0	0
Libya	3	3	3	3	3	2	3	3	20
Lithuania	1	0	0	0	0	0	0	0	0
Mexico	1	1	0	0	0	0	0	0	1
Morocco	0	3	3	3	3	3	3	3	21

Cont'd. ...

Cont'd. ...

Country	P I A T	I V A T - V S	I V A T - V N	I V A T - V E	I V A T - V D	I L A T - L S	I L A T - L C	I L A T - L O	T O T A L
Nepal	0	0	0	0	0	0	0	0	0
New Zealand	0	0	0	0	0	0	0	0	0
Oman	2	2	2	2	2	2	2	2	14
Pakistan	0	1	0	0	0	4	0	0	5
Peru	4	0	0	0	0	0	0	0	0
Portugal	1	0	0	0	1	1	1	1	4
Qatar	0	0	0	0	0	0	0	0	0
Saudi Arabia	3	2	1	1	0	1	1	1	7
Slovakia	1	0	0	0	0	0	0	0	0
South Africa	1	0	0	0	0	0	0	0	0
Spain	2	0	1	2	0	1	1	0	5
Sri Lanka	1	0	0	0	0	0	0	0	0
Sudan	3	0	0	0	0	0	0	0	0
Swaziland	2	0	0	0	0	0	0	0	0
Syria	4	2	2	2	2	2	2	2	14
Thailand	0	0	0	0	0	0	0	0	0
Tunisia	0	1	1	1	1	0	0	0	4
Turkey	0	5	3	2	5	4	2	2	23
UAE	0	1	2	1	0	2	2	0	8
U.K.	1	0	0	0	0	0	0	0	0
USA	1	1	2	1	2	1	1	2	10
Venezuela	1	0	0	0	0	0	0	0	0
Yemen	1	1	1	1	1	1	1	1	7
Zambia	0	1	0	1	0	0	0	0	2
ICARDA-Syria	1	0	0	0	0	0	0	0	0
ICARDA-Lebanon	2	2	2	2	2	2	2	2	14
Total	75	49	42	45	43	55	39	35	308

Appendix II

National Scientists cooperating in the Legume International Testing Program during 1993/94.

Dr. Abdelguerfi Aissa
Department de Phytotechnie
Institut National d'Agronomie
(I.N.A.)
El Harrach
Alger
ALGERIA

Dr. Hamid Achour
Director General
Ministere de L'Agriculture
Institut Technique de Developement de
L'Agronomie Saharienne
BP 27 RP Biskra
Ain Ben-Noui Biskra
ALGERIA

Mr. Mellouhi Med-Seghir
Director General
ITGC
Avenue Pasteur, BP 16
Belfort, El-Harrach, Alger
ALGERIA

Ing. Agr. Maria Cristina Nazar
Facultad de Cs.
Agropecuarias, Universidad
nacional de Cordoba
C.C. 509- C.P. 5000-
Cordoba
ARGENTINA

Mr. Allan D. McIntyre
Australian Temperate
Field Crops Collection
Victoria Institute for
Dryland Agriculture
Private Bag 260, Horsham,
Victoria 3401
AUSTRALIA

Dr. A.J. Rathjen
Department of
Plant Science
Went Agricultural Research Inst.
University of Adelaide
Glen Osmond, 5064
AUSTRALIA

Dr. J.B. Brouwer
Grain Legume Breeder
Victorian Institute for Dry Land
Agriculture,
Private Bag 260
Horsham, Victoria 3401
AUSTRALIA

Dr. M.A. Newaz
Professor
Department of Genetics and
Plant Breeding
Bangladesh Agricultural University
Mymensingh 2202
BANGLADESH

Dr. R.K. Dutta
Principal Scientific
Officer
Crop Physiology Division
Bangladesh Institute of Nuclear
Agriculture, P.O. Box 4
Mymensingh
BANGLADESH

Dr. M.M. Rahman
Principal Scientific Officer and
Program Leader, Pulses
BAARI Regional Agricultural Research
Station, P.O. Box 6620
Ishardi, District Pabna
BANGLADESH

Dr. M.I. Mihov
Institute for Wheat
and Sunflower, Dobroudja
Near General Toshevo -9520
BULGARIA

Dr. Kinzang Dorji
Director General
Department of Agriculture
Ministry of Agriculture
P.O. Box 119, Thimphu: Bhutan
BHUTAN

Mr. Anil K. Sinha
Caribbean Agric. Res. &
Development Institute
P.O. Box 2
Ministry of Agriculture
Belmopan, BELIZE
CENTRAL AMERICA

Mr. Bob Henson
IBTA
Colombia No. 340
Casilla 3299
Cochabamba,
BOLIVIA

Mr. Eric Klassen
Crop Development
Office, Manitoba Pool Elevators
P.O. Box 500
Headingley, Manitoba
CANADA

Prof. Dr. David Contreras Tapia
University of Chile
Faculty of Agronomy
Casilla 1004
Santiago
CHILE

Dr. Aage Krarup
Faculty of Agriculture
Universidad Austral de Chile
Casilla 567
Valdivia
CHILE

Mr. Zhang Huan-bi
Office of Crop Production
Base, Agric. Dept. of Shanxi Prov.
28 Xin Road, Taiyuan City
Shanxi Province
P.R. CHINA

Mr. Hu Xiao
Plant Breeder
CRI Sichuan Academy of Agric. Scie.
Chengdu, Sichuan Province
P.R. CHINA

Ing. Raul Rios E.
Coordinator
Programa Leguminosas, IBTA
Centro Investigaciones Fitotecnicas,
Pairumani, Casilla 3861
Cochabamba
BOLIVIA

Dr. A. Manirakiza
Leader of the
National Pea Program
ISABU, Programme Petit Pois
Avenue de la Cathedrate
B.P. 795 Bujumbura
BURUNDI

Dr. A. E. Slinkard
Crop Development
Centre
University of Saskatchewan
Saskatoon S7N 0W0
CANADA

Ing. Gabriel Bascur
Coordinator
Programa Leguminosas de Grano
Est. Exp. La Platina, INIA
Casilla 439/3
Santiago
CHILE

Mr. Juan Tay Urbina
Coordinator
Food Legume Program
INIA Est. Experimental Quilamapu,
Avenida Vicente Mendez 515
Casilla 426
Chillan
CHILE

Prof. Dr. Guo Gaoqiu
Head Legumes
Crop Research Institute
Qinghai Academy of Agric. & Forestry
Xining, Qinghai
P.R. CHINA

Mr. Bo Cunlou
Division of Crop
Production Base, Bureau of Agric. &
Husbandry of Shanxi Province
28 Xin Jian Road, Taiyuan City
Shanxi Province
P.R. CHINA

Dr. Mario Lobo
National Director
Legume Program ICA
Apartado Aereo 470
Rionegro, Ant.
COLOMBIA

Ing. Oscar Eduardo Checa Coral
Programa Leguminosas
ICA - Centro de Investigacion
Obonuco, Apartado Aereo 339
Pasto, Narino
COLOMBIA

Dr. A. Hadjichristodoulou
Agricultural Research Institute
P.O. Box 2016
Nicosia
CYPRUS

Mr. Nelson Garces Chacon
San Francisco No. 671 Y
Mariano Echeverria
Quito - Ecuador
Facultad de Ciencias Agricolas
Universidad Central - Quito
ECUADOR

Dr. Fayek Saweris Faris
Senior Researcher in
Legume Res. Sec. Ministry of Agric.
Vegetable Research Dept.
Dokki, Giza,
EGYPT

Prof. Mohammed Mohammed El-Ashry
Crop Science Department
Faculty of Agriculture
Suez Canal University
Ismailia
EGYPT

Dr. Asfaw Tilaye
NVRP National
Coordinator, IAR
Holetta Research Centre
P.O. Box 2003
Addis Ababa
ETHIOPIA

Dr. Gustavo A. Ligarreto M.
Instituto Colombiano
Agropecuaria -ICA
A.A. 151123 El Dorado
Santafe de Bogota, D.C.
COLOMBIA

Dr. Gilberto Bastidas Ramos
Oleaginosas ICA- Palmira
Direccion Centro Nacional de
Investigacion (CNI). A.A. 233
Palmira-Valle
COLOMBIA

Dr. Demetrios Dronshiotis
Agricultural Research Institute
P.O. Box 2016
Nicosia
CYPRUS

Dr. Nabih I. Ashour
Head, Field Crops Research Department
National Research Center
Dokki
Cairo
EGYPT

Dr. Mohammed El-Sherbeeney
Principal Food Legume Breeder
Field Crops Research Institute
Agriculture Research Center
P.O. Box 12619, Giza
EGYPT

Dr. D.S. Darwish
Agronomy Department
Faculty of Agriculture
Cairo University
12613 Giza
EGYPT

Dr. Geletu Bejiga
Head Crop Science Department
Alemaya University of Agriculture
Debre Zeit Agric. Research Centre
P.O. Box 32
Debre Zeit
ETHIOPIA

Dr. Wolde Amlak Araya
University of Asmara
College of Agriculture
P.O. Box 1220, Asmara
ERITREA

Mr. Fabien Relave/Mr. Roux
TOP SEMENCE
U.C.C.S. B.P. 2
26160 La Batie-Rolland
FRANCE

Dr. L. Holly
Director
Research Centre for Agrobotany
H-2766 Tapioszele
HUNGARY

Dr. I.S. Singh
Lentil Breeder
Dept. of Plant Breeding
G.B. Pant Univ. of Agric. & Tech.
Pantnagar 263145
INDIA

Dr. B.L. Jalali
Prof. Legume Pathology
Dept. of Plant Pathology
Haryana Agric. University
Hisar 125004
Haryana
INDIA

Dr. T.S. Sandhu
Senior Pulses Breeder
PAU Regional Research Station
Punjab Agricultural University
Faridkot 151203, Punjab
INDIA

Dr. Rajiv K. Sharma
Pulse Breeder
V.P.K.A.S. Almora
U.P. 263 601
INDIA

Dr. Mahendra Pal
Sr. Scientist
Division of Mycology &
Plant Pathology, Indian Agric. Res.
Institute, New Delhi - 110012
INDIA

Mr. Louis R.M. Castaing
"Saint-Joseph"
83570 Montfort_Sur_Argens
FRANCE

Mr. Nikolaos Stavropouloa
National Agricultural
Resrach Foundation (NARF)
Agricultural Resrch Center of
Makedonia and Thraki Greek Gene Bank
57001 Thermi - Thessaloniki
P.O. Box 312
GREECE

Dr. N.P. Pawar
All India Co-ordinated
Pulses Improvement Project - Agric.
Research Station, Badnapur, 431202
Dist. Jalna, Maharashtra
INDIA

Dr. Gurdip Singh
Sr. Plant Pathologist
Dept. of Plant Breeding
Punjab Agril. University
Ludhiana - 141004
INDIA

Dr. Y.P.S. Rath
S.R.O.
Dept. Of Plant Pathology
G.B. Pant Univ. of Agric. & Tech.
Pantnagar - 263 145
INDIA

Dr. R.S. Rana
Director NBPGR
Pusa Campus
Indian Agric. Res. Institute
New Delhi 110012
INDIA

Dr. J.S. Jamwal
Jr. Scientist
Pulses Research Station
Samba (J & K) 184121
INDIA

Dr. D.U. Patel
Associate Res. Scientist
Pulse Research Station
Gujarat Agric. University
NAVSARI-396450 (Gujarat)
INDIA

Dr. P.M. Salimath
Scientist I/C
Indian Agricultural Research Institute
Centre for Improvement of Pulses in South
Gayathri, Road No. 2, Malmaddi
Dharwar 580 007, Karnataka
INDIA

Dr. S.P. Mishra
Sr. Scientist
Div. of Plant Breeding
Indian Institute of Pulses Research
Kanpur 208 024
INDIA

Mr. G.P. Dixit
Scientist
Div. of Plant Breeding
Indian Institute of Pulses Research
Kanpur 208 024
INDIA

Dr. V.P. Singh
Head
Pulses Section, CCS,
Haryana Agricultural University
Hissar - 125004
INDIA

Dr. J.P. Upadhyaya
Senior Plant Pathologist
T.C.A., Dholi
Rajendra Agril. Univ. Muzzaffarpur
Bihar - 843121
INDIA

Dr. S.S. Yadav
Pulse Laboratory
Division of Genetics
Indian Agric. Res. Institute
New Delhi - 110012
INDIA

Dr. D.P. Tripathi
Sr. Scientist
Div. of Plant Breeding
Indian Institute of Pulses Research
Kanpur 208 024
INDIA

Dr. B. Sharma
Division of Genetics
Indian Agricultural Research Institute
New Delhi 110012
INDIA

Dr. S.N. Sen
Joint Director of Agric.
Pulses & Oilseeds Research Station
Berhampore, Murshidabad
West Bengal
Pin - 742101
INDIA

Dr. M.M. Verma
Senior Pulse Breeder cum Head
Dept. of Plant Breeding
Punjab Agricultural University
Ludhiana 141004
INDIA

Dr. A.N. Asthana
Head
Div. of Plant Breeding
Indian Institute of Pulses Research
Kanpur 208 024
INDIA

Dr. D. Pathak
Plant Pathologist
Regional Agril. Research Station
Assam Agril. Univ., Shillongani
Nowgong - 782 001
INDIA

Drs. Sushil K. Agrawal and M.W. Chitale
Dept. of Plant Breeding
Indira Gandhi Agric. Univ.
Raipur, Madhya Pradesh
INDIA

Dr. R.B. Mehra
Principal Scientist
Division of Genetics
Indian Agric. Res. Institute
New Delhi - 110012
INDIA

Dr. Shankar Lal
Project Director
Indian Institute of Pulses Research
Kanpur - 208024
INDIA

Dr. A.K. Singh
Senior Breeder (Pulses)
Agric. Res. Station
Durgapura, Jaipur 302 018
INDIA

Dr. S.K. Singh
Assistant Professor
Plant Pathology Section
Regional Agric. Research Station
R.S. Pura 181102
Jammu Tawi (J & K)
INDIA

Dr. H.A. van Rheenen
Principal Scientist
Chickpea Breeding
ICRISAT Patancheru 502 324
Andhra Pradesh
INDIA

Dr. A. Vaez Zadeh
Head
Food Legume Research Section
Seed & Plant Improvement Institute
P.O. Box 4119
Mard - Abad Avenue, Karaj
IRAN

Dr. T. Mahlooji
Director General
Seed & Plant Improvement Institute
P.O. Box 4119
Mard-Abad Avenue, Karaj
IRAN

Dr. Awad I. Abbas
IPA Center for
Agricultural Research
P.O. Box 39094
Abu-Ghraib, Baghdad
IRAQ

Mr. Suresh Chandra
Scientist
Div. of Plant Breeding
Indian Institute of Pulses Research
Kanpur 208 024
INDIA

Dr. Vishwa Dhar
Sr. Plant Pathologist
Indian Institute of Pulses Research
Kalyanpur, Kanpur-208 024
INDIA

Dr. R.B. Gaur
Asst. Pulses Pathologist
Rajasthan Agricultural University.
Agricultural Research Station
Sri Ganganagar - 335001 (Rajasthan)
INDIA

Mr. Behrooz Sadri
Head
Food Legume Research Section
Seed & Plant Improvement Institute
P.O. Box 4119
Mard - Abad Avenue
Karaj
IRAN

Dr. Alireza Taleei
Head
Dept. of Agronomy and Director,
Regional Pulse Improvement Project,
College of Agriculture,
P.O. Box 31585/4111, Karaj
IRAN

Dr. Adel Yousef Naseralla
Field Crops Dept.
Faculty of Agriculture
University of Baghdad
Abu-Graib, Baghdad
IRAQ

Dr. Hatim J. Atiya
Field Crop Science
Agriculture College
Abou-Ghraib
Baghdad
IRAQ

Dr. Ali S. Mahdi
IPA Center for
Agricultural Research
P.O. Box 39094
Abu-Ghraib
Baghdad
IRAQ

Dr. Enrico Santangelo
Consorzio Agrital
Ricerche
Viale Dell'Industria, 24
00057 Maccarese (Roma)
ITALY

Dr. Giovanni Pruneddu
Universita Degli Studi
Di Sassari, Istituti Di Agronomia
Cenerale E Coltivazioni Erbacee
Via E De Nicola - 07100 Sassari
Cod. Fisc. 00196350904
ITALY

Dr.ssa Giulia Gallo
Stazione Sperimentale di
Granicoltura Per la Sicilia
Via Rossini, 1
95041 Caltagirone (CT)
ITALY

Dr. Nasri Haddad
West Asian Coordinator
Regional Office ICARDA
P.O. Box 950764
Amman 11195
JORDAN

Dr. Ghazi AL-Karaki
Department of Plant Production
Production, Faculty of Agriculture
Jordan University of Science & Tech.
Irbid
JORDAN

Mr. Omar El-Toumi
Agric. Res. Centre
P.B. 2480
Tripoli
LIBYA

Dr. Carlo Codviti
Department di Science
Agronomiche e Genetica Vegetale
Cattedra di Miglioramento Genetico
via Universita 100-80055
Portici (NA)
ITALY

Dr Paola Crino (Ms)
ENEA, C.R.E. Casaccia
Dip. Ricerche e Sviluppo Agroindust.
S.P. Anguillarese, 301
00060 - Roma
ITALY

Dr. Benito Giorgi
Director of Research
Appadia di Fiastra, 3 - 62029
Tolentino (MC)
ITALY

Dr. Mahmoud Duwayri
NCRTT
Director
Ministry of Agriculture
P.O. Box 961043/961044/2099
Amman
JORDAN

Dr. M. Abadneh
Ministry of Agric.
NCARTT
P.O. Box 226
Amman
JORDAN

Dr. Michel Abi Antoun
Project Coordinator
Agricultural Research Center
Tel Amara
LEBANON

Mr. El-Majbari Faraj
Water Utilization
Authority, P.O. Box 7217
Berka Branch, Benghazi
LIBYA

Dr. Mustafa Black
Director General &
Chairman A.R.C.
P.O. Box 2480
Tripoli
LIBYA

Dr. S.P.S. Beniwal
Regional Legume Coordinator
North Africa, ICARDA
P.O. Box 2335, Fes
MOROCCO

Mr. Zainul Abidine Fatemi
National Food Legume Coordinator
INRA - MOROCCO
Douyet Research Station
BP 2335, Fes
MOROCCO

Prof. Marcial Fernandez-Rivera
Centro Regional
Universitario Centro Occidente
Apartado Postal 125 Centro
Morelia
MEXICO

Dr. Hugo Vivar
Regional Coordinator
ICARDA/CIMMYT Office
Londres 40
Apdo Postal 6-641
MEXICO

Mr. C.R. Yadav
Coordinator
Grain Legume Improvement Program
Rampur Research Station
Chitwan
NEPAL

Mr. Adrian Russell
Plant Breeder
Crop & Food Research
Private Bag 4704
Christchurch
NEW Zealand

Dr. Mohammad Rahim
Economic Botanist
Agricultural Research Station
(North) P.O. Box 22 Saidu Sharif
District Swat, N.W.F.P.
PAKISTAN

Dr. Budvytyte Alma
Plant Breeder
Lithuanian Institute of Agriculture
Dotnuva-Akademija, 5051
Kedainiai Distr.
LITHUANIA

Dr. M. Bounejmate
B.P. 415
Rabat RP
MOROCCO

Ms. Roza Maria Gomez Garza
Apartado Postal 356
CP. 80000
Culiacan Sinaloa
MEXICO

Dr. Emilio Jimenez Garcia
Director of CIANO
Apdo. Postal 515
85000 CD. Obregon, Sonora
MEXICO

M.C. Gonzalo Diaz de Leon Tobias
Campo Experimental Bajio
Carr. Celaya - San Miguel Allende
KM. 6, Apartado Postal No. 112
Celaya
MEXICO

Dr. David S. Goulden
Section Leader
Crop & Food Research
Private Bag 4704
Christchurch
NEW Zealand

Mr. Tareq Mousa Al Zidgali
Director General of
Agricultural Research
Ministry Of Agric. and Fisheries
P.O. Box 50, Postal Code 121
Seeb
SULTANATE OF OMAN

Dr. Ilyas Ahmad Malik
Principal Scientific Officer
Mutation Breeding Division
Nuclear Institute for Agriculture &
Biology, Jhang Road
P.O.Box 128, Faisalabad
PAKISTAN

Dr. Mohammad Ahsanul Haq
Principal Scientific
Officer, Mutation Breeding Division
Nuclear Institute for Agricultural &
Biology, Jhang Road
P.O. Box 128, Faisalabad
PAKISTAN

Dr. Bashir A. Malik
Coordinator,
Pulses
PARC, National Agricultural
Research Centre
P.O. National Health Laboratories
Islamabad
PAKISTAN

Mr. Edwin Pariona Meza
Program Leguminosas
de Grano
E.E.A. Santa Ana
Apartado 411
Huancayo
PERU

Ms. Maria Teresa M. Carvalito
National Station for Plant Breeding
P.O. Box 6
7351 Elvas Codex
PORTUGAL

Mr. J.P. Barbas Goncalves Carneiro
National Station for
Plant Breeding, P.O. Box 6
7351 Elvas Codex
PORTUGAL

Dr. Mohamed Omer Ghandorah
Head
Dept. of Plant Production
College of Agriculture
King Saud University
Riyadh, 11451, P.O. Box 2460
KINGDOM OF SAUDI ARABIA

Mr. Hamad Al Jarba
Director General
Agricultural Research Department
Ministry of Agriculture and Water
Old Airport Road,
Riyadh 11195
KINGDOM OF SAUDI ARABIA

Dr. Euan Thompson
ICARDA/MART/AZRI
P.O. Box 362
Quetta
PAKISTAN

Ing. Felix Camarena Mayta,
Prof. Univ. National
Agraria, Apartado 456
La Molina
Lima
PERU

Mr. Baltazar Quispe Cahuapaza
Estacion Experimental
Agropecuaria Illpa
INIA-PUNO.
PERU

Mr. Manuel Maria Tavares de Sousa
National Station for Plant Breeding
P.O. Box 6
7351 Elvas Codex
PORTUGAL

Dr. Ahmed Hassan Ali
Field Crops Specialist
Dept. Agr. and Water Research
Ministry of Industry & Agriculture
P.O. Box 1967
Doha
QATAR

Dr. Mubarak Al Salamah
Director General
Hail Agricultural Development Co.
Agri-Research Section
P.O. Box 106 Hail
KINGDOM OF SAUDI ARABIA

Dr. Khalid S. Al-Abdulsalam
Dean
College of Agric. and Food Sciences
King Faisal University
P.O. Box 420, Al-Hassa 31982
KINGDOM OF SAUDI ARABIA

Ing. Michaela Benkova
Research Institute of
Plant Production
Bratislavská Cesta 122
921 68 Piešťany
SLOVAKIA

Dr. Esther Sin Casas
Av. Rovira Roure, 177
25006 Lleida
SPAIN

Dr. Luis Lopez Bellido
Department de Ciències Y
Recursos Agrícoles
Escola Tècnica Superior de
Ingenieros Agrónomos. Apartado
3048 14080 Córdoba
SPAIN

Dr. Lakshman G. Herat, D.D.A. (Res.)
Regional Agricultural
Research Center
Diyatalawa Road, Bandarawela
SRI LANKA

Dr. El-Awad M.A. El-Fahal
Senior Research Scientist
Shendi Research Station
SUDAN

Dr. Abdalla I. Sheikh Mohamed
Hudeiba Research Station
P.O. Box 31
Ed-Damer
SUDAN

Dr. P.D. Mkhathshwa
A/Chief Res. Officer
Ministry of Agriculture & Coop.
Agric. Res. Division
P.O. Box 4, Malkerns
SWAZILAND

Dr. Banchong Sikkamondhol
Deputy Director General
Department of Agriculture
Chatuchak, Bangkok 10900
THAILAND

Dr. David Arkcoll
Dept. of Agricultural Development
Winter Rainfall Region
Private Bag
Elsenburg 7607
SOUTH AFRICA

Dr. Alvaro Ramos Monreal
Servicio de Investigación Agraria
Apartado 172, 47080
Valladolid
SPAIN

Ing. Jose Maria Carrasco Lopez
Servicio de Investigación
Y Desarrollo Tech. Finca "La Orden"
Ap. Correos 22
06080 Badajoz
SPAIN

Dr. Abdalla Hussein Nourai
Hudeiba Res. Station
P.O. Box 31, Ed-Damer
SUDAN

Dr. Mohamed - El Fatih K. Ali
Hudeiba Res. Station
P.O. Box 31, Ed-Damer
P.B. 33, Shendi
SUDAN

Dr. Faruk Ahmed Salih
Coordinator
Shambat Research Station
P.O. Box 30, Khartoum North
SUDAN

Dr. Hassan Al-Ahmad
Directorate of Agric. Sci. Res.
P.O. Box 113, Douma
SYRIA

Dr. Habib Halila
Food Legume Coordinator
INRAT, Ariana 2080
Tunis,
TUNISIA

Dr. Gley Khalidi
Director General
INRAT
2080 Ariana, Tunis
TUNISIA

Prof. Didar Eser
Department of Field Crops
Faculty of Agriculture
University of Ankara
Ankara, 06110
TURKEY

Mr. Ali Ustun
Director
Blacksea Agricultural Research Institute
P.O.Box 39
Samsun
TURKEY

Dr. Pervin Hincal
Zirai Mucadele Arastirma Enstitusu
35040 Bornova, Izmir
TURKEY

Mr. Abdurrahman Aksamalli
Dogu Anadolu Tarimsal
Arastirma Enstitusu
Gezikoy, Erzurum
TURKEY

Dr. Ziya Onceler
Gecit Kusagi Tarimsal
Arastirma Enstitusu
P.K. 17
Eskisehir
TURKEY

Dr. M. Munzur
FCCRI
P.O. Box 226 Ulus
Ankara
TURKEY

Dr. Hasan Sepetcioglu
E.U. Ziraat Fakultesi
Tarala Bitkileri Bolumu
Bornova/Izmir
TURKEY

Mr. Hassen Hamadi
Incharge Forage Legumes
INRAT
2049 Ariana, Tunis
TUNISIA

Dr. Mrs. Nevin Acikgoz
Chickpea Breeder
Aegeon Regional Agricultural
Research Institute
P.K. 9, Menemen
Izmir
TURKEY

Dr. Fazil Duzunceli
Southeast Anatolian
Agricultural Research Institute
P.K. 72
Diyarbakir
TURKEY

Mr. Ismail Kusmenoglu
Coordinator Food Legumes
FCCRI,
BP 226 Ulus
Ankara
TURKEY

Mr. Lutfi Tahtacioglu
Dogu Anadolu Tarimsal
Arastirma Enstitusu
Gezikoy, Erzurum
TURKEY

Dr. Dogan Sakar
Director
Bolge Zirai Arastirma
Enstitusu Mudurlugu Bolge Zirai
Arastirma, P.O. Box 72
21110 Diyarbakir
TURKEY

Mr. Hikmet Orucoglu
Akdeniz Tarlmsal
Arastirma Enstitusu Mudurlugu
P.K. 39 Antalya
TURKEY

Mr. Rashid Mohamed Khalfan El-Shareqi
National Coordinator
Ministry of Agric. and Fisheries
P.O. Box 1509, Dubai
UNITED ARAB EMIRATES

Dr. C.N.D. Lacey
Plant Breeding International
Maris Lane, Trumpington
Cambridge, CB2 2LQ
U.K.

Dr. I.W. Buddenhagen
Department of
Agronomy & Range Science
Hunt Hall, University of California
Davis, CA 95616,
U.S.A.

Dr. Fred J. Muehlbauer
USDA/ARS
303W Johnson Hall,
Washington State University
Pullman, WA 99164-6434
U.S.A.

Dr. Abdulla Sailan
National Legume Coordinator
Agric. Res. & Extension Authority
P.O. Box 87180
Dhamar
YEMEN

Prof. R.J. Summerfield
University of Reading
Department of Agriculture
Plant Environment Laboratory
Cutbush Lane, Shinfield
Reading RG2 9AD
Berkshire
U.K.

Dr. Walter Garves
University of California
Cooperative Extension Service
777 East Rialto Avenue
San Bernardino, CA 92415-0730
U.S.A.

Ing. Manuel Monsalve
Estacion Experimental
Merida, FONAIAP - MERIDA
Apartado 425
Merida
VENEZUELA

Dr. Willem Heemskerk
Dep Coordinator ARPT-WP
P.O. Box 910064
Mungu
ZAMBIA

APPENDIX III

ICARDA scientists cooperating in the Legume International Testing Program during 1993/94.

-
- | | |
|----|--|
| 1. | Dr. R.S. Malhotra
International Trials Scientist |
| 2. | Dr. William Erskine
Lentil Breeder |
| 3. | Dr. M.T. Mmbaga
Chickpea Pathologist |
| 4. | Dr. Ali Abdel Moneim
Forage Legumes Breeder |
| 5. | Dr. Mohan C. Saxena
Program Leader |
| 6. | Dr. K.B. Singh
Principal Chickpea Breeder (ICRISAT) |
| 7. | Dr. Susanne Weigand
Legume Entomologist |
-

APPENDIX IV

Geographical Details for the Locations

COUNTRY	LOCATION	ALTITUDE	LATITUDE			LONGITUDE			RAINFALL
ALGERIA	Guelma	300	36	29	N	07	29	E	445
ALGERIA	Khroub	640	36	16	N	06	42	E	435
ALGERIA	Oued Smar	24	36	43	N	03	15	E	459
ALGERIA	Setif	1023	36	09	N	05	21	E	233
ALGERIA	Tiaret	980	34	36	N	00	12	W	NA
ALGERIA	Dahmouni	NA							
ARGENTINA	Cordoba	474	31	19	S	64	13	W	NA
AUSTRALIA	Horsham	200	37		S	142		W	381
AUSTRALIA	Mallet	85	35	08	S	142	02	W	164
BOLIVIA	Pairumnai	2584	17	21	N	66	19	W	724
BULGARIA	Toshevo	236	43	40	N	28	02	E	459
CANADA	Saskatoon	497	52	09	N	106	36	W	333
CANADA	Manitoba	NA							
CHILE	Chillan	217	36	21	S	71	55	W	525
CHINA	Qinghai	2309	36	45	N	101	38	E	NA
CHINA	Hebei	1500	41	05	N	114	09	E	420
CHINA	Shanxi	780	37	47	N	112	33	E	452
CHINA	Chengdu	506	30	40	N	104	04	E	201
CHINA	Xining	2309	36	45	N	101	38	E	NA
CHINA	Dingxi	920	35	32	N	104	37	E	291
CHINA	Shanxi-1	1409	39	41	N	112	14	E	NA
CHINA	Shanxi-2	1080	38	10	N	111	34	E	281
CHINA	Shanxi-3	NA	38	02	N	120	20	E	NA
CYPRUS	Athalassa	142	35	08	N	33	24	E	245
CYPRUS	Dromolaxia	25	34	52	N	33	36	E	381
ETHIOPIA	Debre Zeit	1900	08	48	N	39	38	E	NA
ETHIOPIA	Ghinch/ Holetta	2400	09	03	N	38	30	E	1058
ETHIOPIA	Alemtena	NA	NA			NA			425
ETHIOPIA	Akaki	NA							
INDIA	New Delhi (IARI-1)	750	28	40	N	77	10	E	362
INDIA	New Delhi (IARI-2)	227	28	40	N	77	10	E	NA
INDIA	New Delhi (IARI-3)	229	28	08	N	77	12	E	54
INDIA	Ludhiana	244	30	56	N	75	52	E	93
INDIA	Gujarat	10	20	57	N	72	54	E	101
INDIA	Kanpur	NA	26	30	N	80	23	E	NA
INDIA	Berhampore	19	24	05	N	88	13	E	104
INDIA	Badnapur	520	19	50	N	47	48	E	NA
INDIA	Dholi (Bihar)	52	85	75	E	25	59	N	217
INDIA	Raipur	293	21	04	N	81	03	E	71
INDIA	Almora	1250	29	36	N	79	40	E	225
INDIA	Hisar	215	29	10	N	75	46	E	NA
INDIA	Jammu	NA	32	50	N	24	58	E	29

Cont'd. ...

COUNTRY	LOCATION	ALTITUDE	LATITUDE			LONGITUDE			RAINFALL
IRAN	Qazvin	1330	36	15	N	49	30	E	348
IRAN	Gorgan	15	36	55	N	54	20	E	451
IRAN	Karaj	1321	35	48	N	51	20	E	52
IRAN	Maragheh	1650	37	15	N	46	15	E	380
IRAN	Mashad	985	36	16	N	59	38	E	8
IRAN	Oroumieh	133	37	55	N	45	01	E	605
IRAN	Zandjan	1666	36	43	N	48	27	E	NA
IRAN	Gonbad (Gorgan)	76	37	15	N	55	10	E	514
IRAN	Khoramabad	1171	33	25	N	48	22	E	538
IRAN	Sanandag	2100	35	43	N	48	80	E	NA
IRAN	Shirvan	1120	57	55	N	37	37	E	NA
IRAQ	Rabiaa	NA	36	05	N	42	15	E	NA
IRAQ	Telafar	NA							
ITALY	Tarquinoa	80	46	09	N	13	08	E	NA
ITALY	Tolentino	250	43	15	N	13	30	E	NA
ITALY	Gallina	250			N			E	467
JORDAN	Maru	580	32	33	N	35	51	E	337
JORDAN	Ramtha	580	32	33	N	35	51	E	167
JORDAN	Rabba	870	31	16	N	35	45	E	373
JORDAN	Mshuger	785	31	43	N	35	48	E	284
LEBANON	Terbol	890	33	49	N	35	59	E	475
LEBANON	Tel Amara	950	33	55	N	35	28	E	NA
LEBANON	Kfardan	NA							
LIBYA	El Safsaf	641	32	49	N	21	54	E	471
LIBYA	Zahra	62	32	43	N	12	63	E	301
LIBYA	Sebha	NA							
LITHUANIA	Kedainiai	60	55		N	24		E	93
MOROCCO	Jema'a Shain (Domaine)	170	32	40	N	10	00	W	266
MOROCCO	Marchouch	430	33	33	N	06	42	W	NA
MOROCCO	Sidi El Aidi	NA							
NEPAL	Khumaltar	1360	27	40	N	85	20	E	NA
NEW ZEALAND	Lincoln	11	43	6	S	172	5	E	218
PAKISTAN	Faisalabad	181	31	30	N	73	10	E	NA
PAKISTAN	Faisalabad (NIAB)	213	31	30	N	73	10	E	NA
PAKISTAN	Dokri	NA	27	50	N	68	10	E	15
PORTUGAL	Elvas	208	38	53	N	07	09	E	445
QATAR	Rawdat Harma	50	25	48	N	51	18	E	22
SAUDI ARABIA	Riyadh	635	24	25	N	46	36	E	2
SAUDI ARABIA	Derab	635	24	25	N	46	36	E	NA
SLOVAKIA	Piestany	172	48	33	N	17	50	E	675
SOUTH AFRICA	Elsenburg	177	33	51	S	18	50	E	320
SPAIN	Badajoz	237	38	49	N	06	39	W	373
SPAIN	Cordoba	110	37	51	N	04	51	W	413
SPAIN	Valladolid	700	41	35	N	04	45	W	325
SUDAN	Shendi	361	16	42	N	33	26	E	NA
SUDAN	Hudeiba	351	17		N	34		E	NA

Cont'd. ...

COUNTRY	LOCATION	ALTITUDE	LATITUDE			LONGITUDE			RAINFALL
SYRIA	Al Ghab	170	36	23	N	35	23	E	586
SYRIA	Breda	300	35	56	N	37	10	E	NA
SYRIA	Gelline	421	32	50	N	36	00	E	328
SYRIA	Hama	316	35	08	N	36	45	E	NA
SYRIA	Heimo	425	37	30	N	41	13	E	342
SYRIA	Homs	485	34	45	N	36	43	E	255
SYRIA	Idleb	446	36	45	N	36	39	E	488
SYRIA	Izra'a	757	32	51	N	36	15	E	258
SYRIA	Jindiress	210	36	24	N	36	44	E	534
SYRIA	Tel Hadya	284	36	01	N	36	56	E	373
SYRIA	Al Jammasah	NA	NA			NA			580
SYRIA	Tel Hadya- Aleppo	285	36	05	N	36	55	E	NA
TUNISIA	Beja	NA	36	50	N	09	13	E	314
TUNISIA	Oued Meliz	NA	37	55	N	09	00	E	250
TURKEY	Ankara	860	39	55	N	32	40	E	234
TURKEY	Diyarbakir	660	37	55	N	40	12	E	541
TURKEY	Erzurum	1850	39	55	N	41	16	E	340
TURKEY	Eskisehir	790	40	00	N	30	05	E	277
TURKEY	Haymana	1055	39	36	N	32	36	E	240
TURKEY	Izmir-1 (Menemen)	20	38	39	N	27	00	E	398
TURKEY	Izmir-2 (Menemen)	10	38	05	N	27	34	E	NA
TURKEY	Izmir (Bornova)	10	38		N	27		E	137
TURKEY	Bolkesir	NA							
TURKEY	Pasinler (Erzurum)	1670	39	50	N	41	35	E	255
UNITED STATES	California	275	33	57	N	117	20	W	164

NA = Not Available

APPENDIX V

Meteorological Details for the Locations









































