Chickpea Breeding
Progress Report-5

International Chickpea Nurseries

REPORT OF THE
FOURTH INTERNATIONAL CHICKPEA TRIALS AND NURSERIES
1978-79

ICRISAT

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C O N T E N T

INTRODUCTION

This report contains a detailed account of the ICRISAT fourth international chickpea trials and nurseries, conducted during 1978-79. These include only desi type chickpeas as kabuli nurseries are now coordinated from ICARDA.

The international nurseries are organised with the following objectives:

1. To strengthen national and regional programs.
2. To supply cultivars, segregating populations and advanced breeding lines with special characteristics (disease resistance, high yield, high protein etc.) to cooperators
3. To identify differences among lines in adaptation, regionally and internationally.
4. To promote international cooperation through personal visits, and information exchange.

There was a major shift in the types of the nurseries. In India the numbers of trials of advanced breeding lines and germplasm materials was reduced and trials of F_2 populations were introduced with the aim of identifying the best crosses for further selection. The following nurseries were organised:

1. International Chickpea Cooperative Trial - Desi Short duration (ICCT-DS)
2. International Chickpea Cooperative Trial-Desi Long Duration (ICCT-DL)
3. International Chickpea Screening Nursery-A Short Duration lines (ICSN-A)
4. International Chickpea Screening Nursery-B Long Duration lines (ICSN-B)
5. F_2 - Multilocational Trial (F_2MLT)
6. International Chickpea Microplot Trial (ICMT)

A total of 59 trials or nurseries were sent to 32 cooperators in 12 countries (Tables 1 and 2) and results were received from most cooperators, except those in Iran, Iraq and Afghanistan.

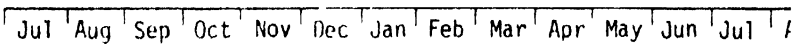
The normal length of the growing season at locations where the trials and nurseries were grown are given in Fig 1. This year growth was extended in most north Indian locations because of late rains which increased vegetative growth and caused disease problems.

Table 1. International Chickpea Trials and Nurseries conducted in India during 1978-79.

State	Cooperator	Number of sets				
		ICCT DS	ICCT DL	ICSN-A	ICSN-B	F_2 MLT
Andhra Pradesh						
(Patancheru)	ICRISAT	1		1		
Bihar						
(Dholi)	Dr.S.K. Choudhary				1	
(Ranchi)	Mr.S.N. Shrivastava				1	
Haryana						
(Hissar)	Dr. S. Lal				1	
(Hissar)	ICRISAT		1		1	1
Gujarat						
(Junagadh)	Mr.J.P. Yadavendra			1		
Himachal Pradesh						
(Palampur)	Dr.V.P. Gupta				1	
Madhya Pradesh						
(Jabalpur)	Dr. A.S. Tiwari					1
(Gwalior)	ICRISAT					1
Maharashtra						
(Akola)	Dr. B.T. Khadilkar			1		
(Rahuri)	Dr. R.B. Deshmukh			1		
(Badnapur)	Dr. P.G. Thombre			1		
New Delhi	Dr. P.N. Bahl					1
Orissa						
(Nayagarh)	Dr. R.C. Misra			1		
Punjab						
(Ludhiana)	Dr. T.S. Sandhu				1	
Uttar Pradesh						
(Pantnagar)	Dr. B.P. Pandya				1	
(Kanpur)	Dr. Laxman Singh			1	1	1
(Varanasi)	Dr. R.B. Singh			1	1	
(Faizabad)	Dr. D.M. Maurya		1		1	
West Bengal						
(Berhampore)	Dr. K. Sengupta				1	

Table 2. International Chickpea Nurseries conducted outside India in winter 1978-79 and summer 1979.

Country	Cooperator	Number of sets				
		ICCT DS	ICCT DL	ICSN-A	ICSN-B	ICM
		Winter 1978-79				
Pakistan						
(Dokri)	Rice Breeding Department	-	1	-	1	-
(Islamabad)	Dr. B.A. Malik	-	1	-	1	-
(Islamabad)	Dr. I. Hussain	-	2	-	2	-
(Lahore)	Dr. J.R. Lockman	-	1	-	-	-
Bangladesh						
(Comilla)	Dr. M.A.Q. Shaikh	1	-	1	-	-
(Feni)	Dr. Richard P.Dick	1	-	1	-	1
Nepal						
(Parwanipur)	Mr. R.P. Sah	-	1	-	1	-
Ethiopia						
(Debre Zeit)	Dr. Geletu Bejiga	2	-	1	-	-
Mexico	Dr.Ing.Santiago Sanchez P.	-	2	-	1	-
(Bajio)	Dr. E. Andrade Arias	-	1	-	-	-
Yemen Arab Republic	Mr. M.M. Elghouri	1	-	-	-	-
Philippines						
(La Trinidad)	Dr.Virgilio R.Carangal	1	-	-	-	1
		6	9	3	6	2
		Summer 1979				
Iran	Dr. Luis H. Comacho	1	-	-	-	-
Iraq	Dr. Luis H. Comacho	-	1	-	-	-
Afghanistan	Mr. M. El-Nouri	-	1	-	-	-
Tanzania						
(Mwanza)	Mr. S.J. Carr	1	-	-	-	-
		2	2	-	-	-



Bangladesh - Feni

Bangladesh - Comilla

Ethiopia

Mexico

India - South

India - North

Nepal

Pakistan

Philippines

Y.A.R.

Tanzania

Figure 1. Growing seasons in countries where Fourth International Chickpea Trials and Nurseries were grown in 1978-79.

We very much appreciate and acknowledge the efforts of chickpea breeders in different countries for their cooperation in conducting these trials and nurseries and sending the results for analyses and compilation. We hope that data on performance from various locations will be useful to breeders in directing their programs.

INTERNATIONAL CHICKPEA COOPERATIVE TRIAL-DESI SHORT DURATION(ICCT-DS)

Formerly designated ICCT-DE, this trial is intended for areas of relatively short growing season.

Entries

There were 16 entries. Six entries are cultivars from Indian centers and three; ICCL 78001, 78002 and 78003 which performed well in international trials in the previous year (Table 3) are from ICRISAT. Seven other ICRISAT entries included showed good performance in ICSN-A last year. Annigeri is the long term check and cooperators had the option to replace one entry (JG-62) with a local cultivar.

Locations

The trial was supplied to nine locations, one in India, two each in Bangladesh and Ethiopia, and one each in Yemen Arab Republic, Philippines, Iran and Tanzania. The results were received from six locations only; ICRISAT, Hyderabad; Comilla and Feni, Bangladesh; Debre Zeit, Ethiopia; La Trinidad, Philippines; and Mwanza, Tanzania. Wilt killed the trial entries at ICRISAT, and all entries produced underdeveloped seed at La Trinidad in Philippines so yields were not reported.

Management

The trials were planned as randomized complete blocks with four replications. The plots were 4 rows, 3 m long and 30 cm apart with seeds spaced at 7-10 cm in the row. The harvested area was 2.5 m of the two central rows (1.5 m^2). However, experimental and plot designs could be modified to suit local conditions. Cooperators were requested to observe the plant characters; days to flowering, plant height(cm), days to maturity, plant stand, insect and disease damage, g per 100-seed, and seed yield per plot(g). The plant stands, disease and pest damage and soil conditions reported, are described in notes on the data summary for each location.

Results

The mean values of the characters recorded varied widely among locations (Table 4). Days to 50% flowering ranged from 57 at Hyderabad, India to 91 at Comilla in Bangladesh and this was reflected in days to maturity of 93 and 151 at these two locations. Tall plants were produced in longer growing seasons. Seed weights ranged from 8 to 21 g per 100 seeds and were relatively low at Hyderabad due to disease and La-Trinidad due to poor seed development. Feni gave the highest yield, from relatively tall and late plants.

The means, ranges, least significant differences (LSD) and coefficients of variation (CV) for the characters recorded and correlations among them for each location are shown in Tables 5 to 10.

Table 3. Origin of lines included in ICCT-DS 1978-79.

Entry No.	ICC./ ICCL No.	Name/Pedigree	Origin
1	552	P-436	Delhi - India
2	4918	Annigeri	Karnataka - India
3	1222	P-1132	Uttar Pradesh - India
4	151	P-127	Uttar Pradesh - India
5	5003	K-850	Uttar Pradesh - India
6	78001	7389-18-5-B-BP(K-850xF-378)	ICRISAT
7	78002	73129-16-2-B-BP(JG-62 x Radhey)	ICRISAT
8	78003	739-6-1-B-BP(H-208 x Pant-110)	ICRISAT
9	78004	7310-26-2-B-BP (H-208 x T_3)	ICRISAT
10	78005	7343-14-3-B-BP (H-208 x USA-613)	ICRISAT
11	78006	73167-5-3-B-BP (JG-62 x F-496)	ICRISAT
12	78007	7389-32-2-B-BP (K-850 x F-378)	ICRISAT
13	78008	7362-5-2-1P-BP (L-550 x B-110)	ICRISAT
14	78009	73114-16-2-2P-BP (K-850 x GW-5/7)	ICRISAT
15	78010	73241-3-1-1P-LB-BP(ChafaxJG-1)	ICRISAT
16	4951	JG-62	Madhya Pradesh-India

Table 4 Location means for various characters in ICCT-DS 1978-79.

Location	Days to 50% flowering	Plant height cm	Days to maturity	Plant[1] stand score	g/100 seeds	Yield kg/ha
Comilla - Bangladesh	91	42	151	3	16	
Feni - ,,	78	36	135	2	17	
Debre Zeit - Ethiopia	64	29	133	3	21	
La Trinidad - Philippines	65	36	140	3	8	
Mwanza - Tanzania	62	22	95	3	14	
ICRISAT, Hyd. - India	57	28	93	3	13	

[1] Rating 1,2,3 represent good (28-33), satisfactory (22-27), and poor(<22) stand respectively, where the figures in brackets represent the ranges of density in plants/m^2 for the classes.

[2] Data not reported.

There were relatively wide ranges for days to 50% flowering and days to maturity at Hyderabad and Mwanza; for plant height at Feni and for g per 100 seed at Feni and Comilla.

Across locations P-436, Annigeri, 78002, 78004 and 78007 were first to flowering and maturity and 78003, 78008 and 78009 were latest. Differences in height were not pronounced but 78009 and 78006 were the tallest entries and P-127, Annigeri and P-436 the shortest. The entries ICCL 78009, K-850 and 78007 had the largest seed size and the smallest seed was from ICCL 78003. In the trials where days to maturity were recorded correctly, the trait was significantly positively correlated with days to flowering. Other correlations were either non-significant or inconsistent.

The coefficients of variation for seed yield were high so the data should be interpreted with caution. There were significant differences in seed yield among entries at Comilla and Feni and as a mean of the four locations (Table 11). K-850 gave the highest overall seed yield and was first or second in three of the four trials. K-850, from Kanpur in India differs in several respects from other desi lines. It is medium maturing with a large seed and recent work at ICRISAT indicates that it nodulates better and has higher tolerance to drought. Another entry which performed consistently across locations and was second overall was 78004, from a cross between H-208 and T-3. Annigeri and P-1132 were poorly adapted at all locations.

However, for other lines there were indications of pronounced genotype x environment interactions. ICCL 78007 ranked first in Mwanza but was 14th at Comilla and 9th at Feni and-in overall rank while K-850 although excellent at three of the four sites ranked 13th at Debre Zeit.

In attempting to characterise these interactions the data were analysed according to the stability analysis of Eberhart and Russell (1966)[1]. The results are summarized in Table 12. There was a wide range of responsiveness with regression coefficients ranging from 0.53 to 1.71 and strongly correlated with mean yield (Figure 2), the higher yielding entries being more responsive to favourable growing conditions. Most lines showed good fits to a linear model, with near zero deviation mean squares from regression and high R^2 values. For K-850 the mean square deviations from regression were significantly different from zero but its R^2 value was relatively high.

Correlations between the seed yields and ranks of the entries among all pairs of locations (Table 13) were low and non significant.

Comparison of the common entries over 4 years of testing (Table 14) also emphasised the importance of g x e interaction and specificity of adaptation in chickpea. P-436 gave the highest yield across years and relatively consistent performance but K-850 which came first in two seasons also ranked tenth in 1977-78.

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[1]Eberhart, S.A., and Russell, W.A. (1966). Crop Sci. 6: 36-40.

Table 5. Mean performance of entries for various plant characters, ICCT-DS 1978/79, Comilla.

Cooperator	: M.A.Q. Shaikh	Location	: Comilla	Country	: Bangladesh
Latitude	: 24.7° N	Date planted	: 28-10-'78	Nitrogen (kg/ha)	: 9
Longitude	: 90.4° E	Rainfall (mm)	: 0	Phosphorus (kg/ha)	: 75
Altitude (m)	: 10	Irrigation	: 0	Potassium (kg/ha)	: 37
Local check	: Faridpur	Row spacing (cm)	: 30	Date harvested	: -

Note : Plant stands were average. Root rot caused considerable damage. Two weedings were given. The trial was laid out in 3 replications only.

Plot area harvested (m^2) = 1.8

S.No.	ICC./ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	2	3	4	5	6	7	8
1	552	P-436	83	39	151	11.	980
2	4918	Anniyeri	85	38	"	14.	642
3	1272	P-1132	92	41	"	18	698
4	151	T-127	94	35	"	13.	786
5	5003	K-85	93	46	"	28	1279
6	78001	7339-18-5-B-BP (K-850 x F-378)	86	45	"	21	1142
7	78002	73129-16-2-B-BP (JG-62 x Radhey)	86	45	"	15	732
8	78003	739-6-1-B-BP (H-208 x Pant-110)	96	41	"	9	817
9	78004	7310-21-2-B-BP (H-208 x T-3)	79	45	"	15	886
10	78005	7343-14-3-B-BP(H-208 x USA-613)	96	48	"	13	1175
11	78006	73167-5-3-B-BP (JG-62 x F-496)	87	41	"	13	765
12	78007	7339-32-2-B-BP (K-850 x F-378)	89	40	"	22.	679
13	78008	7362-5-2-1P-BP (L-550 x B-110)	96	41	"	13.	690
14	78009	73114-16-2-2P-BP (K-850 x GW5/7)	96	49	"	25	847
15	78010	73241-3-1-1P-LB-BP (Chafa x JG-1)	89	36	"	15.	538
16	-	Faridpur-1	95	34	"	8	1039

Contd ..... Table 5

1	2	3	4	5	6	7	8
		Mean	91	42	151	16	861
		Range	79-96	34-49	-	8-28	589-1279
		CV(%)	3.6	7.1	-	12.3	34.9
		LSD	5.5	4.9	-	0.75	500.5
		Correlations among traits					
		Days to 50% flowering		.09	-	0.11	0.19
		Plant height (cms)			-	0.50	0.35
		Days to maturity			-		
		g/100 seed					0.15
		r = 0.497 significant at 0.05, 14 d.f.					

1 Data not reported

Table 6. Mean Performance of entries for various plant characters, ICCT-DS 1978/79, Feni.

Cooperator	: Richard P. Dick	Location	: Feni	Country	: Bangladesh
Latitude	: 23° ' N	Date planted	: 9-11-1978	Nitrogen (kg/ha)	: 0
Longitude	: 91° 2' E	Rainfall (mm)	: 109	Phosphorus (kg/ha)	: 60
Altitude (m)	: 3	Irrigation	: 0	Potassium (kg/ha)	: 30
Local check	: -1	Row spacing (cm)	: 30	Date harvested	: -

Note : Plant stands were good in general. Pod borer caused some damage. Chickpea rust appeared on all cultivars. It did not rain during maturity. JG-62 was replaced by a local check but name is not reported.

Plot area harvested (m^2) = 3.6

S.No.	ICC./ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	2	3	4	5	6	7	8
1	552	P-436	74	29	134	14	2565
2	4916	Annigeri	73	31	135	18	2714
3	1222	P-1132	78	32	136	18	2075
4	151	P-127	74	31	134	13.	3069
5	5003	K-850	83	42	136	27	3704
6	78001	7339-18-5-B-BP (K-850 x F-378)	86	37	136	22.	3326
7	78002	73129-16-2-B-BP (JG-62 x Radhey)	73	37	135	16	3528
8	78003	739-6-1-B-BP (H-208 x Pant-110)	86	39	135	9	3334
9	78004	7310-20-2-B-BP (H-208 x T-3)	72	39	134	16	3537
10	78005	7343-14-3-B-BP (H-208 x USA-613)	85	43	137	14.	3438
11	78006	73167-5-3-B-BP (JG-62 x F-496)	76	36	135	12.	3479
12	78007	7339-32-2-B-BP (K-850 x F-378)	74	41	134	25.	3240
13	78008	7362-5-2-1P-BP (L-550 x B-110)	81	40	136	14.	1323
14	78009	7314-16-2-2P-BP (K-850 x GW5/7)	85	42	136	27	3663
15	78010	73241-3-1-1P-LB-BP (Chafa x JG-1)	75	38	135	16	2921
16		Local check	75	24	136	11	1890

Contd..... Table 6

1	2	3	4	5	6	7	8
		Mean	72	36	135	17	3022
		Range	72-76	24-45	134-137	9-27	1823-3702
		CV(%)	5.3	4.7	0.06	7.1	29.1
		LSD	5.9	3.5	1.9	1.7	61.2
				Correlation among traits:			
		Days to 50% flowering	.37	.56	.18	.07	
		Plant height (cms)		.13	.11	.54	
		Days to maturity			.10	-.10	
		100 seed				.31	

r = 0.497 significant at 0.05, 14 d.f.

1 Data not reported

Table 7. Mean performance of entries for various plant characters, ICCT-DS 1978/79, Debre Zeit.

Cooperators	:	Geletu Bejiga W.M. Taye Nadachew Aychu	Location	:	Zebre Zeit	Country	: Ethiopia
Latitude	:	- 1	Date planted	:	10-9-1978	Nitrogen (kg/ha)	: 0
Longitude	:	-	Rainfall (mm)	:	-1	Phosphorus (kg/ha)	: 0
Altitude (m)	:	1650	Irrigation	:	0	Potassium (kg/ha)	: 0
Local check	:	1	Row spacing(cm)	:	30	Date harvested	: 1

Note : Plant stands were average. Wilt and root rot damaged the crops to certain extent. There was no insect problem. Two hand weedings were done.

Plot area harvested (m^2) = 1.8

S.No.	ICC./ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	552	P-436	62	28	139	20	1091
2	4918	Annigeri	63	25	"	21	1176
3	1222	P-1132	60	27	"	20	1403
4	151	P-127	63	31	"	21	1561
5	5003	K-850	71	27	"	16	1194
6	78001	7389-16-5-B-BP (K-850 x F-378)	63	29	"	21	1429
7	78002	73129-16-2-B-BP (JG-62 x Radhey)	66	29	"	22	1364
8	78003	7390-1-1-B-BP (H-208 x Pant-110)	66	31	"	22	1517
9	78004	7310-26-2-B-BP (H-208 x T-3)	66	29	"	23	1490
10	78005	7343-14-3-B-BP (H-208 x USA-613)	61	32	"	25	1223
11	78006	73167-5-3-B-BP (JG-62 x F-496)	63	28	"	21	1333
12	78007	7389-32-2-B-BP (K-850 x F-378)	63	31	"	13	1482
13	78008	7362-5-2-1P-BP (L-550 x B-110)	64	30	"	19	1384
14	78009	73114-16-2-2P-BP (K-850 x CW5/7)	61	30	"	21	1300
15	78010	73241-3-1-1P-LB-BP (Chafa x JG-1)	64	29	"	25	1558
16	4951	JG-62	66	28	"	19	1093

Contd..... Table 7

1	2	3	4	5	6	7	8
		Mean	64	29	139	21	1350
		Range	60-71	25-32	-	15-25	1091-1561
		CV(%)	6.6	10.9	-	25.3	35.7
		LSD	NS	NS	-	NS	NS
		Correlations among traits					
		Days to 50% flowering		.01		.04	-.21
		Plant height				.25	-.11
		g/100 seed					-.20

r = .497 significant at .05, 14 df.

[1] Data not reported.

Table 8. Mean performance of entries for various plant characters, ICCT-DS La Trinidad 1978-79.

Cooperators	: A. Kebasen, G. Punto, M. Lantican	Location	: La Trinidad	Country	: Philippines
Latitude	: 16° 3' N	Date planted	: 10-12-1978	Nitrogen (kg/ha)	: 9
Longitude	: 120° 42' E	Rainfall (mm)	: 46	Phosphorus (kg/ha)	: 36
Altitude	: -[1]	Irrigation	: -[1]	Potassium (kg/ha)	: 36[1]
Local check	: -[1]	spacing (cm)	: 30	Date harvested	: -[1]

Note : Plant stands were normal. All entries produced underdeveloped seeds which did not germinate when planted.

Plot area harvested (m^2) = 2.5

S.No.	ICC./ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm.	Days to maturity	g/100 seed[2]	Yield[1] kg/ha
1	2	3	4	5	6	7	8
1	552	P-436	67	36	146	8.	
2	4913	Annigeri	70	39	"	8.	
3	1222	P-1132	66	37	"	6	
4	151	P-127	66	38	"	4	
5	5093	K-850	64	36	"	5	
6	73001	7389-18-5-B-BP (J-850 x F-378)	70	36	"	5.	
7	73002	73129-16-2-B-BP (JG-62 x Radhey)	63	38	"	7	
8	73003	739-6-1-B-BP (H-208 x Pant-110)	62	38	"	5.	
9	73004	7310-26-2-B-BP (H-208 x T-3)	65	38	"	6	
10	73005	7343-14-3-B-BP (H-208 x USA-613)	68	40	"	5	
11	73006	7316-7-5-3-B-BP (JG-62 x F-496)	67	38	"	6	
12	73007	7389-32-2-B-BP (K-850 x F-378)	63	36	"	4.	
13	73008	7362-5-2-1P-BP (L-550 x B-110)	62	39	"	5	
14	73009	73114-16--2-2P-BP (K-850 x GW5/7)	69	39	"	4	
15	73010	73241-3-1-1P-LB-BP (Chafa x JG-1)	60	38	"	6	
16	4951	JG-62	66	36	"	7	

Contd.... Table 8

1	2	3	4	5	6	7	8
		Mean	65	38	-	6	
		Range	60-70	36-40	-	4-8	
		CV(%)	8.7	10.1	-	-	
		LSD	NS	NS	-	-	

Correlations among traits

		Days to 50% flowering		.11		-.02	
		Plant height(cm)				-.03	

r = 0.497 significant at 14 df.

[1] Data not reported.

[2] Data from 1-4 replications.

Table 9. Mean performance of entries for various plant characters, ICCT-DS 1978/79, Mwanza.

Cooperators	:	A. Mhoja & A. Maganga	Location	:	Mwanza	Country	: Tanzania
Latitude	:	2° 45' S	Date planted	:	17-5-1979	Nitrogen (kg/ha)	: 0
Longitude	:	33° 1'E	Rainfall (mm)	:	132	Phosphorus (kg/ha)	: 0
Altitude (m)	:	1198	Irrigation	:	0	Potassium (kg/ha)	: 0
Local check	:	-	Row spacing(cm)	:	60	Date harvested	: -

Note : Plant stands were good. Heliothis was a major problem. Thioda$_n$ was sprayed twice.

Plot area harvested (m^2) = 3

S.No.	ICC./ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm.	Days to maturity	g/100 seed	Yield kg/ha.
1	2	3	4	5	6	7	8
1	552	P-936	54	21	96	11	347
2	1918	Annigeri	54	19	89	15	237
3	1222	P-1132	59	23	92	13	347
4	151	P-127	60	13	97	11	271
5	5003	K-850	68	21	100	15	316
6	78001	7309-13-5-B-BP (K-850 x F-378)	60	20	97	19	290
7	78002	73129-16-2-B-BP (JG-62 x Radhey)	56	21	90	12	181
8	78003	739-6-1-B-BP (H-208 x Pant -110)	74	21	106	8	162
9	78004	7310-26-2-B-BP (H-208 x T-3)	59	26	93	13	386
10	78005	7343-14-3-B-BP (H-208 x USA-613)	55	22	87	13	254
11	78006	73167-5-3-B-BP (JG-62 x F-496)	64	22	97	11	291
12	78007	7309-32-2-B-BP (K-850 x F-378)	59	25	89	22	386
13	78008	7362-5-2-1P-BP (L-550 x B-110)	73	22	103	11	295
14	78009	73114-16-2-2P-BP (K-850 x GW5/7)	73	24	100	21	256
15	78010	73241-3-1-1P-LB-BP (Chafa x JG-1)	73	20	106	9	196
16	4951	JG-62	52	20	90	12	293

Contd ..... Table 9

1	2	3	4	5	6	7.	8
		Mean	62	22	95	14	279
		Range	52-74	13-26	56-106	8-22	162-366
		CV(%)	6.1	11.3	3.9	21	59.4
		LSD	5.6	3.6	7.0	5	109.9
		Correlations among traits					
		Days to 50% flowerin,		.11	.07	-.02	-.02
		Plant height (cm)				.40	.50
		Days to maturity				-.19	-.11
		100 seed					.37

r = .497 significant at .05, 14 df.

[1] Data not reported.

Table 10 Mean performance of entries for various plant characters, ICCT-DS 1978/79, ICRISAT Center Hyderabad.

Cooperators	:	ICRISAT	Location	:	ICRISAT Center Hyderabad.	Country	: India
Latitude	:	17° 5' N	Date planted	:	3-11-78	Nitrogen (kg/ha)	: 0
Longitude	:	78° E	Rainfall (mm)	:	123	Phosphorus (kg/ha)	: 20
Altitude (m)	:	509	Irrigation	:	0	Potassium (kg/ha)	: 0
Local check	:	Annigeri	Row spacing(cm)	:	30	Date harvested	: 3-3-1980

Note : Plant stands were poor because wilt damaged the crop in the early stages of growth. Salinity caused much mortality in later stages.

Plot area harvested (m^2) =

S.No.	ICC./ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield[1] kg/ha
1	2	3	4	5	6	7	8
1	552	P-436	52	25	86	10	
2	4018	Annigeri	50	25	91	16	
3	1222	P-1132	53	29	89	15	
4	151	P-127	61	23	96	9	
5	5003	K-850	58	29	93	17	
6	78001	7389-10-5-B-BP (K-850 x F-378)	59	28	92	16	
7	78002	73129-16-2-B-BP (JG-62 x Radhey)	52	27	87	11	
8	78003	739-6-1-B-BP (H-208 x Pant-110)	71	28	106	7	
9	78004	7310-26-2-B-BH (H-208 x T-3)	54	32	94	14	
10	78005	7343-14-3-B-BP (H-208 x USA-613)	63	33	102	11	
11	78006	73167-5-3-B-BP (JG-62 x F-496)	61	24	97	10	
12	78007	7389-32-2-B-BP (K-850 x F-378)	50	32	91	19	
13	78008	7362-5-2-1P-BP (L-550 x B-110)	65	30	98	10	
14	78009	73114-16-2-2P-BP (K-850 x GW5/7)	66	34	97	18	
15	78010	73241-3-1-1P-LB-BP (Chafa x JG-1)	49	27	88	12	
16	4018	Annigeri	52	26	87	10	

Contd ... Table 10

1	2	3	4	5	6	7	8
		Mean	57	28	93	13	
		Range	49-71	23-34	86-106	7-19	
		CV(%)	6.4	13.0	3.9	18.5	
		LSD	5.2	5.2	5.2	3.4	
		Correlations among traits					
		-Days to 50% flowering		-.04	.66	-.333	
		Plant height (cms)			.35	.60	
		Days to maturity				.06	

r = 0.497 significant at 0.05, 14 d.f.

1 Data not recorded.

Table 11. Mean seed yield (kg/ha) and rank of entries at 4 different locations for ICCT-DS 1978-79.

Sl. No.	ICC/ ICCL No.	Name/Pedigree	Comilla Bangladesh		Feni Bangladesh		Debre-zeit Ethiopia		Mwanza Tanzania		Mean	
			Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank
1	552	P.436	980	5	2565	13	1091	16	347	2	1246	12
2	4918	Annigeri	642	15	2714	12	1176	14	237	13	1192	13
3	1222	P-1132	698	12	2075	14	1403	7	247	12	1131	14
4	151	P-127	786	9	3069	10	1561	1	271	9	1422	10
5	5003	K-850	1279	1	3704	1	1194	13	316	4	1623	1
6	78001	7389-18-5-B-BP(K-580xF-378)	1142	3	3326	8	1429	6	290	8	1547	3
7	78002	73129-16-2-B-BP(JG-62 x Radhey)	732	11	3523	4	1364	9	181	15	1451	8
8	78003	739-6-1-B-BP(H-208 x Pant-110)	847	7	3384	7	1517	3	162	16	1477	6
9	78004	7310-26-2-B-BP (H-208xT-3)	886	6	3537	3	1490	4	336	3	1562	2
10	78005	7343-14-3-B-BP(H-208xUSA-613)	1175	2	3433	6	1223	12	254	11	1523	4
11	78006	73167-5-3-B-BP(JG-62xF-496)	765	10	3479	5	1333	10	291	7	1467	7
12	78007	7389-32-2-B-BP(K-850xF-378)	679	14	3240	9	1482	5	386	1	1447	9
13	78008	7362-5-2-1P-BP(L-550xB-110)	690	13	1923	16	1394	8	295	5	1048	15
14	78009	73114-16-2-2P-BP(K-850xGW-5/7)	847	7	3663	2	1300	11	256	10	1516	5
15	78010	73241-3-1-1P-LB-BP(ChafaxJG-1)	533	16	2221	11	1553	2	196	14	1316	11
16	4951	JG-62 or local check	1039[1]	4	1890[1]	15	1093	15	293	6		
		Mean	861		3022		1350		279		1398	
		Range	533-1279		1823-3704		1091-1561		162-386		1048-1623	
		CV(%)	34.9		20.1		35.7		50.4		30.99	
		L.S.D.(.05)	501		864		NS		NS		315	

[1] Local check-

Table 12. Stability parameters for ICCT-DS grown at four locations 1978-79.

Sl.No.	IEC./ICCL No.	Name/Pedigree	$\bar{X}$	bi	DMS^1_5 x10^5	R^2%
1	552	P-436	1246	0.77	0.43	98
2	4918	Annigeri	1192	0.89	-0.32	99
3	1222	P-1132	1131	0.61	1.82	93
4	151	P-127	1422	1.00	0.37	99
5	5003	K-850	1623	1.71	4.60*	96
6	78001	7389-18-5-B-BP (K-850xF-378)	1547	1.05	0.43	99
7	78002	73129-16-2-B-BP (JG-62xRadhey)	1451	1.20	-0.17	99
8	78003	739-6-1-B-BP (H-208xPant-110)	1477	1.14	-0.27	99
9	78004	7310-26-2-B-BP (H-208xT_3)	1562	1.15	-0.28	99
10	78005	7343-14-3-B-BP (H-208xUSA-613)	1523	1.10	2.36	97
11	78006	73167-5-3-B-BP (JG-62xF 496)	1467	1.15	0.18	99
12	78007	7389-32-2-B-BP (K-850xF-378)	1447	1.05	0.66	98
13	78008	7362-5-2-IP-BP (L-550xB-110)	1048	0.53	2.98	87
14	78009	73114-16-2-2P-BP (K-850xGW 5/7)	1516	1.22	0.54	99
15	78010	73241-3-1-IP-LB-BP (Chafa x JG-1)	1316	0.98	1.86	97
		Mean	1398	1.03		
		SE (mean)	171.57			
		SE(bi)	0.279			

* Significant at P=.05
1 DMS = Deviation mean square
2 R^2% = Regression S.S as % of total S

Locations considered for stability analysis are:
Feni (Bangladesh), Comilla (Bangladesh), Ethiopia, Tanzania.
Entry no.16 is excluded for analysis as it was replaced at some locations

Correlations

$\bar{X}$ bi	0.88
$\bar{X}$ DMS	-0.07
$\bar{X}$ R^2%	0.65
bi DMS	0.18
bi R^2%	0.54

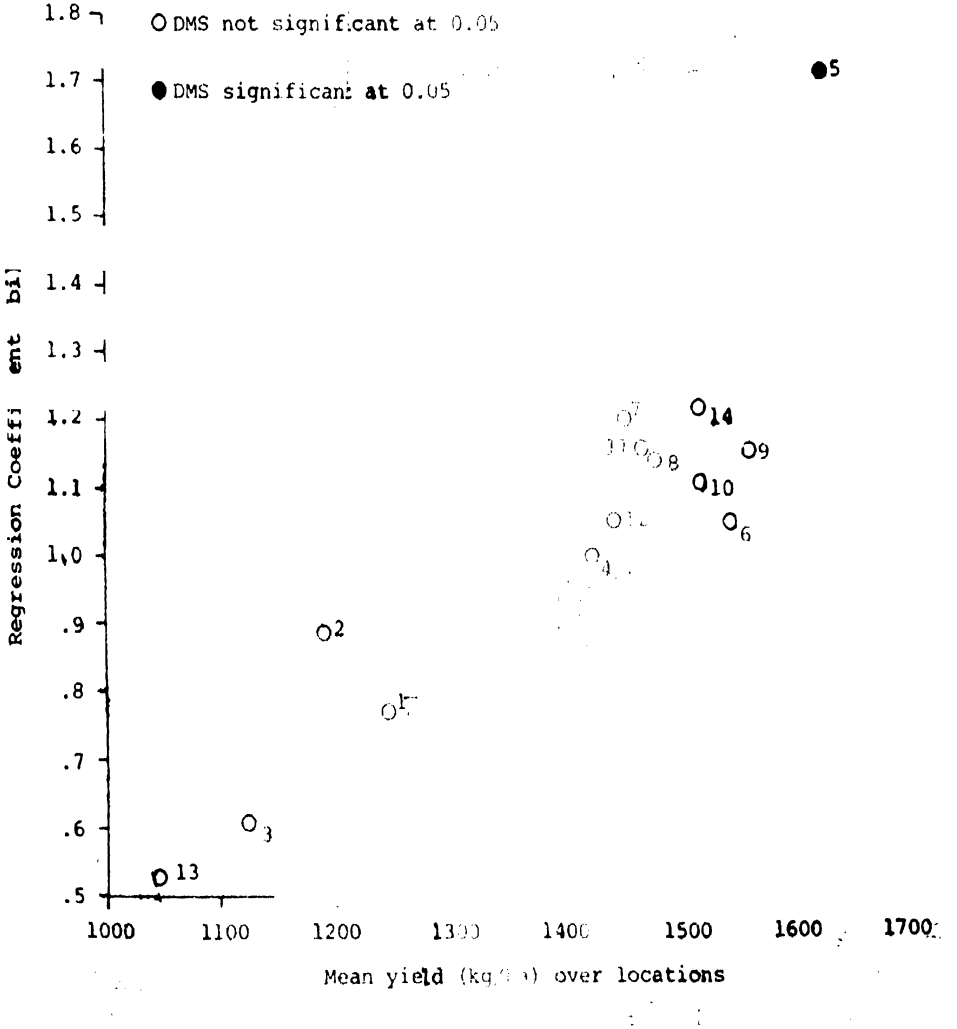

Figure 1. Scatter diagram of mean yield over locations and regression coefficients for 15 entries (entry numbers given in Table 14) in ICCT-DS.

Table 13. Correlations of line performance for yields and ranks between locations ICCT-[illegible]

	Feni-Bangladesh	Comilla-Bangladesh	Debre Zeit-Ethiopia	Mwanza-Tanzania
Feni-Bangladesh		.2[illegible]	.[illegible]4	-.24
Comilla-Bangladesh	.3[illegible]		-.[illegible]7	.18
Debre-Zeit-Ethiopia	-.07	-.37		-.19
Mwanza-Tanzania	-.22	.[illegible]3	-.17	

[1] The values above diagonal are for yields and those below it are for ranks.

r = .497 significant at 0.05 [illegible] df.

able 14. Mean seed yield (kg/ha) of entries common to ICCT-1975-76, ICCT-D 1976-77, ICCT-DE 1977-78 and ICCT-DS 1978-79.

1. lo.	Name/ Pedigree	1975-76		1976-77		1977-78		1978-79		1975-76+ 1976-77+ 1977-78		1975-76+ 1976-77+ 1977-78+ 1978-79	
		Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank
1.	P-436	1474	5	1928	1	1564	3	1246	5	1655	1	1553	1
2.	P-127	1439	6	1645	6	1431	5	1422	4	1505	2	1484	3
3.	Annigeri	1311	7	1552	10	1596	1	1192	6	1493	3	1418	4
4.	K-850	1755	1	1664	5	1058	10	1623	1	1492	4	1525	2
5.	T-3	1514	4	1616	7	1316	8			1482	5		
6.	P-1243	1539	2	1684	4								
7.	P-481	1536	3	1610	8								
8.	NEC-249	1116	8	1306	11								
9.	P-1132			1601	9	1444	4	1131	7				
10.	P-1209-1			1774	3	1397	6						
11.	P-1238			1841	2	1151	9						
12.	739-6-1-B-BP					1383	7	1477	2				
13.	73129-16-2-B-BP					1577	2	1451	3				

INTERNATIONAL CHICKPEA COOPERATIVE TRIAL-DESI LONG DURATION(ICCT-DL)

Entries

The number of entries was reduced to sixteen as in ICCT-DS by excluding many of those germplasm accessions which had been tested over a number of years. Seven of these, from India, Iran and USA and 4 advanced breeding lines from ICRISAT were retained (Table 15). Four new entries were included due to promising performance in ICSN-B in 1977-78. G-130 is regarded as the long term check and there was the option of replacing entry T-3 with a local check cultivar.

Locations

The trial was supplied for 13 locations in seven countries (Tables 1 and 2). There were two locations in India, five in Pakistan, three in Mexico and one each in Nepal, Iraq and Afghanistan, the last two being for summer planting. Results were reported from seven winter planted locations only: two from India (Faizabad and ICRISAT Hissar); three from Pakistan (Dokri, Islamabad and Lahore); and one each from Mexico (Bajio) and Nepal (Parwanipur). The crop at Islamabad was damaged by *Ascochyta* blight and only days to flowering were reported for some entries.

Management

The design and layout of the trial and observations to be recorded were the same as for ICCT-DS and are described in the previous section.

Results

Days to flowering ranged from 74 days at Hissar to 109 days at Faizabad both in India but the longest crop duration of 186 days was at Lahore in Pakistan and the shortest at Bajio in Mexico and Parwanipur in Nepal (Table 16). Plant height was greatest at Dokri in Pakistan and least at Bajio and Parwanipur.

Data from individual locations together with means, ranges, CVs and LSDs are shown in Tables 17 to 23. P-324, ICCL-78012 and 78013 flowered earliest and G-130, 78014, 78015 and 78016 were the latest. The range in days to maturity (145-150 days) was much smaller than days to flowering (76-90) and did not reflect differences in flowering time, although G-130 did also have the longest duration. ICCL-78015 and -78016 were the tallest and P-3552 the shortest entries. The largest seeds were recorded in 78012, 78013, 78016 and 78017 and the smallest, P-324, BG-203, Pant 4-113 and 78014. Only days to flowering and days to maturity were significantly correlated, all other correlations being small and non-significant.

Coefficients of variation for seed yield were low except at Lahore where it was 39.8% (Table 24). In Mexico the local check cultivar, Carreta 145, gave the highest yield but at the other sites several lines

Table 15. Origin of lines included in ICCT-DL 1978-79.

Entry No.	ICC./ ICCL No.	Name/Pedigree	Origin
1	4948	C-130	Punjab - India
2	440	P-326	Bihar - India
3	3048	P-3552	Iran
4	438	P-324	Bihar - India
5	8294	BG-203	Delhi - India
6	10080	Pant-G-113	Uttar Pradesh-India
7	7734	NEC-240	U.S.A.
8	78011	7332-7-2-B-BH(H-208 x F-370)	ICRISAT
9	78012	73111-8-3-B-BH(K-850 x H-208)	ICRISAT
10	78013	7310-3-2-B-BH(H-208 x T-3)	ICRISAT
11	78014	7332-7-3-B-BH(H-208 x F-370)	ICRISAT
12	78015	7313-2-3-1H-BH(H-208 x Chafa)	ICRISAT
13	78016	7380-1-1-B-BH(L-550 x F-496)	ICRISAT
14	78017	73111-7-2-B-BH(K-850 x H-208)	ICRISAT
15	78018	73167-5-3-1P-BH(JG-62 x F-496)	ICRISAT
16	4998	T-3	Uttar Pradesh-India

Table 16. Location means for various plant characters in ICCT-PL 1978-79.

Location	Days to 50% flowering	Plant height cm	Days to maturity	Plant stand score[1]	g/100 seed	Yield kg/ha
Bajio-Mexico	82	[illegible]	131	-[2]	15	2574
Parwanipur-Nepal	79	33	132	1	11	1046
Dokri-Pakistan	76	[illegible]	145	-[2]	18	1728
Lahore-Pakistan	84	-[2]	186	-[2]	14	814
Faizabad-India	109	56	155	-[2]	16	1294
ICRISAT, Hissar-India	74	70	178	2	14	889

[1] Rating 1,2,3 represent good (28-33), satisfactory (22-27), and poor (< 22) stand, respectively. Where the figures in the brackets represent the range of density in plants/m^2 for these classes.

[2] Date not reported.

Table 17. Mean performance of entries for various plant characters, ICCT-DL 1978/79, Bajio.

Cooperator : Ing Enrique Andrade Arias Location : Bajio Country : Mexico

Latitude : 20° 30' Date planted : 6-12-1978 Nitrogen (kg/ha) : 0
Longitude : 100° 50' Rainfall (mm) : 16 Phosphorus (kg/ha) : 0
Altitude : 1765 Irrigation : 2 Potassium (kg/ha) : 0_1
Local check : Carreta-145 Row spacing(cm) : 30 Date harvested : -

Note: Plant stands were good. Leaf caterpillars caused damage to some extent. Diazinon 2 % was sprayed twice against Heliothis.

Plot area harvested (m^2) = 3.8

S.No.	ICC/ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100^2 seed	Yield kg/ha
1	2	3	4	5	6	7	8
1	4948	G-130	89	38	134	14	2364
2	440	P-326	91	40	134	14	2650
3	3048	P-3552	78	35	129	14	2474
4	438	P-324	80	39	130	13	2760
5	8294	BG-203	81	38	127	12	2497
6	10080	Pant-G-113	81	40	130	13	2623
7	7734	NEC-240	88	40	132	15	2317
8	78011	7332-7-2-B-BH (H-208 x F-370)	89	40	134	13	2673
9	78012	73111-8-3-B-BH (K-850 x H-208)	79	38	129	16	2520
10	78013	7310-3-2-B-BH (H-208 x T-3)	66	41	126	17	2693
11	78014	7332-7-3-B-BH-(H-208 x F-370)	89	39	134	13.	2121
12	78015	7313-2-3-1H-BH (H-208 x Chafa)	87	38	133	13	2258
13	78016	7380-1-1-B-BH (L-550x F-496)	87	52	132	16	2640
14	78017	73111-7-2-B-BH (K-850 x H-208)	78	40	130	17	2687
15	78018	73167-5-3-1P-BH (JG-62 x F-496)	69	38	126	14	2690
16	-	Carreta-145	76	45	130	21	2893

Contd .... Table 17

1	2	3	4	5	6	7	8
			82	40	131	15	257
Mean			66-91	35-52	126-134	12.17	2256-2693
Range			2.2	5.2	3.9	-	13.3
CV%			25.0	3.0	1.7	-	482.1
LSD							

Correlations among traits

Days to flowering	.06	.84	-.37	-.25
Plant height (cms)		.21	.54	.38
Days to maturity			-.18	.06
g/100 seed				.22

r = .497 significant at .05, df.

1 Data not reported

2 Data from one Replication

Table 18. Mean Performance of entries for various plant characters ICCT-DL; 1978/79, Parwanipur.

Cooperator	:	R.P. Sah	Location	:	Parwanipur	Country	: Nepal
Latitude	:	27°2' N	Date planted	:	28-11-1978	Nitrogen (kg/ha)	: 0
Longitude	:	84°4' E	Rainfall (mm)	:	49	Phosphorus (kg/ha)	: 40
Altitude (m)	:	100	Irrigation	:	0	Potassium (kg/ha)	: 0_1
Local check	:	GO 332	Row spacing(cm)		30	Date harvested	: -

Note: Plant stands were good. Insects and diseases were not a serious problem. Two hand weedings done during early stages of growth. All entries were superior to the local check.

Plot area harvested (m^2) = 2.4

S.No.	ICC/ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	4948	G-130	87	37	133	14	1850
2	440	P-326	84	35	133	12	2309
3	3049	P-3552	72	32	129	14	1845
4	439	P-324	72	36	129	13	1908
5	8294	BG-203	80	37	133	13	2085
6	10080	Pant-G-113	82	39	133	16	2043
7	7734	NEC-240	87	40	135	15	1673
8	78011	7332-7-2-B-BH (H-208 x F-370)	80	43	135	13	2275
9	78012	73111-8-3-B-BH (K-850 x H-208)	74	36	129	17	2064
10	78013	7310-3-2-B-BH (H-208 x T-3)	72	37	129	16	1955
11	78014	7332-7-3-B-BH (H-208 x F-370)	80	38	133	13	1527
12	78015	7313-2-3-1H-BH (H-208 x Chafa)	87	40	135	13	1871
13	78016	7330-1-1B-BH (L-550 x F-496)	87	52	133	17	1397
14	78017	73111-7-2-B-BH (K-850 x H-208)	74	40	129	18	2215
15	78018	73167-5-3-1P-BH (JG-62 x F-496)	74	39	129	13	2132
16		GO 332	77	29	130	9	1480

Contd....Table 18

1	2	3	4	5	6	7	8
		Mean	79	38	132	14	1946
		Range	72-87	29-52	129-135	9-18	1480-2309
		CV(%)	.6	9.5	0.3	-	19.2
		LSD	NS	5.2	NS	-	532
		Correlations among traits					
		Days to flower		.36	.89		-.07
		Plant height			.35		.40
		Days to maturity					-.02
		g/100 seed					

r = .497 significant at .05, 14 df.

1 Data not reported

2 Data from one replication only.

Table 19. Mean performance of entries for various plant characters, ICCT-DL 1978/79, Dokri.

Cooperators	:	Rice Breeding Dept. R.R.I, Dokri.	Location	:	Dokri	Country	: Pakistan
Latitude	:	27° 50' N	Date planted	:	8-11-1978	Nitrogen (kg/ha)	: 0
Longitude	:	68° 10' E	Rainfall (mm)	:	3	Phosphorus (kg/ha)	: 0
Altitude (m)	:	-	Irrigation	:	0	Potassium (kg/ha)	: 0
Local check	:	C-612	Row spacing	:	30	Date harvested	: -

Note : Plant stands were good. Azodrin 40% was sprayed as a preventive measure to insect attacks. There was no damage caused by pests and diseases.

Plot area harvested (m^2) = 3.6

S.No.	ICC/ ICCL No,	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	2	3	4	5	6	7	8
1	4943	G-130	79	68	147	16	1272
2	440	P-326	78	67	146	17	2224
3	3043	P-3552	73	60	143	18	1508
4	432	P-324	76	63	146	16	1925
5	3294	SG-203	77	81	146	16	1849
6	10080	Pant-G-113	78	77	147	16	1804
7	7734	NEC-240	76	77	146	18	1661
8	78011	7332-7-2-B-BH (H-208 x F-370)	76	80	144	17	1911
9	78012	73111-8-3-B-BH (K-850 x H-208)	75	69	143	18	1543
10	78013	7310-3-2-B-BH (H-208 x T-3)	72	86	139	19	1890
11	78014	7332-7-3-B-BH (H-208 x F-370)	79	73	141	15	1355
12	78015	7313-2-3-1H-BH (H-208 x Chafa)	78	79	146	17	1536
13	78016	7350-1-1-B-BH (L-550 x F-496)	79	69	147	20	2266
14	78017	73111-7-2-B-BH (K-850 x H-208)	72	83	142	19	1355
15	78018	73167-5-3-1P-BH (JG-62 x F-496)	68	69	140	20	1953
16	4998	C-612	79	75	149	20	1592

Contd.... Table 19

1	2	3	4	5	6	7	8
		Mean	76	71	145	17.4	1723
		Range	6[illegible]-79	60-86	139-149	15-20	1272-2266
		CV(%)	2.3	7.6	0.92	4.69	12.3
		LSD	2	8	2	1	316
		Correlations among traits					
		Days to 5 % flowering		-.02	.77	-.38	-.08
		Plant height			-.08	-.04	.01
		Days to maturity				-.17	-.02
		g/100 seed					.07

r = .497 significant at .05, 14df.

1 Data not reported

Table 20. Mean performance of entries for various plant characters, ICCT-DL 1978/79, Islamabad.

Cooperators	:	Bashir Ahmed Malik Muhammed Bashir	Location	:	Islamabad	Country	Pakistan
Latitude	:	33.5° N	Date Planted	:	3-11-1978	Nitrogen (kg/ha)	23
Longitude	:	73.0° E	Rainfall (mm)	:	323	Phosphorus(kg/ha)	58
Altitude (m)	:	512	Irrigation	:	0	Potassium (kg/ha)	0
Local check	:	C-727	Row spacing (cm)	:	30	Date harvested	-[1]

Note : Ascochyta blight damaged the entire crop near flowering.

Plot area harvested (m^2) = 1

S.No.	ICC/ ICCL No.	Name/Pedigree	Days to 50% flowering[2]	Plant height cm[1]	Days to maturity[1]	g/100 seed[1]	Yield kg/ha[1]
1	2	3	4	5	6	7	8
1	4943	G-130	101				
2	440	P-326	84				
3	3048	P-3552	95				
4	438	P-324	-				
5	5291	BG-203	96				
6	10080	Pant-G-113	-				
7	7734	NEC-240	99				
8	78011	7332-7-2-B-BH (H-208 x F-370)	96				
9	78012	73111-8-3-B-BH (K-850 x H-208)	92				
10	78013	7310-3-2-B-BH (H-208 x T-3)	-				
11	78014	7332-7-3-B-BH (H-208 x F-370)	-				
12	78015	7313-2-3-1H=BH (H-208 x Chafa)	99				
13	78016	7380-1-1-B-BH (L-550 x F-496)	94				
14	78017	73111-7-2-B-BH (K-850 x H-208)	93				
15	78018	73167-5-3-1P-BH (JG-62 x F-496)	-				
16	-	C-727 (Local)	-				

Contd....Table 20

1	2	3	4	5	6	7	8
	Mean		95				
	Range		84-101				
	CV(%)						
	LSD						

1 Data not reported

2 Data from 1-4 replications.

Table 21. Mean performance of entries for various plant characters, ICCT-DL 1978/79, Lahore.

Cooperators	:	J.R. Lockman R.J. Troedson	Location	:	Lahore	Country	: Pakistan
Latitude	:	31° 19' N	Date planted	:	20-10-1978	Nitrogen (kg/ha)	: 20
Longitude	:	74° 9' E	Rainfall (mm)	:	251	Phosphorus (kg/ha)	: 50
Altitude (m)	:	225	Irrigation	:	1	Potassium (kg/ha)	: 0_1
Local check	:	6153	Row spacing (cm)	:	30	Date harvested	: -

Note : Unusual weather promoted excessive vegetative growth, delayed flowering and pod setting, resulting in low yield.

Plot area harvested (m^2) = 1.8

S.No.	ICC/ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant[1] height cm	Days to maturity	g/100[2] seed	Yield kg/ha
1	2	3		5	6	7	8
1	4918	G-130	90		186	12	290
2	440	P-326	87		"	14	1382
3	3048	P-3552	75		"	12	413
4	438	P-324	77		"	12	1029
5	8294	BG-203	86		"	13	494
6	10080	Pant-G-113	79		"	13.	658
7	7734	NEC-240	85		"	14	837
8	78011	7332-7-2-B-BH (H-208 x F-370)	91		"	12	677
9	78012	73111-8-3-B-BH (K-850 x H-208)	70		"	14	1002
10	78013	7310-3-2-B-BH (H-208 x T-3)	89		"	15	957
11	78014	7332-7-3-B-BH (H-208 x F-370)	91		"	12.	723
12	78015	7313-2-3-1H-BH (H-208 x Chafa)	88		"	14.	1041
13	78016	7380-1-1-B-BH (L-550 x F-496)	89		"	16	980
14	78017	73111-7-2-B-BH (K-850 x H-208)	77		"	15	770
15	78018	73167-5-3-1P-BH (JG-62 x F-496)	87		"	15	962
16	C	6153	86		"	23	812

Contd..... Table 21

1	2	3	4	5	6	7	8
		Mean	84		136	14	814
		Range	70-91		-	12-23	290-1382
		CV(%)	8.1		-	-	39.8
		LSD	10		-	-	462
		Correlations among traits					
		Days to 50% flowering			-.12	.10	-.04
		Days to maturity				-	.05
		g/100 seed			-	-	.17

r = .497 significant at .05, 13df.

1 Data not recorded

2 Data from one replication.

Table 22. Mean performance of entries for various plant characters, ICCT-DL 1978/79, Faizabad.

Cooperators	:	Asst. Pulse Breeder & Professor Div. of Genetics & Plant Breeding	Location:	Faizabad	Country	:	India
Latitude	:	26.5° N	Date planted	: 26-10-1978	Nitrogen (kg/ha)	:	18
Longitude	:	82.1° E	Rainfall (mm)	: 85	Phosphorus (kg/ha)	:	46
Altitude (m)	:	113	Irrigation	: 1	Potassium (kg/ha)	:	0
Local check	:	-	Row spacing (cm)	: 60	Date harvested	:	-

Note : Plant stands were poor. Nutgrass was the major problem.

Plot area harvested (m^2) = 6.8

S.No.	ICC/ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	2	3	4	5	6	7	8
1	[illegible]	G-130	112	55	155	14.	735
2	[illegible]	P-326	112	57	154	15	1421
3	3048	T-3552	103	51	157	16	1411
4	433	P-324	95	56	157	15.	931
5	3293	BG-203	112	57	157	14.	1994
6	10080	Pant-G-113	112	56	154	12	1240
7	7737	NEC-240	112	58	153	15.	921
8	78011	7332-7-2-B-BH (H-208 x F-370)	111	59	154	15.	1225
9	78012	73111-8-3-B-BH (K-850 x H-208)	106	60	156	17.	1764
10	78013	7310-3-2-B-BH (H-208 x T-3)	103	58	157	13	1397
11	78014	7332-7-3-B-BH (H-208 x F-370)	112	59	155	16	1352
12	78015	7313-2-3-1H-BH (H-208 x Chafa)	112	61	155	15.	1191
13	78016	7330-1-1-B-BH (L-550 x F-496)	113	70	154	16	858
14	78017	73111-7-2-B-BH (K-550 x H-208)	112	45	156	17	1397
15	78018	73167-5-3-1P-BH (JG-62 x F-496)	100	49	156	16	1117
16	4998	T-3	112	53	155	21	1250

Contd..... Table 22

1	2	3	4	5	6	7	8
		Mean	109	56	155	16	1294
		Range	95-113	41-70	153-157	12-21	735-1994
		CV(%)	6.8	4.3	0.8	-	22.6
		LSD	12	NS	2.	-	357
		Correlations among traits					
		Days to 50% flowering		0.22	-0.[illegible]	-	0.11
		Plant height		-	-0.[illegible]1	-	-0.09
		Days to maturity		-	-	-	0.08

r - .[illegible]7 significant at .05 1 df.

1 Data not reported

2 Data from one replication

Table 23. Mean performance of entries for various plant characters, ICCT-DL 1978/79, Hissar.

Cooperators	: ICRISAT	Location	: Hissar	Country	: India
Latitude	: 29°10'	Date planted	: 20-10-1978	Nitrogen (kg/ha)	: 0
Longitude	: 75°5'	Rainfall (mm)	: 87	Phosphorus (kg/ha)	: 80
Altitude (m)	: 215	Irrigation	: 0	Potassium (kg/ha)	: 0
Local check	: -	Row spacing(cm)	30	Date harvested	: -

Note : Wilt and stunt caused mortality in some cultivars where stands were adversely affected.

Plot area harvested (m^2) = 1.5

S.No.	ICC/ ICCL No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	2	3	4	5	6	7	8
1	[illegible]	G-130	84	69	182	15	592
2	[illegible]	P-526	74	67	177	12	650
3	3046	P-3552	71	66	181	13	1234
4	436	P-324	62	70	181	15	1542
5	6291	BG-203	83	76	179	13	624
6	[illegible]	Pant-G-113	77	63	170	12	787
7	7734	NEC-240	84	75	180	15	1151
8	78011	7332-7-2-B-BH (H-208 x F-370)	82	70	179	13	1359
9	78012	7311-8-3-B-BH (K-850 x H-208)	60	66	174	15	550
10	78013	7310-3-2-B-BH (H-208 x T-3)	56	60	-	-	-
11	78014	7332-7-3-B-BH (H-208 x F-370)	85	62	173	12	967
12	78015	7313-2-3-1H-BH (H-208 x Chafa)	84	89	180	13	875
13	78016	7380-1-1-B-BH (L-550 x F-496)	82	77	-	-	-
14	78017	73111-7-2-B-BH (K-850 x H-208)	67	75	174	17	579
15	78018	73167-5-3-1P-BH (JG-62 x F-496)	58	73	174	14	956
16	4995	T-3	80	71	179	21	575

Contd.... Table 23

1	2	3	4	5	6	7	8
		Mean	74	70	178	14	389
		Range	56-85	60-89	170-182	12-21	550-1542
		CV(%)	9.5	15.1	1.6	10.6	40.5
		LSD	10	NS	4.0	2.2	520
		Correlations among traits					
		Days to 50% flowering		.03	.23	-.09	-.09
		Plant height			.37	.09	.09
		Days to maturity				.23	.19
		g/100 seed					-.26

r = .207 significant at .05, 1 df.

1 Data not reported

Table 24. Mean seed yield (kg/ha) and ranks of entries at 5 different locations for ICCT-DL 1978-79.

Sl. No.	ICC/ ICCL No.	Name/Pedigree	Bajio-Mexico		Parwanipur-Nepal		Dokri-Pakistan		Lahore-Pakistan		Faizabad-India		Mean	
			Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank
1	4043	G-130	2364	14	1850	12	1672	16	290	16	735	16	1302	15
2	440	P-326	2630	7	2309	1	2224	2	1382	1	1421	4	1997	1
3	3043	P-3552	2474	12	1845	13	1503	13	413	15	1411	5	1530	13
4	438	P-324	2760	2	1908	9	1925	4	1020	4	931	13	1710	8
5	8294	BG-203	2497	11	2085	5	1849	7	494	14	1994	1	1784	2
6	10080	Pant-G-113	2623	9	2043	7	1804	8	658	13	1240	9	1674	10
7	7734	HEC-240	2317	15	1673	11	1661	9	937	8	921	11	1488	14
8	78011	7332-7-2-B-BH(H-208xF-370)	2673	6	2275	2	1911	5	677	12	1225	10	1752	5
9	78012	73111-6-3-B-BH(K-850xH-208)	2530	10	2064	6	1543	11	1002	9	1761	3	1779	3
10	78013	7310-7-2-B-BH(H-208xF-3)	2693	3	1955	8	1990	6	957	7	1397	6	1779	3
11	78014	78014-7-3-B-BH(H-208xT-370)	2721	13	1627	15	1355	14	713	11	1852	2	1576	12
12	78015	7313-6-3-14-BH(H-208xChafa)	2259	16	1671	11	1536	12	1071	2	1191	11	1579	11
13	78016	7320-1-1-B-BH(L-550xF-496)	2640	8	1897	9	2266	1	960	5	858	15	1728	7
14	78017	73111-7-2-B-BH(K-850xH-208)	2687	5	2215	3	1555	13	770	10	1397	6	1685	9
15	78018	77167-5-3-1P-BH(JG-62xF-496)	2690	4	2132	4	1953	3	962	6	1117	12	1771	5
16		T-3 or local check	2893[1]	1	1480[1]	16	1592[1]	10	812[1]	9	1250	8		
		Mean	2574		1946		1728		814		1294		1676	
		Range	2258-2893		1480-2309		1372-2266		1290-1382		735-1994		1302-1997	
		CV%	13.3		19.1		12.8		39.3		22.6		18	
		CD	488		532		316		462		487		229	

gave significantly higher yields than the local cultivars. P-326 gave the highest yield overall and was consistent across locations but BG-203 which ranked second was top yielder at Faizabad and near the bottom in Lahore.

Stability analysis gave regression(b) values ranging from 0.74 to 1.25, most entries giving good fits to the regression line (Table 25). BG-203 and ICCL-78014 gave significant deviations from regression and relatively low R^2 values indicating erratic behaviour across locations. The correlation between entry means and b values was not significant in these data.

Correlations among all pairs of locations for seed yields and ranks were low and non significant except for seed yields between Dokri and Lahore which was just significant at the 5% level of probability (Table 26).

Of the 5 entries common to four years trials P-326 was the highest yielder with G-130 the poorest (Table 27). Other entries which have performed well in two or three seasons include K-468, G-214, P-436, Pant G-113, P-326, ICCL-78011 and BG-203. There is evidence of considerable interaction between seasons but this is confounded with location effects as sites have been changed from year to year.

Table 25. Stability parameters for ICCT-DL grown at five locations 1978-79.

Sl.No.	ICC./ICCL No.	Name/Pedigree	$\bar{X}$	bi	DMS^1_5 x10	R^2%
1	4948	G-130	1302	1.25	0.51	98
2	440	P-326	1997	0.82	1.55	91
3	3048	P-3552	1530	1.10	1.45	94
4	438	P-324	1711	1.07	3.07*	89
5	8294	BG-203	1784	1.00	7.21*	76
6	10080	Pant-G-113	1674	1.14	-0.12	99
7	7734	NEC-240	1488	0.91	1.00	94
8	78011	7332-7-2-B-BH (H-208xF-370)	1752	1.20	0.54	98
9	78012	73111-8-3-B-BH (K-850xH-208)	1779	0.80	2.11	96
10	78013	7310-3-2-B-BH (H-208xT_3)	1779	0.98	0.04	98
11	78014	7332-7-3-B-BH (H-208xF-370)	1576	0.77	6.94*	67
12	78015	7313-2-3-IH-BH (H-208xChafa)	1579	0.74	0.24	97
13	78016	7380-1-1-B-BH(L-550xF-496)	1728	1.06	6.35	80
14	78017	73111-7-2-B-BH (K-850xH208)	1684	1.10	2.65	91
15	78018	73167-5-3-IP-BH (JG-62xF496)	1771	1.07	0.97	96
Mean			1676	1.07		
SE (Mean)			162.66			
SE(b)			0.175			

* Significant at P=.05
1 DMS - Deviation mean square
2 R^2% - Regression S.S as % of total S.S.
Locations considered for stability analysis are:
Mexico, Lahore , Parwanipur, Dokri, Faizabad.
Entry No.16 is excluded for analysis as it was replaced at some locations.

Correlations

$\bar{X}$ bi	-0.26
$\bar{X}$ DMS	0.13
$\bar{X}$ R^2%	-0.14
bi DMS	-0.20
bi R^2%	0.41
DMS R^2%	-0.95

Table 26. Correlations[1] of line performance for yields and ranks between locations, ICCT-[illegible] 1978-79.

	Bajio-Mexico	Parwanipur-Nepal	Dokri-Pakistan	Lahore-Pakistan	Faizabad-India	ICRISAT-Hissar India
Bajio-Mexico		.20	.45	.29	.05	.02
Parwanipur-Nepal	.34		.34	.23	.20	-.07
Dokri Pakistan	.50	.17		.57	.15	.23
Lahore Pakistan	.24	.21	.50		.03	.01
Faizabad India	.01	.21	-.18	-.10		.23
ICRISAT-Hissar India	.05	-.09	.30	.01	-.28	

[1] The values above diagonal are for yields and those below it are for ranks. r= 0.54 significant at P=0.05, 13 df.

Table 27. Mean seed yields of entries common to two or more years in ICCT-DL 1975-79.

Cultivar	4 years		3 years		2 years	
	Yield	Rank	Yield	Rank	Yield	Rank
	1975-79		1975-78		1975-77	
P-324	1784	1	1808	1	1664	7
P-3552	1644	2	1682	7	1586	14
T-3	1563	4	1667	8	1565	16
NEC-240	1616	3	1659	9	1641	9
G-130	1501	5	1568	11	1560	17
K-468			1748	2	1738	1
C-214			1736	3	1719	2
B-108			1732	4	1599	13
P-436			1686	5	1701	3
P-946			1686	6	1685	4
P-182			1601	10	1547	19
P-4235			1406	12	1382	24
Radhey					1677	5
BG-1					1675	6
H-208					1662	8
B-110					1641	9
C-235					1617	11
P-2559					1604	12
F-378					1574	15
P-2974					1557	18
Bengal gram					1520	20
NP-50					1460	21
P-514					1444	22
USA-613					1435	23
P-896					1376	25
			1976-79		1976-78	
P-326			1872		1810	2
P-840					1612	3
Pant G-113					1834	1
Kaka					1360	4
					1977-79	
BG-203					1965	2
Pant G-112					1884	4
78011					1968	1
78012					1909	3
78013					1878	5
78014					1688	6

INTERNATIONAL CHICKPEA SCREENING NURSERY-A (ICSN-A)

Entries

The entries in ICSN-A comprised 60 short duration F_5 to F_7 generation lines from the ICRISAT breeding program and three check cultivars; one of which (G-130) cooperators were requested to replace with the best local cultivar. Fifteen of the breeding lines were selected on the basis of their performance in ICSN-A during the previous year and 45 were new lines from progeny tests at Hyderabad and/or Hissar in 1977-78. The names and pedigrees of the entries are shown in the individual location tables 29 to 38.

Locations

ICSN-A was supplied for 11 locations in three countries (Tables 1 and 2), all for winter planting, and results were received from all of them. The nursery at ICRISAT center was badly damaged by wilt and salinity and no useful data were recorded.

Management

The nursery was arranged in an augmented design with the three check cultivars repeated before and after every 10 breeding lines. Each location was randomised separately to reduce competition effects. Each plot was 2 rows, 3 m long and 30 cm apart, with 7-10 cm between seeds in the row. It was recommended to harvest a 2.5 m length of both rows after end trimming. Cooperators were requested to record data as for the ICCTs. Estimates of error for comparing the performance of the breeding lines were derived from the repeated check entries.

Results

Days to flowering ranged from 50 at Junagadh in India to 96 at Comilla in Bangladesh and was highly correlated with days to maturity which varied from 106 days at Badnapur and Nayagarh to 158 days at Varanasi, all in India (Table 28). Plant height ranged between 26 and 58 cms and was also highly correlated with days to flowering and days to maturity. Variation in seed size was small. The lowest yield was 723 kg seed per hectare from Nayagarh and the highest 2989 kg per hectare from Kanpur.

The performance of the entries at the 10 individual locations are shown in Tables 29 to 38. Annigeri and JG-62 were relatively early, ranking 5th and 11th overall. The earliest lines were ICCL-78038 from a cross of F-379 and Chafa, and 78021 (JG-62 x GW 5/7) and a number of others were similar to the checks. There was little correlation between days to flowering and to maturity indicating the influence of environment on the time the crop matures. ICCL-78047 was the tallest entry in the trial and JG-62 was the shortest.

Seed size was relatively consistent among locations. The lines 78029 and 78022 had the biggest seeds of 22.44 and 20.89 g per 100 seeds, respectively, compared with 17.56 g from Annigeri and 14.89 from JG-62.

Table 28. Location means for various plant characters in ICSN-A 1978-79.

Location	Days to 50% flowering	Plant height cm	Days to maturity	Average plant stand score[1]	g/100 seed	Yield kg/ha
Comilla Bangladesh	96	42	151	3	14	934
Feni Bangladesh	81	33	136	1	15	2344
Debre Zeit Ethiopia	73	26	113	2	18	983
Akola India	57	30	111	2	16	923
Badnapur India	56	33	106	1	16	811
Junagadh India	60	34	108	2	14	974
Kanpur India	74	58	151	1	16	2989
Puri India	60	31	106	2	-[2]	726
Rahuri India	63	32	117	2	17	912
Varanasi India	84	68	158	3	15	1825

[1] Rating 1,2,3 represent good (28-33), satisfactory (22,27), and poor (< 22) stand respectively, when the figures in brackets represent the ranges of density in plants/m^2 for these classes.

[2] Data not reported.

Table 29. Mean performance of entries for various plant characters, ICSN-A 1978/79, Comilla.

Cooperator	: Dr. M.A.Q. Shaikh	Location	: Comilla	Country	: Bangladesh
Latitude	: 24.7°N	Date planted	: 28-10-78	Nitrogen (kg/ha)	: 9
Longitude	: 90.3°E	Rainfall	: 0	Phosphorus (kg/ha)	: 75
Altitude(m)	: 18.3	Irrigation	: 0	Potassium (kg/ha)	: 37
Local check	: Faridpur-1	Row spacing (cm)	: 30	Date harvested	: -[1]

Note: Plant stands were poor. Root rot and rust were the major diseases. Weeding was done twice.

Net plot area harvested(m²) = 1.[illegible]

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7304-14-2-3-BP	K-850xN-59	92	32	151	13	1210
2	78020	73153-15-1-2[illegible]-BP	JG-62xGW-5/7	95	42	151	15	1026
3	78021	73129-16-1-3-BP	JG-62xRadhey	87	47	151	15	1318
4	78022	7389-18-3-6-BP	K-850xF-373	91	51	151	22	873
5	78025	73111-3-2-3-1P	K-850xH-208	95	46	151	11	1974
6	78024	73136-3-3-3P-BP	JG-62xBEG-482	96	39	-[1]	-[1]	-[1]
7	78025	7304-14-2-1P-BP	K-850xN-59	101	34	151	12	423
8	78026	73136-31-4-IP-BP	JG-62xBEG-482	96	35	151	12	1346
9	78027	73144-14-2-IP-BP	JG-62xB-108	101	32	151	12	1212
10	78028	73167-11-1-IP-BP	JG-62xF-496	96	44	151	13	1345
11	78029	7394-18-3-IP-BP	K-850xN-59	106	37	153	18	147
12	78030	7388-2-1-2P-BP	K-850xF-6[illegible]	104	39	153	14	147
13	78031	73167-8-1-IP-BP	JG-62xF-49[illegible]	96	38	153	12	398
14	78032	7341-3-1-B-BP	H-208xN-59	96	39	153	13	1009
15	78033	73103-10-2-IP-LB-BP	K-850xChafa	96	34	153	15	145
16	78034	73213-9-3-IP-LB-IP-BP	GW-517xH-223	98	38	151	13	828
17	78035	73217-4-1-IP-LB-BH-BP	F-404xCeylon-2	88	42	151	13	1749
18	78036	73154-15-3-2[illegible]-LB-IH-BP	JG-62xNo.42	89	38	151	17	1151
19	78037	73211-2-1-B-BP	Ceylon-2xGW-5/7	89	39	151	17	612
20	78038	73190-6-3-IP-LB-IH-BP	F-378xChafa	88	34	151	13	548

Contd....Table 29

1	2	3	4	5	6	7	8	9
21	78039	73213-9-1-3H-LB-IH-BP	GW-5/7 x H-223	96	38	153	11	559
22	78040	73213-9-3-IP-LB-IH-BP	GW-5/7 x H-223	100	36	151	14	520
23	78041	73301-13-3-IH-LB-IH-BP	G-543 x Annigeri	101	49	153	12	1183
24	78042	73367-11-4-IP-LB-IH-BP	JG-62 x H-208	104	44	151	13	639
25	78043	7356-5-2-IP-LB-IP-BP	L-550 x T-3	106	52	153	18	620
26	78044	7339-1-1-IH-LB-BH-BP	H 208 x E-100	101	54	153	9	1793
27	78045	7398-13-2-IH-LB-IH-BP	K-850 x pant-110	103	57	151	15	1112
28	78046	73154-2-1-IH-LB-BH*BP	JG-62 x NO-42	96	51	151	23	1321
29	78047	73385-5-IP IP-BP	F-378 x P-3090	106	57	151	17	384
30	78048	74324-B-5P-IP-BP	L-550 x (JG-62 x F-378)	96	47	151	15	667
31	78049	74640-3P-LB-IP-BP	(JG-62 x Chafa) x (E-100xP-436)	95	37	151	12	809
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	96	36	151	13	1201
33	78051	7498 B-2P-BH-BP	BG-1 x P-3111	96	42	151	15	1073
34	78052	7499-B-3P-BH-BP	G-130 x P-3111	96	46	151	13	575
35	78053	74141-B-IP IH-BP	G-130 x JG-221	95	44	153	12	917
36	78054	74169-B-2P-IH-BP	CP-66 x BEG-482	96	51	153	11	1234
37	78055	74304-B-7P-IH-BP	P-1022 x(JG-62 x Chafa)	98	38	151	13	906
38	78056	74317-B-3P-IH-BP	Radhey x (JG 62 x K-468)	105	48	151	13	817
39	78057	74288-B-3P-IH-BP	Pant-104 x (JG-62xC-235)	102	44	151	12	930
40	78058	7466-4-IP-IP-BP	RS-11 x (GW-5/7xL-550)	102	43	153	17	603
41	78059	74286-B-2P-IH-BP	P-4027 x (K-850xNO-56)	107	33	153	16	626
42	78060	7458-B-4P-IP-BP	(SP-405xH-208) x (RS-11xGW-5/7)	108	43	153	16	181
43	78061	7458-B 4P-2P-BP	(SP-405xH-208) x (RS-11xGW-5/7)	109	44	153	14	68
44	78062	74685-10P-LB-IP-BP	P-436 x (P-1387xF-378)	109	35	153	13	33
45	78063	74156-B-2H-IP-BP	JG-221 x C-235	101	33	153	12	973
46	78064	741663-2-IP-IP-BP	(H-208xRs-11) x (JG-221xL-550)	92	45	153	17	695
47	78065	7417-B-IP-IP-BP	P-2974 x G-130	101	47	153	12	726
48	78066	7421-B-8P-IP-BP	P-1464 x F-378	108	43	153	12	870
49	78067	74317-B-7H-IH-BP	Radhey x (JG-62xK-468)	99	38	153	11	1429
50	78068	74156-B-5H-IH BP	C-235 x JG-221	90	39	151	12	962

Contd....Table 29

1	2	3	4	5	6	7	8	9
51	78069	74169-8-3H-BH-BP	BEG-482 x CP-66	94	45	153	13	1311
52	78070	7369-5 4IP-IP-BP	L-550 x USA-613	87	52	151	17	853
53	78071	7342-6-4-IH-IP-BP	H-208 x JG-221	85	51	151	16	1743
54	78072	7334-17-2-IH-BH-BP	H-208 x N0-56	90	47	151	12	1362
55	78073	73119-4-1-IH-BH-BP	K-850 x H-223	93	51	151	19	1915
56	78074	73163-9-3-IH-BH-BP	JG-62 x N0-56	91	43	151	12	1284
57	78075	73219-2-1-IH-BH-BP	F-404 x H-223	95	51	151	11	1209
58	78076	73129-16 1-IP-IP-BP	JG-62 x Radhey	94	51	151	15	1140
59	78077	73365-1-3-IP-BH-BP	G-130 x P-1179	85	53	151	16	1123
60	78078	7341-10-2-IP-BH-BP	H-208 x N 59	90	47	151	15	1282
61				91	41	151	13	1140
62				94	33	101	11	724
63			Faridpur-1[2]	93	43	151	8	1304
		Mean		96	42	151	14	934
		Range		35-109	32-57	101-153	9-23	33-1974
		CV(%)		2.2	19.2	30.5	36.5	49.9

[1] Not reported.

[2] Average of 6 plots.

Table 30. Mean performance of entries for various plant characters, ICSN-A 1978/79, Feni.

Cooperators	Richard P. Dick Abul Hossein	Location	: Feni	Country	: Bangladesh
Latitude	: 23°0'N	Date planted	: 9-11-78	Nitrogen (kg/ha)	: 0
Longitude	: 91°15'E	Rainfall (mm)	: 94	Phosphorus (kg/ha)	: 60
Altitude(m)	: 3.3	Irrigation	: 0	Potassium (kg/ha)	: 30
Local Check	: Local	Row spacing(cm)	: 30	Date harvested	: 1

Note: Plant stands were good in general. Rust and pod borer caused some damage. Nogos was sprayed twice to control pod borer.

Plot area harvested (m^2) - 1.8

Sl. No.	ICCL-No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K-850 x N-59	76	27	136	21	2724
2	78020	73153-15-1-2P-BP	JG-62 x GW-5/7	72	34	132	17	2546
3	78021	73129-16-1-B-BP	JG-62 x Radhey	72	40	132	19	2724
4	78022	7389-18-3-B-BP	K-850 x F-378	76	36	136	23	2708
5	78023	73111-8-2-B-BP	K-850 x H-208	84	38	136	16	2268
6	78024	73136-3-3-2P-BP	JG-62 x BEG-482	76	28	135	13	2002
7	78025	7394-18-2-IP-BP	K-850 x N-59	82	39	137	13	1351
8	78026	73136-31-4-IH-BP	JG-62 x BEG-482	76	30	133	16	2335
9	78027	73144-14-2-IP-BP	JG-62 x B-108	77	28	135	13	1685
10	78028	73167-11-1-IP-BP	JG-62 x F-496	86	35	136	13	2641
11	78029	7394-18-3-IP-BP	K-850 x N-59	74	37	137	27	2558
12	78030	7388-2-1-2P-BP	K-850 x F-61	77	40	137	18	1779
13	78031	73167-8-1-IH-BP	JG-62 x F-496	81	49	137	11	3308
14	78032	7341-8-1-B-BP	H-208 x N-59	75	29	135	13	2752
15	78033	73103-10-2-IP-LB-BP	K-850 x Chafa	73	26	136	15	2769

Contd....Table 30

1	2	3	4	5	6	7	8	9
16	78034	73213-9-3-IP-LB-BP	GW-5/7 x H-223	75	30	135	14	2057
17	78035	73217-4-1-IP-LB-BH BP	F-404 x Ceylon-2	71	32	133	17	2797
18	78036	73154-15-3-2H-LB-IH-BP	JG-62 x NO-42	74	33	132	18	2307
19	78037	73211-2-1-B-BP	Ceylon-2 x GW-5/7	72	34	134	21	2207
20	78038	73190-6-3-IP-LB-IH-BP	F-378 x Chafa	72	28	134	13	1946
21	78039	73213-9-1-3H-LB-IH-BP	GW 5/7 x H-223	77	40	135	13	2546
22	78040	73213-9-3-IP-LB-IH-BP	GW-5/7 x H-223	77	28	133	14	2013
23	78041	73301-13-3-IH-LB-IH-BP	G-543 x Annigeri	78	30	132	12	2836
24	78042	73367-11-4-IP-LB-IH-BP	JG-62 x H-208	73	28	134	13	2402
25	78043	7356-5-2-IP-LB-1P-BP	L-550 x T-3	87	36	136	21	1990
26	78044	7339-1-1-IH-LB-BH-BP	H-208 x E-100	86	39	137	10	3002
27	78045	7398-13-2-IH-LB-IH-BP	K-850 x Pant-110	88	40	137	14	1568
28	78046	73154-2-1-IH-LB-BH BP	JG-62 x NO-42	77	35	137	20	3102
29	78047	73385-5-IP IP-BP	F-378 x P-3090	74	28	136	17	1485
30	78048	74324-B-5P-IP-BP	L-550 x (JG062xF-378)	73	27	136	13	1735
31	78049	74640-3P-LB-IP-BP	(JG-62xChafa) x (E-100xP-436)	75	32	132	11	2780
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	73	26	133	17	3114
33	78051	7498-B-2P-BH-BP	BG-1 x P-3111	76	29	133	16	1929
34	78052	7499-B-3P-BH-BP	G-130 x P-3111	77	35	132	14	2708
35	78053	74141-B-IP-IH-BP	G-130 x JG-221	77	39	134	12	3169
36	78054	74169-B-2P-IH-BP	CP-66 x BEG-482	77	39	135	12	3002
37	78055	74304-B-7P-IH-BP	P-1022 x (JG 62 x Chafa)	74	35	134	16	2724
38	78056	74317-B 3P-IH-BP	Radhey x(JG-62xK-468)	75	35	135	13	2780
39	78057	74288-B-3P-IH-BP	Pant-104 x (JG-62xC-235)	74	37	135	13	1890
40	78058	7466-4-IP-IP-BP	RS-11 x (GW-5/7xL-550)	75	38	137	16	2780
41	78059	74286-B-2P-IH-BP	P-4027 x (K-850xNO-56)	87	44	137	13	2274
42	78060	7458-B-4P-IP-BP	(SP-405xH-208)x(RS-11xGW-5/7)	73	33	135	18	2307
43	78061	7458-B-4P-2P-BP	(SP-405xH-208)x(RS-11xGW-5/7)	73	35	135	13	2013
44	78062	74685-10P-LB-IP-BP	P-436 x (P-1357xF-378)	75	31	136	13	2836
45	78063	74156-B-2H-IP-BP	JG-221 x C-235	82	38	136	11	1940
46	78064	741663-2-IP-IP-BP	(H-208xRS-11)x(JG-221xL-550)	77	28	137	20	2002
47	78065	7417-B-IP-IP-BP	P-2974 x G-130	93	40	142	12	1301
48	78066	7421-B-8P-IP-BP	P-1464 x F-378	94	44	142	16	3152

Contd....Table 30

49	78067	74317-B-7H-IH-BP	Radheyx(JG-62xK-463)	96	39	142	11	1640
50	78063	74156-B-5H-IH-BP	C-235 x JG-221	77	30	142	12	1779
51	78069	74169-B-3H-BH-BP	BEG-482 x CP-66	93	41	141	14	1663
52	78070	7369-5-4-IP-IP-BP	L-550 x USA-613	55	36	138	17	917
53	78071	7342-6-4-IH-IP-IP	H-208 x JG-221	75	30	136	13	3156
54	78072	7334-17-2-IH-BH-BP	H-208 x N0-56	86	35	137	14	1557
55	78073	73119-4-1-IH-BH-BP	K-350 x H-223	87	43	137	23	2619
56	78074	73163-9-3-IH-BH-BP	JG-62 x N0-56	77	39	134	12	2103
57	78075	73219-2-1-IH-BH-BP	F-404 x H-223	94	40	137	10	2224
58	78076	73129-10-1-IP-IP-BP	JG-62 x Radhey	77	30	136	13	2474
59	78077	73365-1-3-IP-BH-BP	G-130 x P-1179	77	29	135	15	2235
60	78078	7341-10-2-IP-BH-BP	H-208 x N-59	77	32	136	14	2535
61		4951	JG-62[2]	74	30	135	15	1973
62		4918	Annigeri[2]	74	29	136	19	2501
63			Local[2]	77	23	137	11	1522
			Mean	81	33	136	15	2344
			Range	55-98	26-49	132-142	10-27	917-3306
			CV(%)	3.52	12.7	1.1	3.9	17.2

1 Not reported

2 Average of 6 plots

Table 31. Mean performance of entries of various plant characters, ICSN-A 1978/79, Debre Zeit.

Cooperators : Geletu Bejiga, Taye WM, Nadachu Aychae
Location : Debre Zeit
Country : Ethiopia

Latitude : 8°44'N
Longitude : 38°58'E
Altitude (m) : 1350
Local check : -1
Date planted : 10-9-78
Rainfall(mm) : -1
Irrigation : 0
Row spacing(cm) : 30
Nitrogen(kg/ha) : 0
Phosphorus(kg/ha): 0
Potassium(kg/ha) : 0
Date harvested : -1

Note: Plant stands were average to good. Wilt and root rot were the major problems. There was no insect damage. Two weedings were done.

Net plot area harvested (m^2) : 1.3

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K-850 x N-59	73	23	113	21	1396
2	78020	73153-15-1-2P-BP	JG-62 x GW-5/7	73	24	113	19	1301
3	78021	73129-16-1-B-BP	JG-62 x Radhey	73	25	113	20	1195
4	78022	7389-18-3-B-BP	K-850 x F-378	75	24	113	19	995
5	78023	73111-8-2-B-BP	K-850 x H-208	75	26	113	17	812
6	78024	73136-3-3-2P-BP	JG-62 x BEG-482	73	25	113	20	1379
7	78025	7394-18-2-1P-BP	K-850 x N-59	73	21	113	19	945
8	78026	73136-31-4-1H-BP	JG-62 x BEG-482	75	24	113	10	1123
9	78027	73144-14-2-1P-BP	JG-62 x B-108	75	24	113	17	845
10	78028	73167-11-1-1P-BP	JG-62 x F-496	54	28	113	15	1674
11	78029	7394-18-3-1P-BP	K-850 x N-59	67	25	113	30	550
12	78030	7388-2-1-2P-BP	K-850 x F-61	76	27	113	22	284
13	78031	73167-8-1-1H-BP	JG-62 x F-496	76	25	113	17	528
14	78032	7341-8-1-B-BP	H-208 x N-59	54	25	113	21	1657
15	78033	73103-10-2-1P-LB-BP	K-850 x Chafa	54	24	113	17	912

Contd....Table 31

1	2	3	4	5	6	7	8	9
16	78034	73213-9-3-1P-LB-1P-BP	GW-5/7 x H-223	54	23	113	16	706
17	78035	73217-4-1-1P-LB-BH-BP	P-404 x Ceylon-2	54	24	113	16	873
18	78036	73154-15-3-2H-LB-1H-BP	JG-62 x No-42	54	24	113	22	1001
19	78037	73211-2-1-B-BP	Ceylon-2 x GW-5/7	70	27	113	23.	1051
20	78038	73190-6-3-1P-LB-1H-BP	P-378 x Chafa	67	24	113	17	1251
21	78039	73213-9-1-3H-LB-1H-BP	GW-5/7 x H-223	73	28	113	18	1346
22	78040	73213-9-3-1P-LB-1H-BP	,, ,,	67	25	113	17	1257
23	78041	73301-13-3-1H-LB-1H-BP	G-543 x Annigeri	73	27	113	17	870
24	78042	73367-11-1-1P-LB-1H-BP	JG-62 x H-208	67	26	113	16	1390
25	78043	7356-5-2-1P-LB-1P-BP	L-550 x T-3	73	25	113	22	979
26	78044	7339-1-1-1H-LB-BH-BP	H-208 x E-100	84	27	113	13	628
27	78045	7398-13-2-1H-LB-1H-BP	K-850 x Pant-110	87	34	113	18.	1031
28	78046	73154-2-1-1H-LB-BH-BP	JG-62 x No-42	84	32	113	26	1579
29	78047	73375-5-1P-1P-BP	P-375 x P-3090	73	28	113	21.	823
30	78048	74324-B-5P-1P-BP	L-550 x(JG-62xP-378)	70	25	113	18	912
31	78049	74640-3P-LB-1P-BP	(JG-62xChafa)x(E-100xP-436)	67	27	113	15	856
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	73	29	113	15	1613
33	78051	7498-B-2P-3H-BP	BG-1 x P-3111	73	29	113	18	1162
34	78052	7499-B-3P-BH-BP	G-130 x P-311	73	32	113	16	1557
35	78053	74141-B-1P-1H-BP	G-130 x JG-221	73	31	113	18	2374
36	78054	74169-B-2P-1H-BP	CP-66 x BEG-482	73	26	113	14	1212
37	78055	74301-B-7P-1H-BP	P-1022 x (JG-62xChafa)	70	23	113	16	1223
38	78056	74317-B-3P-1H-BP	Radheyx(JG-62xK-168)	70	29	113	15.	605
39	78057	74288-B-3P-1H-BP	Pant-101 x (JG-62xC-235)	73	30	113	15	1468
40	78058	7466-4-1P-1P-BP	RS-11 x (GW-5/7xL-550)	73	25	113	17	1352
41	78059	74286-B-2P-1H-BP	P-4027 x (K-850xNo-56)	84	27	113	22	801
42	78060	7458-B-4P-1P-BP	(SP-405xH-208)x(RS-11xGW-5/7)	67	22	113	23	923
43	78061	7458-B-4P-2P-BP	(SP-405xH-208)x(RS-11xGW-5/7)	67	22	113	17	523
44	78062	74635-10P-LB-1P-BP	P-436 x (P-1387xP-378)	67	27	113	16	617
45	78063	74156-B-2H-1P-BP	JG-221 x C-235	84	27	113	19	706
46	78064	74106-3-2-1P-1P-BP	(H-208xRS-11)x(JG-221xL-550)	73	28	113	14.	530
47	78065	7417-B-1P-1P-BP	P-2074 x G-130	87	32	113	17	1370
48	78066	7421-B-8P-1P-BP	P-1164 x P-378	77	26	113	15	590

Contd....Table 31

1	2	3	4	5	6	7	8	9
49	78067	74317-B-7H-1H-BP	Radhey x (JG-62xK-468)	87	26	113	14.	434
50	78068	74156-B-5H-1H-BP	C-235 x JG-221	77	22	113	16	1051
51	78069	74169-B-3H-BH-BP	BEG-482 x CP-66	87	21	113	19	417
52	78070	7369-5-4-1P-1P-BP	L-550 x USA-613	70	23	113	17	1166
53	78071	7342-6-4-1H-1P-BP	H-208 x JG-221	67	22	113	19	717
54	78072	7334-17-2-1H-BH-BP	H-208 x No-56	77	24	113	22	578
55	78073	73119-4-1-1H-BH-BP	K-850 x H-223	77	27	113	15	523
56	78074	73163-9-3-1H-BH-BP	JG-62 x No-56	73	24	113	14.	489
57	78075	73219-2-1-1H-BH-BP	F-404 x H-223	77	25	113	20.	575
58	78076	73129-16-1-1P-1H-BP	JG-62 x Radhey	73	23	113	17.	844
59	78077	73365-K-3-1P-BH-BP	G-130 x P-1179	73	27	113	15.	1101
60	78078	7341-10-2-1P-BH-BP	H-208 x N-59	70	23	113	17	1064
61	78079	4951	JG-62[2]	70	23	113	18	1123
62		4918	Annigeri[2]	71	26	113	13	750
63		4948	G-130[2]	84	29	113	15	732
		Mean		73	26	113	13	933
		Range		54-87	21-34	-	13-30.7	234-2374
		CV%		9.3	18.9	0	26.7	31.0

[1] Not reported.

[2] Average of 6 plots.

Table 32. Mean performance of entries for various plant characters, ICSN-A 1978 /79, Akola.

Cooperator	: B.T. Khadilkar	Location	: Akola	Country	: India
Latitude	: 22°42'N	Date planted	: 18-10-1978	Nitrogen (kg/ha)	: 15
Longitude	: 77°02'E	Rainfall (mm)	: 107	Phosphorus (kg/ha)	: 40
Altitude (m)	: 280	Irrigation	: 1	Potassium (kg/ha)	: 1
Local check	: Warangal	Row Spacing (cm)	: 30	Date Harvested	: -

Note: Plant stands were average. Diseases, wilt, root rot and powdery mildew caused mortality to a great extent. Insect attack (Heliothis) was checked by dusting BHC. 10% twice.

Plot area harvested (m^2) - 1.68

Sl. No.	ICCL-No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K-850 x N-59	46	24	116	19	625
2	78020	73153-15-1-2P-BP	JG-62 x GW-5/7	41	29	113	15	1012
3	78021	73129-16-1-B-BP	JG-62 x Radhey	34	28	109	16	684
4	78022	7389-18-3-B-BP	K-850 x F-378	40	29	104	24	774
5	78023	73111-8-2-B-BP	K-850 x H-208	59	29	112	15	552
6	78024	73136-3-3-2P-BP	JG-62 x BEG-482	46	26	111	16	803
7	78025	7394-18-2-IP-BP	K-850 x N-59	41	23	120	13	803
8	78026	73136-31-4-IH-BP	JG-62 x BEG-482	45	29	126	14	833
9	78027	73144-14-2-IP-BP	JG-62 x B-108	62	28	119	15	833
10	78028	73167-11-1-IP-BP	JG-62 x F-496	62	31	123	9	1398
11	78029	7394-18-3-IP-BP	K-850 x N-59	57	31	115	23	655
12	78030	7388-2-1-2P-BP	K-850 x F-61	56	33	106	20	1041
13	78031	73167-8-1-IH-BP	JG-62 x F-496	63	36	119	15	1488
14	78032	7341-8-1-B BP	H-208 x N-59	76	33	115	14	595

15	78033	73103-10-2-IP-LB-BP	K-850 x Chafa	61	31	04	16	893
16	78034	73213-9-3-IP-LB-BP	GW-5/7 x H-223	59	37	08	15	1131
17	78035	73217-4-1-IP-LB-BH-BP	F-404 x Ceylon-2	88	33	15	12	595
18	78036	73154-15-3-2H-LB-IH-BP	JG-62 x NO-42	86	33	19	15	655
19	78037	73211-2-1-B-BP	Ceylon-2 x GW-5/7	55	33	01	15	417
20	78038	73190-6-3-IP-LB-IH-BP	F-378 x Chafa	48	22	23	21	833
21	78039	73213-9-1-3H-LB-IH-BP	GW-5/7 x H-223	55	33	17	17	1190
22	78040	73213-9-3-IP-LB-IH-BP	GW-5/7 x H-223	40	24	06	16	1071
23	78041	73301-13-3-IH-LB-IH-BP	G-543 x Annigeri	62	27	21	15	833
24	78042	73367-11-4-IP-LB-IH-BP	JG-62 x H-208	45	27	24	15	714
25	78043	7356[illegible]-2-IP-LB-IP-BP	L-550 x T-3	79	32	19	21	1607
26	78044	7339-1-1-IH-LB-BH-BP	H-208 x E-100	100	27	21	12	417
27	78045	7398-13-2-IH-LB-IH-BP	K-850 x Pant-110	99	31	29	17	1220
28	78046	73154-2-1-IH-LB-BH-BP	JG-62 x NO-42	93	31	02	12	893
29	78047	73385-5-IP-IP-BP	F-378 x P-3090	54	34	23	20	952
30	78048	74324-B-5P-IP-BP	L-550 x (JG-62xF-378)	53	26	04	16	476
31	78049	74640-3P-LB-IP-BP	(JG-62 x Chafa)x(E-100xP-436)	45	25	99	16	833
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	51	26	98	15	833
33	78051	7498-B-2P-BH-BP	BG-1 x P-3111	53	26	03	15	1071
34	78052	7499-B-3P-BH-BP	G-130 x P-3111	60	30	99	14	1101
35	78053	74141-B-IP-IH-BP	G-130 x JG-221	56	31	02	15	952
36	78054	74169-B-2P-IH-BP	CP-66 x BEG-[illegible]	48	30	06	15	1274
37	78055	74304-B-7P-IH-BP	P-1022 x (JG-62xChafa)	55	24	03	15	1250
38	78056	74317-B-3P-IH-BP	Radhey x (JG-62xK-468)	54	29	98	15	1190
39	78057	74288-B-3P-IH-BP	Pant-104x(JG-62xC-235)	59	30	05		714
40	78058	7466-4-IP IP-BP	RS-11 x (GW-5/7xL-550)	61	32	09		803
41	78059	74286-B-2P-IH-BP	P-4027 x (K-850xNO-56)	69	35	15		952
42	78060	7458-B-4P-IP-BP	(SP-405xH-208)x(RS-11xGW-5/7)	55	30	02		417
43	78061	7458-B-4P-2P-BP	(SP-405xH-208)x(RS-11xGW-5/7)	52	41	17		1071
44	78062	73685-10P-LB-IP-BP	P-436 x (P-1387xF-378)	59	33	21		595
45	78063	74156-B-2H-IP-BP	JG-221 x C-235	72	33	22		952
46	78064	741663-2-IP-IP-BP	(H-208xRS-11) x (JG-221xL-550)	54	32	27		1012
47	78065	7417-B-IP-IP-BP	P 2974 x G-130	88	29	22		922
48	78066	7421-B-8P-IP-BP	P 1464 x F-378	74	32	99		952

Contd....Table 32

1	2	3	4	5	6	7	8	9
49	78067	74317-B-7H-IH-BP	Radhey x (JG-62xK-468)	71	36	116	12	1071
50	78068	74156-B-5H-IH-BP	C-235 x JG-221	53	34	113	12	1309
51	78069	74169-B-3H-BH-BP	BEG-432 x CP-66	88	29	132	16	774
52	78070	7369-5-4-IP-IP-BP	L-550 x USA-613	55	33	107	18	1151
53	78071	7342-6-4-IH-IP-BP	H-208 x JG-221	54	32	99	16	893
54	78072	7334-17-2-IH-BH-BP	H-208 x NO-56	62	29	106	15	536
55	78073	73119-4-1-IH-BH-BP	K-850 x H-223	52	30	89	20	1428
56	78074	73163-9-3-IH-BH-BP	JG-62 x NO-56	61	30	91	13	1369
57	78075	73219-2-1-IH-BH-BP	P-404 x H-223	74	33	120	16	833
58	78076	73129-16=1-IP-IH-BP	JG-62 x Radhey	55	29	115	16	774
59	78077	73365-1-3-IP-BH-BP	G-130 x P-1179	53	28	101	15	339
60	78078	7341-10-2-IP-BH-BP	H-208 x N-59	62	34	103	16	1071
61		4951	JG-62[2]	48	28	108	15	928
62		4918	Annigeri[2]	47	26	107	19	333
63			Warangal[2]	49	31	109	13	796
			Mean	57	30	111	16	923
			Range	34-100	22-41	89-132	9-25	417-1607
			CV(%)	7.1	26.0	10.3	6.3	24.0

1 Not reported.
2 Average of 6 plots.

Table 33. Mean Performance of entries for various plant characters, ICSN-A 1978/79, Badnapur.

Cooperators : Dr. Thombre, Mr. Chauvan, Mr. Madrap
Location : Badnapur
Country : India

Latitude : 1
Longitude : 1
Altitude (m) : 520
Local check : BDN-9-3
Date planted : 18-10-1978
Rainfall (mm) : 131
Irrigation : 1
Row spacing(cm) : 30
Nitrogen (kg/ha) : 15
Phosphorus (kg/ha) : 40
Potassium (kg/ha) : 0
Date harvested : -

Note: In general plant stands were good. Heliothis caused some damage. B.H.C. was dusted twice to control this pest.

Plot area harvested (m^2) - 1.8

Sl. No.	ICCL-No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K-850 x N-59	49	31	100	17	723
2	78020	73153-15-1-2P BP	JG-62 x GW-5/7	51	30	104	14	1223
3	78021	73129-16-1-B-BP	JG-62 x Radhey	57	38	109	16	1223
4	78022	7389-18-3-B-BP	K-850 x F-378	49	36	110	25	**1668**
5	78023	73111-8-2-B-BP	K-850 x H-208	50	33	103	15	612
6	78024	73136-3-3-2P-BP	JG-62 x BEG-482	59	33	102	18	1346
7	78025	7394-18-2-IP-BP	K-850 x N-59	57	32	101	17	612
8	78026	73136-31-4-IP-BP	JG-62 x BEG-482	58	32	109	17	723
9	78027	73144-14-2-IP-BP	JG-62 x B-108	56	34	100	15	601
10	78028	73167-11-1-IP-BP	JG-62 x F-496	51	29	97	14	556
11	78029	7394-18-3-IP-BP	K-850 x N-59	49	30	102	23	945
12	78030	7388-2-1-2P-BP	K-850 x F-61	52	33	104	18	667

Con d

1	2	3	4	5			8	9
13	78031	73167-8-1-IH BP	JG-62 x 496	51	32	103	15	773
14	78032	7341-8-1-B-BP	H-208 x 59	53	29	105	15	612
15	78033	73103 10-2-IP-LB-BP	K-850 x Chafa	55	27	105	10	301
16	78034	73213-9-3-IP-LB-IP-BP	GW-5/7 x H-223	60	40	115	16	1074
17	78035	73217-4-1-IP-LB-BH-BP	P-404 x Ceylon-2	78	39	129	16	762
18	78036	73154-15-3-2H-LB-IH-BP	JG-62 x NO-42	60	41	120	14	828
19	78037	73211-2 1-B-BP	Ceylon-2 x GW-5/7	61	37	120	17	707
20	78038	73190-6-3-IP-LB-IH-BP	P-378 x Chafa	59	33	109	16	834
21	78039	73213-9-1-3H-LB-IH-BP	GW-5/7 x H-223	52	25	103	15	612
22	78040	73213-9-3-IP LB-IH-BP	GW-5/7 x H 223	45	34	104	15	1012
23	78041	73301-13-3-IH-LB-IH-BP	G-543 x Annigeri	53	32	99	14	256
24	78042	73367-11-4-IP-LB-IH-BP	JG-62 x H-208	59	33	104	15	1223
25	78043	7356-5-2-IP-LB-IP-BP	L-550 x T-3	60	41	109	19	962
26	78044	7339-1-1-IH-LB-BH-BP	H-208 x E-100	78	51	129	16	929
27	78045	7398-13 2-IH-LB-IH-BP	K-850 x Pant-110	79	30	129	17	840
28	78046	73154-2-1-IH-LB-BH-BP	JG-62 x NO-42	78	39	129	11	556
29	78047	73385-5-IP-IP-BP	P 378 x P-3090	51	40	120	17	934
30	78048	74324-B-5P-IP-BP	L-550 x (JG-62xP-378)	51	33	115	10	651
31	78049	74640-3P-LB-IP-BP	(JG-62xChafa) x (E-100xP-436)	59	38	104	16	1001
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	60	35	105	10	723
33	78051	7498-B-2P-BH BP	BG-1 x P-3111	49	38	99	16	662
34	78052	7499-B-3P-BH-BP	G-130 x P-3111	53	35	102	15	612
35	78053	74141-B-IP-IH-BP	G-130 x JG-221	52	39	101	16	834
36	78054	74169-B-2P-IH BP	CP-66 x BEG-482	51	40	110	15	556
37	78055	74304-B-7P-IH-BP	P-1022 x (JG-62xChafa)	61	38	105	10	945
38	78056	74317-B-3P-IH-BP	Radhey x (JG-62xK-468)	52	40	105	10	767
39	78057	74288-B-3P-IH-BP	Pant-104 x (JG-62xC-235)	53	41	104	14	723
40	78058	7466-4-IP-IP-BP	RS-11 x (GW-5/7xL-550)	54	40	104	19	445
41	78059	74286-B-2P-IH-BP	P-4027 x (K-850xNO-56)	50	37	102	21	778
42	78060	7458-B-4P-IP-BP	(SP-405xH-208) x (RS-11xGW-5/7	51	33	96	23	834
43	78061	7458-B-4P-2P-BP	(SP-405xH-208) x (RS-11xGW-5/7	46	32	105	22	567
44	78062	74685-10P-LB-IP-BP	P-436 x (P-1387xP-378)	52	33	99	17	734
45	78063	74156-B-2H-IP-BP	JG-221 x C-235	49	34	102	15	612

Contd....Table 33

1	2	3	4	5	6	7	8	9
46	780[illegible]	741[illegible]3-2-IP-IP B[illegible]	(H-208xRS-11)x(JG-221xL-550)	49	33	104	1[illegible]	[illegible]3[illegible]
47	78065	7[illegible]1[illegible] B-I[illegible]-IP-[illegible]	[illegible]-2974 x G-130	76	33	129	15	88[illegible]
48	7806[illegible]	7[illegible]21 [illegible]-8P-IP-	[illegible]-1464 x F-378	53	36	105	1[illegible]	278
49	78067	7431[illegible]-[illegible]-7H-IH-[illegible]	Radhey x (JG-[illegible]2xK-468)	69	29	129	1[illegible]	[illegible]2
50	78068	74156-B-5H-IH-BP	C-235 x JG-221	49	35	102	13	55[illegible]
51	78069	741[illegible]9-[illegible]-3H-[illegible]	BEC-482 x C[illegible]-66	69	32	129	17	5[illegible]7
52	78070	7[illegible] 5 [illegible]-I -I[illegible]	L 550 x USA-[illegible]13	53	31	109	18	[illegible]
53	78071	7[illegible]2-6-4-I[illegible]-I[illegible]	H-208 x JG-221	57	38	104	18	55[illegible]
54	78072	733[illegible]-17-[illegible]-I[illegible]-[illegible]H-B[illegible]	H-208 x NO-56	53	33	105	1[illegible]	55[illegible]
55	78073	73119-[illegible]-1-IH-[illegible]H-P[illegible]	K-850 x H-223	59	33	104	18	105[illegible]
56	7807[illegible]	731[illegible]5-9 [illegible]-IH-[illegible]	JG-62 x NO-56	45	36	98	1[illegible]	723
57	78075	73219-2-1 [illegible]	F-404 x H-223	49	32	99	13	[illegible]5
58	78076	73129-1[illegible]-1-I -[illegible]	JG-62 x Radhey	52	32	103	18	9[illegible]5
59	78077	733[illegible]5-1-3-[illegible]	G-130 x [illegible]-1179	53	28	105	1[illegible]	55[illegible]
60	78078	73[illegible]1-10-[illegible]-IP-[illegible]	H-208 x N-59	54	31	104	17	1001
61		4951	JG-62[2]	54	33	105	15	1001
62		4913	Annigeri[2]	59	31	104	19	59[illegible]
63			BDN-9-3[2]	53	30	91	1[illegible]	10[illegible]7
			Mean	56	33	106	1[illegible]	811
			Range	45-79	25-41	95-129	11-25	25[illegible]-1[illegible]8
			CV(%)	11.6	9.9	18.0	15.1	[illegible].1

1 Not reported

2 Average of 6 plots

Table 34. Mean performance of entries for various plant characters ICSN-A 1978/79, Junagadh.

Cooperators : J.P. Yadavendra
K.V. Buhecha

Location : Junagadh

Country India

Latitude : 21°30'N
Longitude : 70°30'E
Altitude : 137
Local check : Chafa

Date Planted : 20-10-78
Rainfall(mm) : 5
Irrigation : 5
Row spacing : 30

Nitrogen (kg/ha) : 20
Phosphorus(kg/ha) : 40
Potassium(kg/ha) : 0
Date harvested : -1

Note: Plant stands were average. Pod borer and wilt were the major problems. Jassids caused some damage. Dimecron and Endosulphan were sprayed during flowering stage.

Plot area harvested (m^2) : 1.8

Sl. No.	ICCL-No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K-850 x N-59	46	35	103	18	706
2	78020	73153-15-1-2P-BP	JG-62 x GW-5/7	57	36	103	14	134
3	78021	73129-16-1-B-BP	JG 62 x Radhey	44	35	105	13	1017
4	78022	7389-18-3-B-BP	K-850 x F-378	61	38	107	21	956
5	78023	73111-B-2-B-BP	K-850 x H-208	**77**	35	**123**	14	901
6	78024	73136-3-3-2P-BP	JG-62 x BEG-482	47	34	99	14	934
7	78025	7394-18-2 IP-BP	K-850 x N-59	57	32	108	14	967
8	78026	73136-31-4-14-BP	JG-62 x BEG-482	46	32	103	13	1179
9	78027	73144 14-2-IP-BP	JG 62 x B-108	53	33	105	13	601
10	78028	73167-11-1-IPBP	JG-62 x F-496	**80**	34	123	12	334
11	78029	7394-18-3-IP-BP	K-850 x N-59	52	35	106	20	840
12	78030	7388-2-1-2P-BP	K-850 x F-61	59	39	106	16	934
13	78031	73167-8-1-IH-BP	JG-62 x F-496	**72**	39	107	13	940
14	78032	7341-8-1-B-BP	H-208 x N-59	**72**	35	113	14	428
15	78033	73103-10 2-IP-LB-IP	K-850 x Chafa	53	27	104	15	901
16	78034	73213-9-3-IP-LB-IP-BP	GW-5/7 x H-223	52	38	105	14	695

Contd....Table 34

1	2	3	4	5	6	7	8	9
17	78035	73217-4-1-IP-LB-BH-BP	F-404 x Ceylon-2	80	33	131	10	495
18	78036	73154-15-3-2H-LB-IH-BP	JG-62 x No-42	81	35	117	13	556
19	78037	73211-2-1-B-BP	Ceylon-2 x GW-5/7	65	37	106	13	906
20	78038	73190-6-3-IP-LB-IH-BP	F-378 x Chafa	47	32	98	14	1496
21	78039	73213-9-1-3H-LB-IH-BP	GW-5/7 x H-223	74	30	120	13	778
22	78040	73213-9-3-IP-LB-IH-BP	GW-5/7 x H-223	47	34	99	12	990
23	78041	73301-13-3-IH-LB-IH-BP	G-543 x Annigeri	57	32	108	14	1056
24	78042	73367-11-4-IP-LB-IH-BP	JG-62 x H-208	49	29	109	13	930
25	78043	7356-5-2-IP-LB-IP-BP	L-550 x T-3	74	39	126	20	1218
26	78044	7339-1-1-IH-LB-BH-BP	H-208 x E-100	90	29	134	11	773
27	78045	7398-13-2-IH-LB-IH-BP	K-850 x Pant-110	86	34	131	16	1496
28	78046	73154-2-1-IH-LB-BH-BP	JG-62 x NO-42	92	29	134	11	734
29	78047	73385-5-IP-IP-BP	F-378 x P-3090	57	38	108	19	767
30	78048	74324-B-5P-IP-BP	L-550 x (JG-62xF-378)	57	31	102	16	862
31	78049	74640-3P-LB-IP-BP	(JG-62xChafa) x (E-100xP-436)	57	28	98	13	891
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	56	34	99	12	1551
33	78051	7498-B-2P-BH-BP	BG-1 x P-3111	57	34	95	14	1735
34	78052	7499-B-3P-BH-BP	G-130 x P-3111	51	35	101	14	1658
35	78053	74141-B-IP-IH-BP	G-130 x JG-221	61	39	102	14	1735
36	78054	74169-B-2P-IH-BP	CP-66 x BEG-432	65	39	112	12	1045
37	78055	74304-B-7P-IH-BP	P-1022 x (JG-62xChafa)	53	33	99	14	1334
38	78056	74317-B-3P-IH-BP	Radhey x (JG-62xK-468)	57	34	100	14	1485
39	78057	74288-B-3P-IH-BP	Pant-104 x (JG-62xC-235)	57	37	101	11	973
40	78058	7466-4-IP-IP-BP	RS-11 x (GW-5/7xL-550)	72	38	116	18	784
41	78059	74286-B-2P-IH-BP	P-4027 x (K-850xNO-56)	57	45	108	17	1190
42	78060	7458-B-4P-IP-BP	(SP-405xH-208) x (RS-11xGW-5/7)	53	33	102	19	1429
43	78061	7458-B-4P-2P-BP	(SP-405xH-208)x(RS-11xGW-5/7)	49	40	104	20	945
44	78062	74685-10P-LB-IP-BP	P-436 x (P-1387xF-378)	56	39	105	14	1134
45	78063	74156-B-2H-IP-BP	JG-221 x C-235	65	36	115	15	980
46	78064	741663-2-IP-IP-BP	(H-208xRS-11)x(JG-221xL-550)	72	38	114	19	856
47	78065	7417-B-IP-IP-BP	P-2974 x G-130	81	36	130	13	651

Contd....Table 34

1	2	3	4	5	6	7	8	9
48	78066	7421-B-8P-IP-BP	P-1464 x F-378	77	35	119	12	423
49	78067	74317-B-7H-IH-BP	Radhey x (JG-62xK-468)	79	33	116	11	856
50	78068	74156-B-5H-IH-BP	C-235 x JG-221	61	35	105	11	962
51	78069	74169-B-3H-BH-BP	BEG-482 x CP-66	100	32	130	11	539
52	78070	7369-5-4-IP IP-BP	L-550 x USA-513	65	35	109	17	778
53	78071	7342-6-4-IH-IP-BP	H-208 x JG-221	46	39	99	12	1034
54	78072	7334-17-2-IH-PH-BP	H-20x x N0-56	61	34	108	10	895
55	78073	73119-4-1-IH-BH-BP	K-850 x H-223	58	37	111	15	1079
56	78074	73163-9-3-IH-BH-BP	JG-62 x N0-56	65	38	113	10	751
57	78075	73219-2-1-IH-BH-BP	F-404 x H-223	72	34	121	10	512
58	78076	73129-16-1-IP-IH-BP	JG-62 x Radhey	52	36	100	14	1401
59	78077	73365-1-3-IP-BH-BP	G-130 x P-1179	57	34	101	13	1118
60	78078	7341-10-2-IP-BH-BP	H-208 x N-59	51	39	112	13	712
61		4951	JG-62[2]	57	31	108	13	978
62		4918	Annigeri[2]	50	29	100	19	953
63			Chafa[2]	44	30	98	11	1086
			Mean	60	34	108	14	974
			Range	44-100	27-45	95-134	10-21	384-1735
			CV(%)	4.2	6.5	9.0	9.0	33.3

1 Not reported

2 Average of 6 plots

Table 35. Mean performance of entries for various plant characters ICSN-A 1978/79, Kanpur.

Cooperators: B.N. Natai
R.S. Dubey

Location : Kanpur

Country India

Latitude : 26° 26' N
Longitude : 80° 22' E
Altitude(m): 126
Local check: -1

Date Planted : 7-11-1978
Rainfall (mm) : 63
Irrigation : 2
Row spacing(cm): 30

Nitrogen(kg/ha) : 9
Phosphorus(kg/ha): 23
Potassium(kg/ha): 0
Date harvested : -1

Note: Plant stands were good The trial was free from pests and diseases.

Plot area harvested (m^2) : 1.8

Sl. No.	ICCL-No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K 850 x N 59	65	60	150	17	2227
2	78020	73153 15-1-2P-BP	JG-62 x GW-5/7	64	54	156	18	2836
3	78021	73129-16-1-B-BP	JG-62 x Radhey	65	62	148	18	3558
4	78022	7389-18-3-B-BP	K-850 x F-378	68	58	157	22	2419
5	78023	73111-8-2-B-BP	K-850 x H-208	81	58	145	15	3447
6	78024	73136-3-3-2P-BP	JG-62 x BEG-482	64	40	152	16	2391
7	78025	7394-18-2-IP-BP	K-850 x N-59	70	49	151	16	2502
8	78026	73136-31-4-IH-BP	JG-62 x BEG-482	71	48	159	15	2863
9	78027	73144-14-2-IP-BP	JG-62 x B-108	67	40	156	16	2724
10	78028	73167-11-1-IP-BP	JG-62 x F-496	70	55	156	18	3447
11	78029	7394-18-3-IP-BP	K-850 x N-59	69	60	152	21	1751
12	78030	7388-2-1 2P-BP	K 850 x F-61	79	54	154	19	2669
13	78031	73167-8-1-IH-BP	JG-62 x F-496	72	51	154	14	3614
14.	78032	7341-8-1-B-BP	H-208 x N-59	66	40	147	13	3336
15	78033	73103-10-2-IP-LB-BP	K 850 x chafa	72	61	142	16	2947

16	78034	73213-9-3-IP-LB-IP-BP	GW-5/7 x H-223	73	54	56	14	2613
17	78035	73217-4-1-IP-LB-BH-BP	F-404 x Ceylon-2	67	60	50	19	3336
18	78036	73154-15-3-2H-LB-IH-BI	JG-62 x NO-42	83	63	54	15	3169
19	78037	73211-2-1-B-BP	Ceylon-2 x GW-5/7	68	82	51	21	2224
20	78038	73190-6 3-IP-LB-IH-BP	F-378 x chafa	68	63	50	15	2780
21	78039	73213-9-1-3H-LB-IH-BP	GW-5/7 x H-223	83	60	42	10	3475
22	78040	73213-9-3-IP-LB-IH-BP	GW-5/7 x H-223	75	56	44	16	1779
23	78041	73301-13-3-IH-LB-IH-BI	G-543 x Annigeri	70	56	52	13	4231
24	78042	73367-11-4-IP-LB-IH-BI	JG-62 x H-208	70	64	52	13	2280
25	78043	7356-5-2 IP-LB-IP-BP	L-550 x T-3	81	65	47	20	3392
26	78044	7339-1-1-IH-LB-BH-BP	H-208 x E-100	75	46	52	13	3014
27	78045	7398-13-2-IH-LB-IH-BP	K-850 x Pant-110	83	55	56	21	3050
28	78046	73154-2-1 IH-LB-BH-BP	JG-62 x NO 42	82	56	54	27	2502
29	78047	73385-5-IP-IP-BP	F-378 x P-3090	75	86	47	22	2002
30	78048	74324-B-5P-IP-BP	L-550 x (JG-62xF-378)	82	68	56	19	1501
31	78049	74640-3P-LB-IP-BP	(JG-62xChafa) x (E-100xP 436	67	62	54	14	2558
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	68	53	54	16	3419
33	78051	7498-B-2P-BH-BP	BG 1 x P-3111	68	55	50	13	3092
34	78052	7499-B-3P-BH-BP	G-130 x P-3111	70	56	47	15	2502
35	78053	74141-B-IP-IH-BP	G-130 x JG-221	72	50	46	15	4003
36	78054	74169-B-2P-IH-BP	CP-66 x BEG-432	72	61	45	12	4003
37	78055	74304-B-7P-IH-BP	P-1022 x (JG-62xChafa)	68	50	48	14	3058
38	78056	74317-B-3P-IH-BP	Radhey x (JG-62 x K-468)	68	59	54	15	3336
39	78057	74288-B-3P-IH-BP	Pant-104 x (JG-62xC-235	70	59	56	14	1946
40	78058	7466-4-IP-IP-BP	RS-11 x (GW 5/7xL-550)	82	55	54	13	2236
41	78059	74286-B-2P-IH-BP	P-4027 x (K-850xNO-56)	73	59	54	16	2919
42	78060	7458-B-4P-IP-BP	(SP-405xH-208) x (RS-11x GW-5/7)	77	69	48	15	3169
43	78061	7458-B-4P-2P-BP	(SP-405x -208) x (RS-11x GW-5/7)	78	61	47	16	2919
44	78062	74685-10P-LB-IP-BP	P-436 x (P-1307xF-378)	80	58	46	20	2113
45	78063	74156 B-2H IP-BP	JG-221 x C-235	80	65	56	13	3169

Contd....Table 35

1	2	3	4	5	6	7	8	9
46	78064	741663-2-IP-IP-BP	(H-208xRS-11)x(JG-221xL-550)	90	60	154	17	3114
47	78065	7417-B-IP-IP-BP	P-2974 x G-130	75	55	145	16	2391
48	78066	7421-B-8P-IP-BP	P-1464 x F-378	82	55	142	14	4392
49	78067	74317-B-7L-IH-BP	Radhey x (JG-62xK 468)	68	60	140	12	2502
50	78068	74156-B-5H-IH-BP	C-235 x JG-221	82	61	148	14	3447
51	78069	74169-B-3H-BH-BP	BEG-482 x CP-66	66	58	146	14	1946
52	78070	7369-5 4-IP-IP-BP	L-550 x USA-613	81	62	146	18	3475
53	78071	7342 6-5-IH-IP-BP	H-208 x JG-221	67	60	154	18	2780
54	78072	7334-17-2-IH-BH-BP	H-208 x NO-56	70	63	154	15	3503
55	78073	73119-4-1-IH-BH-BP	K-850 x H-223	83	57	155	19	5282
56	78074	73163-9-3-IH-BH-BP	JG-62 x NO-56	67	51	156	13	3614
57	78075	73219-2-1-IH-BH-BP	F-404 x H-223	72	62	150	12	3447
58	78076	73129-16 1-IP-IH-BP	JG-62 x Radhey	66	58	149	16	2947
59	78077	73365-1-3-IP-BH-BP	G-130 x P-1179	63	61	148	18	4337
60	78078	7341-10-2-IP-BH-BP	H-208 x N-59	71	56	152	15	2780
61		4951	JG-62[2]	69	57	153	14	3716
62		4918	Annigeri[2]	76	56	150	17	1460
63		4948	G-130[2]	84	58	151	12	3540
		Mean		74	58	151	16	2989
		Range		63-90	40-86	140-159	12-27	1501-5282
		CV(%)		12.9	7.1	2.6	9.8	32.6

1 Not reported
2 Average of 6 plots

Table 36. Mean performance of entries for various plant characters, ICSN-A 1978/79, Puri.

Cooperator	: R.C. Misra	Location	: Puri	Country	: India
Latitude	: 20° 10'N	Date Planted	: 22-11-78	Nitrogen (kg/ha)	: 18
Longitude	: 85°10'E	Rainfall (mm)	: 16	Phosphorus (kg/ha)	: 46
Altitude(m)	: 120	Irrigation	: 0	Potassium (kg/ha)	: 0
Local check	: Warangal	Row spacing(cm)	: 30	Date harvested	: -[1]

Note: Plant stands were average to poor because of poor germination. Heliothis was the major problem and spread was checked by spraying sumithion, twice. Wilt killed a few plants in trial.

Plot area harvested (m^2) : 1.8

Sl. No.	ICCL-No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100[1] seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K-850 x N-59	57	21	100		556
2	78020	73153-15-1-2P-BP	JG-62 x GW-5/7	58	25	96		1334
3	78021	73129-16-1 B-BP	JG-62 x Radhey	60	31	98		834
4	78022	7389-18-3-B-BP	K-850 x F-378	59	31	103		556
5	78023	73111-8-2-B-BP	K-850 x H-208	62	28	104		973
6	78024	73136-3-3-2P-BP	JG-62 x BEG-482	55	35	105		1056
7	78025	7394-18-2-IP-BP	K-850 x N-59	53	33	107		834
8	78026	73136-31-4-IH-BP	JG-62 x BEG-482	65	33	108		945
9	78027	73144-14-2-IP-BP	JG-62 x B-108	62	35	108		1029
10	78028	73167-11-1-IP-BP	JG-62 x F-496	66	32	110		639
11	78029	7394-18-3-IP-BP	K-850 x N-59	44	31	107		834
12	78030	7388-2-1-2P-BP	K-850 x F-61	52	33	108		445
13	78031	73167-8-1-IH-BP	JG-62 x F-496	66	29	107		667
14	78032	7341-8-1-B-BP	H-208 x N 59	67	32	107		500
15	78033	73103-10-2-IP-LB-BP	K-850 x Chafa	56	26	109		278
16	78034	73213-9-3-IP-LB-IP-BP	GW-5/7 x H-223	54	28	106		751
17	78035	73217-4-1-IP-LB-BH-BP	F-404 x Ceylon-2	70	30	108		473
18	78036	73154-15-3-2H-LB-IH-BP	JG-62 x NO-42	75	31	111		695

Contd....Table 36

1	2	3	4	5	6	7	8	9
19	78037	73211-2-1-3-BP	Ceylon 2 x GW-5/7	50	32	108		723
20	78038	73190-6-3-IP-LB-IH-BP	F-378 x Chafa	45	30	105		500
21	78039	73213-9-1-3P-LB-IH-BP	GW-5/7 x H-223	67	42	110		1056
22	78040	73213-9-3-IP-LB-IH-BP	GW-5/7 x H-223	54	38	108		917
23	78041	73301-13-3-IH-LB-IH-BP	G-543 x Annigeri	66	34	108		1029
24	78042	73367-11-4-IP-LB-IH-BP	JG-62 x H-208	54	29	105		723
25	78043	7356 5-2-IP-LB-IP-BP	L-550 x T-3	67	37	110		973
26	78044	7339-1-1-IH-LB-BH-BP	H-208 x E-100	80	32	113		278
27	78045	7398-13-2-IH-LB-IH-BP	K 850 x Pant-110	70	31	107		695
28	78046	73154-2-1-1-LB-BH-BP	JG-62 x NO-42	73	30	115		556
29	78047	73385-5-IP-IP-BP	F-378 x P-3090	55	41	108		473
30	78048	74324-8-5P-IP-BP	L-550 x (JG-62xF-378)	64	29	110		167
31	78049	74640?3P-LB-IP-BP	(JG-62xchāfa) x (E-100xP-436)	51	29	104		1084
32	78050	7499-B-7H-BH-BP	P-3111 x-G-130	55	29	105		1279
33	78051	7498-B-2P-3H-BP	BG-1 x P-3111	52	29	108		1251
34	78052	7499-B-3P-BH-BP	G-130 x P-3111	61	33	108		1140
35	78053	74141-B-IP-IH-BP	G-130 x JG-221	55	34	107		1390
36	78054	74169-B-2P-IH-BP	P-1022x BEG-432	62	29	108		862
37	78055	74304-3-7P-IH-BP	P-102 x (JG-62xchafa)	52	33	102		1140
38	78056	74317-B-3P-IH-BP	Radhey x (JG-62xK-468	52	30	100		723
39	78057	74288-B-3P-IH-BP	Pant-104 x (JG-62xG-235)	56	30	102		712
40	78058	7466-4-IP-IP-BP	RS-11 x (GW-5/7xL-550)	65	31	107		389
41	78059	74286-B-2P-IH-BP	P 4027 x (K-850xNO-56)	59	35	110		639
42	78060	7458-B-4P-IP-BP	(SP-405 x H-208)x(RS-11xGW-5/7)	60	36	111		250
43	78061	7458-B-4P-2P-BP	(SP-405 x H-208)x(RS-11xGW-5/7)	64	41	112		639
44	78062	74685-10P-LB-IP-BP	P-436 x (P-1387xF-378)	54	28	105		222
45	78063	74156-B-2H-IP-BP	JG-221 x C-235	67	27	110		667
46	78064	741663-2-IP-IP-BP	(H-208xRS-11) x (JG-221xL-550)	61	28	108		278
47	78065	7417-B-IP-IP-BP	P-2974 x G 130	51	33	113		639
48	78066	7421-B-3P-IP-BP	P-1464 x F-378	71	36	110		500
49	78067	74317-B-7P-IH-BP	Radhey x (JG-62xK-468)	58	32	110		556
50	78068	74156-B-5H-IH-BP	C-235 x JG-221	68	28	102		612

Contd....Table 36

1	2	3	4	5	6	7	8	9
51	78069	74169 B-3H-BH-BP	BEG-482 x CP-66	81	33	111		612
52	78070	7369-5-4-IP-IP-BP	L-550 x USA-613	51	30	101		584
53	78071	7342-6-4-14-IP-BP	H 208 x JG-221	50	29	106		1112
54	78072	7334-17-2-IH-BH-BP	H-208 x NO-56	61	28	108		890
55	78073	73119-4-1-IH-BH-BP	K-850 x H-223	55	36	110		1168
56	78074	73163-9-3-IH-BH-BP	JG-62 x NO-56	65	30	102		917
57	78075	73219-2-1-IH-BH-BP	F-404 x H-223	71	30	107		723
58	78076	73129-16-1-IP-IH-BP	JG-62 x Radhey	52	28	101		834
59	78077	73365-1-3-IP-BH-BP	G-130 x P-1179	50	28	108		1001
60	78078	7341-10-2-IP-BH-BP	H-208 x N-59	52	32	109		834
61		4951	JG-62	52	26	95		765
62		4918	Annigeri [2]	50	26	101		417
63			Warangal [2]	77	32	107		672
		Mean		60	31	106		726
		Range		44-81	21-42	96-115		167-1390
		CV(%)		11.6	7.4	3.5		25.9

1 Not reported.
2 Average of 6 plots.

Table 37. Mean performance of entries for various plant characters, ICSN-A 1978/79, Rahuri.

Cooperator : R.B. Deshmukh | Location : Rahuri | Country : India

Latitude : 19°24'N | Date planted : 18-10-78 | Nitrogen (kg/ha) : 15
Longitude : 74°39'E | Rainfall (mm) : 77 | Phosphorus (kg/ha) : 40
Altitude (m) : 657 | Irrigation : 2 | Potassium (kg/ha) : 0
Local check : Phule G-4 | Row spacing (cm) : 30 | Date harvested : -

Note: Plant stands were average to poor. Pod borer was the major problem. Endosulphan was sprayed once and two weedings were done.

Plot area harvested (m^2) - 1.5

Sl. No.	ICCL-No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm.	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K-850 x N-59	49	31	116	21	60
2	78020	73155-15-1-2P-BP	JG-62 x GW-5/7	54	33	114	20	1001
3	78021	73129-16-1-B-BP	JG-62 x Radhey	49	36	114	18	1267
4	78022	7389-18-3-B-BP	K-85 x F-378	55	37	116	27	934
5	78023	73111-8-2-B-BP	K-85 x H-208	63	36	116	17	1534
6	78024	73136-3-3-2P-BP	JG-6 x BEG-482	52	35	114	19	1201
7	78025	7394-18-2-IP-BP	K-850 x N-59	58	33	116	19	800
8	78026	73156-31-4-IH-BP	JG-62 x BEG-482	55	37	114	16	1134
9	78027	73144 14-2-IP-BP	JG-62 x B-108	59	34	114	21	1134
10	78028	73167-11-1-IP-BP	JG-62 x F-496	66	35	116	14	400
11	28029	7394-18-3-IP-BP	K-850 x N-59	53	35	117	24	934
12	78030	7388-2-1-2P-BP	K-850x F-61	57	42	116	18	1534
13	78031	73167-8-1-IH-BP	JG-62x F-496	68	38	121	15	1668
14	78032	7341-8-1-B-BP	H-208x N-59	71	37	121	14	667
15	78033	73103-10-2-IP-LB-BP	K-850 x Chafa	65	30	121	19	400

Contd....Table 37

16	78034	73213-9-3-IP-LB-IP-BP	GW-5/7 x H-223	64	35	20	15	201
17	78035	73217-4-1-IP-LB-BH-BP	F-404 x Ceylon-2	66	34	18	14	934
18	78036	73154-15-3-2H-LB-IH-BP	JG-62 x N0-42	73	37	21	14	400
19	78037	73211-2-1-B-BP	Ceylon-2 x GW-5/7	54	35	18	21	001
20	78038	73190-6-3-IP-LB-IH-BP	F-378 x Chafa	54	31	18	15	867
21	78039	73213-9-1-3H-LB-IH-BP	GW-5/7 x H-223	67	34	21	16	401
22	78040	73213-9-3-IP-LB-IH-BP	GW-5/7 x H-223	55	28	21	14	800
23	78041	73301-13-3-IH-LB-IH-BP	G-543 x Annigeri	67	28	16	15	134
24	78042	73367-11-4-IP-LB-IH-BP	JG 62 x H-208	71	33	18	18	934
25	78043	7356-5-2-IP-LB-IP-BP	L-550 x T-3	66	30	15	19	334
26	78044	7339-1-1-IH-LB-BH-BP	H-208 x E-100	73	38	21	27	667
27	78045	7398-13-2-IH-LB-IH-BP	K-850 x Pant-110	73	36	24	13	534
28	78046	73154-2-1-IH-LB-BH-BP	JG-62 x N0-42	71	44	20	23	667
29	78047	73385-5-IP-IP-BP	F-378 x P-3090	63	27	16	22	667
30	78048	74324-B-5P-IP-BP	L-550 x (JG-62xF-378)	70	24	13	17	133
31	78049	74640-3P-LB-IP-BP	(JG-62xChafa)x(E-100xP 436)	70	22	16	16	467
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	68	28	15	16	500
33	78051	7498-B-2P-BH-BP	BG-1 x P-3111	66	29	14	17	134
34	78052	7499-B-3P-BH-BP	G-130 x P-3111	68	27	18	15	734
35	78053	74141-B-IP-IH-BP	G-130 x JG-221	63	28	16	17	934
36	78054	74169-B-2P-IH-BP	CP-66 x BEG-432	72	34	20	13	867
37	78055	74304-B-7P-IH-BP	P-1022 x (JG-62xChafa)	55	29	16	17	067
38	78056	74317-B-3P-IH-BP	Radhey x (JG-62 x K-468)	61	37	18	16	667
39	78057	74288-B-3P-IH-BP	Pant-104 x (JG-62 x C-235)	63	28	18	13	534
40	78058	7466-4-IP-IP-BP	RS-11 x (GW-5/7xL-550)	73	37	18	22	734
41	78059	74286-B-2P-IH-BP	P-4027 x (K-850xN0-56)	68	33	20	17	267
42	78060	7458-B-4P-IP-PP	(SP-405xH-208) x (RS-11xGW-5/7)	70	20	20	22	667
43	78061	7458-B-4P-2P-BP	(SP-405xH-208) x (RS-11xGW-5/7)	67	33	22	13	334
44	78062	74685-10P-LB-IP-BP	P-436 x (P-1387xF-378)	65	35	14	15	934
45	78063	74156-B-2H-IP-BP	JG-221 x C-235	73	35	26	14	401
46	78064	741663-2-IP-IP-BP	(H-208xRS-11)x(JG-221xL-550)	73	40	18	21	600
47	78065	7417-B-IP-IP-BP	P-2974 x G-130	73	39	23	17	601
48	78066	7421-B-8P-P-BP	P-1464 x F-378	72	34	21	15	501

Con Table 37

1				5				9
49	78067	74317-6-7H-1H-BP	Radhey x (JG-62xK-468	70	30	124	13	53+
50	78068	74156-B-5H-1H-BP	C-235 x JG-221	55	28	101	13	535
51	78069	74109-B-3H-BH-BP	BEG-482 x CP-6[illegible]	73	34	103	14	934
52	78070	7369-5-4-IP-IP-BP	L-550 x USA-613	59	26	118	15	267
53	78071	7342-6-4-1H-IP-BP	H-208 x JG-221	57	28	116	18	867
54	78072	7334-17-2-1H-BH-BP	H-208 x NO-56	73	26	116	13	534
55	78073	73119-4-1-1H-BH-BP	K-850 x H-223	68	25	120	15	100
56	78074	73103-9-3-1H-BH-BP	JG-62 x NO-56	68	28	114	13	300
57	78075	73219-2-1-1H-BH-BP	F-404 x H-223	73	27	122	13	267
58	78076	73129-1[illegible]-1-IP-1H-BP	JG-62 x Radhey	51	33	116	21	867
59	78077	73365-1-3-IP-BH-BP	G-130 x P-1179	58	28	120	16	334
60	78078	7341-10-2-IP-BH-BP	H-208 x N-59	67	27	121	17	467
61		1951	JG-62[2]	54	31	114	16	401[2]
62		49.8	Annigeri[2]	58	27	114	20	723[2]
63			Phule G-4[2]	56	31	112	23	784[2]
			Mean	63	32	117		
			Range	49-73	20-44	1-126	-27	100-1934
			CV(%)		6.4	3.1	5.0	19.9

t reported
erage of [illegible] p

Table 38. Mean performance of entries for various plant characters, ICSN-A 1978/79, Varanasi.

Cooperators	: R.B. Singh, J.K. Singh	Location	: Varanasi	Country	: India
Latitude	: 20°18' N	Date planted	: 26-10-78	Nitrogen (kg/ha)	: 15
Longitude	: 83°03 E	Rainfall(mm)	: 114	Phosphorus(kg/ha)	: 40
Altitude(m)	: 128.93	Irrigation	: 1	Potassium(kg/ha)	: 0[1]
Local check	: Type 3	Row spacing(cm)	: 30	Date harvested	: -

Note: Plant stands were poor. Early planting caused over growth and excessive vegetative growth and reduced the yield. Pod borer caused some damage Endosulphan was sprayed during flowering.

Plot area harvested (m^2) - 1.5

Sl. No.	ICCL-No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78019	7394-14-2-B-BP	K-850 x N-59	95	72	161	14	1781
2	78020	73153-15-1-2P-BP	JG-62 x GW-5/7	84	71	161	17	1870
3	78021	73129-16-1-B-BP	JG-62 x Radhey	84	75	157	14	2228
4	78022	7389-18-3-B-BP	K-850 x F-378	84	72	161	16	636
5	78023	73111-8-2-B-BP	K-850 x H-208	84	75	157	14	2431
6	78024	73136-3-3-2P-BP	JG-62 x BEG-482	81	80	157	18	1677
7	78025	7394-18-2-IP-BP	K-850 x N-59	87	67	161	14	1416
8	78026	73136-31-4-IH-BP	JG-62 x BEG-482	76	81	157	15	1537
9	78027	73144-14-2-IP-BP	JG-62 x B-108	87	83	157	15	2059
10	78028	73167-11-1-IP-BP	JG-62 x F-496	81	75	157	16	2307
11	78029	7394-18-3-IP-BP	K-850 x N-59	95	76	163	14	1339
12	78030	7388 2-1-2P-BP	K-850 x F-61	84	76	157	18	2773
13	78031	73167-8-1-IH-BP	JG-62 x F-496	84	68	157	17	2918
14	78032	7341-8-1-B-BP	H-208 x N-59	95	-[1]	157	19	1336

15	78033	73103-10-2-IP-LB-BP	K-850 x Chafa	77	81	.54	17	1802
16	78034	73213-9-3-IP-LB-IP-BP	GW-5/7 x H-223	79	72	.54	15	2949
17	78035	73217-4-1-IP-LB-BH-BP	F-404 x Ceylon-2	87	62	.57	14	982
18	78036	73154-15-3-2H-LB-IH-BP	JG-62 x N0-42	91	74	.57	13	1130
19	78037	73211-2-1-B-BP	Ceylon-2 x GW-5/7	84	84	.57	13	3012
20	78038	73190-6-3-IP-LB-IH-BP	F-378 x Chafa	76	75	.57	14	903
21	78039	73213-9-1-3H-LB-IH-BP	GW-5/7 x H-223	95	63	.57	15	1270
22	78040	73213-9-3-IP-LB-IH-BP	GW-5/7 x H-223	84	72	.57	16	1503
23	78041	73501-15-3-1-1-IH-BP	G-543 x Annigeri	95	63	.57	13	893
24	78042	73367-11-3-1P-LB-IH-BP	JG-62 x H-208	91	60	.57	12	1496
25	78043	7356-5-2-IP-LB-IP-BP	L-550 x T-3	81	74	.57	14	1972
26	78044	7358-1-1-IH-LB-BH-BP	H-208 x E-100	87	71	54	15	1137
27	78045	7398-15-2-IH-LB-IH-BP	K-850 x Pant-110	91	75	57	14	87[illegible]
28	78046	73154-2-1-1P-LB-2H-BP	JG-62 x N0-42	91	73	54	14	820
29	78047	73385-5-IP-IP-BP	F-378 x P-3090	84	73[1]	57	13	2402[1]
30	78048	74324-B-5P-IP-BP	L-550 x (JG-62 x F-378)	95	-		-	-
31	78049	74640-3P-LB-IP-BP	(JG-62 xChafa) x (E-100xP-436)	79	68	5	13	2163
32	78050	7499-B-7H-BH-BP	P-3111 x G-130	76	63	5	14	3664
33	78051	7495-B-2P-BH-BP	BG-1 x P-3111	84	74	6	15	300
34	78052	7499-B-3P-BP-BP	G-130 x P-3111	91	73	5	14	2335
35	78053	74171-B-IP-L-BP	G-130 x JG-221	91	65	5	17	1327
36	78054	74169-B-2P-IH-BP	CP-66 x BEGx482	84	74	5	12	3230
37	78055	74304-B-7P-IH-BP	P-1022 x (JG-62 x Chafa)	79	73	5	15	1537
38	78056	74317-B-3P-IH-BP	Radhey x (JG-62xK-468)	79	65	5	15	2551
39	78057	74288-B-3P-IH-BP	Pant-104 x (JG-62xC-235)	79	60	5	18	2995
40	78058	7466-4-IP-IP-BP	RS-11 x (GW-5/7 x L-550)	95	64	5	17	2322
41	78059	74286-B-2P-IH-BP	P-4027 x (K-850xN0-56)	87	64	5	13	2438
42	78060	7458-B-3P-IP-BP	(SP-405xH-208)x(RS-11xGW-5/7)	91	70	6	17	1163
43	78061	7458-B-4P-2P-BP	(SP-405xH-208)x(RS-11xGW-5/7)	95	70	6	14	895
44	78062	74685-10P-LB-IP-BP	P-436 x (P-1387 xF-378)	91	69	6	17	1273
45	78063	74156-B-2H-IP-BP	JG-221 x C-235	84	73	6	13	1617

Contd....Table 38

1	2	3	4	5	6	7	8	9
46	78064	741663-2-IP-IP-BP	(H-208xRS-11)x(JG-221xL-550)	87	70	161	14	880
47	78065	7417-B-IP-IP-BP	P-2974 x G-130	95	67	161	15	823
48	78066	7421-B-8P-IP-BP	P-1464 x F-378	81	72	157	17	1437
49	78067	74317-B-7H-IH-BP	Radhey x (JG-62xK-469)	84	64	157	16	1796
50	78068	74156-B-5H-IH-BP	C-235 x JG-221	87	49	157	13	1017
51	78069	74169-B-3H-BH-BP	BEG-482 x CP-66	95	73	157	15	1009
52	78070	7369-5-4-IP-IP-BP	L-550 x USA-613	84	69	157	14	1957
53	78071	7342-6-4-IH-IP-BP	H-208 x JG-221	79	61	157	19	1307
54	78072	7334-17-2-IH-BH-BP	H-208 x N0-56	81	75	157	15	2874
55	78073	73119-4-1-IH-BH-BP	K-850 x H-223	91	71	154	12	1542
56	78074	73163-9-3-IH-BH-BP	JG-62 x N0-56	84	68	157	17	2136
57	78075	73219-2-1-IH-BH-BP	F-404 x H-223	95	66	157	16	1403
58	78076	73129-16-1-IP-IH-BP	JG-62 x Radhey	79	66	157	13	2777
59	78077	73365-1-3-IP-BH-BP	G-130 x P-1179	76	64	157	12	2464
60	78078	7341-10-2-IP-BH-BP	H-208 x N-59	79	68	157	16	2139
61		4951	JG-62[2]	76	73	154	15	2339
62		4918	Annigeri[2]	76	68	157	16	1242
63			Type-3[2]	83	66	161	19	2292
			Mean	84	68	158	15	1825
			Range	76-95	49-84	154-163	12-19	300-3230
			CV(%)	2.6	9.1	1.0	14.3	30.7

1 Data not reported

2 Average of 6 plots

JG-62 and Annigeri gave overall seed yields of 1550 and 1032 kg seed per hectare, respectively (Table 39). Among the lines the highest yielders were ICCL-78053 (JG-221 x G-130) and 78054 (CP-66 x BEG-482) and these and several other lines gave significantly higher yields than Annigeri. As in the other trials there were pronounced interactions among genotypes and environments. Only one entry, 78050 appeared among the top five entries at five out of 10 locations and two others, 78053 and 78073 at four locations. At only three of the ten locations did one or more line produce significantly better yields than the best check.

Among the fifteen entries common to two years there was similar inconsistency of performance (Table 40). The highest yielders in the two years were 78021 and 78020 and these were relatively consistent but the poorest yielder in 1977-78 (78031) was top in 1978-79 while 78023 the third from bottom in 1977-78 was third from the top in 1978-79. Other entries, 78019 and 78025, ranked 4th and 5th in 1977-78 and 13th and 14th in 1978-79.

Days to 50% flowering tended to be positively correlated with plant height and days to maturity but correlations among other characters were in general low and inconsistent (Table 41).

Table 39. Mean seed yield(kg/ha) and ranks of ICSN-A entries grown at different locations in 1978-79.

Sl. No.	ICC/ ICCL No.	Comilla Bangladesh		Feni Bangladesh		Debre-Zeit Ethiopia		Akola India		Badnapur India	
		Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank
1	2	3		4		5		6		7	
1	78019	1210	18	2724	19	1396	9	625	52	723	23
2	78020	1026	26	2546	26	1301	13	1012	21	1223	4
3	78021	1313	12	2724	19	1195	19	684	49	1223	4
4	78022	873	32	2708	21	995	29	774	45	1668	1
5	78023	1974	1	2263	35	812	42	952	25	612	42
6	78024	-	-	2002	42	1379	11	803	42	1346	2
7	78025	423	50	1351	58	945	31	803	42	612	42
8	78026	1346	9	2335	31	1123	22	833	37	723	33
9	78027	1212	17	1885	49	845	40	833	37	584	46
10	78028	1343	10	2641	23	1674	3	1398	4	556	52
11	78029	147	55	2558	25	550	51	655	50	945	13
12	78030	147	55	1779	50	234	60	1041	20	667	36
13	78031	398	51	3308	1	528	53	1489	2	778	25
14	78032	1009	27	2752	17	1657	4	595	54	612	42
15	78033	145	57	2769	16	912	33	893	31	801	24
16	78034	828	35	2057	39	706	44	1131	12	1073	6
17	78035	1749	4	2797	12	873	38	595	54	762	29
18	78036	1151	22	2307	32	1001	28	655	50	828	23
19	78037	612	45	2207	38	1051	25	417	59	767	27
20	78038	548	48	1946	45	1251	16	833	37	834	20
21	78039	339	53	2546	26	1346	12	1190	10	612	42
22	78040	520	49	2013	40	1257	15	1071	17	1012	8
23	78041	1183	21	2836	9	878	37	833	37	256	60
24	78042	639	42	2402	30	1390	10	714	47	1223	4
25	78043	620	44	1990	43	979	30	1607	1	962	11
26	78044	1793	3	3002	8	628	47	417	59	929	15

ntd....Table 39

.No.	Junagadh India		Kanpur India		Puri India		Rahuri India		Varana i India		Average	
	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank
1	8		9		10		11		12		13	
1	706	49	2224	53	556	45	600	45	1731	29	1255	41
2	134	60	2835	36	1334	2	1001	22	1870	25	1428	19
3	1017	20	3558	11	834	21	1267	13	2228	14	1605	6
4	956	26	2419	48	556	45	934	26	636	53	1252	42
5	901	33	3447	16	973	15	1534	5	2431	13	1591	7
6	931	29	2391	49	1056	10	1201	15	1677	30	1421	20
7	967	24	2502	45	834	24	800	33	1416	39	1085	56
8	1179	13	2863	34	945	17	1134	18	1531	35	1402	22
9	601	52	2724	40	1029	12	1134	18	2059	22	1291	39
0	384	59	3447	16	639	38	400	54	2307	17	1479	14
1	340	60	1751	59	834	21	934	26	1339	41	1055	57
2	934	29	2669	41	445	53	1534	5	2773	8	1227	44
3	940	28	3614	9	667	35	1668	2	2918	6	1631	5
4	428	57	3336	22	500	49	667	40	1316	42	1289	37
5	901	33	2947	30	278	56	400	54	1802	27	1185	49
6	695	50	2613	42	751	27	1201	15	2910	5	1401	23
7	495	56	3336	22	473	51	1934	1	982	51	1400	25
8	556	53	3169	25	695	33	400	54	1139	48	1189	47
9	906	32	2224	53	723	29	1001	22	3012	3	1292	35
0	1496	5	2780	38	500	49	867	31	603	52	1197	46
1	778	42	3475	13	1056	10	1401	9	1270	45	1401	23
2	990	21	1779	58	917	18	800	33	1503	36	1186	48
3	1056	18	3281	4	1029	12	1134	18	888	54	1437	18
4	930	31	2280	52	723	29	934	26	1496	37	1273	39
5	1218	11	3392	20	973	15	1334	11	1972	23	1505	10
6	773	44	3614	9	278	56	667	40	1137	47	1324	31

ntd....Table 39

27	78045	.412	8		55	1034	27	1220	9	840	17
28	78046	.321	11	3102	6	1579	6	893	31	556	52
29	78047	.384	52	1485	57	828	41	952	25	834	20
30	78048	667	40	1734	52	912	33	476	57	651	39
31	78049	809	37	2780	14	856	39	833	37	1001	9
32	78050	.201	20	3114	5	1612	5	833	37	723	33
33	78051	.043	25	1929	47	1162	21	1071	17	662	37
34	78052	575	47	2708	21	1557	7	1101	14	612	42
35	78053	917	30	3169	3	2374	1	952	25	834	20
36	78054	.234	16	3004	7	1212	18	1279	7	556	52
37	78055	906	31	2724	19	1223	17	1250	8	945	13
38	78056	817	36	2780	14	695	46	1190	10	767	27
39	78057	990	28	1890	18	1468	8	714	47	723	33
40	78058	603	46	2780	14	1851	2	803	42	445	57
41	78059	626	43	2274	34	801	43	952	25	778	25
42	78060	181	54	2301	32	923	32	417	59	834	20
43	78061	68	58	2013	40	523	54	1071	17	567	47
44	78062	33	59	2836	9	617	48	595	54	734	30
45	78063	973	29	1946	45	706	44	952	25	612	42
46	78064	695	39	2002	42	539	52	1012	21	834	20
47	78065	726	38	1301	59	1279	14	922	29	884	16
48	78066	870	33	3152	4	906	35	952	25	278	59
49	78067	.429	7	1640	54	434	57	1071	17	662	37
50	78068	662	41	1779	50	1051	25	309	6	556	52
51	78069	311	13	1668	53	417	58	774	45	567	47
52	78070	853	34	917	60	1168	20	131	12	445	57
53	78071	.743	5	3186	2	417	58	893	31	556	52
54	78072	.462	6	1557	56	578	50	536	56	556	52
55	78073	.815	2	2519	28	523	54	428	3	1056	7
56	78074	.284	13		11	489	56	369	5	723	33
57	78075	.209	19		37	595	49	833	37	445	57
58	78076	.140	23		29	834	36	774	45	945	13

td Table 3

27	496	5	3058	28	695	33	534	48	878	54	274	38
28	734	47	2502	45	556	45	667	40	820	57	273	39
29	767	45	2002	55	473	51	667	40	2402	17	070	55
30	862	37	1501	60	167	60	133	59	-1	-	785	60
31	891	36	2558	43	084	9	467	51	2163	20	344	29
32	551	4	3419	10	279	3	500	50	3663	1	620	3
33	735	1	3802	7	251	1	134	18	300	57	317	21
34	668	3	2502	35	140	6	734	35	2310	17	173	12
35	735	1	4003	5	320	1	534	26	1527	9	761	1
36	045	19	4003	5	852	21	367	31	3270	2	722	2
37	334	10	3058	28	140	6	067	21	1537	34	518	8
38	485	7	3336	22	723	29	667	40	2551	19	501	11
39	973	23	1916	56	712	32	534	48	2927		295	35
40	784	41	2836	35	389	54	73	35	2329	17	755	28
41	190	12	2919	32	639	38	267	13	2193	11	3 5	27
42	420	8	3169	25	250	58	667	40	1165	11	151	52
43	945	27	2919	32	639	38	334	11	805	55	017	53
44	134	14	2113	54	222	52	934	26	1273	1	041	58
45	980	22	3169	25	667	35	401	9	1617	34	302	32
46	356	38	3111	27	278	56	600	45	880	37	091	51
47	651	51	2581	40	639	38	601	3	1621	31	202	45
48	423	58	4302	2	500	49	501	8	1437	32		
49	856	38	2502	45	556	45	534	5	1726	28	248	43
50	962	25	3447	16	612	41	534	5	1017	56	203	34
51	539	54	1946	56	612	41	934	26	1084	1	086	59
52	778	12	3475	13	584	43	267	57	1857	21	150	51
53	084	16	2780	38	112	8	867	31	1866	28	150	16
54	895	35	3503	12	800	20	534	48	2874	7	336	30
55	070	17	5282	1	168	5	100	60	1513	35	652	1
56	751	46	3614	9	917	18	600	45	2186	11	173	15
57	512	55	3447	16	723	29	267	57	1103	40	166	50
58	401	9	2917	30	834	21	667	40	2777	3		

Contd....Table 39

1	2	3	4	5	6	7
59	78077	1123 24	2235 36	1101 23	839 33	556 52
60	78078	1282 15	2535 24	1084 24	1071 17	1001 9
61	4951	1140	1073	1123	928	1012
62	4918	482	2561	750	833	896
63	4948 or local check	1304	1522	792	796	1067
	Mean	934	2344	984	923	811
	Range	(33-1974)	(917-3308)	(284-2374)	(417-1607)	(256-1668)
No. of lines exceeding best check by 1SD		3	8	7	11	1
		2SD 0				0

Contd....Table 39

1	8	9	10	11	12	13
59	1118 15	4337 3	1001 14	334 56	2461 12	1511 9
60	712 48	2780 38	834 24	467 51	2139 21	1396 26
61	978	3716	765	1401	2338	1558
62	958	1460	417	723	1242	1032
63	1088	3540	672	784	2252	1386
	974	2989	726	912	1956	1336
	(134-1735)	(1501-5282)	(112-1300)	(100-1934)	(300-3664)	(789-1764)
	8	1	15	2	3	
	0	0	0	0	1	

Table 40. Performance of common entries in ICSN-A 1977-78 & 1978-79.

ICCL No.	Yield kg/ha		
	77-78[1]	78-79[1]	77/78-78/79
78019	1639 (4)	1155 (13)	1397 (11)
78020	1698 (1)	1428 (5)	1563 (2)
78021	1591 (6)	1605 (2)	1598 (1)
78022	1587 (7)	1252 (10)	1420 (9)
78023	1494 (13)	1591 (3)	1543 (3)
78024	1652 (3)	1421 (6)	1537 (4)
78025	1594 (5)	1065 (14)	1330 (14)
78026	1668 (2)	1402 (7)	1535 (5)
78027	1489 (14)	1291 (8)	1390 (12)
78028	1522 (11)	1479 (4)	1501 (7)
78029	1521 (12)	1055 (15)	1288 (15)
78030	1585 (8)	1227 (11)	1406 (10)
78031	1436 (15)	1631 (1)	1534 (6)
78032	1565 (10)	1289 (9)	1423 (8)
78033	1582 (9)	1185 (12)	1384 (13)
Mean	1575	1338	1457
JG-62	1741	1032	1387

[1] Average of 10 locations.

Table 41. Correlation coefficients between all possible pairs of traits for ICSN-A entries at each location.

Character combination	Comilla Bangladesh	Feni Bangladesh	Debre Zeit Ethiopia	Akola India	Badnapur India	Junagadh India	Kanpur India	Puri India	Rahuri India	Varanasi India
Days to 50% flowering										
Plant height	-.15	.49	.35	.27	.11	-.14	.19	.28	.03	-.11
Days to maturity	-.05	.53	.03	.31	.30	-.10	-.11	.43	.48	.46
Yield (kg/ha)	.44	-.13	-.16	-.04	.10	.20	.03	-.12	-.15	-.30
g/100 seed	-.09	-.27	-.01	-.20	.03	.11	.01	-.59	-.06	-.01
Plant height										
Days to maturity	.37	.20	-.04	.17	.25	.20	-.16	.57	.09	-.20
Yield (kg/ha)	.39	.21	.28	.22	-.01	-.05	-.14	.20	.41	-.04
g/100 seed	.36	-.01	.03	-.08	-.09	.03	.21	-.05	.02	.03
Days to maturity										
Yield (kg/ha)	.37	-.37	.04	-.13	-.05	-.41	.02	-.10	-.07	-.20
g/100 seed	.66	-.04	-.01	.01	-.13	-.16	.16	-.21	.04	.30
Yield (kg/ha)										
g/100 seed	.12	.17	.11	-.10	.20	.23	-.31	-.13	-.17	.06

r = .278 at P = 05,76 df.

INTERNATIONAL CHICKPEA SCREENING NURSERY-B (ICSN-B)

Entries

ICSN-B was distributed for the third year and the number of entries was increased from 60 to 80 to make available a wider range of long duration materials in those areas which are the main producers of chickpea.

The 80 test entries included twenty lines which had shown good performance over locations in ICSN-B in 1977-78 and sixty new F_5 to F_7 lines from progeny tests at Hissar in that year. There were three checks one of which (Annigeri), cooperators were invited to replace with their best local cultivar. The names and pedigrees of the entries are shown in the individual location tables 43 to 52.

Locations

ICSN-B was supplied to 17 locations in four countries (Tables 1 and 2), all for winter planting. Ten cooperators reported results including eight from India (Dholi, Bihar; Faizabad, Kanpur, Pantnagar and Varanasi, all from U.P.; ICRISAT-Hissar, Haryana; Ludhiana, Punjab; and Palampur, Himachal Pradesh) and one each from Nepal (Parwanipur) and Pakistan (Dokri). The crop was damaged at Ranchi because of a hail storm, and at HAU, Hissar and Berhampore, by excessive vegetative growth leading to lodging. There was no report from three locations in Pakistan and from Mexico.

Trial Management

The design and layout of the trial and the observations to be recorded were the same as for ICSN-A and are described in the previous section.

Results

Days to 50% flowering ranged from 71 at Hissar to 132 at Palampur both in India (Table 42). In contrast with ICSN-A, days to maturity (123 at Parwanipur in Nepal to 102 at Kanpur in India) and plant height (37 cms at Parwanipur to 74 cms at Hissar) were not correlated with days to flowering indicating different behaviour of long-duration materials in these environments. Seed size ranged from 12 g per 100 seed at Palampur to 21 g at Dokri in Pakistan. The highest yield of 2806 kg seed per hectare was obtained at Kanpur and the lowest (718 kg) at Palampur.

The performance of the entries at the 10 individual locations are shown in Tables 43 to 52. Entries 78100, 78081 and 78080 flowered earliest, around 87 days after sowing, overall. H-208 and G-130, the common checks, flowered in 95 and 99 days, respectively. The most late entry was 78094 which flowered 102 days after sowing. As in the other trials the ranges for days to maturity were much reduced. Entries 78081 and 78080 were the earliest maturing at 151 and 152 days and

Table 42. Location means for various plant characters in ICSN-B 1978-79.

Location	Days to 50% flowering	Plant height cm	Days to maturity	Average plant stand score[2]	g/100 seed	Yield kg/ha
Parwanipur-Nepal	78	37	123	-[1]	16	1882
Dokri-Pakistan	77	68	142	-[1]	21	1619
Dholi - India	84	39	125	2	13	1323
Faizabad - India	112	57	162	2	16	1554
ICRISAT Hissar-India	71	74	179	2	14	954
Kanpur - India	106	59	182	-[1]	14	2806
Ludhiana - India	-[1]	-[1]	-[1]	-[1]	17	1102
Palampur - India	132	56	179	3	12	718
Pantnagar - India	102	62	149	1	14	1220
Varanasi - India	90	73	159	2	16	1817

[1] Data not reported.

[2] Rating 1,2,3 represent good (28-33), satisfactory (22-27), and poor (<22) stand respectively, where the figures in brackets represent the ranges of density in plants/m^2 for these classes.

Table 43. Mean performance of entries for various plant characters, ICSN-B 1978/79 Parwanipur.

Cooperators	: R.P. Sah B.R. Pandey	Location	: Parwanipur	Country	: Nepal
Latitude	: 27°2'N	Date planted	: 27-11-1978	Nitrogen (kg/ha)	: 0
Longitude	: 84°35'E	Rainfall (mm)	: 39	Phosphorus(kg/ha)	: 40
Altitude (m)	: 100	Irrigation	: 0	Potassium(kg/ha)	: 0
Local check	: GO-332	Row spacing(cm)	: 35	Date harvested	: -

Note: Plant stands were average to good. Wilt caused some damage. Weed problem existed. Chickpea rust and possibly chickpea stunt also appeared. GO-332 was grown in addition to common checks. However, we have used this instead of Annigeri check. Sixteen entries were identified for station trials.

Plot area harvested (m^2) : 2.1

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm.	Days to maturity	g/100 seed	Yield kg/ha
1	78079	7357-22-3-B-BH	L-550 x K-468	69	38	115	23	3101
2	78080	73167-5-3-B-BH	JG-62 x F-496	69	41	115	16	2662
3	78081	7310-26-2-B-BH	H-208 x T-3	69	39	115	21	2671
4	78082	7343-14-3-B-BH	H-208 x USA-613	69	37	115	30	1956
5	78083	7310-3-1-B-BH	H-208 x T-3	69	38	115	17	2099
6	78084	7328-8-5-B-BH	H-208 x CP-66	79	37	119	13	1908
7	78085	73252-11-2-B-BH	RS-11 x C-214	79	39	119	14	1908
8	78086	7341-8-1-B-BH	H-208 x N-59	75	38	119	16	1670
9	78087	737-18-1-B-BH	H-208 x BG-1	56	36	115	10	1717
10	78088	7389-18-6-B-BH	K-850 x F-378	69	39	119	27	2537
11	78089	73190-1-2-1H-BH	F-378 x Chafa	85	33	124	13	1383
12	78090	7332-11-4-2H-BH	H-208 x F-370	85	41	124	14	906
13	78091	7333-12-3-1H-BH	H-208 x F-496	85	33	124	14	716
14	78092	73213-6-3-1H-BH	GW-5/7 x H-223	69	35	121	13	1431
15	78093	73167-11-2-1P-BH	JG-62 x F-496	69	33	119	16	2051
16	78094	74167-1-1H-B-BH	F-404 x BEG-482	68	41	124	14	1203

Cont'd Table 43

1	2	3	4	5	6		8	9
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	69	40	24	19	1407
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	69	38	24	14	2051
19	78097	73304-10-4-2H-BH-BH	Radhey x Bengal gr	85	40	28	14	1741
20	78098	73304-14-2-1H-B-BH-BH	,, ,,	85	39	28	15	1836
21	78099	7339-7-2-IP-LB-1H-BH	H-208 x E-100	69	37	19	15	1813
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,	66	31	19	17	1717
23	78101	7341-20-3-1P-LB-1H-BH	H-208 x N-59	56	31	19	20	1336
24	78102	73140-6-3-1H-IB-BH-BH	JG-62 x K-468	69	40	19	13	1622
25	78103	73166-6-2-1H-LB-1H-BH	JG-62 x Pant-104	69	41	19	16	1383
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x F-496	69	40	19	16	2051
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370	31	40	30	14	1288
28	78106	7344-11-2-1H-LB-BH-BH	L-550 x F-61	81	41	26	15	1717
29	78107	73166-9-3-2H-LB-1H-BH	JG-62 x Pant-104	75	43	26	17	1622
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-4779	88	47	30	22	1646
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa	85	36	23	15	1741
32	78110	73250-15-1-2H-LB-1H-BH	RS-11 x Ceylon-2	80	35	30	14	1107
33	78111	7320-11-1-1H-1H-BH	H-208 x RS-11	85	34	24	13	2290
34	78112	7367-17-4-1H-BH-BH	I-550 x P-1736	85	35	21	21	1908
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-104	69	51	24	17	1980
36	78114	73307-6-2-1H-BH-BH	K-468 x F-378	79	37	24	14	2385
37	78115	73170-6-2-1P-1H-BH	JG-62 x E-100	81	34	24	16	2099
38	73116	74106-8-2H-LB-BH-BH	P-436 x G-130	81	33	19	17	2242
39	78117	73414-1-1H-LB-1H-BH	P-4746 x Sel.544	81	44	19	14	1550
40	78118	73196-8-3H-1H-BH-BH	T-3 x JG-24	85	37	19	15	2242
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370	35	35	19	14	2075
42	78120	73318-11-3-1H-2H-BH	G-24 x Annigeri	83	40	19	13	2313
43	78121	7344-13-2-1P-2P-BH	L-550 x F-61	69	40	24	17	2313
44	78122	73219-2-4-1H-1H-BH	F-404 x H-223	85	38	19	12	2695
45	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613	85	46	19	17	2790
46	78124	73307-8-1-2H-1H-BH	K-468 x F-378	81	36	23	14	1884
47	78125	73243-17-2-3H-BH-BH	K-4 x F-373	88	40	26	13	1503
48	78126	7340-5-1-1P-BH-BH	H-208 x Radhey	81	35	23	14	2147

Contd....Table 43

1	2	3	4	5	6	7	8	9
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri	88	38	126	13.	1351
50	78128	739-5-4-1H-1H-BH	H-208 x Pant-110	88	39	126	13.	1383
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-100	95	40	119	17	2075
52	78130	7344-13-3-1P-1H-BH	F-61 x L-550	90	42	119	16	2242
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa	88	37	124	15	2090
54	78132	7367-40-1-1P-1H-BH	L-550 x P-1736	85	39	124	13.	1383
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100	75	36	124	16	1991
56	78134	73252-11-2-1P-1P-BH	RS-11 x C-214	85	35	124	17.	2006
57	78135	73185-7-2-1H-1P-BH	G-130 x Chafa	83	37	120	15.	1238
58	78136	73205-8-4-1H-1P-BH	RS-11 x F-404	75	36	123	13	1431
59	78137	73286-8-9H-1H-1H-BH	F-61 x BG-2	85	37	123	13	1574
60	78138	74103-8-2H-1H-BH	P-502 x BG-1	83	37	126	14	1574
61	78139	74145-8-2H-8H-BH	T-3 x C-235	91	33	124	15.	2027
62	78140	74169-8-1H-1H-BH	CP-66 x BEG-482	80	35	124	15.	1574
63	78141	74169-B-3H-8H-BH	,, ,,	88	32	126	15	1383
64	78142	74273-B-7H-1H-BH	P-82x(K-350xH-223)	56	30	120	18	2051
65	78143	74842-19P-LB-2H-BH	NEC-240 x H-208	83	34	120	17	1813
66	78144	74926-5H-LB-BH-BH	C-214 x WFWG-III	81	36	124	13	2075
67	78145	74926-10H-LB-BH-BH	,, ,,	60	33	124	13	2491
68	78146	7361-8-4H-1H-BH	No-56 x L-550	80	34	126	15	1679
69	78147	7446-8-1H-1H-BH	(H-355xL-550)x(JG-62xG-543)	81	39	119	19	2051
70	78148	74126-8-1H-8H-BH	P-99 x F-378	85	37	120	14.	2099
71	78149	74129-8-1H-8H-BH	P-99 x G-130	83	35	124	14	2051
72	78150	74142-8-2H-1H-8H	F-378 x C-235	91	38	119	15.	1795
73	78151	74145-8-5H-8H-8H	T-3 x C-235	88	37	123	18	1622
74	78152	74270-8-3H-1H-8H	G-130 x (K-350xChafa)	80	38	123	17	1479
75	78153	74256-8-2H-1H-8H	(H-208xCP-66)x(H-208xF-496)	85	38	126	15	2099
76	78154	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11xC-214)	75	36	115	15	2194
77	78155	74926-4H-LB-1H-BH	C-214xWFWG-III	83	39	121	13	2099
78	78156	74290-8-4P-1P-8H	P-271 x(JG-62xChafa)	80	34	124	15	2093

Contd....Table 43

1	2	3	4	5	6	7	8	9
79	78157	74842-20P-LB-1P-BH	NEC-240 x H-208	83	34	124	16	2290
80	78158	74912-2H-LB-1P-BH	P-99 x C-214	82	39	123	14	2671
81		1949	G-130 [2]	83	37	126	14.3	1526
82		4054	H-208 [2]	79	36	124	11	1997
83			GO-332 [2]	54	34	119	20.7	1446
		Mean		78	37	123	16	1882
		Range		56-88	28-51	115-130	12-30	716-3101
		CV%		5.4	10.1	1.9	18.1	25.1

[2] Data not reported.

Table 44. Mean performance of entries for various plant characters, ICSN-B 1978/79, Dokri.

Cooperators	: Rice Breeding Department	Location	: Dokri	Country	: Pakistan
Latitude	: 27°50'N	Date planted	: 8-11-1978	Nitrogen (kg/ha)	: 0
Longitude	: 68°10'E	Rainfall (mm)	: 4	Phosphorus (kg/ha)	: 0
Altitude (m)	: -1	Irrigation	: 0	Potassium (kg/ha)	: 0
Local check	: C-612	Row spacing (cm)	: 30	Date harvested	: -1

Notes: Plant stands were reported normal. Wilt caused some mortality. Azodrin was sprayed thrice against pod borer.

Plot area harvested (m^2) : 1.8

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78079	7357-22-3-B-BH	L-550 x K-468	75	63	145	2[illegible]	1501
2	78080	73167-5-3-B-BH	JG-62 x F-496	72	72	140	17	2446
3	78081	7310-26-2-B-BH	H-208 x T-3	72	72	140	19	2057
4	78082	7343-14-3-B-BH	H-208 x USA-613	78	77	147	23	1668
5	78083	7310-3-1-B-BH	H-208 x T-3	75	63	145	17	1335
6	78084	7320-6-5-B-BH	H-208 x CT-66	72	61	140	18	1535
7	78085	73252-11-2-B-BH	RS-11 x C-214	78	65	146	14	1334
8	78086	7341-3-1-B-BH	H-208 x N-58	75	63	143	17	2221
9	78087	737-18-1-B-BH	H-208 x BG-1	75	67	143	19	1223
10	78088	7389-13-6-B-BH	K-850 x F-378	75	63	144	25	1890
11	78089	73190-1-2-1H-BH	F-378 x Chafa	73	57	147	16	667
12	78090	7332-11-4-2H-BH	H-208 x F-370	80	55	147	14	1446
13	78091	7333-12-3-1H-BH	H-208 x F-496	82	62	149	11	1446
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223	75	57	146	17	2224
15	78093	73167-11-2-1H-BH	JG-62 x F-496	75	63	155	14	2446
16	78094	74167-1-1H-B-BH	F-404 x BEC-482	88	65	147	13	1279
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	78	71	147	14	1223
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	75	72	147	16	2224

Contd....Tab e 44

1	2	3		5	6		8	9
19	78097	73304-10-4-2H-BH-BH	Radhey x Bengal gra	78	65	147	13	1223
20	78098	73304-14-2-1H-B-BH-BH	,, ,,	78	65	147	14	1279
21	78099	7339-7-2-1P-LB-1H-BH	H-208 x E-100	77	65	144	15	1890
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,	62	62	140	16	1334
23	78101	7341-20-3-1P-LB-1H-BH	H-208 x N-59	75	66	144	15	1779
24	78102	73140-6-3-1H-LB-BH-BH	JG-62 x K-468	75	59	144	14	2113
25	78103	73166-6-2-1H-LB-1H-BH	JG-62 x Pant-104	80	63	138	14	1835
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x F-496	74	69	142	16	2057
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370	81	68	151	14	1279
28	78106	7344-11-2-1H-LB-BH-BH	L-550 x F-61	78	72	147	15	1279
29	78107	73166-9-3-2H-LB-1H-BH	JG-62 x Pant-104	75	70	145	15	2113
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-4779	79	70	147	15	1112
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa	79	66	147	16	890
32	78110	73250-15-1-2H-LB-1H-BH	RS-11 x Ceylon-2	83	60	152	14	1668
33	78111	7320-11-1-1H-1H-BH	H-208 x RS-11	75	61	145	12	1835
34	78112	7367-17-1-1H-BH-BH	L-550 x F-1730	75	60	145	23	1946
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-104	76	61	137	18	1501
36	78114	73397-6-2-1H-BH-BH	K-468 x F-378	75	71	144	17	1223
37	78115	73179-6-2-1P-1H-BH	JG-62 x E-100	75	56	143	15	1168
38	78116	74109-8-2H-LB-BH-BH	P-436 x G-130	74	76	143	17	1779
39	78117	73414-1-1H-LB-1H-BH	P-4746 x Sel.544	74	62	143	14	1001
40	78118	73196-9-3H-1H-BH-BP	T-3 x JG-24	75	83	144	14	1334
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370	78	75	147	15	1056
42	78120	73318-11-3-1H-2H-BH	G-24 x Annigeri	78	73	148	13	1835
43	78121	7344-13-2-1P-2P-BH	L-550 x F-61	72	83	140	18	2502
44	78122	73219-2-4-1H-1H-BH	F-404 x H-223	75	72	146	16	1279
45	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613	75	75	146	16	2168
46	78124	73307-8-1-2H-1H-BH	K-468 x F-378	79	61	150	16	1223
47	78125	73243-17-2-3H-BH-BH	K-4 x F-378	84	71	153	14	1056
48	78126	7340-5-1-1P-BH-BP	H-208 x Radhey	75	72	144	17	2724
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri	79	72	150	14	1779
50	78128	739-5-4-1H-1H-BH	H-208 x Pant-110	78	63	150	15	1668

Contd....Table 44

1	2	3	4	5	6	7	8	9
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-109	78	68	140	20	1112
52	78130	7344-13-3-1P-1H-BH	F-61 x L-550	74	66	144	15	2057
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa	78	70	148	10	1724
54	78132	7367-40-1-1P-1H-BH	L-550 x P-176	78	67	144	20	1112
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-109	76	72	146	17	2113
56	78134	73252-11-2-1P-1P-BH	RS-11 x C-214	75	72	147	16	1446
57	78135	73185-7-2-1H-1P-BH	G-130 x Chafa	75	72	147	14	1112
58	78136	73265-8-4-1H-1P-BH	RS-11 x F-496	76	72	147	15	771
59	78137	73286-8-8H-1H-1H-BH	F-61 x BG-2	74	71	145	16	945
60	78138	74103-8-2H-1H-BH	P-582 x BG-1	73	73	146	14	1392
61	78139	74145-8-2H-2H-BH	T-3 x C-235	75	73	148	15	1001
62	78140	74169-8-1H-1H-BH	CP-66 x BEG-472	78	67	155	15	1390
63	78141	74169-8-3H-2H-BH	,, ,,	78	70	155	13	1223
64	78142	74273-8-7H-1H-2H	P-82x (K-850 x H-223)	74	65	139	15	945
65	78143	74842-10P-LB-2H-BH	NEC-240 x H-208	77	72	152	17	967
66	78144	74926-5H-LB-2H-BH	C-214 x WFWG-III	72	65	140	16	1112
67	78145	74926-10H-LB-2H-BH	,, ,,	71	65	152	15	1557
68	78146	7381-8-4H-1H-BH	No-56 x L-550	69	66	159	13	1390
69	78147	7446-8-1H-1H-BH	(H-355xL-550)x(JG-62xG-543)	71	72	151	17	1103
70	78148	74126-8-1H-8H-BH	P-99 x F-378	72	70	142	22	1335
71	78149	74128-8-1H-8H-BH	P-99 x G-130	73	66	139	13	1112
72	78150	74142-8-2H-1H-BH	F-378 x C-235	76	66	145	14	2 02
73	78151	74145-8-5H-2H-BH	T-3 x C-235	71	62	150	16	2660
74	78152	74270-8-3H-1H-BH	G-130x(K-850xChafa)	73	65	154	15	1557
75	78153	74256-8-2H-1H-BH	(H-208xCP-66)x(H-208xF-496)	72	70	147	14	1730
76	78154	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11xC-214)	75	63	152	16	1112
77	78155	74926-4H-LB-1H-BH	C-214xWFWG-III	75	66	144	15	1668
78	78156	74290-8-4P-1P-BH	P-271x(JG-62xChafa)	71	70	152	16	1779
79	78157	74842-20P-LB-1P-BH	NEC-240 x H-208	72	70	152	14	1779
80	78158	74912-2H-LB-1P-BH	P-99 x C-214	71	70	152	14	2168

Contd....Table 44

1	2	3	4	5	6	7	8	9
31	4943		G-139 [2]	82	69	151	15.6	1731
32	4954		H-208 [2]	72	67	142	14.3	1647
33			C-612 [2]	72	63	142	21	1724
			Mean	77	68	145	16	1619
			Range	62-89	55-88	137-159	4-28	667-2724
			CV%	2.4	6.7	1.6	14.8	16.1

[1] not recorded

[2] average of eight plots in the nursery

Table 45. Mean performance of entries for various plant characters, ICSN-3 1978/79, Dholi.

Cooperators	: S.K. Chowdhury V.K. Shahi	Location	: Dholi	Country	: India
Latitude	: 25°39'N	Date planted	: 26-11-78	Nitrogen (kg/ha)	: 15
Longitude	: 85°40'E	Rainfall(mm)	: 297	Phosphorus (kg/ha)	: 40
Altitude (m)	: 52.1	Irrigation	: -	Potassium (kg/ha)	: 0
Local check	: -	Row spacing (cm)	: 30	Date harvested	: -

Note: Plant stands were normal. Pod borer and wilt caused damage to some extent. Endosulphan was sprayed twice.

Plot area harvested (m^2) : 1.3

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78079	7357-22-3-B-BH	L-550 x K-468	78	43	113	12.2	1946
2	78080	73167-5-3-B-BH	JG-62 x F-496	67	47	124	10.[illegible]	1251
3	78081	7310-26-2-B-BH	H-208 x T-3	79	43	129	11.2	2005
4	78082	7343-14-3-B-BH	H-208 x USA-613	82	44	122	11.2	1390
5	78083	7310-3-1-B-BH	H-208 x T-3	68	41	113	11.5	1668
6	78084	7328-8-5-B-BH	H-208 x CP-66	78	42	123	12.2	1390
7	78085	73252-11-2-B-BH	RS-11 x C-214	86	41	129	12.2	1390
8	78086	7341-8-1-B-BH	H-208 x N-59	78	39	123	12.2	1668
9	78087	737-18-1-B-BH	H-208 x BG-1	79	42	129	15.0	1112
10	78088	7389-18-6-B-BH	K-850 x F-378	76	40	124	13.0	1668
11	78089	73190-1-2-1H-BH	F-378 x Chafa	84	39	122	11.0	1390
12	78090	7332-11-4-2H-BH	H-208 x F-370	85	41	124	12.0	1390
13	78091	7333-12-3-1H-BH	H-208 x F-496	83	39	124	11.0	1112
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223	86	41	124	13.4	1112
15	78093	73167-11-2-1P-BH	JG-62 x F-496	76	39	124	11.2	1390

Contd....Table 45

1	2	3	4	5	6	7	8	9
16	78094	74167-1-1H-B-BH	F-404 x BEG-482	89	40	131	11.8	1834
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	83	36	125	11.2	1390
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	87	34	125	13.2	1668
19	78097	73304-10-4-2H-BH-BH	Radhey x Bengal gram	85	36	123	11.4	1390
20	78098	73304-14-2-1H-B-BH-BH	,, ,,	84	39	123	11.6	834
21	78099	7339-1P-LB-1H-BH	H-208 x E-100	81	42	124	18.0	1946
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,	77	43	124	12.5	2224
23	78101	7341-20-3-1P-LB-1H-BH	H-208 x N-59	79	39	129	13.2	1668
24	78102	73140-6-3-1H-LB-BH-BH	JG-62 x K-168	76	40	129	13.2	1668
25	78103	73166-6-2-1H-LB-1H-BH	JG-62 x Pant-104	79	41	131	12.2	1112
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x F-496	70	40	132	12.5	2224
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370	84	40	132	11.2	1390
28	78106	7344-11-2-1H-LB-BH-BH	L-550 x F-61	87	38	129	11.0	1112
29	73107	73166-9-3-2H-LB-1H-BH	JG-62 x Pant-104	76	42	131	12.2	1390
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-1779	87	43	129	10.6	1390
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa	88	47	132	11.0	834
32	78110	73250-15-1-2H-LB-1H-BH	RS-11 x Ceylon-2	88	38	131	10.4	834
33	78111	7320-11-1-1H-1H-BH	H-208 x RS-11	84	36	129	10.8	1112
34	78112	7367-17-1-1H-BH-BH	L-550 x P-1786	86	38	131	10.9	834
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-104	76	41	120	10.6	1390
36	78114	73307-6-2-1H-BH-BH	K-468 x F-378	77	40	122	10.5	1668
37	73115	73170-6-2-1P-1H-BH	JG-62 x E-100	87	42	124	11.5	1112
38	78116	74109-B-2H-LB-BH-BH	P-436 x G-130	36	36	124	13.0	1112
39	78117	73414-1-1H-LB-1H-BH	P-4746 x Sel.544	89	43	120	9.8	1390
40	78118	73196-8-3H-1H-BH-BH	T-3 x JG-24	88	37	120	10.2	1223
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370	80	41	125	12.0	834
42	78120	73318-11-3-1H-2H-BH	G-24 x Annigeri	84	40	125	10.2	973
43	73121	7344-13-2-1P-2P-BH	L-550 x F-61	86	37	128	14.0	834
44	78122	73219-2-4-1H-1H-BH	F-404 x H-223	87	36	120	11.4	834
45	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613	85	40	121	12.2	1112
46	78124	73307-8-1-2H-1H-BH	K-468 x F-378	86	41	120	10.4	1112
47	78125	73243-17-2-3H-BH-BH	K-4 x F-378	85	41	120	12.0	1112
48	73126	7340-5-1-1P-BH-BP	H-208 x Radhey	83	40	129	10.5	556

Contd....Table 45

1	2	3		6				9
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri	87	39	120	2.0	55[illegible]
50	78128	739-5-4-1H-1H-BH	H-208 x Pant-110	87	34	129	1.5	111[illegible]
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-100	87	43	117	5.0	139[illegible]
52	78130	7344-13-3-1P-1H-BH	F-61 x L-550	70	36	120	14.0	1663
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa	85	36	123	12.2	1390
54	78132	7367-40-1-1P-1H-BH	L-550 x P-1736	86	40	124	15.6	1390
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100	73	41	119	12.6	1663
56	78134	73252-11-2-1P-1P-BH	RS-11 x C-214	85	43	123	11.2	1112
57	78135	73185-7-2-1H-1P-BH	G-130 x Chafa	89	41	124	10.2	1112
58	78136	73205-5-4-1H-1P-BH	RS-11 x F-404	79	40	125	10.6	834
59	78137	73286-B-9H-1H-1H-BH	F-61 x BG-2	87	35	125	10.2	1390
60	78138	74103-B-2H-1H-BH	P-502 x BG-1	85	42	125	12.2	834
61	78139	74145-B-2H-BH-BH	T-3 x C-235	87	35	124	14.0	556
62	78140	74169-B-1H-1H-BH	CP-66 x BEG-482	95	38	131	13.4	334
63	78141	74169-B-3H-BH-BH	,, ,,	85	35	125	12.2	334
64	78142	74273-B-7H-1H-BH	P-82 x (K-850xH-223)	85	36	125	13.4	834
65	78143	74842-19P-LB-2H-BH	NEC-240 x H-208	82	37	122	13.4	1112
66	78144	74926-5H-LB-BH-BH	C-214 x WFWG-III	82	38	122	12.5	556
67	78145	74926-10H-LB-BH-BH	,, ,,	79	40	120	12.5	1390
68	78146	7381-B-4H-1H-BH	No-56 x L-550	87	38	129	11.6	556
69	78147	7446-B-1H-1H-BH	(H-355xL-550)x(JG-62xG-543)	83	40	130	15.0	834
70	78148	74126-B-1H-BH-BH	P-99 x F-378	86	37	129	11.0	1112
71	78149	74129-B-1H-BH-BH	P-99 x G-100	85	39	131	10.6	834
72	78150	74142-B-2H-1H-BH	F-378 x C-235	84	35	130	10.8	1390
73	78151	74145-B-5H-BH-BH	T-3 x C-235	85	39	130	11.2	1529
74	78152	74270-B-3H-1H-BH	G-130 x (K-850xChafa)	87	36	129	10.5	1946
75	78153	74256-B-2H-1H-BH	(H-208xCP-66) x (H-208xF-496	85	34	130	10.6	1390
76	78154	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11xC-214)	83	40	123	11.2	1663
77	78155	74926-4H-LB-1H-BH	C-214 x WFWG-III	86	39	124	12.2	1946
78	78156	74290-B-4P-1P-BH	P-271x(JG-62 x Chafa)	87	31	131	11.6	1390
79	78157	74842-20P-LB-1P-BH	NEC-240 x H-208	84	38	132	12.2	1223
80	78158	74912-2H-LB-1P-BH	P-99 x C-214	82	39	132	11.2	1390

Contd....Table 45

1	2	3	4	5	6	7	8	9
			G-130 [2]	87	35	123	11.1	836
			H-208 [2]	84	38	123	11.6	1390
			Annigeri [2]	81	33	118	13.9	1132
31	4943							
32	4954							
33	4918			84	39	125	13.0	1323
	Mean			67-95	31-50	113-132	9.3-18.9	556-2224
	Range			2.1	7.3	1.6	3.8	26.1
	CV%							

[1] Data not reported.

[2] Average of eight plots.

Table 46. Mean performance of entries for various plant characters, ICSN-B 1978/79, Faizabad.

Cooperators	: R.M. Tripathi, D.M. Maurya	Location	: Faizabad	Country	India
Latitude	: 26°47'N	Date planted	: 26-10-1978	Nitrogen (kg/ha)	18
Longitude	: 82°12'E	Rainfall (mm)	: 93	Phosphorus (kg/ha)	46
Altitude (m)	: 113	Irrigation	: 1	Potassium (kg/ha)	0_1
Local check	: Not included	Row spacing(cm)	: 30	Date harvested	

Note: Plant stands were good. There were weed and insect problems.

Plot area harvested (m^2) : 1.8

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm.	Days to maturity	g/100 seed	Yield kg/ha
1	78079	7357-22-3-B-BH	L-550 x K-468	112	59	161	23.5	2669
2	73080	73167-5-3-B-BH	JG-62 x F-496	111	54	159	14.9	1557
3	78081	7310-26-2-B-BH	H-208 x T-3	111	70	159	20.8	2391
4	78082	7343-14-3-B-BH	H-208 x USA-613	112	63	161	15.4	1279
5	78083	7310-3-1-B-BH	H-208 x T-3	111	56	161	17.2	1779
6	78084	7328-8-5-B-BH	H-208 x CP-66	111	58	163	15.7	2391
7	78085	73252-11-2-B-BH	RS-11 x C-214	113	58	162	13.9	1390
8	78086	7341-8-1-B-BH	H-208 x N-59	111	59	164	18.1	334
9	78087	737-18-1-B-BH	H-208 x BG-1	111	69	162	21.6	2669
10	78088	7389-18-6-B-BH	K-850 x F-378	113	60	161	31.0	2669
11	78089	73190-1-2-1H-BH	F-378 x Chafa	122	58	161	15.3	1779
12	78090	7332-11-4-2H-BH	H-208 x F-370	111	63	161	14.8	2669
13	78091	7333-13-3-1H-BH	H-208 x F-496	111	62	161	13.7	1668
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223	111	59	163	16.6	1390
15	78093	73167-11-2-1P-BH	JC-62 x F-497	125	59	161	14.3	2780
16	78094	74167-1-1H-B-BH	F-404 x BEG-482	122	57	161	13.5	4448

Cont Table 46

1	2							
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	11	60	160	15.1	1668
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	11	55	159	15.8	1668
19	78097	73304-10-4-2H-BH-BH	Radhey x Bengal gram	12	51	161	13.5	1668
20	78098	73304-14-2-1H-B-BH-BH	,, ,,	21	58	159	14.4	834
21	78099	7339-2-1P-LB-1H-BH	H-208 x E-100	11	52	160	15.0	834
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,	12	57	160	13.7	1112
23	78101	7341-20-3-1P-LB-1H-BH	H-208 x N-59	11	61	161	13.5	2224
24	78102	73140-6-3-1H-LB-BH-BH	JG-62 x K-468	12	59	161	13.2	1112
25	78103	73166-6-2-1H-LB-1H-BH	JG-62 x Pant-104	12	59	161	11.5	1223
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x F-496	12	55	159	12.5	1668
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370	12	53	161	13.4	1668
28	78106	7344-11-2-1H-LB-BH-BH	L-550 x F-61	13	57	161	14.6	834
29	78107	73166-9-3-2H-LB-1H-BH	JG-62 x Pant-104	12	62	159	15.7	1668
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-4779	13	68	161	14.3	1668
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa	13	54	161	13.0	1112
32	78110	73250-15-1-2H-LB-1H-BH	RS-11 x Ceylon-2	13	54	162	14.3	2224
33	78111	7320-11-1-1H-1H-BH	H-208 x RS-11	21	56	167	13.5	1668
34	78112	7367-17-4-1H-BH-BH	L-550 x P-1786	11	35	161	22.5	2780
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-104	13	55	159	16.7	1946
36	78114	73307-6-2-1H-BH-BH	K-468 x F-378	11	56	160	14.5	1390
37	78115	73170-6-2-1P-1H-BH	JG-62 x E-100	13	56	163	15.1	1112
38	78116	74109-8-2H-LB-BH-BH	P-436 x G-130	23	59	167	15.9	334
39	78117	73414-1-1H-LB-1H-BH	P-4746 x Sel.544	12	57	161	12.0	667
40	78118	73196-8-3H-1H-BH-BH	T-3 x JG-24	12	57	161	13.4	1112
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370	12	43	161	15.5	1946
42	78120	73318-11-3-1H-2H-BH	G-24 x Annigeri	12	55	162	13.0	556
43	78121	7344-13-2-1P-2P-BH	L-550 x F-61	13	56	161	18.0	556
44	78122	73219-2-4-1H-1H-BH	F-404 x H-223	11	53	161	18.2	1123
45	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613	12	53	160	13.2	1112
46	78124	73307-8-1-2H-1H-BH	K-468 x F-378	11	63	161	12.0	1390
47	78125	73243-17-2-3H-BH-BH	K-4 x F-378	13	58	161	14.0	1390
48	78126	7340-5-1-1P-BH-BP	H-208 x Radhey	13	73	161	16.4	695
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri	12	56	161	12.9	1390
50	78128	739-5-4-1H-1H-BH	H-208 x Pant-110	24	53	160	12.5	834

Con Table 46

1	2	3		5	6		8	9
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-100	112	57	164	16.5	2224
52	78130	7344-13-3-1P-1H-BH	F-61 x L-550	113	55	161	15.5	1168
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa	112	56	161	15.4	2780
54	78132	7367-40-1-1P-1H-BH	L-550 x P-1796	113	53	162	15.5	2224
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100	22	55	165	16.2	1779
56	78134	73252-11-2-1P-1P-BH	RS-11 x C-214	13	54	163	12.5	1112
57	78135	73185-7-2-1H-1P-BH	G-130 x Chafa	12	52	163	15.5	1223
58	78136	73205-8-4-1H-1P-BH	RS-11 x F-404	13	74	161	14.4	1112
59	78137	73286-B-9H-1H-1H-BH	F-61 x BG-2	11	60	159	12.3	1001
60	78138	74103-B-2H-1H-BH	P-502 x BG-1	12	54	161	12.9	1946
61	78139	74145-B-2H-BH-BH	T-3 x C-235	11	55	161	12.0	834
62	78140	74169-B-1H-1H-BH	CP-66 x BEG-482	11	54	163	15.3	834
63	78141	74169-B-3H-BH-BH	,, ,,	15	57	163	14.5	1779
64	78142	74273-B-7H-1H-BH	P-82 x (K-850xH-223)	12	53	161	19.4	556
65	78143	74842-19P-LB-2H-BH	NEC-240 x H-208	17	53	166	16.2	1223
66	78144	74926-BH-LB-BH-BH	C-214 x WFWG-III	13	54	161	13.5	2224
67	78145	74926-10H-LB-BH-BH	,, ,,	00	63	163	13.6	1946
68	78146	7381-B-4H-1H-BH	No-56 x L-550	00	61	159	14.0	1946
69	78147	7446-B-1H-1H-BH	(H-355xL-550)x(JG-62xG-543	13	52	160	13.6	1112
70	78148	74126-B-1H-BH-BH	P-99 x F-376	12	53	161	13.0	2502
71	78149	74129-B-1H-BH-BH	P-99 x G-130	13	59	161	14.0	1112
72	78150	74142-B-2H-1H-BH	F-373 x C-235	13	57	161	13.0	1112
73	78151	74145-B-5H-BH-BH	T-3 x C-235	11	55	163	15.0	667
74	78152	74270-B-3H-1H-BH	G-130 x(K-850xChafa)	21	63	167	15.0	1390
75	78153	74256-B-2H-1H-BH	(H-208xCP-66)x(H-208xF-496	21	57	160	13.2	1112
76	78154	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11xC-214)	22	57	167	14.8	1668
77	78155	74926-4H-LB-1H-BH	C-214 x WFWG-III	11	57	163	13.5	1668
78	78156	74290-B-4P-1P-BH	P-271x(JG-62xChafa)	13	60	161	19.5	1223
79	78157	74842-20P-LB-1P-BH	NEC-240xH-208	12	62	162	15.5	1390
80	78158	74912-2H-LB-1P-BH	P-99 x C-214	12	62	163	14.5	1390

Contd....46

81	4948	G-130 [2]	100	56	161	14.2	1314
82	4954	H-208 [2]	113	54	161	14.2	1619
83	4918	Annigeri[2]	111	57	162	13.3	1043
	Mean		112	57	162	16.0	1554
	Range		100-125	43-74	159-167	11.5-31.0	556-4443
	CV(%)		19.0	6.1	0.9	15.8	38.1

07

1 Not reported.

2 Average of eight plots.

Table 47. Mean performance of entries for various plant characters ICSN-B 1973/79, Hissar.

Cooperators	: ICRISAT	Location	: Hissar/ICRISAT	Country	: India
Latitude	: 29° 10'N	Date Planted	: 20-10-78	Nitrogen (kg/ha)	: 0
Longitude	: 75° 46'E	Rainfall (mm)	: 0	Phosphorus (kg/ha)	: 0
Altitude (m)	: 215	Irrigation	: 0	Potassium (kg/ha)	: 0
Local check	: -1	Row spacing(cm)	: 30	Date harvested	: -1

Note: Plant stands were average to good. Wilt, stunt and phytophthora caused considerable damage.

Plot area harvested (m^2) : 1.5

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78079	7357-22-3-B-BH	L-550 x [illegible]-468	57	61	176	20.3	534
2	78080	73167-5-3-B-BH	JG-62 x F-496	59	61	174	15.3	767
3	78081	7310-26-2-B-BH	H-208 x F3	50	84	176	19.1	2134
4	78082	7343-14-3-B-BH	H-208 x USA-613	81	86	180	17.3	1267
5	78083	7310-3-1-B-BH	H-208 x T-3	58	66	176	14.0	334
6	78084	7328-8-5-B-BH	H-208 x CP-66	68	55	176	11.2	469
7	78085	73252-11-2-B-BH	RS-11 x C-214	64	31	181	11.3	834
8	78086	7341-8-1-B-BH	H-208 x N-59	59	80	180	15.0	1467
9	78087	737-18-1-B-BH	H-208 x BG-1	58	64	176	14.8	133
10	78088	7389-18-6-B-BH	K-850 x F-378	60	88	176	22.6	334
11	78089	73190-1-2-1H-BH	E-378 x Chafa	66	77	182	12.2	534
12	78090	7332-11-4-2H-BH	H-208 x F-370	83	75	181	13.1	334
13	78091	7333-12-3-1H-BH	H-208 x F-496	83	82	180	11.4	434
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223	58	80	182	14.4	569
15	78093	73167-11-2-1P-BH	JG-62 x F-496	60	68	176	14.3	267

Contd....Table 47

1	2	3	4	5	6	7	8	9
16	78094	74167-1-1H-B-BH	F-404 x BEG-482	96	63	176	12.3	434
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	97	78	182	13.2	1534
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	58	70	176	14.2	334
19	78098	73304-10-4-2H-BH-BH	Radhey x Bengal gram	97	68	179	11.7	1134
20	78098	73304-14-2-1H-B-BH-BH	,, ,,	82	82	180	12.7	1167
21	78099	7339-2-1P-LB-1H-BH	H-208 x E-100	60	65	179	11.8	1367
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,	58	70	177	12.0	2601
23	78101	7341-20-3-1P-LB-IH-BH	H-208 x K-59	57	61	174	15.0	1201
24	78102	73140-6-3-1H-LB-BH-BH	JG-62 x K-468	61	60	174	10.2	1267
25	78103	73166-6-2-1H-LB-1H-BH	JG-62 x Pant-10[illegible]	68	75	180	10.6	1201
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x F-496	60	70	176	11.2	1267
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370	83	70	176	-	-
28	78106	7344-11-2-1H-LB-BH-BH	L-550 x F-61	64	68	180	12.4	534
29	78107	73166-9-3-2H-LB-1H-BH	JG-62 x Pant-10[illegible]	61	80	179	13.2	1401
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-4779	79	100	182	13.0	567
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa	79	75	180	11.2	567
32	78110	73250-15-1-2H-LB-1H-BH	RS-11 x Ceylon-2	89	68	181	9.7	600
33	78111	7320-11-1-1H-1H-BH	H-208 x RS-11	83	72	182	21.3	594
34	78112	7367-17-4-1H-BH-BH	L-550 x P-1786	66	71	169	21.3	1434
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-10[illegible]	59	90	177	14.6	867
36	78114	73307-6-2-1H-BH-BH	K-468 x F-378	57	70	177	13.4	1001
37	78115	73170-6-2-1P-IH-BH	JG-62 x E-100	81	80	176	-	-
38	78116	74109-8-2H-LB-BH-BH	P-436 x G-130	83	75	179	13.2	1134
39	78117	73414-1-1H-LB-IH-BH	P-4746 x Sec.544	72	91	180	11.9	400
40	78118	73196-8-3H-1H-BH-BH	T-3 x JG-24	81	70	180	14.4	1034
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370	81	70	180	12.3	1434
42	78120	73318-11-3-1H-2H-BH	G-24 x Annigeri	81	82	181	12.9	1401
43	78121	7344-13-2-1P-2P-BH	L-550 x F-61	58	90	182	15.3	1734
44	78122	73219-2-4-1H-1H-BH	F-404 x H-224	60	74	180	12.7	600
45	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613	59	83	180	7.5	334
46	78124	73307-8-1-2H-1H-BH	K-468 x F-378	61	82	176	12.6	534

Contd....Table 47

47	78125	73243-17-2-3H-BH-BH	K-4 x [illegible]-378	88	79	177	15.6	434
48	78126	7340-5-1-1P-BH-BP	H-208 x Radhey	62	73	174	15.6	2234
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri	88	-[1]	177	-[1]	-[1]
50	78128	739-54-1H-1H-BH	H-208 x Pant-110	72	58	174	12.0	534
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-100	60	66	130	15.0	1467
52	78130	7344-13-3-1P-1H-BH	F-61 x L-550	58	75	174	15.1	1634
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa	79	[illegible]	130	13.2	534
54	78132	7367-40-1-1P-1H-BH	L-550 x P-1736	81	89	181	16.0	767
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100	68	75	131	13.1	469
56	78134	73252-11-2-1P-1P-BH	RS-11 x C-214	59	77	182	12.3	300
57	78135	73185-7-2-1H-1P-BH	G-130 x Chafa	83	83	179	13.6	234
58	78136	73205-8-4-1H-1P-BH	RS-11 x F-402	79	73	180	13.6	867
59	78137	73286-8-9H-1H-1H-BH	F-61 x BG-2	64	90	188	12.3	1201
60	78138	74103-B-2H-1H-BH	P-502 x BG-1	77	75	182	13.0	269
61	78139	74145-B-2H-BH-BH	T-3 x C-235	83	83	176	12.1	900
62	78140	74169-B-1H-1H-BH	CP-66 x BEG-482	81	80	181	14.1	534
63	78141	74169-B-3H-BH-BH	,, ,,	85	79	182	14.6	700
64	78142	74273-B-7H-1H-BH	P-82 x (K-850 x H-223)	55	53	130	13.9	1001
65	78143	74842-1CP-LB-2H-BH	NEC-240 x H-208	85	83	182	20.7	1201
66	78144	74926-5H-LB-BH-BH	C-214 x NPMG-III	66	75	182	12.3	1101
67	78145	74926-10H-LB-BH-BH	,, ,,	66	73	181	11.5	967
68	78146	7231-B-4H-1H-BH	No.56 x L-550	86	80	181	14.6	967
69	78147	7446-B-1H-1H-BH	(H-355 x L-550)x(JG-62xG-543)	85	89	177	17.4	469
70	78148	74126-B-1H-BH-BP	P-99 x F-378	66	72	181	12.5	1668
71	78149	74129-B-1H-BH-BH	P-99 x G-130	63	65	179	12.9	800
72	78150	74142-B-2H-1H-BH	F-378 x C-235	60	78	176	13.2	2335
73	78151	74145-B-5H-BH-BH	T-3 x C-235	81	79	180	12.6	233
74	78152	74270-B-3H-1H-BH	G-130 x (K-850 x Chafa)	83	85	180	13.5	2701
75	78153	74256-B-2H-1H-BH	(H-208xCP-66)x(H-208xF-496)	77	79	179	13.6	1334
76	78154	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11xC-214)	62	83	177	13.1	934
77	78155	74926-4H-LB-1H-BH	(214xNPMG-III	61	58	180	13.1	1868
78	78156	74290-B-4P-1P-BH	P-271 x (JG-62xChafa)	64	80	180	14.9	1001

Contd....Table 47

79	78157	74842-20P-1B-1P-1H	NEC-240 x K-208	77	73	162	14.6	1101
80	78158	74912-2H-1B-1P-1H	P-99 x C-214	76	93	181	11.3	690
81		4948	C-130[2]	91	82	180	15.9	751
82		4954	K-208[2]	75	71	179	12.5	1243
83		4918	Annigeri[2]	52	74	180	8.3	484
		Mean		71	74	179	14	954
		Range		51-97	55-107	169-192	7.5-22.6	133-2701
		CV%		6.1	11.8	3.9	41.3	53.2

[1] not recorded

[2] Average of 8 plots.

Table 48. Mean performance of entries for various plant characters, ICSN-B 1978/79, Kanpur.

Cooperators : B.H. Matai, R.S. Dubey | Location : Kanpur | Country : India

Latitude : 26°26'N | Date planted : 7-11-78 | Nitrogen (kg/ha) : 9
Longitude : 80°22'E | Rainfall (mm) : 73 | Phosphorus (kg/ha) : 23
Altitude (m): 126 | Irrigation : 2 | Potassium (kg/ha) : 0
Local check : not included | Row spacing (cm) : 30 | Date harvested : -[1]

Note: Plant stands were reported normal. Late rains induced too much vegetative growth. Other problems were not reported.

Plot area harvested (m^2) : 1.8

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm.	Days to maturity	g/100 seed	Yield kg/ha
1	78079	7357-22-3-B-BH	L-550 x K-468	101	49	180	20.0	3114
2	78080	73167-5-3-B-BH	JG-62 x F-496	95	31	179	14.2	1335
3	78081	7310-26-2-B-BH	H-208 x T-3	95	61	173	13.4	2641
4	78082	7343-14-3-B-BH	H-208 x USA-613	93	46	176	17.8	2002
5	78083	7319-3-1-B-BH	H-208 x T-3	98	52	176	14.5	2502
6	78084	7328-8-5-B-BH	H-208 x CP-66	102	60	177	11.6	2669
7	78085	73252-11-2-B-BH	RS-11 x C-214	102	53	178	12.4	2291
8	78086	7341-3-1-B-BH	H-208 x N-59	122	51	136	14.9	2669
9	78087	737-13-1-B-BH	H-208 x BG-1	99	45	181	16.0	2919
10	78088	7389-18-6-B-BH	K-850 x F-378	100	51	182	21.0	3836
11	78089	73190-1-2-1H-BH	F-378 x Chafa	112	53	186	10.3	3336
12	78090	7332-11-4-2H-BH	H-208 x F-378	114	61	169	12.2	2391
13	78091	7333-12-31H-BH	H-208 x F-496	114	55	173	11.6	2335
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223	115	64	186	20.0	2168
15	78093	73167-11-2-1P-BH	JG-62 x F-496	99	62	184	15.8	2919

Contd....Table 48

1	2	3	4	5	6	7	8	9
16	78094	73167-1-1H-3-BH	F-404 x BEG-482	107	54	182	12.0	2558
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	113	55	184	11.6	2947
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	101	60	185	11.0	3475
19	78097	73304-10-4-2H-BH-BH	Radhey x Bengal gram	113	67	184	10.0	2223
20	78098	73304-14-2-1H-3-BH-BH	,, ,,	113	57	184	12.2	3058
21	78099	7330-2-1P-LB-1H-BH	H-208 x E-100	110	60	182	11.0	4031
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,	104	55	132	10.2	2558
23	78101	7341-20-3-1P-LB-1H-BH	H-208 x N-59	110	51	184	15.0	3002
24	78102	73140-6-3-1H-LB-BP-BH	JG-62 x K-468	107	65	183	12.3	2363
25	78103	73166-6-2-1H-LB-1P-BH	JG-62 x Pant-10-	115	59	173	10.0	2331
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x E-496	103	62	171	15,2	3475
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370	101	60	173	12.3	3114
28	78106	7344-11-2-1H-LB-BH-BH	L-550 x F-61	113	66	173	14.3	2230
29	78107	73166-9-3-2H-LB-1P-BH	JG-62 x Pant-10?	120	65	180	13.2	2558
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-4770	103	75	186	12.5	3058
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa	1 4	5	172	14.4	2730
32	78110	7325-15-1-2H-LB-1P- B	PS-11 x Ceylon-2	106	52	130	12.2	3002
33	78111	7320-11-1-1H-1H-BH	H-208 x RS-11	105	63	130	14.3	2730
34	78112	7367-17-1-1P-BH- P	L-550 x P-17 6	103	56	182	14.2	2224
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-10?	100	56	134	10.0	3002
36	78114	73307-6-2-1H-BH-BP	K-468 x F-378	100	60	135	11.0	2730
37	78115	73170-6-2-1P-1H-BH	JG-62 x E-100	100	56	178	15.4	1660
38	78116	74109-1-2H-LB-BH-BH	P-236 x G-130	101	59	174	13.6	2669
39	78117	73411-1-1H-LB-1H-BH	P-4736 x Sel.544	101	50	177	11.4	2947
40	78118	73166-3-3H-1H-BH-BP	T-3 x JG-24	102	68	1 2	15.7	2669
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370	105	45	188	13.6	1112
42	78120	7331?-11-3-1H-2H-BH	G-24 x Annigeri	106	65	136	13.4	2113
43	78121	7344-13-2-1P-2P-BH	L-550 x F-61	100	55	179	20.0	2891
44	78122	73219-2-4-1H-1H-BH	F-404 x H-223	106	55	136	14.2	2502
45	78123	73303-1-3-1H-2H-BH-BH	F-370 x USA-613	103	53	188	12.4	2391
46	78124	7337-8-1-2H-1H-BH	K-468 x F-373	102	64	182	10.0	2335
47	78125	73243-17-2-3H-3H-BH	K-4 x F-378	106	60	173	12.6	3114
48	78126	7340-5-1-1P-BH-BP	H-208 x Radhey	107	58	179	13.8	2919

Contd....Table 48

1	2	3	4	5	6	7	8	9
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri	111	68	183	11.2	2530
50	78128	739-5-4-1H-1H-BH	H-208 x Pant-110	108	71	170	12.7	3197
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-100	114	56	179	10.4	3503
52	78130	7344-13-3-1P-1H-BH	F-61 x L-550	102	63	178	15.7	2308
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa	101	65	188	14.0	2502
54	78132	7367-40-1-1P-1H-BH	L-550 x P-1736	101	62	186	13.0	2724
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100	101	63	177	13.0	3392
56	78134	73252-11-2-1P-1P-BH	RS-11 x C-214	110	65	184	12.8	2669
57	78135	73185-7-2-1H-1P-BH	G-130 x Chafa	104	63	182	10.0	3558
58	78136	73205-8-4-1H-1P-BH	RS-11 x F-404	102	63	179	15.2	2224
59	78137	73286-B-9H-1H-1H-BH	F-61 x BG-2	102	68	177	13.2	2891
60	78138	74103-B-2H-1H-BH	P-502 x BG-1	105	62	182	12.1	3114
61	78139	74145-B-2H-BH-BH	T-3 x C-235	104	67	186	11.6	3670
62	78140	74169-B-1H-1H-BH	CP-66 x BEG-482	113	61	188	14.3	3169
63	78141	74169-B-3H-BH-BH	,, ,,	113	60	178	12.6	2780
64	78142	74273-B-7H-1H-BH	P-82 x (K-850xH-223)	102	65	178	14.6	2891
65	78143	74342-19P-LB-2H-BH	NEC-240 x H-208	102	62	187	13.2	2919
66	78144	74926-5H-LB-BH-BH	C-214 x WFWG-III	103	63	188	10.1	3614
67	78145	74926-10H-LB-BH-BH	,, ,,	104	65	186	11.7	3058
68	78146	7381-B-4H-1H-BH	No-56 x L-550	112	57	183	13.3	2613
69	78147	7446-B-1H-1H-BH	(H-355xL-550)x(JG-62xG-543)	106	52	179	17.8	2641
70	78148	74126-B-1H-BH-BH	P-99 x F-378	107	56	176	10.6	3225
71	78149	74129-B-1H-BH-BH	P-99 x G-130	103	62	184	12.1	2553
72	78150	74142-B-2H-1H-BH	F-378 x C-235	105	62	182	12.2	2780
73	78151	74145-B-5H-BH-BH	T-3 x C-235	110	53	184	15.4	2724
74	78152	74270-B-3H-1H-BH	G-130 x (K-850xChafa)	106	56	186	13.4	2446
75	78153	74256-B-2H-1H-BH	(H-208xCP-66)x(H-208xF-496)	104	56	186	14.4	3725
76	78154	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11xC-214)	104	65	186	16.0	2836
77	78155	74926-4H-LB-1H-BH	C-214 x WFWG-III	106	64	185	15.6	2891
78	78156	74290-B-4P-1P-BH	P-271x(JG-62xChafa)	113	63	186	14.8	1807

Contd....Table 18

1	2	3	4	5	6	7	8	9
79	78157	74942-20[illegible]-LD-1P-BH	NEC-240 x H-203	113	56	17[illegible]	1[illegible].6	2502
80	78153	74012-2h-IB-1P-BH	P-00 x C-21[illegible]	103	60	1[illegible]	10.0	2336
81		[illegible]943	G-130[2]	111	59	1[illegible]2	12.6	2207
82		1951	H-203[2]	103	53	18[illegible]	11.[illegible]	3663
83		913	Annigeri[2]	105	61	18[illegible]	17.1	1642
		Mean		106	59	1[illegible]2	1[illegible]	2806
		Range		95-120	31-75	169-1[illegible]	10.0-21.0	1112--[illegible]31
		CV(%)		[illegible].6	9.2	2.3	1[illegible].1	2[illegible].0

1 Not reported.

2 Average of [illegible] plots

Table 49. Mean performance of entries for various plant characters, ICSN-B 1978/79, Ludhiana.

Cooperators	: B.S. Bhullar T.S. Sandhu	Location	: Ludhiana	Country	: India
Latitude	: 30°56'N	Date planted	: 8-11-1978	Nitrogen (kg/ha)	: 12
Longitude	: 75°52'E	Rainfall (mm)	: 218	Phosphorus (kg/ha)	: 23
Altitude (m)	: 247	Irrigation	: 1	Potassium (kg/ha)	: 0
Local check	: Not included	Row spacing (cm)	: 30	Date harvested	: -[1]

Note : Plant stands were not reported. Late rains caused excessive vegetative growth and increased incidence of diseases later. Pod borer was a problem. Comparative performance of entries may be biased because of a slight gradient in fertility of the plot.

Plot area harvested (m^2) : 1.8

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering[1]	Plant height cm.[1]	Days to maturity[1]	g/100 seed	Yield kg/ha
1	78079	7357-22-3-B-BH	L-550 x K-468				24.2	2113
2	78080	73167-5-3-B-BH	JG-62 x F-496				17.1	2002
3	78081	7310-26-2-B-BH	H-208 x T-3				20.9	1557
4	78082	7343-14-3-B-BH	H-208 x USA-613				27.2	389
5	78083	7310-3-1-B-BH	H-208 x T-3				18.4	445
6	78084	7326-8-5-B-BH	H-208 x CP-66				13.2	167
7	78085	73252-11-2-B-BH	RS-11 x C-214				6.7	139
8	78086	7341-8-1-B-BH	H-208 x N-59				17.2	222
9	78087	737-18-1-B-BH	H-208 x BG-1				15.4	111
10	78088	7389-18-6-B-BH	K-850 x F-373				27.9	167

Contd....Table 49

1	2	3	4	5	6	7	8	9
11	78089	73190-1-2-1H-BH	F-378 x Chafa				14.2	556
12	78090	7332-11-4-2H-BH	H-208 x F-370				15.4	1223
13	78091	7333-12-3-1H-BH	H-208 x F-496				14.8	1223
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223				13.9	1557
15	78093	73167-11-2-1P-BH	JG-62 x F-496				15.9	1334
16	78094	74167-1-1H-B-BH	F-404 x BEG-482				19.2	1668
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404				15.7	890
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100				17.9	2002
19	78097	73304-10-4-2H-BH-BH	Radhey x Bengal gram				14.1	1334
20	78098	73304-14-2-1H-BH-BH	,, ,,				14.4	2112
21	78099	7339-7-2-1P-LB-1H-BH	H-208 x E-100				14.9	1001
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,				15.3	890
23	78101	7341-20-3-1P-LB-1H-BH	H-208 x N-59				17.6	890
24	78102	73140-6-3-1H-LB-BH-BH	JG-62 x K-468				15.0	667
25	78103	73166-6-2-1H-LB-1H-BH	JG-62 x Pant-104				13.6	778
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x F-496				17.5	1223
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370				14.7	445
28	78106	7341-11-2-1H-LB-BH-BH	L-550 x F-61				14.5	334
29	78107	73166-9-3-2H-LB-1H-BH	JG-62 x Pant-104				18.0	334
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-4779				13.2	334
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa				13.9	667
32	78110	73250-15-1-2H-LB-1H-BH	RS-11 x Ceylon-2				14.3	390
33	78111	7320-11-1-1H-1H-BH	H-208 x RS-11				11.7	667
34	78112	7367-17-4-1H-BH-BH	L-550 x P-1786				22.1	1112
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-104				17.4	2224
36	78114	73307-6-2-1H-BH-BH	K-468 x F-378				15.3	1446
37	78115	73170-6-2-1P-1H-BH	JG-62 x E-100				18.9	1668
38	78116	74109-3-2H-LB-BH-BH	P-436 x G-130				15.2	1001
39	78117	73414-1-1H-LB-1H-BH	P-4746 x Sel.544				14.8	1668
40	78118	73196-3-3H-1H-BH-BH	T-3 x JG-24				16.6	2224
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370				16.6	2224
42	78120	73318-11-3-1H-2H-BH	G-24 x Annigeri				13.3	1668

Contd....Table 49

1	2	3	4	5	6	7	8	9
43	78121	7344-13-2-1P-2P-BH	L-550 x F-61				17.4	1390
44	78122	73219-2-4-1H-1H-BH	F-404 x H-223				15.2	1001
45	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613				18.5	1223
46	78124	73307-8-1-2H-1H-BH	K-468 x F-378				14.3	1112
47	78125	73243-17-2-3H-BH-BH	K-4 x F-378				14.1	1001
48	78126	7340-5-1-1P-BH-BP	H-208 x Radhey				15.1	778
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri				11.5	56
50	78128	739-5-4-1H-1H-BH	H-208 x Pant-110				12.6	556
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-100				17.7	445
52	78130	7344-13-3-1P-1H-BH	F-61 x L-550				18.4	334
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa				16.2	951
54	78132	7367-40-1-1P-1H-BH	L-550 x P-1786				18.5	890
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100				19.0	1120
56	78134	73252-11-2-1P-1P-BH	RS-11 x C-214				15.0	1001
57	78135	73185-7-2-1H-1P-BH	G-130 x Chafa				16.3	1001
58	78136	73205-8-4-1H-1P-BH	RS-11 x F-404				15.6	1446
59	78137	73236-8-9H-1P-1H-BH	F-61 x BG-2				14.9	2224
60	78138	74103-B-2H-1H-BH	P-502 x BG-1				15.3	2224
61	78139	74145-B-2H-BH-BH	T-3 x C-235				18.1	1779
62	78140	74169-B-1H-1H-BH	CP-66 x DEG-432				17.3	1112
63	78141	74169-B-3H-BH-BH	,, ,,				16.6	390
64	78142	74273-B-7H-1H-BH	P-82 x (K-350xH-223)				17.5	667
65	78143	74342-10P-LB-2H-BH	NEC-240 x H-208				16.5	1334
66	78144	74926-5H-LB-BH-BH	C-214 x WFWG-III				13.5	1112
67	78145	74926-10H-LB-BH-BH	,, ,,				13.7	556
68	78146	7381-B-4H-1H-BH	No-56 x L-550				15.7	167
69	78147	7446-B-1H-1H-BH	(H-355xL-550)x(JG-62xG-543)				18.0	1111
70	78148	74126-B-1H-BH-BH	P-99 x F-378				15.9	500
71	78149	74129-B-1H-BH-BH	P-99 x G-130				15.4	445
72	78150	74142-B-2H-1H-BH	F-378 x C-235				16.7	1668
73	78151	74145-B-5H-BH-BH	T-3 x C-235				20.2	1056
74	78152	74279-B-3H-1H-BH	G-130 x (K-350xChafa)				18.3	945

Contd....Table 49

1	2	3	4	5	6	7	8	9
75	78153	74256-B-2H-1H-BH	(H-208 x CP-66)x(H-208xF-496)				16.5	1557
76	78154	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11 x C-214)				18.7	1279
77	78155	74926-4H-LB-1H-BH	C-214 x MFWG-III				15.0	2057
78	78156	74290-B-4P-1P-BH	P-271 x(JG-62 x Chafa)				17.2	1279
79	78157	74842-20P-LB-1P-BH	NEC-240 x H-208				18.3	2002
80	78158	74912-2H-LB-1P-BH	P-99 x C-214				16.0	-
81		4948	G-130[2]				13.4	876
82		4954	H-208[2]				15.0	861
83		4918	Annigeri[2]				20.6	443
		Mean					17.0	1102
		Range					6.7-27.2	56-2224
		CV(%)					22.3	43.1

1 Not reported.

2 Average of eight plots

Table 50. Mean performance of entries for various plant characters, ICSN-B 1978/79, Palampur.

Cooperators	: V.P. Gupta M.R. Kalia	Location	: Palampur	Country	: India
Latitude	: 32° N	Date Planted	: 7/11-1978	Nitrogen (kg/ha)	: 20
Longitude	: 76°30'E	Rainfall (mm)	: -	Phosphorus (kg/ha)	: 40
Altitude (m)	: 720	Irrigation	: 0	Potassium (kg/ha)	: 0
Local Check	: C-235	Row spacing	: 30	Date harvested	: -

Note: Planting was late. Plant stands in general were poor. Ascochyta blight damaged a few entries. No insect damage.

Plot area harvested (m^2) : 0.9

Sl. No.	ICSN No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha.
1	78077	7367-22-3-B-BP	I-350 x K-468	130	52	177	22	644
2	78080	73167-5-3-B-BH	J0-62 x F-396	126	54	177	12	1444
3	78081	7310-26-2-B-BH	H-208 x T-3	128	58	177	16	1455
4	78082	7313-17-3-B-BP	H-208 x USA-613	134	55	177	12	211
5	78083	7310-3-1-B-BH	H-208 x T-3	126	53	177	12	111
6	78084	7310-3-5-B-BH	H-208 x CP-66	116	52	177	10	1078
7	78085	73252-11-2-B-BP	RS-11 x C-214	136	53	177	12	655
8	78086	7341-8-1-B-BH	H-208 x N-59	134	60	177	12	1222
9	78087	737-18-1-B-BP	H-208 x BG-1	134	55	177	12	300
10	78088	7339-18-6-B-BP	K-350 x F-378	134	58	179	20	573
11	78089	73190-1-2-1B-BH	F-378 x Chafa	134	59	179	10	778
12	78090	7332-11-4-2B-BP	H-208 x F-370	132	61	179	11	1333

Contd....Table 50

1	2	3	4	5	6	7	8	9
13	78091	7333-12-3-1H-BH	H-208 x F-496	130	60	181	12.	311
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223	130	65	179	11	211
15	78093	73167-11-2-1P-BH	JG-62 x F-496	130	60	179	10	500
16	78094	73167-1-1H-B-BH	F-404 x BEG-482	134	56	179	12	467
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	130	54	181	13	522
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	128	53	181	10	389
19	78097	7330[illegible]-10-[illegible]-2H-BH-BH	Padhey x Bengal gram	128	60	171	10	667
20	78098	733[illegible]-[illegible]-2-1H-B-BH-BH	,, ,,	134	5[illegible]	179	1[illegible]	156
21	78099	7332-2-1P-LD-1H-BH	H-208 x E-100	130	53	177	10	733
22	78100	733[illegible]-[illegible]-3-1P-L[illegible]-1H-BH	,, ,,	126	[illegible]	181	12	233
23	78101	73[illegible]1-20-3-1P-LD-[illegible]H-BH	H-208 x N-59	136	59	179	13	189
[illegible]	78102	7314C-6-3-1H-LI-BH-BH	JG-62 x K-468	130	57	179	10	322
25	78103	73166-6-2-1H-LI-1H-BH	JG-62 x Pant-10[illegible]	13[illegible]	52	181	1[illegible]	989
26	78104	73167-[illegible]-3-1H-LI-[illegible]H-BH	JG-62 x F-496	126	55	181	12	833
27	78105	7332-11-[illegible]-2[illegible]-LI-[illegible]H-BH	H-208 x F-370	138	58	17[illegible]	12	[illegible]33
2[illegible]	78106	7[illegible]-[illegible]-LI-[illegible]-BH	L-550 x F-61	134	57	[illegible]	10	600
[illegible]	78107	[illegible]66-[illegible]-3-2-LI-1H-[illegible]	JG-62 x Pant-10[illegible]	[illegible]30	57	131	12	611
[illegible]	[illegible]10[illegible]	7317[illegible]-1-[illegible]-LI-1H-BH	G-130 x P-[illegible]779	13[illegible]	[illegible]	[illegible]	12	633
31	781[illegible]	7[illegible]1[illegible]5-7-2-2H-LI-1H-BH	G-130 x [illegible]	134	[illegible]	177	10	111
32	78110	73250-15-1-2H-1B-1H-BH	RS-11 x Ceylon-2	138	61	177	10	289
33	78111	7323-11-1-1H-1H-BH	H-208 x RS-11	134	57	177	11	273
3[illegible]	781[illegible]2	7367-17-[illegible]-1H-[illegible]-LH	L-550 x P-1796	136	57	177	16	433
35	78113	7316[illegible]-[illegible]-2H-1H-BH	JG-62 x Pant-10[illegible]	126	62	177	12	556
3[illegible]	7811[illegible]	73307-[illegible]-2-1H-1H-BH	K-[illegible]68 x F-178	132	56	177	10	878
37	78115	77170-[illegible]-2-1P-1H-BH	JG-62 x E-100	130	52	180	5	56
[illegible]	78116	7[illegible]-2[illegible]-[illegible]-1H-BH	P-436 x G-130	13[illegible]	55	17[illegible]	12	244
3[illegible]	78117	73[illegible]-1-1H-LD-1H-BH	P-[illegible]74C x Sel.5[illegible]	130	71	179	10	667
[illegible]	78118	7316-[illegible]-3[illegible]-1H-1H-BH	T-3 x JG-2[illegible]	130	55	1[illegible]1	10	156
41	78119	7332-12-[illegible]-1H-BH	H-208 x F-370	13[illegible]	58	179	10	44
42	78120	7331[illegible]-11-[illegible]-1B-2H-BH	G-24 x Annigeri	136	62	179	10	614
43	78121	73[illegible]-13-2-1P-2H-BH	L-550 x F61	130	56	180	12	600
	78122	73219-2-4-1H-1H-BH	F-404 x H-223	134	50	177	10	655

Contd....Table 50

1	2	3	4	5	6	7	8	9
5	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613	132	61	177	12	1133
[illegible]	7812[illegible]	73307-8-1-2P-1H-BH	K-[illegible] x F-378	132	52	177	10	578
[illegible]7	78125	772[illegible]3-17-2-[illegible]-1H-BH	K-[illegible] x F-373	13[illegible]	57	177	11	1389
[illegible]	7[illegible]126	73[illegible]0-5-1-1F-[illegible]H-BP	H-208 x Radhey	134	64	179	12	722
[illegible]	78127	73[illegible]1-7-[illegible]-1H-1H-[illegible]	G-543 x Annigeri	130	58	179	10	1022
50	78128	739-5-[illegible]-1H-1H-1H	H-208 x Pant-110	130	51	179	10	778
51	7[illegible]1[illegible]	73170-6-[illegible]-1H-LH	JG-62 x F-100	13[illegible]	55	181	6	67
52	7[illegible]130	73[illegible]-13-3-1[illegible]-1H-BH	F-61 x L-550	128	5[illegible]	181	12	389
53	78131	73[illegible]5-12-3-[illegible]-2H-[illegible]	G-130 x Chafa	13	62	179	12	811
5[illegible]	7[illegible]132	7367-[illegible]0-[illegible]-1P-1H-1H	L-550 x P-1786	132	56	179	12	[illegible]89
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100	130	57	181	12.	1055
56	7813[illegible]	73252-11-2-1P-1P-[illegible]	RS-11 x C-214	132	5[illegible]	179	12.	1111
[illegible]7	78135	73135-7-2-1[illegible]-1H-BH	C-130 x Chafa	132	5[illegible]	179	12	833
[illegible]	[illegible]136	73205-3-4-1H-1H-[illegible]P	RS-11 x F-[illegible]	126	5[illegible]	181	10	544
[illegible]	7[illegible]137	73[illegible]-1H-1P-[illegible]H	F-61 x [illegible]G-2	130	60	181	10	1355
6[illegible]	7[illegible]13[illegible]	741[illegible]-[illegible]-2[illegible]-1H-1H	[illegible]-50[illegible] x EG-1	130 1	53 1	181 1	-10.	1111 1
[illegible]	781[illegible]	741 5-[illegible]-[illegible]	F-3 x C-235	-	-	-		-
62	7[illegible]	7 14[illegible] B-1H-1H-1H	[illegible] x DEG-[illegible]	1[illegible]0	53	180	12	[illegible]
[illegible]	781[illegible]1	741[illegible]-F-[illegible]-2H-1H	,, ,,	13	51	1[illegible]	12.	7[illegible]4
[illegible]	7[illegible]1[illegible]2	7 [illegible]73[illegible]-7H-1H-1H	P-32 x (K-[illegible]50 x H-223)	1[illegible]	52	17[illegible]	12.	1522
[illegible]5	781[illegible]	7[illegible]2-10P-LB-[illegible]H	[illegible]EC-240 x H-208	13[illegible]	52	177	10	556
[illegible]	781[illegible]	7[illegible]26-5[illegible]-1B-[illegible]	C-214 x YEWG-III	132	5[illegible]	177	12	1111
[illegible]7	781[illegible]5	7[illegible]2[illegible]-1[illegible]-1B-[illegible]-BH	,, ,,	122	55	177	10	1633
[illegible]	78146	7351-B-4H-1H-1H	NO-56 x L-550	13[illegible]	57	177	12	1578
[illegible]	78147	7[illegible]6-B-1H-1H-[illegible]	(H-355xL-550)x(JG-62xG-543)	13[illegible]	59	177	16.	104[illegible]
70	781[illegible]	7 125-B-1[illegible]-[illegible]	P-[illegible] x F-378	134	51	177	11	411
71	781[illegible]	7 1[illegible]-1H-[illegible]-1H	P-[illegible] x C-130	13[illegible]	[illegible]7	177	10	1055
72	781[illegible]	7[illegible]1[illegible]-[illegible]-1F-1H	F-373 x C-235	128	51	177	10	322
73	78151	741[illegible]-B-5P-BH-BH	T-3 x C-235	134	[illegible]	177	12	778
7[illegible]	78152	74270-B-3H-1H-BH	G-130 x(K-850xChafa)	130	53	177	12	1055
75	78153	74256-B-2H-1H-BH	(H-208xCP-66)x(H-208xF-[illegible]6)	130	51	177	12	800

Contd....Table 50

1	2	3	4	5	6	7	8	9
76	78151	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11xC-214)	128	46	177	10	667
77	78155	74026-4H-LB-1H-BH	C-214 x WFWG-III	128	44	177	10	300
78	78156	74280-B-4P-1P-1H	P-271x(JG-62xChafa)	134	44	177	12	556
79	78157	74842-20P-LB-1P-BH	NEC-240 x H-208	134	44	177	14	278
80	78158	74612-2H-LB-1P-BH	P-89 x C-214	134	41	177	12	722
81		4973	G-130[2]	134	55	179	11.6	731
82		4954	H-208[2]	131	54	178	11.1	568
83			C-235[2]	130	57	178	12.1	564
		Mean		132	56	179	12	718
		Range		116-140	41-73	177-181	5-22	56-1389
		CV%		1.5	7.7	0.5	14	30.0

[1] not reported

[2] average of eight plots.

Table 51. Mean performance of entries for various plant characters, ICSN-B 1978/79, Pantnagar.

Cooperators	: B.P. Pandya M.P. Pandey Brij Vir Singh	Location	: Pantnagar	Country	: India
Latitude	: 29°N	Date Planted	: 22-11-1978	Nitrogen (kg/ha)	: 0
Longitude	: 72°3'E	Rainfall (mm)	: 198	Phosphorus (kg/ha)	: 0
Altitude (m)	: 244	Irrigation	: 0	Potassium (kg/ha)	: 0
Local check	: Pant G-114	Row spacing(cm)	: 30	Date harvested	: -

Note: Plant stands were reported normal. Blight caused severe damage. Thiodan was sprayed four times against pod borer. Annigeri was replaced by local check Pant G-114. Five lines were selected for testing in station trials.

Plot area harvested (m^2) · 1.5

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78079	7357-22-3-B-BH	L-550 x K-468	103	70	150	14.0	961
2	78080	73167-5-3-B-BH	JG-62 x F-496	103	69	145	18.0	1207
3	78081	7310-26-2-B-BH	H-208 x T-3	105	63	143	14.9	1107
4	78082	7343-14-3-B-BH	H-208 x USA-613	100	70	143	13.0	1768
5	78083	7310-3-1-B-BH	H-208 x T-3	100	78	143	14.6	707
6	78084	7328-8-5-B-BH	H-208 x CP-66	99	64	150	12.0	814
7	78085	73252-11-2-B-BH	RS-11 x C-214	101	60	138	13.8	800
8	78086	7341-8-1-B-BH	H-208 x N-59	111	73	161	15.1	974
9	78087	737-18-1-B-BH	H-208 x BG-1	101	77	138	21.8	1107
10	78088	7389-18-6-B-BH	K-850 x F-378	98	62	157	12.7	1361
11	78089	73190-1-2-1H-BH	F-378 x Chafa	100	65	140	12.8	654
12	78090	7332-11-4-2H-BH	H-208 x F-370	104	75	140	12.3	981

Contd....Table 51

1	2	3	4	5	6	7	8	9
13	78091	7333-12-3-1H-BH	H-208 x F-496	102	61	141	14.0	767
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223	100	56	141	15.4	1361
15	78093	73167-11-2-1P-BH	JG-62 x F-496	96	54	141	13.9	1374
16	78094	74167-1-1H-B-BH	F-404 x BEF-482	98	68	144	13.9	840
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	94	62	136	15.6	1107
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	100	64	158	13.0	420
19	78097	73304-10-4-2H-BH-BH	Radhey x Bengalgram	100	67	162	12.7	1621
20	78098	73304-14-2-1H-B-BH-BH	,, ,,	99	70	136	15.0	1467
21	78099	7339-7-2-1P-LB-1H-BH	H-208 x E-100	98	51	148	14.4	1127
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,	100	62	150	12.8	534
23	78101	7341-20-3-1P-LB-1H-BH	H-208 x N-59	99	62	150	12.7	1107
24	78102	73140-6-3-1H-LB-BH-BH	JG-62 x K-468	103	65	163	12.7	961
25	78103	73166-6-2-1H-LB-1H-BH	JG-62 x Pant-104	101	84	162	14.2	1521
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x F-496	100	53	145	12.0	1521
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370	101	55	158	12.9	567
28	78106	7344-11-2-1H-LB-BH-BH	L-550 x F-61	103	56	151	14.8	1514
29	78107	73166-9-3-2H-LB-1H-BH	JG-62 x Pant-104	102	37	161	13.8	1107
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-4779	105	60	161	13.9	954
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa	100	65	162	13.0	967
32	78110	73250-15-1-2H-LB-1H-BH	RS-11 x Ceylon-2	107	70	144	12.9	274
33	78111	7320-11-1-1H-1H-BH	H-208 x RS-11	102	52	142	19.5	740
34	78112	7367-17-4-1H-BH-BH	L-550 x P-1786	98	61	143	14.2	2401
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-104	96	61	143	13.3	987
36	78114	73307-6-2-1H-BH-BH	K-468 x F-378	102	61	140	11.8	400
37	78115	73170-6-2-1P-1H-BH	JG-62 x E-100	94	70	142	14.4	667
38	78116	74109-B-2H-LB-BH-BH	P-436 x G-130	98	82	142	13.8	1628
39	78117	73414-1-1H-LB-1H-BH	P-4746 x Sel.544	96	55	150	14.2	814
40	78118	73196-8-3H-1H-BH-BH	T-3 x JG-24	97	78	139	15.8	1481
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370	100	75	165	13.5	981
42	78120	73318-11-3-1H-2H-BH	G-24 x Annigeri	100	60	140	15.0	534
43	78121	7344-13-2-1P-2P-BH	L-550 x F-61	98	62	140	13.0	1067
44	78122	73219-2-4-1H-1H-BH	F-404 x H-223	97	58	138	14.7	2741

Contd....Table 51

1	2	3	4	5	6	7	8	9
45	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613	98	60	145	13.4	714
46	78124	73307-3-1-2H-1H-BH	K-468 x F-378	102	74	145	12.7	2141
47	78125	73243-17-2-3H-BH-BH	K-4 x F-378	98	67	142	12.1	1081
48	78126	7340-5-1-1P-BH-BP	H-208 x Radhey	96	55	140	17.6	1781
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri	100	54	142	12.6	1234
50	78128	739-5-4-1H-1H-BH	H-208 x Pant-110	100	60	142	14.0	667
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-100	94	70	148	14.6	1718
52	78130	7314-13-3-1P-1H-BH	F-61 x L-550	100	62	157	13.1	947
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa	106	63	150	16.3	177[illegible]
54	78132	7367-10-1-1P-1H-BH	L-550 x P-1786	100	71	140	12.6	81[illegible]
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100	101	62	140	12.8	707
56	7813[illegible]	73252-11-2-1P-1P-BH	RS-11 x C-214	106	70	142	12.8	534
57	78135	73185-7-2-1P-1P-BH	G-130 x Chafa	98	61	139	12.5	1640
58	78136	73205-8-4-1H-1P-BH	RS-11 x F-49[illegible]	100	64	139	12.7	93[illegible]
59	78137	73286-B-9H-1H-1H-BH	F-61 x BG-2	104	71	140	11.5	2001
60	78138	74103-B-2H-1H-BH	P-502 x BG-1	106	62	138	12.0	1614
61	78139	74145-B-2H-BH-BH	T-3 x C-235	103	55	156	14.0	1621
62	78140	74169-B-1H-1H-BH	CP-66 x BEG-482	102	59	150	13.8	800
63	78141	74169-B-3H-BH-BH	,, ,,	106	56	162	14.4	1628
64	78142	74273-B-7H-1H-BH	P-82 x (K-850x[illegible]-225)	107	53	161	14.3	827
65	78143	74842-19P-LB-2H-BH	NEC-240 x H-208	98	65	156	14.0	981
66	78144	74926-5H-LB-BH-BH	C-214 x WFWG-III	101	57	148	12.6	800
67	78145	74926-10H-LB-BH-BH	,, ,,	100	60	140	12.7	121
68	7814[illegible]	7381-B-4H-1H-BH	No.56 x L-550	100	52	138	15.1	2134
69	78147	7446-B-1H-1H-BH	(H-355xL-550)x(JG-62xG-543)	101	50	136	21.8	1527
70	78148	74126-B-1H-BH-BH	P-99 x F-378	109	45	150	15.0	2935
71	78149	74129-B-1H-BH-BH	P-99 x G-130	111	64	136	11.7	1774
72	78150	74142-B-2H-1H-BH	F-378 x C-235	102	50	140	15.0	1614
73	78151	74145-B-5H-BH-BH	T-3 x C-235	102	52	145	15.0	740
74	78152	74270-B-3H-1H-BH	G-130 x (K-850xChafa)	102	54	145	14.0	1607
75	78153	74256-B-2H-1H-BH	(H-208xCP-66)x(H-208xF-496)	115	55	161	14.6	1808
76	78154	74595-1P-LB-1H-BH	(BG-1xC-235)x(RS-11xC-214)	107	61	155	14.0	1334

Contd....Table 51

1	2	3	4	5	6	7	8	9
77	78155	74926-44-LB-1H-BH	C-214 x WFWG-III	144	52	136	12.3	1928
78	78156	74290-B-4P-1P-BH	P-271 x (JG-62 x Chafa)	109	50	146	13.0	1481
79	78157	74842-20P-LB-1P-BH	NEC-240 x H-208	109	51	149	14.4	1247
80	78158	74912-2H-LB-1P-BH	P-99 x C-214	111	51	150	11.0	1254
81		4948	G-130 [2]	101	62	149	12.8	1563
82		4954	H-208 [2]	102	62	158	12.8	1721
83			Pant G-114 [2]	104	62	159	13.4	1366
		Mean		102	62	149	14.	1220
		Range		94-115	45-87	136-165	11.0-21.8	27[illegible]-2934
		CV%		3.3	8.0	2.1	6.1	47.5

[1] not reported

[2] average of eight plots.

Table 52. Mean performance of entries for various plant characters, ICSN-B 1978/79, Varanasi.

Cooperators	: P.B. Singh J.K. Singh	Location	: Varanasi	Country	: India
Latitude	: 25°18'N	Date Planted	: 25-10-78	Nitrogen (kg/ha)	: 15
Longitude	: 83°03'E	Rainfall (mm)	: -[1]	Phosphorus (kg/ha)	: 40
Altitude (m)	: 129	Irrigation	: 1	Potassium (kg/ha)	: 0
Local check	: Type-3	Row spacing(cm)	: 30	Date harvested	: -[1]

Note: Plant stands were poor to normal. Late rains induced excessive vegetative growth resulting in leaf diseases. These caused considerable damage. Endosulphan was sprayed against pod borer at flowering.

Plot area harvested (m^2) : 1.5

Sl. No.	ICCL No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Plant height cm	Days to maturity	g/100 seed	Yield kg/ha
1	78079	7357-22-3-3-BH	L-550 x K-468	92	70	162	22.3	2410
2	78080	73167-5-3-5-BH	JG-62 x F-496	83	65	153	13.2	2209
3	78081	7310-20-2-5-BH	H-208 x T-3	88	90	158	17.6	2144
4	78082	7313-14-3-5-BH	H-208 x USA-613	92	70	164	14.3	1637
5	78083	7310-3-1-5-BH	H-208 x T-3	92	79	162	15.4	1201
6	78084	7328-8-5-B-BH	H-208 x CP-66	92	8.	161	14.2	987
7	78085	73252-11-2-B-BH	RS-11 x C-214	96	86	167	17.3	2028
8	78086	7341-8-1-B-BH	H-208 x N-59	92	75	164	16.4	903
9	78087	737-18-1-B-BH	H-208 x BG-1	96[1]	66[1]	164[1]	17.4[1]	2066
10	78088	7309-16-6-B-BH	K-850 x F-378	-	-	-	-	-
11	78089	73190-1-2-1H-BH	F-378 x Chafa	96	60	162	20.0	2237
12	78090	7332-11-4-2H-BH	H-208 x F-370	96	72	164	18.4	903
13	78091	7333-12-3-1H-BH	H-208 x F-496	96	53	164	11.0	2084
14	78092	73213-9-3-1H-BH	GW-5/7 x H-223	101	74	167	13.5	1503

Contd....Table 52

1	2	3	4	5	6	7	8	9
15	78093	73167-11-2-1P-BH	JG-62 x F-496	96	83	162	19.3	1769
16	78094	74167-1-1H-B-BH	F-404 x BEG-482	96	62	164	15.4	689
17	78095	7325-11-2-1H-BH-BH	H-208 x F-404	96	70	164	16.0	1860
18	78096	73170-3-1-1H-BH-BH	JG-62 x E-100	88	59	158	14.3	976
19	78097	73304-10-4-2H-BH-BH	Radhey x Bengal gram	92	46	162	17.2	1529
20	78098	73304-14-2-1H-B-BH-BH	,, ,,	92	68	164	15.6	915
21	78099	7339-7-2-1P-LB-1H-BH-BH	H-208 x E-100	92	83	158	18.2	1961
22	78100	7339-9-3-1P-LB-1H-BH	,, ,,	82	82	158	19.6	1750
23	78101	7341-20-3-1P-LB-1H-BH	H-208 x N-59	85	84	158	17.0	2204
24	78102	73140-6-3-1H-LB-BH-BH	JG-62 x K-468	88	33	158	15.4	2605
25	78103	73166-6-2-1H-LB-1H-BH	JG-62 x Pant-104	85	86	162	18.2	932
26	78104	73167-5-3-1H-LB-BH-BH	JG-62 x F-496	80	82	158	14.4	2490
27	78105	7332-11-3-2H-LB-BH-BH	H-208 x F-370	85	78	158	18.4	3004
28	78106	7344-11-2-1H-LB-BH-BH	L-550 x F-61	85	73	158	15.4	2146
29	78107	73166-9-3-2H-LB-1H-BH	JG-62 x Pant-104	82	74	158	15.4	1689
30	78108	73175-1-1-2H-LB-BH-BH	G-130 x P-4779	88	85	158	10.3	745
31	78109	73185-7-2-2H-LB-1H-BH	G-130 x Chafa	96	80	164	11.0	1821
32	78110	73250-15-1-2H-LB-1H-BH	RS-11 x Ceylon-2	88	77	164	12.0	2069
33	78111	7320-11-1-1H-1P-BH	H-208 x RS-11	88	76	164	12.2	2345
34	78112	7367-17-4-1H-BH-BH	L-550 x P-1786	85	74	158	18.0	2017
35	78113	73166-9-3-2H-1H-BH	JG-62 x Pant-104	82	86	158	14.4	1463
36	78114	73307-6-2-1H-BH-BH	K-468 x F-378	88	81	162	18.0	1336
37	78115	73170-6-2-1P-1H-BH	JG-62 x E-100	92	89	158	16.4	1503
38	78116	74109-B-2H-LB-BH-BH	P-436 x G-130	96	61	158	17.7	1502
39	78117	73414-1-1H-LB-1H-BH	P-4746 x Sel.544	92	72	158	15.3	1818
40	78118	73196-8-3H-1H-BH-BH	T-3 x JG-24	85	72	158	13.2	1243
41	78119	7332-12-4-1H-1H-BH	H-208 x F-370	96	79	158	15.2	1557
42	78120	73318-11-3-1H-2H-BH	G-24 x Annigeri	96	75	158	18.0	1711
43	78121	7344-13-2-1P-2P-BH	L-550 x F-61	85	70	158	16.4	2917
44	78122	73219-2-4-1H-1H-BH	F-404 x H-223	96	75	158	16.2	2544
45	78123	73308-1-3-1H-2H-BH-BH	F-378 x USA-613	96	79	158	11.9	1547
46	78124	73307-8-1-2H-1H-BH	K-468 x F-378	85	66	158	12.1	1305
47	78125	73243-17-2-3H-BH-BH	K-4 x F-378	92	54	158	16.0	903
48	78126	7340-5-1-1P-BH-BP	H-208 x Radhey	85	66	158	14.3	2435

Contd....Table 52

1	2	3	4	5	6	7	8	9
49	78127	73301-7-4-1H-1H-BH	G-543 x Annigeri	96	84	158	12.0	2534
50	78128	739-5-4-1H-1H-BH	H-203 x Pant-110	96	66	156	11.2	1481
51	78129	73170-6-3-2P-1H-BH	JG-62 x E-100	88	85$_1$	158$_1$	17.0$_1$	2117$_1$
52	78130	7344-13-3-1P-1H-BH	F-61 x L-550	96	-	-	-	-
53	78131	73185-12-3-1H-2H-BH	G-130 x Chafa	85	78	162	11.0	4061
54	78132	7367-40-1-1P-1H-BH	L-550 x P-1786	88	76	158	14.9	2024
55	78133	73170-18-4-1P-3H-BH	JG-62 x E-100	92	63	158	14.6	2513
56	78134	73252-11-2-1P-1P-BH	RS-11 x C-214	85	69	158	13.7	2873
57	78135	73185-7-2-1H-1P-BH	G-130 x Chafa	85	63	156	15.4	1502
58	78136	73205-8-1-1H-1P-BH	RS-11 x F-404	85	78	158	13.2	1950
59	78137	73206-B-8H-1H-1H-BH	F-61 x PG-2	92	72	158	18.0	2209
60	78138	74103-B-2H-1H-BH	P-502 x BG-1	92	70	158	14.0	2513
61	78139	74145-B-2H-PH-BH	T-3 x C-235	88	68	162	17.0	2090
62	78140	74169-B-1H-1H-BH	CP-66 x BEG-482	92	89	158	14.0$_1$	1625$_1$
63	78141	74169-B-3H-3H-BH	,, ,,	-	-	-	-	-
64	78142	74273-B-7H-1H-PH	P-32 x(K-350 x H-223)	96	99	162	15.0	1001
65	78143	74342-10P-LB-2H-BH	NEC-240 x H-208	96	88	158	12.3	1548
66	78144	74026-5H-LB-BH-BH	C-214 x WFWG-III	79	66	158	14.4	1226
67	78145	74026-10H-LB-3H-BH	,, ,,	82	79	162	14.0	1056
68	78146	7381-B-4H-1H-BH	No.5[illegible] x L-550	92	78	158	13.9	910
69	78147	7446-B-1H-1H-BH	(H-355xL-550)x(JG-62xG-513)	85	73	154	17.4	792
70	78148	74126-B-1H-BH-BH	P-99 x F-378	85	85	158	11.0	1362
71	78149	74126-B-1P-BH-PH	P-99 x G-130	82	70	162	14.0	2239
72	78150	74142-B-2H-1H-PH	F-378 x C-235	92	68	162	17.7	1464
73	78151	74145-B-5H-5H-BH	T-3 x C-235	85	79	158	15.1	2626
74	78152	74270-B-3H-1H-BH	G-130 x(K-350 x Chafa)	85	73	158	14.9	1043
75	78153	74256-B-2H-1H-BH	(H-208xCP-66)x(H-208xF-496)	85	86	158	13.7	2439
76	78154	74595-1P-LB-1H-PH	(PG-1xC-235)x(RS-11xC-214)	92	75	158	19.0	1195
77	78155	74926-4H-LB-1H-BH	C-214xWFWG-III	88	75	158	20.9	3130
78	78156	74290-B-4P-1P-PH	P-271x(JG-62xChafa)	94	76	158	17.0	1517
79	78157	74842-20P-LB-1P-BH	NEC-240 x H-208	96	96	158	12.0	2094
80	78158	74912-2H-LB-1P-BH	P-99 x C-214	92	46	158	13.0	2170

Contd....Table 52

1	2	3	4	5	6	7	8	9
81		4948	G-130[2]	93	72	162	13.0	1411[2]
82		4954	H-208[2]	91	59	161	12.2	1969[2]
83			Type-3[2]	90	72	164	20.0	2542[2]
		Mean		90	73	159	16.0	1817
		Range		79-102	46-99	158-167	10.3-22.3	689-4061
		CV%		3.3	3	1.2	12.2	43.4

[1] not reported

[2] average of eight plots.

78108 the latest with 159 days. H-208 and G-130 were intermediate at around 157 days. ICCL-78108 was also very much taller than other entries 69 cms, but second tallest was 78081 which was among the earliest maturing lines. Entry ICCL-78087 had the largest seed followed by 78079, both registering over 20 g per 100 seed. This was much better than H-208 and G-130 which were around 13 g and significantly smaller than most other entries.

Coefficients of variation for seed yield were high ranging from 16.1 to 47.5% with only four trials less than 30%. The highest yielder overall was 78081 producing 2024 kg seed per hectare and considerably more than the best check H-208 with 1669 kg per hectare (Table 53). However, there considerable interactions between genotypes and environments. ICCL-78081 varied in rank between third at Dholi and 52nd at Kanpur and other entries showed similar fluctuations from location to location.

Performance of the entries relative to the checks at individual locations was much better than in ICSN-A there being one or more entries significantly higher yielding than the best check at 8 of the 10 locations. The twenty entries common to 1977-78 and 1979-80 performed relatively consistently across seasons; the first three overall appearing among the top four in both years (Table 54).

Days to 50% flowering tended to be positively correlated with days to maturity and both showed a tendency for negative correlation with seed yield indicating early maturity to be beneficial but other correlations were non-significant or inconsistent (Table 55).

Table 53. Mean seed yield (kg/ha) and ranks of ICSN-B entries grown at different locations in 1978-79.

Sl.No.	ICCL.No.	Parwanipur Nepal		Dokri Pakistan		Dholi India		Faizabad India		ICRISAT-Hissar India	
		Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Rank
1	2	3		4		5		6		7	
1	78079	3101	1	1501	41	1946	5	2669	6	534	56
2	78080	2862	2	2446	4	1251	41	1557	37	767	43.
3	78081	2671	5	2057	15	2085	3	2391	10	2134	5
4	78082	1956	38	1668	36	1390	29	1279	47	1267	20
5	78083	2099	21	1835	24	1668	12	1779	23	334	69
6	78084	1908	40	1835	24.	1390	29.	2391	10	469	61
7	78085	1908	40	1334	49	1390	29	1390	41	834	41
8	78086	1670	53	2224	7	1668	12	834	71	1467	11
9	78087	1717	51	1223	58.	1112	51	2669	6	133	77
10	78088	2337	9	1890	20	1668	12	2669	6	334	69
11	78089	1383	71	667	79	1390	29	1779	23	534	56
12	78090	906	79	1446	44	1390	29	2669	6	334	69
13	78091	716	80	1336	44	1112	51	1668	31	434	64
14	78092	1431	65	2224	7	1112	51.	1390	41	569	50
15	78093	2051	30	2446	4	1390	29	2780	3	267	74
16	78094	1238	77	1279	53	834	68	668	-	434	64
17	78095	1407	67	1223	58	1390	29	1668	31	1534	13
18	78096	2051	30.	2224	7	1668	12	1668	31	334	69
19	78097	1741	48	1223	58.	1390	29	1668	31	1134	27
20	78098	1836	44	1279	53	834	68	834	71	1167	26
21	78099	1813	45	1890	20	1946	5	834	71	1367	76
22	78100	1717	51	1334	49	2224	1	1112	59	2601	2
23	78101	1336	75	1779	30	1668	12	2224	14	1201	22
24	78102	1622	57	2113	12	1668	12	1112	59	1267	20
25	78103	1383	71	1835	24	1112	51	1223	50	1201	22.
26	78104	2051	30	2057	15	2224	1	1668	31	1267	20
27	78105	1288	77	1279	53	1390	29.	1668	31	-[1]	-
28	78106	1717	51	1279	53	1112	51	834	71	534	56

Contd....Table 53

	Kanpur India		Ludhiana India		Palampur India		Pantnagar India		Varanasi India		Mean	
	Yield	Rank	Yield	Rank	Yield	Rank	Yield	Pank	Yield	Rank	Yield	Rank
1	8		9		10		11		12		13	
1	3114	16	2113	7	644	43	961	52	2410	15	1899	3
2	1835	77	2002	11	1344	6	1207	37	2209	19	1758	8
3	2641	52	1557	20	1455	5	1101	43	2144	24	2024	1
4	2002	76	389	68	211	73	1768	12	1637	41	1356	59
5	2502	61	445	65	1111	13	707	69	1201	65	1268	70
6	2669	19	167	75	1078	16	811	60	987	67	1371	53
7	2891	33	139	77	656	41	300	63	2028	31	1337	61
8	2669	19	222	73	1222	9	971	50	903	73	1386	49
9	2919	28	111	78	300	67.	1107	40	2066	30	1336	63
10	3836	2	167	75	578	19	1361	30	-	-	1612	21
11	3336	11	556	61	778	32	651	73	2237	18	1331	65
12	2891	33	1223	30	1273	2	921	48	903	73	1141	79
13	2335	68	1223	30	311	66	767	65	2087	28	1310	67
14	2113	71	1557	20	211	73	1361	30	1503	52	1353	60
15	2919	28	1334	25	500	56	137	29	1769	40	1683	14
16	2558	56	1668	16	167	58	870	57	689	77	1451	42
17	2947	25	830	50	522	55	1107	40	1860	37	1455	38
18	3475	8.	2002	11	889	24	720	78	976	69	1571	27
19	2224	72	1334	25	667	35	1621	17	1529	50	1453	39
20	3058	20	2113	7	156	76	1367	28	915	70	1366	54.
21	4031	1	1001	12	733	35	1127	38	1961	34	1670	17
22	2558	56	890	50.	833	27	534	77	1750	11	1555	29
23	3002	23	890	50	189	75	1107	40	2207	21	1560	28
24	2363	67	667	57	322	64	961	52	2605	7	1470	35
25	2391	65	778	54	989	22	1521	23	932	68	1337	61
26	3475	8.	1223	30	833	27	1521	23	2490	12	1881	4
27	3114	16	445	65	433	50.	567	74	3004	3	1465	36
28	2280	70	334	70	600	17	1514	25	2146	23	1215	75

Contd....Table 53

1	2	3		4		5		6		7	
29	78107	1622	57	2113	12	1390	29	1668	31	1401	15
30	78108	1646	55	1112	67	1390	29	1668	31	567	51
31	78109	1741	48	890	77	834	68	1112	59	567	51
32	78110	1407	67	1668	36	834	68	2224	14	600	47
33	78111	2290	12	1835	24	1112	51	1668	31	594	49
34	78112	1908	40	1946	18	834	68	2780	3	1434	13
35	78113	1980	37	1501	41	1390	29	1946	19	867	39
36	78114	2385	8	1223	58	1668	12	1390	41	1001	33
37	78115	2099	21	1168	63	1112	51	1112	59	-1	-
38	78116	2242	15	1779	30	1112	51	834	71	1134	27
39	78117	1550	62	1001	73	1390	29	667	76	400	66
40	78118	2242	15	1334	49	1223	42	1112	59	1034	31
41	78119	2075	26	1056	71	834	68	1946	19	1434	13
42	78120	2313	10	1835	24	973	60	556	79	1401	15
43	78121	2313	10	2502	3	834	68	556	79	1734	7
44	78122	2295	1	1279	53	834	68	1123	50	600	47
45	78123	2290	3	2168	9	1112	51	1112	59	334	69
46	78124	1893	43	1223	58	1112	51	1390	41	534	56
47	78125	1503	63	1056	71	1112	51	1390	41	434	64
48	78126	2147	18	2724	1	556	78	695	75	2234	4
49	78127	1359	71	1779	30	556	78	1390	41	-1	-
50	78128	1393	71	1668	36	1112	51	834	71	534	56
51	78129	2075	26	1112	67	1390	29	2224	14	1467	11
52	78130	2242	15	2057	15	1668	12	1168	53	1534	9
53	78131	2099	21	1724	33	1390	29	2780	3	534	56
54	78132	1333	71	1112	67	1390	29	2224	1	767	43
55	78133	1908	0	2113	12	1668	12	1779	23	469	61
56	78134	2003	35	1446	44	1112	51	1112	59	300	72
57	78135	1288	77	1168	63	1112	51	1223	50	234	75
58	78136	1431	65	773	78	834	68	1112	59	867	39
59	78137	1574	60	1001	73	1390	29	1001	66	1201	22
60	78138	1574	60	1390	46	834	68	1946	19	269	73

Contd....Table 53

1	8								2		3	
29	2558	56	334	70	611	40	1107	40	1680	13	1448	13
30	3058	20	334	70	633	45	951	54	715	76	1211	77
31	2780	42	667	57	111	13	667	51	1321	33	1249	71
32	3002	23	890	50	280	69	271	30	2065	29	1056	80
33	2780	42	667	57	278	70	770	66	2345	16	1431	44
34	2224	72	1112	36	433	60	2301	3	2017	33	1709	10
35	3002	23	2224	3	556	52	987	16	1403	57	1592	24
36	2780	1	1446	21	878	25	390	1	1336	56	1451	41
37	1668	7	1668	16	56	76	667	71	1403	52	1228	73
38	2668	40	1001	2	214	72	1028	15	1502	46	1424	45
39	2917	25	1668	16	667	39	81	69	1913	39	1292	68
40	2669	48	2224	3	156	76	1481	26	1243	61	1472	33
41	1112	80	2224	3	444	59	281	43	1557	17	1366	54
42	2113	75	1668	16	611	43	531	75	1711	42	1375	52
43	2891	33	1330	23	000	47	1067	15	2017	1	1680	15
44	2502	61	1446	12	656	41	2771	2	2517	8	1598	23
45	2891	65	2223	30	133	10	71	68	1517	10	1452	40
46	2336	68	1112	36	578	1	2141	1	1305	60	1361	56
47	311	16	1101	12	88	1	1001	1	303	73	1358	57
48	2913	28	778	54	722	36	1781	9	2135	11	1700	12
49	2530	50	56	80	022	21	1251	36	2534	9	1384	50
50	3107	13	556	61	773	32	667	71	1781	55	1221	74
51	3503	7	45	65	67	78	1713	13	2117	25	1651	19
52	2803	39	334	70	383	63	947	55	-1	-	1472	33
53	2502	61	951	46	811	29	1771	19	3061	1	1863	5
54	2721	45	890	50	389	57	811	60	2024	32	1382	51
55	3392	10	1112	36	055	18	707	62	2513	10	1672	16
56	2669	9	1001	12	111	13	53	75	2273	5	1516	30
57	3553	6	1001	12	833	27	1643	17	1502	54	1357	58
58	2224	72	1446	21	514	54	331	56	1950	35	1212	76
59	2891	33	2224	3	355	7	2001	4	2209	19	1685	13
60	3114	16	2224	3	111	13	1611	19	2513		1659	18

Contd....Table 53

1	2	3	4	5	6	7
61	78139	2027 34	1001 73	556 78	834 71	900 38
62	78140	1574 60	1890 20	834 68	834 71	534 56
63	78141	1383 71	1223 58	834 68	1779 23	700 45
64	78142	2051 30	945 75	834 68	566 79	1001 33
65	78143	1813 45	667 79	1112 51	1223 50	1201 22
66	78144	2075 26	1112 67	556 78	2224 14	1101 29
67	78145	2409 7	1557 39	1390 29	1946 19	967 35
68	78146	1670 53	1390 46	556 78	1946 19	967 35
69	78147	2051 30	1168 63	834 68	1112 59	469 61
70	78148	2099 21	1835 24	1112 51	2502 9	1668 8
71	78149	2051 30	1112 67	834 68	1112 59	800 42
72	78150	1765 47	2002 17	1390 29	1112 59	2335 3
73	78151	1622 57	2669 2	1529 18	667 76	233 76
74	78152	1479 64	1557 39	1946 5	1390 41	2701 1
75	78153	2099 21	1713 34	1390 29	1112 59	1334 18
76	78154	2193 17	1112 7	1668 12	1668 31	934 37
77	78155	2099 21	1668 36	1946 5	1668 31	1868 6
78	78156	2003 35	1779 30	1390 29	1223 50	1001 33
79	78157	2290 12	1779 30	1223 42	1390 41	1101 29
80	78158	2671 5	2168 9	1390 29	1390 41	600 47
81	G-130	1526	1731	886	1814	751
82	H-208	1997	1617	1390	1619	1243
83	Annigeri or local check	1446	1578	1182	1043	484
	Mean	1882	1619	1323	1554	954
	Range	716-3101	667-2724	556-2224	556-4448	133-2701
	No. of lines exceeding best check by 1 SD	6	15	6	9	6
	2 SD	1	5	3	1	1

[1]Data not reported.

cntd Table 53

1	8											
61	3670	1	1779	13	-	-	1621	17	2090	27	1609	22
62	31[illegible]	11	1112	36	989	22	800	63	1625	15	1179	78
63	2780	42	800	50	741	31	1028	15	-1	-	1329	66
64	2891	33	667	57	1522	1	827	53	1001	66	1235	72
65	2519	28	1334	25	556	52	981	18	1548	48	1335	64
66	361[illegible]	5	1112	36	1111	13	800	63	1226	62	1493	31
67	3058	20	55[illegible]	61	1633	2	1241	35	1056	65	1581	26
68	2613	51	167	75	1578	3	213	5	910	71	1393	48
69	26[illegible]	52	111	78	104[illegible]	20	1527	22	752	75	1275	69
70	3225	12	500	63	411	62	2335	1	1362	58	1765	7
71	2558	56	145	65	1055	18	177[illegible]	10	2239	17	1398	47
72	2736	42	1668	16	322	64	161[illegible]	19	1464	56	1645	20
73	2724	45	1056	39	778	32	719	66	2626	6	1464	37
74	2446	61	945	37	1055	13	1608	21	1913	36	1707	11
75	3725	3	1557	20	800	30	1863	8	2133	13	1805	6
76	2836	37	1270	27	667	39	1334	32	1105	64	1489	32
77	2391	33	2057	6	300	67	1523	7	3130	2	1956	2
78	1309	78	1278	27	556	52	1161	21	1517	51	1404	46
79	2502	61	2002	11	278	70	1297	31	209	26	1591	25
80	2836	37	2221	3	722	36	1256	33	2179	42	1743	9
81	2207		876		731		1563		1411		1350	
82	3663		3[illegible]1		568		1721		1969		1669	
83	18[illegible]		443		564		1366		2542		1201	
	2806		**1102**		**718**		**1220**		**1817**		1499	
	1112-4031		56-2221		56-1389		274-2935		689-4[illegible]6		1056-2024	
			27		**22**		**23**		4			

Table 54. Performance of common entries in ICSN-B 1977-78 and 1978-79.

Sl No.	ICCL No.	Yield (kg/ha)				Mean	
		1977/78[1]		1978/79[2]			
1.	78079	2100	(3)	1899	(2)	2000	(2)
2.	78080	2240	(1)	1758	(3)	1999	(3)
3.	78081	2038	(4)	2024	(1)	2031	(1)
4.	78082	1934	(10)	1356	(13)	1645	(11)
5.	78083	1906	(15)	1268	(19)	1587	(19)
6.	78084	1919	(12)	1371	(11)	1645	(11)
7.	78085	1932	(11)	1337	(15)	1635	(13)
8.	78086	1861	(17)	1386	(10)	1624	(14)
9.	78087	1995	(8)	1336	(16)	1866	(9)
10.	78088	1592	(20)	1612	(5)	1602	(16)
11.	78089	1908	(14)	1331	(17)	1620	(15)
12.	78090	1973	(9)	1141	(20)	1557	(20)
13.	78091	1866	(16)	1310	(18)	1588	(18)
14.	78092	2018	(7)	1353	(14)	1686	(8)
15.	78093	1917	(13)	1683	(4)	1800	(5)
16.	78094	1728	(19)	1451	(9)	1590	(17)
17.	78095	1858	(18)	1455	(7)	1657	(10)
18.	78096	2105	(2)	1571	(6)	1836	(4)
19.	78097	2029	(5)	1453	(8)	1741	(6)
20.	78098	2028	(6)	1366	(12)	1697	(7)
Mean		1947		1506		1720	
G-130		1733		1350		1542	

[1] Average of 16 locations.

[2] Average of 10 locations.

Table 55. Correlations among characters at individual locations in ICSN-B 1978-79.

Character combination	Parwanipur Nepal	Dokri Pakistan	Dholi India	Faizabad India	ICRISAT Hissar India	Kanpur India	Ludhiana India	Palampur India	Pantnagar India	Varanasi India
Days to 50% flowering -										
Plant height	.16	-.05	-.25	.01	.09	.13	-[1]	.17	-.18	-.03
Days to maturity	.53	.81	.30	.21	.24	.03	-[1]	-.06	.20	.31
Yield (kg/ha)	-.03	-.14	-.48	.07	-.06	-.02	-[1]	-.16	.31	-.10
g/100 seed	-.53	-.30	-.19	-.03	-.23	-.25	-[1]	.11	-.12	-.06
Plant height -										
Days to maturity	.01	-.01	-.08	-.01	.26	-.04	-[1]	.14	.08	-.19
Yield (kg/ha)	.23	.05	.29	.01	-.05	.12	-[1]	.01	-.05	-.07
g/100 seed	-.02	.17	-.28	.12	.24	-.20	-[1]	.04	-.06	-.01
Days to maturity -										
Yield (kg/ha)	-.41	-.16	-.22	-.14	-.09	-.07	-[1]	-.09	.06	-.11
g/100 seed	-.33	-.29	-.39	.001	-.13	-.05	-[1]	-.11	-.22	-.01
Yield (kg/ha) -										
g/100 seed	.01	.05	.05	.09	-.07	-.39	.10	.10	-.03	.05

[1] Data not available.

r = .147 significant at P = .05 102 df.

F_2 - MULTILOCATIONAL TRIAL (F_2-MLT)

For the first time replicated trials of F_2 populations were supplied for evaluation at different locations. The purposes were to identify crosses which performed well at individual locations and across environments for further selection and to make segregating populations available for selection for local adaptation.

Entries

The trial included 46 F_2 populations involving parents with diverse characteristics and origin; plus two common G-130 (long-duration) and Annigeri (short-duration) and two local checks, being the two best cultivars chosen by cooperators at particular locations. The number and pedigrees of the crosses and the identities of the local checks are shown in the individual location tables 57 to 61.

Locations

This trial was sent to seven locations in India (Tables 1 and 2) from all of which data was returned. However, at ICRISAT-Center plant stands were adversely affected by wilt and salinity, and wilt reduced plant stands at Jabalpur. The data from New Delhi were for only one replication. Thus, data from only four locations were combined for analysis; ICRISAT-Gwalior, ICRISAT-Hissar, Kanpur and Rahuri.

Trial Management

The F_2 MLT was planned as a RCB design with three replications. The plots were 4 rows, 4 m long and 30 cm apart with 7-10 cm between plants in the row. Records requested were days to 50% flowering, plant stand, days to maturity, g per 100 seed, visual score of variability and seed yield (g).

Results

Location means for the different plant characteristics varied widely (Table 56), reflecting the very different environmental situations. Days to flowering ranged from 62 at Rahuri in Central India to 109 in Kanpur, and days to maturity from 111 at Rahuri to 182 at New Delhi. The highest seed yield of 3336 kg seed per hectare was obtained from New Delhi and the lowest (855 kg) from the ICRISAT trial at Hissar. Seed size was extremely uniform at around 15 g per 100 seed.

The performance of the entries at individual locations are shown in Tables 57 to 61. Across locations, the three earliest flowering crosses were 761172, 76665 and 761377, which occurred in the top groups in at least 4 of the 5 locations and involving parents such as JG-62, Annigeri and Chafa. These and several others (Entries 1, 12, 18, 20, 23, 26 to 30, 32 and 39) were all earlier than or similar

Table 56. Location means for various plant characters in F_2-MLT, 1978-79.

Location	Days to first flowering	Days to maturity	g/100 seed	Yield kg/ha
ICRISAT-Gwalior	78	152	15.0	2950
ICRISAT-Hissar	74	177	15.1	855
Kanpur	109	173	-[1]	2062
Rahuri	62	111	15.2	1670
New Delhi[2]	96	182	14.9	3336

[1] Data not reported.

[2] Data for one replication only.

Table 57. Mean performance of entries for various plant characters - F_2MLT. 1978/79, Gwalior.

Cooperators	: ICRISAT	Location	: ICRISAT Gwalior	Country	: India
Latitude	: 26°13'	Date planted	: 20-10-1978	Nitrogen (kg/ha)	: 0
Longitude	: 78°14'E	Rainfall (mm)	: 87	Phosphorus (kg/ha)	: 30
Altitude (m)	: 681	Irrigation	: 0	Potassium (kg/ha)	: 0
Local checks	: Gwalior-2 Strain-76	Row spacing (cm)	: 30	Date harvested	: -1

Note: Plant stands were average.

Plot area harvested (m^2) : 4.2

Entry No.	IC/ICC No.	Pedigree	Days to 50% flowering	Days to maturity	g/100 seeds	Yield kg/ha
1	76153	Annigeri x SL-972-A	75	151	11	2681
2	76210	P-45 x BC-203	85	152	12	2979
3	76258	G-130 x 850-3/27	82	150	13	3038
4	76329	7332-7-2-B x GL-630	82	153	18	2483
5	76349	BC-203 x JM-482	82	154	14	2721
6	76364	H-208 x JM-482	84	153	15	2900
7	76373	C-214 x NEC-2561	84	156	16	2761
8	76636	H-208 x CPS-1	75	155	14	3177
9	76643	850-3/27 x USA-613	78	152	20	3217
10	76655	JG-62 x Annigeri	69	152	17	3237
11	76688	C-214 x P-436	83	153	14	2880
12	76705	K-468 x Annigeri	75	151	15	3395

Contd....Table 57

1	2	3	4	5	6	7
13	76793	BG-203 x P-1181-A	72	151	15.	3574
14	76848	P-36 x 7332-7-2-B	82	153	12	3157
15	76850	P-36 x NEC-426	75	151	14	2959
16	76904	NP-34 x NEC-550	82	152	12	2959
17	76926	P-1363-1 x BG-203	77	151	14	2900
18	76938	P-1236 x K-468	74	153	14	3098
19	761056	G-130 x (JG-62 x P-36)	79	148	13	2959
20	761104	Chafa x (P-1363-1 x P-388)	67	148	17	2999
21	761106	P-2236 x (H-208 x NP-34)	78	148	14	2781
22	761118	G-130 x (12-071-05093 x P-1265)	86	156	12	2939
23	761129	7358-7-2-B-B x (PRR-1 x RS-11)	76	155	18	3098
24	761132	7332-7-2-B-B x (PR-315 x GL-629)	79	150	15	2820
25	761172	Chafa x (P-30 x P-458)	70	153	15	3177
26	761176	Annigeri x (JG-62 x P-36)	70	153	17	2979
27	761202	T-103 x (P-1816 x NP-34)	70	149	15	2900
28	761352	P-47 x F_5(RS-11 x GL-5/7)	70	147	20	3296
29	761354	P-436 x F_5(JG-62 x Radhey)	72	149	17	2622
30	761373	P-3552 x F_5(350-3/27 x P378)	76	152	16	2936
31	761377	P-1243 x F_5(L-550 x P-378)	67	148	17	3118
32	761467	F_2(T-3 x P-36)-1 x F_2 (JG-62 x P-36)-1	75	152	16	3118
33	761498	F_2(L-550 x JM89)-1 x F_2(Kaka x C-235)	75	150	15	2562
34	761715	F_2(Pant102 x P502)-2 x F_2(L550 x P3642)-1	76	150	16	2582
35	761723	F_2(F61 x P4367)-1 x F_2(C214 x NEC1639)-1	78	152	18	2741
36	761730	F_2(Pant102 x P502)-3 x F_2(P1013 x P992)-1	79	152	15.	2919
37	761752	F_2(P36 x C214)-2 x F_2(12-071-05132 x G-130)-1	81	154	19	2999
38	761755	F_2(P1018 x P993)-2 x F_2(NEC240 x NEC53)-1	81	155	13	3157
39	761758	F_2(P1013 x NEC249)-2 x F_2(H208 x P3284)-1	69	150	14	3118
40	761778	F_2(P1363 x E100)-2 x F_2(C-235 x L-550)-3	75	153	18	3376
41	761796	F_2(P4306 x P1663)-1 x F_2(C-214 x L-550)-2	88	158	15.	2562
42	761814	F_2(H-355 x P-1613)-1 x F_2(P-2591 x P-436)-1	80	150	13	2523
43	761977	F_5(7313-2-3-1H (H208 x Chafa) x K-850	81	154	17	3217
44	761986	$F_5$7332-12-3-1H (H-208 x F370) x G130	86	155	12	2999

Contd....Table 57

1	2	3	4	5	6	7
45	762003	$F_5$73353-2-1-3[illegible] (Cha[illegible]a x C-235) x G130	85	157	12.	3038
46	762010	$F_5$73250-11-[illegible]-1-1P (RS-11 x C214) x M208	84	156	13	3157
47	4048	G-130	88	156	13	2384
48	4018	Annigeri	73	149	20	2424
49		Gwalior-2	70	149	16	2919
50		Strain-76	86	152	15	2999
		Mean	78	152	15	2950
		Range	67-88	147-158	12-20	2384-3574
		CV%	3.0	3.0	[illegible]	13.3
		CD (.05)	10	7	2	641

[1] Not reported.

Table 58. Mean performance of entries for various plant characters - F_2 MLT 1978/79, Hissar.

Cooperators	: ICRISAT	Location	: ICRISAT Hissar	Country	: India
Latitude	: 29°1'	Date planted	: 20-10-1978	Nitrogen (kg/ha)	: 0
Longitude	: 75°5'	Rainfall (mm)	: 37	Phosphorus (kg/ha)	: 80
Altitude(m)	: 215	Irrigation	: 0	Potassium (kg/ha)	: 0
Local checks	: H-208 P-324	Row spacing(cm)	: 30	Date harvested	: -

Note : Wilt and stunt caused mortality to a great extent. Plant stands were average.

Plot area harvested (m^2): 1.8

Sl. No.	IC/ICC No.	Name/Pedigree	Days to 50% flowering	Days to maturity	g/100 seed	Yield/ kg/ha
1	76153	Annigeri x SL-972-A	61	121	15.2	639
2	76210	P-45 x BG-203	85	132	12.8	852
3	76258	C-130 x 850-3127	82	131	18.7	618
4	76329	7332-7-2-B x GL-630	87	178	15.7	736
5	76349	BG-203 x JM-482	86	181	13.4	906
6	76364	H-208 x JM-482	77	172	12.9	902
7	76373	C-214 x NEC-2561	79	176	11.3	266
8	76636	H-208 x CPS-1	68	177	13.4	1063
9	76643	850-3/27 x USA-613	72	179	20.8	781
10	76655	JG-62 x Annigeri	67	178	16.1	499
11	76680	C-214 x P-436	83	179	13.4	488
12	76705	K-468 x Annigeri	61	179	15.4	811
13	76793	BG-203 x P-1181-A	65	179	15.2	1222
14	76848	P-36 x 7332-7-2-B	82	179	13.0	1272

Contd....Table 58

1	2	3	4	5	6	7
15	76850	P-36 x NEC-426	70	181	14.2	1205
16	76904	NP-34 x NEC-550	80	176	12.7	646
17	76926	P-1363-1 x BG-203	77	179	13.2	1497
18	76938	P-1236 x K-468	64	175	11.9	721
19	761056	G-130 x (JG-62xP-36)	81	180	14.2	1240
20	761104	Chafa x (P-1363-1xP-388)	70	179	16.2	534
21	761106	P-2236x(H-208 x NP-34)	84	176	11.1	669
22	761118	G-80 x (12-071-05093xP-1265)	83	181	12.3	1060
23	761129	7358-7-2-B-Bx(PRR-1 x RS-11)	62	181	19.0	1372
24	761132	7332-7-2-B-B x(MR-315xGL-629)	85	181	14.1	387
25	761172	Chafa x (P-30 x P-458)	59	181	14.1	818
26	761176	Annigeri x (JG-62 x P-36)	58	181	17.4	1234
27	761202	T-103 x (P-1816xNP-34)	62	178	13.9	577
28	761352	P-47 x F_5(RS-11 x GW-5/7)	61	174	18.0	395
29	761354	P-436xF_5(JG-62 x Radhey)	68	175	18.4	964
30	761373	P-3552xF_5(850-3/27xF-378)	65	182	16.9	1521
31	761377	P-1[illegible]xF_5(L0550xF-378)	63	118	16.2	246
32	761467	F_2(T-3xP-3[illegible])-1xF_2(JG-62xP-36)	75	182	15.9	1332
33	761678	F_2(L-550xJ[illegible])-1xF_2(KakaxC-235)	75	180	13.7	710
34	761715	F_2(Pant-102xP-502)-2xF_2(L-550xP3642)-1	74	176	14.1	641
35	761723	F_2(F61xP4367)-1xF_2(C214xNEC 1639)-1	74	181	16.6	1227
36	761730	F_2(Pant102xP502)-3xF_2(P1013xP992)-1	78	175	14.3	791
37	761752	F_2(P36x(214)-2xF_2(12-071-0532xG-130)-1	73	131	21.3	1309
38	761755	F_2(P1013xP493)-2xF_2(NEC240xNEC53)-1	70	180	12.1	828
39	761758	F_2(P1013xNEC249)-2xF_2(M208xP3284)-1	63	178	14.6	1490
40	761778	F_2(P1303xE100)-2xF_2(C-235xL-550)-3	64	178	18.4	1095
41	761796	F_2(P4306xP1663)-1xF_2(C-214xL-550)-2	83	182	15.9	665
42	761813	F_2(P-355xP-1613)-1xF_2(P-2591xP-436)-1	88	181	12.3	445

Contd....Table 58

1	2	3	4	5	6	7
43	761977	F_5(7313-2-3-1#(P208xChafa)xK-850	80	177	17.1	751
44	76198	($F_5$7332-12-3-1"(P-208xP370)xG-130	83	181	13.3	777
45	762003	$F_5$73353-2-1-3"(ChafaxC-235)xG-130	87	183	11.5	753
46	762010	$F_5$73250-11-4-1F(PS-11x(21[illegible])xM208	76	178	12.3	732
47	4043	G-130	86	182	14.1	579
48	3918	Annigeri	57	183	17.4	554
49		H-208	77	177	13.7	742
50		P-324	65	179	23.1	569
		Mean	71	177	15.1	855
		Range	58-88	118-183	11.1-20.8	164-1521
		CV%	9.	11.9	13.9	52.0
		CD(.05)	11	34	4.9	716

[1] Not reported.

Table 59. Mean performance of entries for various plant characters - F_2MLT 1978/79, Kanpur.

Cooperators : K.L. Kuira, L.K. Gangal
Location : Kanpur
Country : India

Latitude : 80.3°
Longitude : 26.5°
Altitude (m) : 111
Local checks : BG-203 & Type-4

Date planted : 20-10-1978
Rainfall (mm) : 39
Irrigation : 1
Row spacing(cm) : 30

Nitrogen (kg/ha) : 20
Phosphorus (kg/ha): 50
Potassium (kg/ha) : 0
Date harvested : -1

Note: Plant stands were average. Crop was hand weeded once.

Plot area harvested (m^2) : 1.8

Sl. No.	IC/ICC No	Pedigree	Days to 50% flowering	Days to maturity	g/1001 seed	Yield kg/ha
1	76153	Annigeri x S1-972-A	116	171		1297
2	76210	P-45 x BG-203	129	173		2039
3	76258	G-130 x 850-3/27	110	173		2409
4	76329	7332-7-2-B x GL-630	118	172		2595
5	76349	BG-203 x JM-482	117	172		1946
6	76364	H-208 x JM-482	115	171		2409
7	76373	C-214 x NEC-2561	124	171		2595
8	76636	H-208 x CPS-1	108	172		1761
9	76643	850-3/27 x USA-613	104	174		1483
10	76655	JG-62 x Annigeri	96	173		1853
11	76688	C-214 x P-436	102	172		2317
12	76705	K-468 x Annigeri	97	171		2317
13	76793	BG-203 x P-1181-A	104	175		2817
14	76848	P-36 x 7332-7-2-B	98	174		1575

Contd....Table 59

1	2	3	4	5	6	7
15	76850	P-36 x NEC-426	101	173		2131
16	76904	NP-34 x NEC-550	108	173		1575
17	76926	P-1363-1 x BG-203	97	174		1668
18	76938	P-1236 x K-468	106	171		2502
19	761056	G-130 x (JG-62xP-36)	110	173		1853
20	761104	Chafa x (P-1363-1xP-388)	97	173		1946
21	761106	P-2236x(H-208xNP-34)	113	173		2965
22	761118	G-80 x (12-071-05093xP-1265)	106	173		1205
23	761129	7358-7-2-B-B x (PRR-1xRS-11)	93	171		1946
24	761132	7332-7-2-B-B x (PR-315xGL-629)	115	173		1946
25	761172	Chafa x (P-30 x P-458)	101	174		2131
26	761176	Annigeri x (JG-62xP-36	105	172		2039
27	761202	T-103x(P-1816xNP-34)	97	170		1575
28	761352	P-47 x F_5(RS-11 x CM-5/7)	115	173		2224
29	761354	P-436 x F_5(JG-62 x Radhey)	96	171		2502
30	761373	P-3552xF_5(850-3/27xP378)	93	173		2039
31	761377	P-1243xF_5(L-550xP-378)	97	172		2039
32	761467	F_2(T-3xP-16)-1xF_2(JG-62xP-36)	99	173		2224
33	761698	F_2(1550xJ[illegible]89)-1xF_2(KakaxC-235)	123	173		1761
34	761715	F_2(Pant102xP502)-2xF_2(L550xP3642)-1	103	172		1946
35	761723	F_2(P61xP4367)-1xF_2(C214xNEC(1639)-1	96	171		2409
36	761730	F_2(Pant102xP502)-3xF_2(P1013xP992)-1	121	173		2131
37	761752	F_2(P36x(21[illegible])-2xF_2(12-071-05132xG-130)-1	106	173		2039
38	761755	F_2(P1018xP993)-2xF_2(NEC240xNEC53)-1	97	173		2039
39	761758	F_2(P1013xBEC249)-2xF_2(H208xP328[illegible])-1	103	171		2317
40	761778	F_2(P1303xE100)-2xF_2(C-235xL-550)-3	116	171		2131
41	761796	F_2(P1306xP1663)-1xF_2(C-214xL-550)-2	110	171		1668
42	761814	F_2(H-355xP-1613)-1xF_2(P-2591xP-436)-1	111	172		2409
43	761977	F_5(7313-2-3-1H(H208xChafa)xK-850	128	175		1483
44	761986	$F_5$7332-12-3-1H(M-208xP370)xG-130	124	172		2502

Contd.... Table 59

1	2	3	4	5	6	7
45	762003	$F_5$73353-2-1-3M(ChafaxC-235)xG130	121	172		2409
46	762010	$F_5$73250-11-4-1P(RS-11xC214)xM208	106	173		2873
47	4948	G-130	120	174		1946
48	4913	Annigeri	123	173		1483
49		BG-203	123	173		2131
50		Type-4	122	174		1483
		Mean	109	173		2062
		Range	93-129	170-175		1205-2965
		CV%	10.59	1.1		40.0
		CD(.05)	18.6	3.2		1042.1

[1] Not reported.

Table 60. Mean performance of entries for various plant characters, F_2MLT 1978/79, Rahuri.

Cooperator	: R.B. Deshmukh	Location	: Rahuri	Country	: India
Latitude	: 19°24'N	Date planted	: 19-10-1978	Nitrogen (kg/ha)	: 15
Longitude	: 74°39'E	Rainfall(mm)	: 76	Phosphorus(kg/ha)	: 42
Altitude (m)	: 657	Irrigation	: 3	Potassium (kg/ha)	: 0
Local check	: Chafa & Phule-G-4	Row spacing(cm)	: 30	Date harvested	: -[1]

Note: Plant stands were average. Pod borer attack was checked by spraying Endosulphan. There was no incidence of diseases.

Plot area harvested (m^2) : 2.1

Sl. No.	IC/ICC No.	Pedigree	Days to 50% flowering	Days to maturity	g/100 seeds	Yield kg/ha
1	76153	Annigeri x SL-072-A	57	105	13.5	1055
2	76210	P-45 x BG-203	67	115	13.5	2063
3	76258	G-130 x 850-3/27	69	113	15.8	2142
4	76329	7332-7-2-B x GL-630	71	114	15.8	1444
5	76349	BG-203 x JM-482	68	117	14.0	1317
6	76364	H-208 x JM-482	62	109	16.3	921
7	76373	C-214 x NEC-2561	58	118	16.7	1452
8	76636	H-208 x CPS-1	56	110	12.3	1738
9	76643	850-3/27 x USA613	58	116	18.7	1729
10	76655	JG-62 x Annigeri	50	109	19.3	2079
11	76688	C-214 x P-436	63	106	13.7	2158
12	76705	K-468 x Annigeri	55	105	15.2	1912

Contd....Table 60

1	2	3	4	5	6	7
13	76793	BG-203 x P-1181-A	58	113	15.8	1841
14	76848	P-36 x 7332-7-2-B	66	106	11.7	1278
15	76850	P-36 x NEC-426	67	107	13.2	1555
16	76904	NP-34 x NEC-550	71	111	11.7	1508
17	76926	P-1363-1 x BG-203	64	117	13.5	1412
18	76938	P-1236 x K-468	57	112	11.5	1714
19	761056	G-130 x (JG-62xP-36)	60	118	12.3	2126
20	761104	Chafa x (P-1363-1xP-388)	71	113	15.2	1944
21	761106	P-2236 x (H-208xNP-34)	67	106	12.3	1682
22	761118	G-130 x (12-071-05093xP-1265)	63	114	13.3	2126
23	761129	7358-7-2-B-B x (PRR-1XRS-11)	59	109	19.8	1658
24	761132	7332-7-2-B-B x (WR-315xGL-629)	66	111	17.2	1658
25	761172	Chafa x (P-30 x P-458)	50	115	14.2	1801
26	761176	Annigeri x (JG-62 x P-36)	57	112	17.0	1920
27	761202	T-103 x (P-1816 x NP-34)	55	108	14.7	1809
28	761352	P-47 x F_5(RG-11 x GW-5/7)	52	113	16.7	1603
29	761354	P-436 x F_5(JG-62 x Radhey)	50	109	15.7	1920
30	761373	P-3552 x F_5(850-3/27xF378)	56	109	14.8	2388
31	761377	P-1243 x F_5(L-550 x F378)	57	113	17.3	1587
32	761467	F_2(T-3xP-36)-1 x F_2(JG-62xP-36)-1	58	113	15.2	1341
33	761693	F_2(L-550xJM-489)-1 x F_2(Kaka xC-235)-1	58	111	16.3	1278
34	761615	F_2(Pant-1002xP-502)-2 x F_2(L-550 x P-3642)-1	60	112	14.3	1746
35	761723	F_2(P-61xP-4367)-1 x F_2(C-214xNEC-1639)-1	63	113	16.5	1761
36	761730	F_2(Pant-102xP-502)-3 x F_2(P-1013xP-992)-1	68	118	14.0	1952
37	761752	F_2(P-36xC-214)-2 x F_2(12-071-05132xG-130)-1	76	113	16.3	2142
38	761755	F_2(P-1018xP-993)-2 x F_2(NEC-240xNEC-53)-1	57	109	13.7	1738
39	761758	F_2(P-1013 x NEC-249)-2 x F_2(H-208xP-3284)-1	58	114	14.0	1003
40	761778	F_2(P-1363 x E-100)-2 x F_2(C-235xL-550)-3	59	115	18.8	1817
41	761796	F_2(P-4306xP-1663)-1 x F_2(C-214xL-550)-2	76	112	14.5	952
42	761814	F_2(H-355xP-1613)-1 x F_2(P-2591xP-436)-1	64	102	12.5	1825
43	761977	$F_5$7313-2-3-1H(H-208xChafa) x 850-3/27	66	108	18.0	1650
44	761986	$F_5$7332-12-3-1H(H-208xF-370) x G-130	71	111	11.7	1225

Contd.... Table 60

1	2	3	4	5	6	7
45	762003	$F_5$73353-2-1-3H(ChafaxC-235) x G-130	70	104	10.7	1492
46	762010	$F_5$73252-11-4-1P(RS-11xC-214) x H-208	67	110	12.8	1960
47	4948	G-130	83	113	12.7	1563
48	4918	Annigeri	52	109	20.0	1563
49		Chafa	49	108	14.7	1381
50		Phule G-4	50	112	32.7	1547
		Mean	62	111	15.2	1670
		Range	49- 76	104-118	10.7-19.8	952-2388
		CV%	19.2	2.9	9.9	250
		CD(.05)	N.S	5.1	2.5	708

[1] Not reported.

Table 61. Mean performance of entries for various plant characters - F_2MLT 1978/79, New Delhi.

Cooperators	: P.N. Bahl D.B. Raju	Location	: New Delhi	Country	: India
Latitude	: 28°04'	Date planted	: 30-10-1978	Nitrogen (kg/ha)	: 0
Longitude	: 77°10'E	Rainfall (mm)	: -[1]	Phosphorus (kg/ha)	: 50
Altitude (m)	: 229	Irrigation	: -[1]	Potassium (kg/ha)	: 0
Local checks	: BG-209 BG-216	Row spacing (cm)	: 30	Date harvested	: 15-5-1979

Note: Plant stands were average. Heavy hailstorm and strong surface wind damaged the entire trial, towards the later stages of growth. Data from one replication were recorded.

Plot area harvested (m^2) : 1.8

Sl. No.	IC/ICC No.	Pedigree	Days to[2] 50% flowering	Days[2] to maturity	g/100 seeds[2]	Yield[2] ka/ha
1	76153	Annigeri x SL-972-A	94	180	13.6	3614
2	76210	P-45 x BC-703	102	183	11.7	2224
3	76258	G-130 x 850-3/27	92	180	19.8	3336
4	76329	7332-7-2-B x GI-670	95	184	19.°	2780
5	76349	BC-203 x JM-482	104	182	16.5	3336
6	76364	P-208 x JM-482	93	180	14.4	3892
7	76373	C-214 x NEC-2561	99	186	15.2	2502
8	76636	P-208 x CPS-1	99	181	12.5	3058
9	76643	850-3/27 x USA 613	103	180	19.°	3336
10	76655	JG-62 x Annigeri	95	181	15.6	2780
11	76689	C-214 x P-436	93	184	15.2	4170
12	76705	K-868 x Annigeri	93	183	13.6	3614

Contd.... Table 61

1	2	3	4	5	6	7
13	76793	BG-203 x P-1181-A	93	179	15.0	2780
14	76848	P-36 x 7332-7-2-B	97	184	12.5	3058
15	76850	P-36 x NEC-426	97	185	14.0	2224
16	76904	NP-34 x NEC-550	92	181	12.7	3336
17	76926	P-1363-1 x BG-203	94	133	14.4	3614
18	76938	P-1236 x K-468	94	180	16.8	3058
19	761056	G-130 x (JG-62 x P-36)	94	179	12.6	3336
20	761104	Chafa x (P-1363-1 x P-388)	97	188	14.4	3614
21	761106	P-2236 x (H-208 x NP-34)	101	183	11.3	4126
22	761118	G-130 x (12-071-05093 x P-1265)	95	179	12.7	4448
23	761129	7358-7-2-B-B x (PRR-x-1x RS-11)	94	179	22.4	3336
24	761132	7332-7-2-B-B x (WP-315 x GL-629)	96	182	13.5	4448
25	761172	Chafa x (P-30 x P-458)	93	179	13.4	2780
26	761176	Annigeri x (JG-62 x P-36)	93	182	17.8	2780
27	761202	T-102 x (P-1816 x NP-34)	97	182	14.2	2780
28	761350	P-47 x F_5(RS-11 x GW-5/7)	93	180	15.8	2502
29	761354	P-436 x F_5(JG-62 x Radhey)	94	183	17.2	5560
30	761373	P-3552 x F_5(850-3/27 x F-378)	92	180	15.2	3336
31	761377	P 1203 x F_5(L-550 x F 378)	93	182	16.8	4170
32	761387	F_2(T-3x[illegible]-36)-1 x F_2(JG-62xP-36)-1	90	180	14.4	3336
33	761698	F_2(L-550xJM-489)-1 x F_2(Kaka x C-235)-1	101	180	13.7	3892
34	761615	F_2(Pant-102xP-502)-2 x F_2(L-550 x P-3642)-1	93	179	15.0	3892
35	761723	F_2(F-61 x P-[illegible]367)-1 x F_2(C-214xNEC-1639)-1	102	183	16.0	2502
36	761730	F_2(Pant 102xP-502)-3 x F_2(P-1013xP-992)-1	94	182	15.7	2780
37	761752	F_2(P-36xC-214)-2xF_2(12-071-05132xC-130)-1	95	180	17.8	1946
38	761755	F_2(P-1018xP-993)-2 x F_2(NEC-240xNEC-53)-1	93	183	13.0	3614
39	761758	F_2(P-1013xNEC-240)-2 x F_2(H-208xP-3284)-1	96	179	14.0	6394
40	761773	F_2(P-1363 x E-100)-2 x F_2(C-235 x L-550)-3	100	187	18.5	5004
41	761796	F_2(P-[illegible]306xP-1663)-1 x F_2(C-214xL-550)-2	99	181	15.1	3058
42	761814	(H-355xP-1613)-1 x F_2(P-259 x P-436)-1	96	179	12.1	4170
43	761977	$F_5$7313-2-3-1H (H-208xChafa) x 850-3/27	95	178	18.3	3336
44	761986	$F_5$7332-12-3-1H (H-208 x F-370) x G-130	98	184	14.3	1946

Contd.... Table 61

1	2	3	4	5	6	7
45	762003	$F_5$73353-2-1-3H (ChafaxC-235) x G-130	104	184	11.1	2780
46	762010	$F_5$73252-11-4-1P(RS-11xC-214) x H-208	100	185	12.5	3336
47	4948	G-130	96	185	13.2	2224
48	4913	Annigeri	100	185	16.0	1946
49		BG-209	106	181	12.0	2780
50		BG-216	92	178	10.5	4448
		Mean	96	182	14.9	3330
		Range	92-104	178-188	11.1-19.8	1946-6394

1 Not reported.

2 Data from 1-4 replications.

to Annigeri in time to flowering. The latest crosses were 76210 (P-45 x BG-203) and 762003 which occurred in the latest group in four or five locations and were almost as late as G-130. However, there were interactions between the entries and locations reflecting differential responses of some genotypes to environmental conditions. Differences in days to maturity were smaller and inconsistent and probably reflect the greater effect of the environment in hastening maturity.

Seed size was very consistent from location to location. The largest seeds were shown by 76643, 761129, 761752, 761778, 761977 and Annigeri. At Rahuri, Phule G-4, had a seed weight of over 30 g, much larger than all other entries. 762003, 761106, 76848 and 76904 were the smallest seeded.

As in other trials coefficients of variation for seed yield were high (Table 62) and should be treated with caution. The highest yields of over 2300 kg seed per hectare were obtained from 76793 and 761373, which were significantly higher than the highest yielding local cultivar. There were pronounced genotype x environment interactions. 76793 was relatively consistent but 761373, though top at Hissar and Rahuri, ranked 25th and 38th at Kanpur and Gwalior. At most locations, one or more lines gave significantly higher yields than the best local cultivar.

Table 62. Mean se yield(kg/ha) and ranks of F_2 LT entries for five oca 978-79

Sl. No.	IC/ ICC No.	Gwalior Yield	Rank	ss Yie							fe	
1	76153	2681	40	689	33	1297	45	3614	15	1055	43	1431 45
2	76210	2979	23	852	20	2039	25	2224	43	2063	8	1983 16
3	76258	3038	18	618	38	2409	11	3336	22.	2142	3	2052 7
4	76329	2483	46	736	30	2595	4	2780	35	1444	36	1815 32
5	76349	2721	39	906	17	1946	31	3336	22	1317	39	1723 40
6	76364	2900	32	902	18	2409	11	3892	11	921	46	1783 35
7	76373	2761	37	266	45	2595	4	2502	41	1452	35	1769 37
8	76636	3177	8	063	14	1761	36	3058	29	1738	22	1935 22
9	76643	3217	6	781	26	1483	43	3336	22	1729	24	1803 33
10	76655	3237	5	499	41	1853	34	2780	35	2079	7	1917 24
11	76688	2880	34	488	42	2317	15	4170	7	2158	2	1961 19
12	76705	3395	2	811	23	2317	15	3614	15	1912	14	2109 5
13	76793	3571	1	222	11	2817	3	2780	35	1841	15	2364 1
14	76848	3157	11	272	7	1575	41	3058	29	1278	10	1821 31
15	76850	2959	26	205	12	2131	21	2224	43	1555	32	1963 18
16	76904	2959	26	646	36	1575	41	3336	22	1508	33	1672 42
17	76926	2900	32	497	2	1668	38	3614	15	1412	37	1869 27
18	76938	3098	16	721	31	2502	7	3058	29	1714	25	2009 13
19	761056	2959	26	240	8	1853	34	3336	22	2126	5.	2045 8
20	761104	2999	20	534	40	1946	31	3614	15	1944	11	1856 28
21	761106	2781	36	669	34	2965	1	4126	9	1682	26	2024 11
22	761118	2939	28	060	15	1205	46	4448	4	2126	5	1833 29
23	761129	3098	16.	372	4	1946	31	3336	22	1658	27.	2019 12
24	761132	2820	35	887	19	1946	31	4448	4	1658	27	1828 30
25	761172	3177	8	818	22	2131	21	2780	35	1801	19	1982 17
26	761176	2979	23.	234	9	2039	25	2780	35.	1920	12	2043 9
27	761202	2900	32	577	39	1575	41	2780	35	1809	18	1715 41
28	761352	3296	4	395	44	2224	18	2502	41	1603	30	1880 25

Contd....Table 62

1	2	3	4	5	6	7	8
29	761354	2622 41	964 16	2502 7	5560 3	1920 12	2022 15
30	761373	2939 28	1521 1	2039 25	3336 22	2388 1	2222 2
31	761377	3118 14	246 46	2039 25.	4170 7	1587 31	1748 38
32	761467	3118 14	1332 5	2224 18	3336 22	1341 38	2004 14
33	761698	2562 43	710 32	1761 36	3892 11	1278 40	1578 43
34	761715	2582 42	641 37	1946 31	3892 11	1746 21	1729 39
35	761723	2741 38	1227 10	2409 11	2502 41	1761 20	2035 10
36	761730	2919 30	791 24	2131 21	2780 35	1952 10	1948 20
37	761752	2999 20	1309 6	2039 25	1946 45	2142 3	2122 4
38	761755	3157 11	828 21	2039 25	3614 15	1738 22.	1941 21
39	761758	3118 14	1490 3	2317 15	6394 1	1003 44	1982 17
40	761778	3376 3	1095 13	2131 21	5604 2	1817 17	2105 6
41	761796	2562 43	665 35	1668 38	3058 29.	952 45	1462 44
42	761814	2523 45	445 43	2409 11	4170 7	1825 16	1801 34
43	761977	3217 6	751 29	1483 43	3336 22	1650 29	1775 36
44	761986	2999 20	777 27	2502 7	1946 45	1225 42	1876 26
45	762003	3038 18	753 28	2409 11	2780 35	1492 34	1923 23
46	762010	3157 11	782 25	2373 2	3336 22	1960 9	2193 3
47	4948	2344	579	1946	2224	1563	1608
48	4918	2424	554	1483	1946	1563	1506
49	Local check-1	2919	742	2131	2780	1381	1793
50	Local check-2	2999	569	1483	4448	1547	1650
	Mean	2950	855	2062	3346	1670	1905
	Range	2344-3574	164-1521	1205-2965	1946-6394	952-2388	1431-2364
	CV%	13.3	52.0	40.0	-	25.9	
	CD(.05)	641	716	1042	-	708	

1 Data for one replication only.
2 Mean excluding Delhi values.

INTERNATIONAL CHICKPEA MICROPLOT TRIAL - ICMT

The microplot trial is intended to serve cooperators who wish to examine the potential of chickpea in non-traditional growing situations and to identify genotypes which are best suited to them.

In 1978-79, the entries comprised 10 contrasting cultivars developed for different areas of India (Table 63), all desi types except L-550 which is a kabuli. It was designed as a randomised complete block with 4 replications. The plot size was 4 rows, 3 m in length with 30 cms between rows and 10 cm between seeds along the rows. Observations were the same as for the ICCTs.

The trial was supplied for Benguet in Philippines and Feni in Bangladesh and results were reported from both locations. At Benguet all entries produced shrivelled seed and at Feni performance was poor due to late sowing and no useful conclusions could be drawn. However, in Bangladesh, Annigeri and K-850 performed relatively well and seed has been retained for further testing.

Table 63. Entries in International Chickpea Microplot Trial ICMT-1978-79.

Entry No.	ICC No.	Entry
1	4918	Annigeri
2	5003	Chafa
3	4951	JG-62
4	6098	JG-74
5	12197	Phule-G-2
6	10131	CPS-1
7	4973	L-550
8	4923	BEG-482
9	11141	BDN-9-3
10	5003	K-850

SUMMARY AND CONCLUSIONS

For all trial series there was considerable variation in crop development as indicated by days to flowering and maturity and plant height and this was reflected in large differences among locations in seed size and yield and pronounced genotype x environment interactions for seed yield. There was also little or no correlation in performance between locations.

Coefficients of variation for seed yield were generally high and the data should be treated with some caution but stability analysis of the two ICCTs indicated that the majority of the variation could be explained by the linear regression of individual variety on location mean yields. There were significant differences among varieties in response in ICCT-DS, where there was a highly significant correlation between mean yields and regression (b) values. The data demonstrate once more the importance of specific adaptation in chickpea, which must be taken into account when planning breeding strategy.

Days to flowering varied more than days to maturity both between and within locations, probably due to the much greater influence of the environment in hastening maturity. There was a tendency, however, for the two characters to be positively correlated while correlations involving the other characters were generally small and non-significant.

In ICCT-DS, K-850 and 78004, from a cross between H-208 and T-3, gave the highest yields. Over four years of trials P-436 was the top yielder and K-850 was only second due to inconsistent performance between seasons. In ICCT-DL, P-326 gave the highest yield in 1978-79 followed by BG-203 and over 4 years P-326 was the top yielder.

In ICSN-A, ICCL 78053 (JG-221 x G-130), 78054 (CP-66 x BEG-482) and several others produced significantly higher yields than Annigeri overall, and of the lines common to two years 78021 and 78020 gave the highest yields. In ICSN-B, ICCL 78081 was significantly higher yielding than H-208 across locations. Across seasons data were more consistent than in ICSN-A, the best three entries appearing among the top four in both years. At 11 of the locations there were one or a few lines significantly higher yielding than the best check indicating potential for improved yields.

In the first season of the F_2-MLT, at most locations one or more populations and overall, 76793 and 761373 were significantly higher yielding than the best local cultivar. Useful data were not obtained from the two sets of the ICMT which were supplied.

Finally, we wish to acknowledge the cooperation of all who have participated in conducting the ICRISAT 1978-79 trials and nurseries and hope that the current report and some of the materials supplied will prove of value in future breeding work.