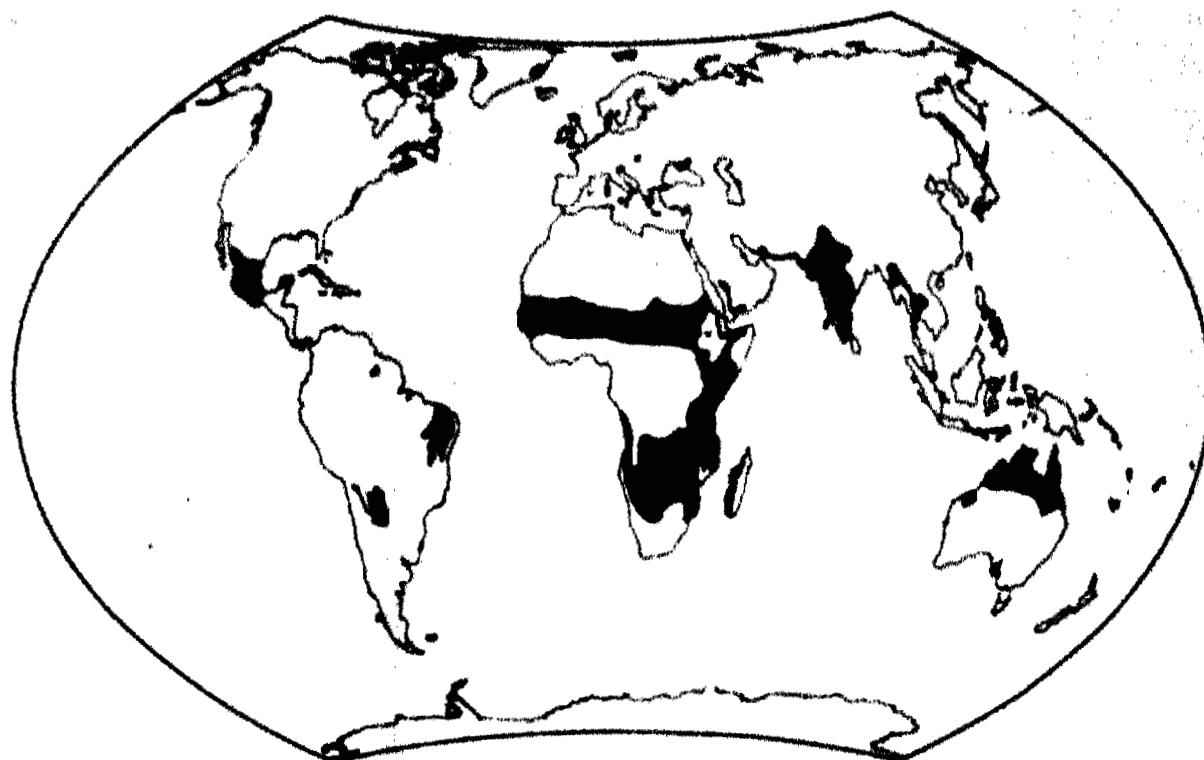


**PULSE PATHOLOGY**  
**Progress Report-19**

**INTERNATIONAL CHICKPEA DISEASE RESISTANCE TESTING PROGRAM**



**THE FIFTH INTERNATIONAL CHICKPEA ROOT ROTS/WILT NURSERY**  
**1980-81**  
**REPORT**



**ICRISAT**

**International Crops Research Institute for the Semi-Arid Tropics**  
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## INTRODUCTION

In 1977-78 we initiated the International Chickpea Root Rots/Wilt Nursery (ICRRWN). The objectives of this nursery are to:

1. identify genetic sources with tolerance/resistance to various root rots and wilt,
2. develop improved varieties incorporating disease resistance,
3. provide a convenient medium for the exchange of genetic material and information among cooperators.

The report on the ICRRWN (1980-81) is presented below.

## NURSERY COMPOSITION

Sixty entries (+ one susceptible check--ICC-4951) originating in 4 countries and from ICRISAT were included in the nursery. For the first time 3 breeding lines were included in the nursery. The list is given in Table 1.

## NURSERY LOCATIONS

The nursery was sent to 34 locations in 18 countries. The data were received from 21 locations in 9 countries. Data from most locations within India were received. Summary of findings from all locations have been given in this report. The list of the locations and cooperators, from whom data were received, is given in Table 2.

Table 1. List of entries - ICRAN (1980-81)

S.No.	ICC No.	Pedigree	Origin
1.	102	P-79	India
2.	267	P-212-1	"
3.	434	P-319	"
4.	438	P-324/12-069-00324	"
5.	519	P-394	"
6.	858	P-678	"
7.	999	P-812	Mexico
8.	1910	P-1542	India
9.	1913	P-1546	"
10.	1918	P-1549-1	"
11.	2083	P-1679-2	Mexico
12.	2354	P-2069-1	Iran
13.	2450	P-2230/12-071-02230	"
14.	2461	P-2249	"
15.	2566	P-2559	"
16.	2660	P-2686-2	"
17.	2858	P-3166-1	"
18.	2862	P-3181/12-071-03181	"
19.	3103	P-3617	"
20.	3181	P-3730-1	"
21.	3439	P-4116-1	"
22.	4847	P-6832/12-071-06832	"
23.	4850	P-8050	Unknown
24.	6366	NEC-312	Iran
25.	6381	NEC-340	"
26.	6411	NEC-384	"
27.	6455	NEC-460	"

contd.

Table 1. Contd.

S.No.	ICC No.	Pedigree	Origin
28.	6474	NEC-488	Iran
29.	6489	NEC-518	"
30.	6494	NEC-529	"
31.	6570	NEC-646	"
32.	6608	NEC-691	"
33.	6730	NEC-875	"
34.	6743	NEC-900	"
35.	6816	NEC-986	"
36.	6926	NEC-1166	"
37.	7481	GC-5 (Berhampore) P-50-C-1	India
38.	8585	SL-915	Ethiopia
39.	8622	WP-2984 B	"
40.	8933	WR-315	India
41.	8971	NEC-319	Iran
42.	8979	NEC-339	"
43.	8980	NEC-342	"
44.	8982	NEC-346	"
45.	8985	NEC-352	"
46.	8988	NEC-390	"
47.	9006	NEC-438	"
48.	9023	NEC-497	"
49.	9032	NEC-515	"
50.	9033	NEC-516	"
51.	9055	NEC-569	"
52.	10803	H-552-1	India
53.	10823	Bada Chafa	"

contd.

Table 1. Contd.

S.No.	ICC No.	Pedigree	Origin
54.	11088	BG-212	India
55.	11531	ICCC-10	ICRISAT
56.	11550	DA-1	India
57.	11551	PPK-1	"
58.	ICCL-80001	(P-99 X NEC-108) X Radhey	"
59.	ICCL-80003	K-4 X WR-315	"
60.	ICCL-80004	L-550 X USA-613	"
61.	4951*	JG-62	"

\*Wilt Susceptible Check

Table 2. List of the locations and cooperators from whom data were received.

S.No.	Cooperator(s)	Location	Country
1.	Ing. Liliana N. Gray	Inta-Estacion Experimental Regional Agropecuaria Salta-Carrillos	Argentina
2.	Dr. H.U. Ahmed and Mr. M.A. Bakr	Bangladesh Agricultural Research Institute Joydebpur, Dacca	Bangladesh
3.	Mr. Alemu Mengistu	Agricultural Expt. Station Addis Ababa University Debre Zeit	Ethiopia
4.	Dr. Pladis G. Costantine	Institute for Fodder Crops Larissa	Greece
5.	Dr. K. Sengupta and Mr. P.N. Roy	Pulses and Oilseeds Research Station Berhampore, West Bengal	India
6.	Dr. R.N.S. Tyagi and Mrs. K. Mathur	Agril. Research Station University of Udaipur Durgapura, Jaipur	India
7.	Dr. R.N. Singh	N.D. University of Agril. & Technology Faizabad, Uttar Pradesh	India
8.	Dr. Gurdip Singh, Dr. Kuldip Singh and Mr. A.S. Gill	Regional Research Station Punjab Agril. University Gurdaspur, Punjab	India
9.	Dr. B.L. Jalali, Mr. M.S. Sangwan, and Mr. S.K. Khirbat	Haryana Agril. University Hissar, Haryana	India
10.	Mr. S.R. Kotasthane, and Mrs. Om Gupta	J.N. Krishi Vishwa Vidyalaya Jabalpur, Madhya Pradesh	India
11.	Dr. Prabhakar Shukla, Mr. R.R. Singh, and Mr. A.N. Mishra	C.S. Azad University of Agril. & Technology Kanpur, Uttar Pradesh	India
12.	Dr. Gurdip Singh, Dr. Kuldip Singh, and Mrs. Shashi Kapur	Punjab Agril. University Ludhiana, Punjab	India

S.No.	Cooperator(s)	Location	Country
13.	Mr. N.P. Thakur, Mr. J.C. Patel, and Dr. S.G. Desai	Muvalia Farm, Dohad Dist. Panchmahals Gujarat	India
14.	Dr. M. Mahmood	Rajendra Agricultural University Dholi, Bihar	India
15.	Dr. J.S. Grewal, Dr. Mohendra Pal, and Mr. Birendra Singh	Indian Agril. Research Institute, New Delhi	India
16.	Dr. M. Mahaware and Dr. Y.L. Beni	ICRISAT, Patancheru Andhra Pradesh	India
17.	Dr. U.P. Singh and Mr. V.B. Chauhan	Banaras Hindu University Varanasi	India
18.	Ing. Rosa Maria Gomez Garza	Campo Agricola Exptl. Del Valle De Culiacan Sinaloa	Mexico
19.	Mr. B.P. Shah	Agriculture Station Parwanipur, Birganj Narayani Zone	Nepal
20.	Ing. Elva Llontop Castro	Experimental Station Viste, Floride, Chiclayo	Peru
21.	Dr. John C. Phillips	California Polytechnic State University San Luis Obispo California	U.S.A.

## NURSERY MANAGEMENT

The entries were planted in 2 replications. In each replication there was a single row of each entry. After every 2 test rows, 1 row of the wilt susceptible check ICC-4951 (JG-62) was planted. Fertilizer rates, insecticide application and other cultural practices were to be decided by respective locations. One major suggestion was to plant the nursery in a root rots/wilt-sick plot.

Information on planting date; season's rainfall, relative humidity, and cloudy days; irrigation, fertilizer application, insecticides used, etc., was requested from each cooperator.

## DATA COLLECTION

Request was made for collecting data (plants affected by root rots/wilt) every month. However for the purpose of the report the final figures on root rots and wilt have been considered.

## SUMMARY OF RESULTS

### ARGENTINA

The nursery was planted in a normal field at INTA-Estacion Experimental Regional Agropecuaria, Salta-Cerrillos. The incidence of wilt and root rot was low. No conclusions are drawn since the mortality was low in all the lines including the susceptible check line ICC-4951.

### BANGLADESH

The nursery was planted in a field at Joydebpur, Dacca. The wilt-sick plot was not available. The diseases recorded were wilt, root rots, stunt, rust and leaf spot (?). The incidence of wilt recorded was 4 to 22% in the susceptible check rows. ICC-102 had less than 5% wilt, but seventeen lines; viz., ICC-267, 999, 2461, 2566, 2858, 3439,



4847, 6411, 6816, 8585, 8971, 8979, 10803, 11531, 1150, 11551, and ICCL-80001 showed less than 10% wilt and root rots. All others showed between 10-15% incidence.

The incidence of other diseases was low (0 to 3%) and varied from line to line.

## **ETHIOPIA**

Debre-Zeit has the problem of wilt and root rots. The plot is now uniformly sick and susceptible check lines showed almost 100% mortality. Of the 60 lines, 45 were recorded highly resistant to wilt and root rot on 1-9 scale. They were; ICC-102, 267, 434, 438, 519, 858, 999, 1910, 1913, 1918, 2083, 2354, 2450, 2461, 2566, 2660, 2858, 2862, 3439, 4847, 4850, 6366, 6381, 6411, 6455, 6474, 6489, 6494, 6570, 6730, 6816, 6926, 7481, 8933, 8971, 8979, 9006, 9032, 9055, 10803, 10823, 11550, 11551, ICCL-80001, and ICC-80004. The incidence of root rot was very low. Actual count of wilted plants was not recorded.

## **GREECE**

The nursery was planted at the Institute for Fodder Crops, Larissa. Sporadic incidence of wilt and root rots was observed. Most of the entries were free from diseases. Two entries, ICC-8985, and 8988 showed more than 10% mortality due to root rot.

Ascochyta blight was recorded on ICC-102, 267, 434, 438, 519, 858, 999, 2354, 2461, 3181, 7481, 8979, 9055, and 11551; others were free from blight.

## **INDIA**

### **Berhampore (West Bengal)**

Berhampore has a very good wilt sick-plot. The susceptible check, ICC-4951, showed 100% wilt. No mortality was reported due to root rots. Four lines; viz., ICC-267, 2450, 6570 and 11550 showed less than 10% wilt. Others were reported moderate to highly susceptible.

Delhi

The mortality in the plot was due to wilt and *Fusarium* black root rot (*F. solani*). Eight lines: ICC-2083, 2354, 2858, 8585, 8933, 11531, 11550, and 11551 were free from wilt. Two lines, ICC-3103 and 9023 were free from root rot. The lines which showed less than 10% wilt and root rot were ICC-2862, 6474, 11088 and ICCL-80004. The plot was uniformly sick and the mortality in the susceptible check lines was more than 75%.

Dholi (Bihar)

The overall incidence of wilt in the susceptible check was 12.5%. Of the 60 lines, 11 lines; viz., ICC-858, 1918, 2566, 3181, 4850, 6455, 6608, 6926, 8985, 9006, and ICCL-80004 were free from wilt and root rot. Other lines showed up to 10% wilt.

Dohad (Gujarat)

The nursery was sown at Dohad (Muvalia Farm) in Panchmahals district of Gujarat State. The plot was not uniformly wilt-sick. Thirty-five lines out of the 60; viz., ICC-102, 267, 438, 519, 858, 999, 1910, 1918, 2450, 2461, 2660, 2858, 2862, 3439, 4847, 4850, 6455, 6489, 6494, 6608, 6730, 6816, 6926, 8933, 8980, 8985, 8988, 9006, 9023, 9032, 10803, 10823, 11088, 11531, and 11550 showed less than 10% wilt.

Durgapura (Rajasthan)

The nursery was planted in a normal field. The mortality in susceptible check lines ranged from 0 to 20 percent. Wilt was absent, but mortality was reported due to *Fusarium* black root rot. Thirty-one lines were free from mortality. These were; ICC-102, 267, 434, 519, 858, 1910, 1918, 2354, 2566, 2660, 2858, 2862, 3103, 3181, 4847, 6366, 6381, 6411, 6494, 6608, 8980, 8982, 8985, 8988, 9023, 10803, 11088, 11531, 11550, 11551, and ICCL-80003. Twenty-four lines showed less than 10% mortality.

Faizabad (Uttar Pradesh)

The susceptible check, ICC-4951 showed 100% wilt and root rots. The major root rot pathogens reported at this location were Fusarium solani, Sclerotium rolfsii, Rhizoctonia solani, and R. bataticola. Wilt fungus and F. solani were dominant in the wilt-sick plot. Only ten lines; viz., ICC-3103, 8971, 8980, 8985, 9006, 9023, 9032, 9033, 9055, and ICCL-80001 showed less than 10% mortality.

Gurdaspur (Punjab)

In the sick plot, the foot rot pathogen (Operculella padwickii) is the dominant one, followed by the wilt pathogen. Five lines were free from wilt: ICC-2566, 4850, 8585, 9006, and 9023. ICC-9023 was also free from foot rot and others had less than 10% mortality. Due to frequent rains in March-April, the nursery was damaged and final observations before harvest could not be recorded.

Hissar (Haryana)

The wilt incidence in susceptible check was almost complete. ICC-2862 was free from wilt and root rots. Thirty-four lines; viz., ICC-102, 267, 434, 438, 519, 858, 1918, 2461, 2660, 2858, 3103, 3439, 4847, 4850, 6381, 6411, 6455, 6474, 6489, 6494, 6570, 6608, 6730, 6926, 7481, 8982, 9023, 9032, 9033, 9055, 10803, 11088, 11531, and 11551 showed less than 10% mortality due to wilt and root rots. All the lines except ICC-2450, 6608, 6730, 8985, and 11551, showed the incidence of stunt. Incidence of Ascochyta blight was reported on all lines.

Jabalpur (Madhya Pradesh)

The nursery was sown in a wilt-sick plot. The susceptible check lines showed almost 100% mortality. Ten lines; viz., ICC-267, 438, 858, 2083, 2862, 3103, 6381, 6411, 8982, and 11088 were free from wilt and root rot incidence. Twenty-seven lines had less than 10% wilt and root rots. They were ICC-434, 999, 1910, 1918, 2858, 3439, 4847, 4850, 6366, 6455, 6474, 6489, 6494, 6570, 6743, 6816, 7481, 8971, 8980, 8985, 8988, 9023, 9032, 9033, 11550, 11551, and ICCL-80003.

Kanpur (Uttar Pradesh)

The nursery was planted in wilt-sick plot where the susceptible check ICC-4951 showed 100% mortality. Mortality was reported due to wilt. Nine lines, ICC-102, 267, 2660, 4847, 4850, 8933, 9032, 9055, and 11551 were free from any mortality. Seventeen lines showed less than 10% wilt. They were ICC-434, 438, 519, 858, 999, 2450, 3439, 6381, 6489, 6494, 6816, 7481, 8971, 8982, 9023, 9033, and 11550. All other lines showed susceptibility to wilt. It is to be noted that there are four races of Fusarium oxysporum f. sp. ciceri present in India and the race at Kanpur is different from the one that exists at ICRISAT Center.

Ludhiana (Punjab)

The mortality in the nursery was due to wilt followed by foot rot. Two lines ICC-11531 and 11550 were free from wilt and foot rot while the susceptible check JG-62 showed 100% mortality in the nursery. Four lines; ICC-267, 9032, 11551 and ICCL-80004 had less than 10% wilt and no foot rot. Seven lines; ICC-434, 858, 2083, 2354, 10803, 11088, and ICCL-80003 had less than 10% wilt and foot rot incidence.

Patancheru (ICRISAT Center) Andhra Pradesh

The nursery was raised in a multiple disease sick plot with the wilt fungus (F. oxysporum f. sp. ciceri) as the most dominant one. Other pathogens which caused root rots were mainly Rhizoctonia bataticola, Sclerotium rolfsii, R. solani, F. solani and the white root rot fungus. The susceptible check ICC-4951 showed 100% mortality. Five entries; ICC-2858, 3103, 6926, 9033, and 10803 were free from any mortality due to wilt or root rot. Twenty one entries; ICC-267, 438, 858, 1910, 1918, 2354, 2862, 4847, 4850, 6411, 6608, 6730, 6816, 7481, 8585, 8622, 8971, 8980, 8982, 8985, and 9032 were free from wilt and less than 10% root rots. Five entries; ICC-1913, 2461, 3439, 6474 and 6494 had no root rots and less than 10% wilt.

Varanasi (Uttar Pradesh)

The nursery was planted in a wilt-sick plot. The susceptible check lines showed almost 100% mortality. Most of the lines showed susceptibility to wilt except ICC-9033, 9055, 11088, and 11551, which showed less than 10% wilt incidence. .

MEXICO

The nursery was planted in a wilt-sick plot at Culiacan. Susceptible check lines showed uniform wilting in the nursery. All the lines were free from root rot. Thirteen lines which showed no mortality were ICC-999, 2450, 2858, 6366, 6474, 6489, 8971, 8979, 8980, 8982, 9006, 10803 and ICCL-80003. Thirty lines which showed less than 10% mortality were; ICC-102, 438, 519, 858, 1910, 1913, 1918, 2083, 2660, 2862, 3103, 4850, 6381, 6411, 6455, 6494, 6570, 6608, 6743, 6816, 7481, 8933, 8988, 9023, 9032, 9033, 9055, 10823, 11088, and 11551.

NEPAL

This year the nursery was not sown in wilt-sick plot available at Parwanipur. It was sown in a normal field. Since the mortality was low in all the lines including check lines (ICC-4951), no conclusions are drawn.

PERU

The nursery was planted in July 1981 at Chiclayo. Diseased plants were sampled for detection of pathogens. The mortality was mainly due to Fusarium oxysporum followed by Sclerotium rolfsii and Rhizoctonia solani. The susceptible check ICC-4951 showed 0 to 80% wilt. Twenty-six lines which were free from wilt and root rots were ICC-267, 434, 519, 1910, 2083, 2566, 2660, 3103, 3439, 6366, 6455, 6474, 6494, 6730, 6926, 8933, 8982, 8988, 10803, 11088, 11531, 11551, ICCL-80001, 80003, and 80004. Twenty-seven lines showed less than 10% mortality. They were ICC-102, 438, 858, 1918, 2354, 2450, 2461, 2862, 6381, 6411, 6489, 6570, 6608, 6743, 6816, 7481, 8622, 8971, 8979, 8980, 8985, 9006, 9023, 9032, 9033, 9055, and 10823.

## U.S.A.

The nursery was planted at San Luis Obispo in California in May 1981. Mortality was reported due to wilt. Thirty-five lines which showed no mortality were ICC-102, 267, 858, 1910, 1918, 2083, 2354, 2450, 2566, 2858, 2862, 3103, 4847, 4850, 6366, 6488, 6494, 6570, 6608, 6816, 6926, 7481, 8585, 8933, 8971, 8979, 8980, 8985, 9023, 9032, 9033, 10823, 11550, ICCL-80001, and 80003. All others except ICC-434, 2461, 3181, and 8988 showed less than 10% wilt. The susceptible check lines showed uniform mortality.

## PERFORMANCE OF ENTRIES ACROSS LOCATIONS

Of the 21 locations, we could consider the data from only 18. Performance of entries across locations is listed in Table 3.

Table 3. Performance of entries across locations.

ICC No.	Pedigree	No. of locations where found promising against wilt/root rots	Locations
1	2	3	4
102	P-79	10	B, E, DH, DO, DU, H, KA, M, P, US.
267	P-212-1	13	B, E, BER, DH, DO, DU, H, JB, KA, L, HY, P, US.
434	P-319	8	E, DH, DU, H, JB, KA, L, P.
438	P-324/12-069-00324	10	E, DH, DO, H, JB, KA, HY, M, P, US.
519	P-394	9	E, DH, DO, DU, H, KA, M, P, US.
858	P-678	12	E, DH, DO, DU, H, JB, KA, L, HY, M, P, US.
999	P-812	8	B, E, DH, DO, JB, KA, M, US.
1910	P-1542	9	E, DH, DO, DU, JB, HY, M, P, US.
1913	P-1546	6	E, DH, HY, M, P, US.
1918	P-1549-1	10	E, DH, DO, DU, H, JB, HY, M, P, US.
2083	P-1679-2	8	E, D, DH, JB, L, M, P, US.
2354	P-2069-1	8	E, D, DH, DU, L, HY, P, US.
2450	P-2230/12-071-02230	8	E, BER, DH, DO, KA, M, P, US.
2461	P-2249	7	B, E, DH, DO, H, HY, P.
2566	P-2559	7	B, E, DH, DU, GU, P, US.
2660	P-2686-2	9	E, DH, DO, DU, H, KA, M, P, US.
2858	P-3166-1	11	B, E, D, DH, DO, DU, H, JB, HY, M, US.
2862	P-3181/12-071-03181	11	E, D, DH, DO, DU, H, JB, HY, M, P, US.
3103	P-3617	10	D, DH, DU, FA, H, JB, HY, M, P, US.
3181	P-3730-1	2	DH, DU.
3439	P-4116-1	10	B, E, DH, DO, H, JB, KA, HY, P, US.
4847	P-6832/12-071-06832	10	B, E, DH, DO, DU, H, JB, KA, HY, US.

4860	P-8050	10	E, DM, DO, DU, H, JB, KA, HY, M, US.
6366	NEC-312	7	E, DM, DU, JB, M, P, US.
6381	NEC-340	9	E, DM, DU, H, JB, KA, M, P, US.
6411	NEC-384	10	B, E, DM, DU, H, JB, HY, M, P, US.
6456	NEC-460	8	E, DM, DO, H, JB, M, P, US.
6474	NEC-488	9	E, D, DM, H, JB, HY, M, P, US.
6480	NEC-518	9	E, DM, DO, H, JB, KA, M, P, US.
6494	NEC-529	11	E, DM, DO, DU, H, JB, KA, HY, M, P, US.
6570	NEC-546	8	E, BE, R, DM, H, JB, M, P, US.
6608	NEC-581	8	DM, DO, DU, H, HY, M, P, US.
6730	NEC-876	7	E, DM, DO, H, HY, P, US.
6743	NEC-900	6	DM, JB, M, P, US.
6816	NEC-986	10	B, E, DM, DO, JB, KA, HY, M, P, US.
6826	NEC-1164	7	E, DM, DO, H, HY, P, US.
7481	SC-8 (Bryantmore) P-80-L-1	9	E, DM, H, JB, KA, HY, M, P, US.
8586	SL-816	6	B, D, DM, DU, HY, US.
8622	WP-2984 B	4	DM, HY, P, US.
8633	WR-316	8	E, D, DM, DO, KA, M, P, US.
8671	NEC-319	10	B, E, DM, FA, JB, KA, HY, M, P, US.
8679	NEC-339	6	B, E, DM, M, P, US.
8680	NEC-342	9	DM, DO, DU, FA, JB, HY, M, P, US.
8682	NEC-346	9	DM, DU, H, JB, KA, HY, M, P, US.
8686	NEC-352	8	DM, DO, DU, FA, JB, HY, P, US.
8688	NEC-390	6	DM, DO, DU, JB, M, P.



1	2	3	4
9006	NEC-438	8	E, DH, DO, FA, GU, M, P, US.
9023	NEC-497	12	D, DH, DO, DU, FA, GU, H, JB, KA, M, P, US.
9032	NEC-515	12	E, DH, DO, FA, H, JB, KA, L, HY, M, P, US.
9033	NEC-516	10	DH, FA, H, JB, KA, HY, V, M, P, US.
9055	NEC-569	9	E, DH, FA, H, KA, V, M, P, US.
10803	H-552-1	11	B, E, DH, DO, DU, H, L, HY, M, P, US.
10823	Bada Chafa	6	E, DH, DO, M, P, US.
11088	BG-212	11	D, DH, DO, DU, H, JB, L, V, M, P, US.
11531	ICCC-10	9	B, D, DH, DO, DU, H, L, P, US.
11550	DA-1	11	B, E, BER, D, DH, DO, DU, JB, KA, L, US.
11551	PPK-1	13	B, E, D, DH, DU, H, JB, KA, L, V, M, P, US.
ICCL-80001	(P-99 X NEC-108) X Radhey	6	B, E, DH, FA, P, US.
ICCL-80003	K-4 X WR-315	7	DH, DU, JB, L, M, P, US.
ICCL-80004	L-550 X USA-613	6	E, D, DH, L, P, US.

B - Bangladesh; E - Ethiopia; India: (BER - Berhampore; D - Delhi; DH - Dholi; DO - Dohad; DU - Durgapura; FA - Faizabad; GU - Gurdaspur; H - Hissar; JB - Jabalpur, KA - Kanpur; L - Ludhiana; HY - Hyderabad; V - Varanasi); M - Mexico, P - Peru, US - U.S.A.

Two entries; viz., ICC-267, and 11551 did well across 13 locations. Three entries; viz., ICC-858, 9023, and 9032 performed well across 12 locations. Six entries; viz., ICC-2858, 2862, 6494, 10803, 11088, and 11550 did well across 11 locations. Of the remaining, 11 entries did well at 10 locations, 11 across 9 locations, 11 at 8 locations, 6 at 7 locations, 7 at 6 locations, 1 at 5 locations, 1 at 4 locations and 1 at 2 locations.

#### PROGRAM FOR 1981-82

Sixty entries originating in 6 countries and from ICRISAT have been included in the ICRRWN for 1981-82. The nursery has been sent to 25 locations in 18 countries.

*This report is co                      by M.P. Haware and Y.L. Nene of ICRISAT.*