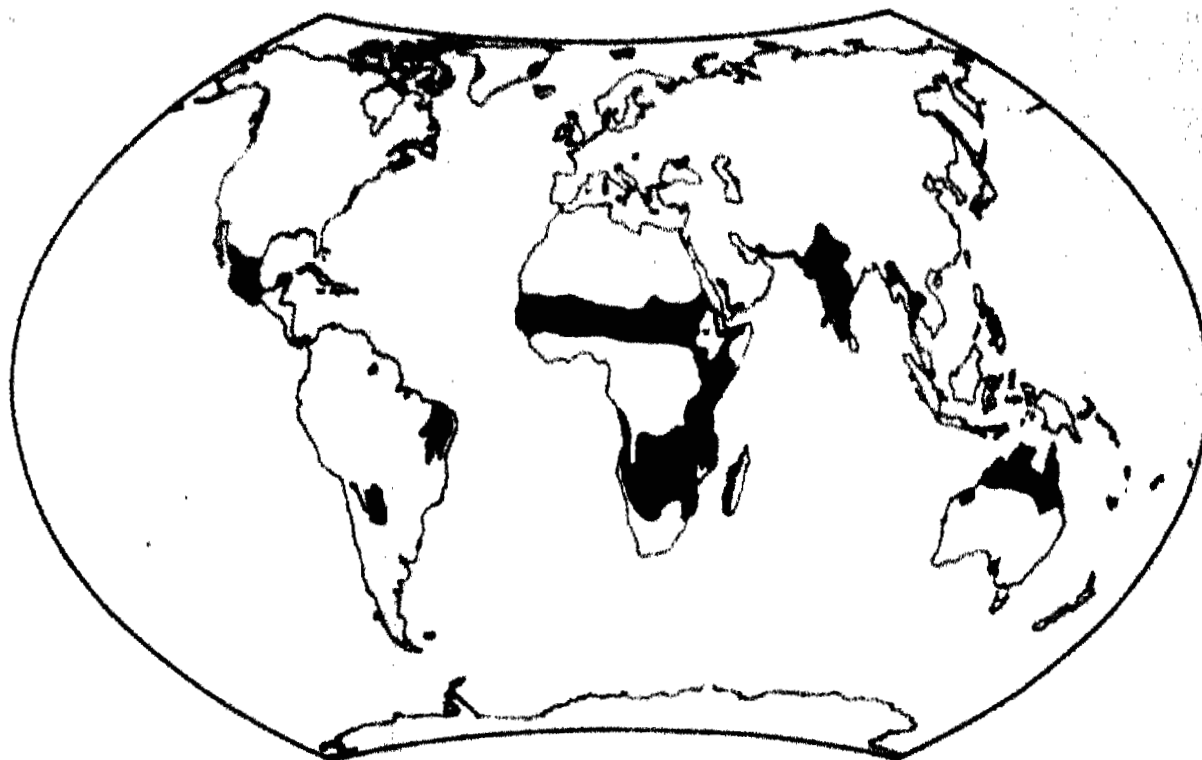


PULSE PATHOLOGY
Progress Report-19

INTERNATIONAL CHICKPEA DISEASE RESISTANCE TESTING PROGRAM



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



ICRISAT

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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 - ICRAM (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. Lilliana 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, Florida, 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-Carrillos. 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.

