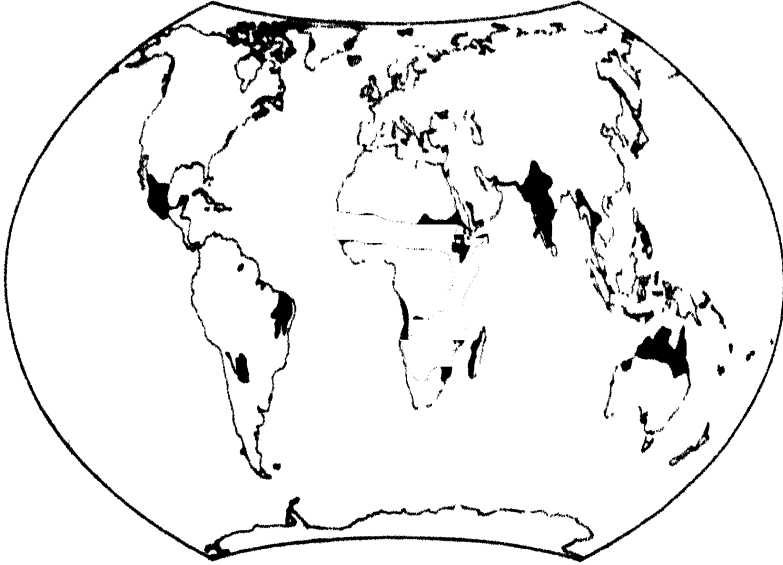


**INTERNATIONAL PEARL MILLET DISEASE RESISTANCE TESTING PROGRAM  
(IPMDRTP)**

**Progress Report: PMPDM 8002**



**REPORT OF  
THE 1979 INTERNATIONAL PEARL MILLET DOWNY MILDEW NURSERY  
(IPMDMN)**



**ICRISAT**

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## ABSTRACT

In the 1979 International Pearl Millet Downy Mildew Nursery (IPMDMN), 45 pearl millet entries were sent for evaluation of reactions to downy mildew, to cooperators at 26 locations in eight countries. Kamboinse in Upper Volta provided the most severe downy mildew pressure, followed by Pune and ICRISAT Center in India. Most of the entries showed high downy mildew resistance at all locations. Several entries including 700251, 700516, P-7, P-10, SDN-347-1, and SDN-503 which performed well in preceding years showed high resistance again this year. Among the newly included entries, SSC-7218, T-128-3 x 700404-1-5-5, J-1486 x 700787-2-10, NC-7174, B-Senegal-2-5 and MPP-7147-2-1 performed very well with less than 5 percent downy mildew at all the locations.

## RESUME

Dans le cadre de la Pépinière internationale pour le mildiou de mil à chandelles (IPMDMN) de 1979, 45 entrées de mil à chandelles ont été expédiées aux coopérateurs dans 26 emplacements de 8 pays pour l'évaluation de leur réaction au mildiou. L'incidence de mildiou a été la plus sévère à Kamboinse en Haute-Volta suivi de Pune et du Centre ICRISAT en Inde. La plupart des entrées ont présenté une forte résistance au mildiou sur l'ensemble des emplacements. Plusieurs entrées notamment 700251, 700516, P-7, P-10, SDN-347-1 et SDN-503 qui se sont bien comportées auparavant ont fait preuve à nouveau d'une forte résistance cette année. Parmi les introductions récentes, SSC-7218, T-128-3 x 700404-1-5-5, J-1486 x 700787-2-10, NC-7174, B-Senegal-2-5 et MPP-7147-2-1 se sont très bien comportées avec une sévérité de mildiou inférieure à 5% sur l'ensemble des emplacements.

## THE 1979 INTERNATIONAL PEARL MILLET DOWNY MILDEW NURSERY (IPMDMN)

### INTRODUCTION

The International Pearl Millet Disease Resistance Testing Program (IPMDRTP) was initiated in 1976 with the establishment of the International Pearl Millet Downy Mildew Nursery (IPMDMN). The IPMDMN program is an international cooperative activity through which pearl millet cultivars are tested for degree and stability of resistance to downy mildew. The results of the 1976, 1977 and 1978 IPMDMN, which were tested by cooperators at more than 20 locations in six countries in Africa and Asia, indicated major differences between test entries in level and stability of downy mildew resistance, and between locations in the severity and virulence of the downy mildew pathogen (*Sclerotinia graminicola*). As the trial provided valuable information in its three years of operation there was considerable support for it to continue. In 1979 the fourth IPMDMN was distributed to cooperators at 26 locations in eight countries in Africa and Asia. At the time of preparation of this report results have been received from 13 locations. The report is being prepared at this time, though all results have not been received, in order that the data and entries may be used in the 1980 main growing season.

### TEST LOCATIONS AND COOPERATORS

Details of the test locations and the cooperators from whom data was received by January 20, 1980 are given in Table 1. The locations represent an excellent coverage of Indian and West African millet growing regions.

## ENTRIES

The trial contained 45 test entries and cooperators were invited to include a local susceptible after every ten test entries to act as an "indicator" of local DM pressure. In 1976 and 1977 the entries were chosen mainly on their performance in the DM screening nursery at the ICRISAT Center (except that 10 of the 1977 IPMDMN entries were carried forward from the 1976 IPMDMN). In 1977 a PRE-IPMDMN of 150 entries was operated at a few key DM "hot spot" locations in West Africa and India. This trial greatly facilitated choosing from the candidate entries those which would enter the IPMDMN in the following year. Since 1977 the PRE-IPMDMN has been operated annually. The majority of the 1979 IPMDMN entries therefore were those that had performed well at all locations in the 1978 PRE-IPMDMN. The 11 best lines from the 1978 IPMDMN were also included.

## RESULTS

Three infection parameters were calculated:

- i. Percent infection 30 days after planting (% INF 30)
- ii. Percent infection at final scoring (Incidence)
- iii. A combination of incidence and severity termed infection index (severity)

Detailed results from each location are presented in Tables 2 to 6, and a summary of the results is presented in Table 7. The results from Kovilpatti and Kudumiamalai were not included for there was such low DM, even in the susceptible checks, that DM pressure there was not considered

to have been sufficient to meaningfully challenge the test entries. The results from Islamabad (one replication data), also indicated little downy mildew pressure, and therefore, Islamabad results are not presented.

In Table 7 the entries are ranked on maximum severity values. Where severity values are the same for more than one entry these entries are ranked on the across location mean severity value.

DM in the local susceptible checks was moderate to high at all locations except Kamboinse. Mean DM severity for test entries varied from a low of 2 percent at Aurangabad to 11 percent at Kamboinse (maximum location mean in the 1978 IPMDMN was 12%, at Kudumlamalai and Kano).

Thirty seven of the 45 entries had across location mean severity values of less than 5 percent and included 700251, 700516, 700651, P-7, P-10, SDN-347-1 and SDN-503, all of which have performed well in preceding years' trials. The remaining entries, with the exception of 7042 and BJ-104, averaged less than 10 percent DM severity.

In Table 8, the summary performance of eight entries included in all four years of the IPMDMN trials, is presented. All eight entries have averaged less than 5 percent severity in all four years, and three entries (SDN-503, 700251, and P-7) have had maximum DM severity at any location in any year of less than 15 percent.

## DISCUSSION

The IPMDMN program in four years of its operation has identified a large number of DM resistant materials. Several entries have shown across

location resistances in all the years of testing, indicating stability of their resistance to the pathogen populations encountered.

The increase in DM levels of certain entries at African locations (ex. SDN-503 at Kamboinse) is a matter of concern. Probably during seed multiplication process which is being done at ICRISAT, these entries might be gradually losing genes responsible for resistance to African populations of this pathogen. Another possible reason may be planting and/or counting errors. The reasons need to be investigated. Entry 7042, which originated from Chad, showed high susceptibility at all the locations.

#### THE 1980 PRE-IPMDMN and IPMDMN

The IPMDMN will be continued in 1980 with a selection of the best 1979 IPMDMN entries and those lines that performed well in the 1979 PRE-IPMDMN.

Entries for the PRE-IPMDMN trial are welcome from scientists in national and regional programs provided they have been shown to be DM resistant at the home location. Because of plant quarantine requirements in India, seed sent from abroad will take about one year before it can be included in the trial.

#### SEED SUPPLY

Any scientist who would like to receive seed of any entry listed in this report should send a request to the Millet Pathologist at ICRISAT (address given on the cover of this report) indicating that the seed request is from the 1979 IPMDMN entries.

Table 1. Cooperators and locations in the 1979 IPMDMN from whom results were received by January 20, 1980

Cooperators	Location	Country
K.J. Bindu	Aurangabad	India
K.A. Balasubramanian & A.M. Akbar	Hyderabad	India
N.A. Thakar	Jamnagar	India
D.P. Thakur	Hissar	India
M. Muthusamy	Coimbatore	India
K.M. Safeeulla	Mysore	India
S.S. Chahal	Ludhiana	India
S.D. Singh	ICRISAT	India
B.D. Patil	Pune	India
A.S. Mathar	Kovilpatti	India
S. Muthusamy	Kudumiamalai	India
S.J. Hamid	Islamabad	Pakistan
J.A. Frowd	Kamboinse	Upper Volta

Table 2. Plant population, downy mildew incidence (%) (Incid) and infection indices (%) (Severity) of 45 entries and local susceptible in the 1979 IPMDMN at Aurangabad and APAU, Hyderabad

Entry	AURANGABAD						APAU, HYDERABAD					
	Total Plants		Incid.		Severity		Total Plants		Incid.		Severity	
	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>
700651	52	42	0	0	0	0	85	29	0	0	0	0
700516	54	28	0	0	0	0	113	29	0	0	0	0
700251	27	46	0	2	0	1	110	78	0	0	0	0
700042	26	36	0	0	0	0	49	70	4	0	4	0
700627	37	48	0	0	0	0	91	78	0	0	0	0
700619	42	24	0	0	0	0	106	39	1	0	1	0
700743	32	41	0	0	0	0	64	17	0	0	0	0
T128-3x700404-1-5-5	27	32	0	0	0	0	75	82	0	0	0	0
700429	10	22	0	0	0	0	66	63	2	0	2	0
700331	34	30	0	0	0	0	64	72	2	0	2	0
MPP-7147-2-1	29	34	8	0	3	0	43	81	0	1	0	1
J1486x700707-2-10	28	43	4	3	4	3	89	78	0	0	0	0
IP 2058	22	26	0	0	0	0	87	76	0	0	0	0
J-1188	17	26	0	0	0	0	81	15	0	0	0	0
IP 1930	35	23	0	0	0	0	83	4	0	25	0	19
IP 2037	15	30	0	0	0	0	82	94	0	0	0	0
2287 ME	36	37	0	0	0	0	112	56	0	0	0	0
2989-109-1	16	28	0	0	0	0	83	76	2	0	2	0
B-Senegal-2-5	35	33	0	0	0	0	82	86	0	0	0	0
B-Senegal-6	31	44	0	0	0	0	89	65	0	0	0	0
K-560	34	51	0	0	0	0	100	100	0	0	0	0
75-Series-1	47	30	3	3	1	2	74	72	5	0	5	0
SDN-347-1	36	31	3	4	3	4	70	96	0	0	0	0
SDN-503	32	24	0	0	0	0	86	90	0	0	0	0
SDN-496	25	23	0	0	0	0	63	60	0	0	0	0
P-7	40	38	0	0	0	0	72	84	0	0	0	0
P-10	35	40	0	3	0	1	6	79	0	0	0	0
114-1-R	14	28	0	4	0	4	47	89	0	0	0	0
7042	32	26	47	67	32	67	42	17	81	88	73	81
J 1593	22	30	0	10	0	7	97	76	0	0	0	0
7124-3	20	19	0	0	0	0	92	120	0	0	0	0
EB-83-2	51	48	0	0	0	0	116	82	0	0	0	0
EB79-2-2xEB59-3-1	14	39	20	3	10	3	69	93	0	0	0	0
EB-18-3-1	38	22	0	0	0	0	8	72	0	0	0	0
EB209-1-6xEB150-1-1	16	36	0	0	0	0	81	70	0	0	0	0
IVS 7041	45	43	0	0	0	0	63	101	0	0	0	0
NC 7158	35	26	0	0	0	0	74	69	0	0	0	0
NC 7174	29	42	0	0	0	0	68	36	0	3	0	2
SSC 7218	35	35	0	0	0	0	81	77	0	0	0	0
EC 7088	43	47	0	0	0	0	82	78	0	0	0	0
BJ-104	27	45	5	2	1	1	117	104	2	0	1	0
ICH-165	46	32	0	0	0	0	70	57	1	0	1	0
ICH-154	42	36	3	0	2	0	96	80	0	0	0	0
ICH-118	25	40	0	0	0	0	73	62	0	0	0	0
DHRSP-CO BULK	30	22	0	0	0	0	66	60	0	0	0	0
Local susc.	33	36	70	63	42	37	66	68	29	54	27	49

Mean of five plots in each replication



Table 3. Plant population, downy mildew incidence (%) (Incid) and Infection Indices (%) (Severity) of 45 entries and local susceptible in the 1979 IPDMW at Jamnagar and Hissar

Entry	JAMNAGAR						HISSAR						
	Total Plants		Incid.		Severity		Total Plants		Incid.		Severity		
	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	
700651	80	64	0	0	0	0	125	107	0	6	0	0	3
700516	70	68	0	0	0	0	83	124	0	0	0	0	0
700251	65	41	0	0	0	0	117	89	0	0	0	0	0
700042	60	33	0	0	0	0	96	65	0	6	0	0	4
700627	75	83	0	0	0	0	108	135	0	0	0	0	1
700619	75	76	0	1	0	1	93	111	5	3	3	3	1
700743	28	31	0	0	0	0	92	52	0	0	0	0	0
T128-3x700404-1-5-5	92	77	0	0	0	0	172	114	0	0	0	0	0
700429	74	88	0	0	0	0	152	131	0	27	0	0	16
700331	56	78	0	0	0	0	82	104	0	0	0	0	0
MPP-7147-2-1	65	80	0	1	0	1	102	119	0	0	0	0	0
J1486x700787-2-10	68	84	2	2	1	1	103	92	0	0	0	0	0
IP 2058	76	79	0	0	0	0	79	96	0	0	0	0	0
J 1188	55	76	0	0	0	0	32	120	0	0	0	0	0
IP 1930	52	49	0	0	0	0	80	82	0	0	0	0	0
IP 2037	59	59	0	0	0	0	81	87	0	0	0	0	0
2287 ME	56	51	5	5	0	5	103	85	0	0	0	0	0
2989-109-1	58	67	0	0	0	0	84	96	0	0	0	0	0
B-Senegal-2-5	89	59	0	0	0	0	182	94	0	7	0	0	5
B-Senegal-6	65	54	2	2	0	2	152	102	0	0	0	0	0
K-560	71	65	0	0	0	0	132	101	0	0	0	0	0
75-Series-1	31	30	0	0	0	0	88	129	3	0	1	0	0
SDM-347-1	46	50	0	3	0	0	78	73	0	0	0	0	0
SDM-503	74	66	1	2	1	1	135	89	0	3	0	0	3
SDM-496	68	42	0	0	0	0	88	85	0	0	0	0	0
P-7	52	106	0	0	0	0	180	103	0	6	0	0	4
P-10	66	88	2	0	2	2	134	171	0	0	0	0	0
114 I.R.	66	74	0	1	0	1	140	80	0	6	0	0	4
7042	47	42	89	52	88	52	198	90	91	0	71	0	0
J 1593	70	70	6	6	5	5	112	108	1	4	1	1	2
7124-3	75	48	0	0	0	0	112	96	12	96	5	5	94
EB-83-2	81	103	1	0	1	1	136	92	0	0	0	0	0
EB79-2-2xEB59-3-1	52	51	0	0	0	0	136	86	0	0	0	0	0
EB-18-3-1	29	21	0	0	0	0	68	102	0	0	0	0	0
EB209-1-6xEB150-1-1	73	96	1	1	1	1	160	96	0	0	0	0	0
IVS 7041	76	54	0	0	0	0	136	107	0	0	0	0	0
NC 7158	68	72	0	0	0	0	90	95	0	1	0	0	1
NC 7174	83	62	0	0	0	0	155	84	0	0	0	0	0
SSC-7218	68	65	0	0	0	0	86	98	0	0	0	0	0
EC 7088	72	72	0	3	0	3	154	98	2	3	1	1	2
BJ-104	42	94	2	5	2	2	107	90	3	11	1	1	9
ICH-165	62	65	0	2	0	2	85	78	0	0	0	0	0
ICH-154	80	76	1	1	1	1	65	97	0	0	0	0	0
ICH-118	73	55	3	0	3	3	104	119	0	2	0	0	1
DHRSP-CO BULK	80	69	0	0	0	0	124	78	0	0	0	0	0
Local susc. a/	28	26	26	25	25	25	102	98	88	96	71	71	76

a/ Mean of five plots in each replication

Table 4. Plant population, downy mildew incidence (%) (Incid) and infection indices (%) (Severity) of 45 entries and local susceptible in the 1979 IPMDMN at Coimbatore and Mysore

Entry	COIMBATORE						MYSORE					
	Total plants		Incid.		Severity		Total plants		Incid.		Severity	
	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>
700651	68	54	0	4	0	2	178	85	0	0	0	0
700516	142	108	0	0	0	0	200	176	0	0	0	0
700251	87	60	0	5	0	3	141	165	0	7	0	6
700042	67	47	6	9	5	7	132	138	0	2	0	1
700627	98	126	2	5	1	5	105	275	0	2	0	1
700619	122	84	0	0	0	0	208	128	1	0	1	0
700743	46	28	0	0	0	0	95	38	1	0	1	0
T128-3x700404-15-5	123	58	3	0	2	0	115	73	0	0	0	0
700429	153	20	0	0	0	0	126	183	8	0	2	0
700331	85	57	2	5	2	4	30	30	0	0	0	0
MPP-7147-2-1	56	32	4	0	1	0	143	86	0	0	0	0
J-1486x700787-2-10	153	74	0	5	0	3	180	125	4	2	3	2
IP 2058	84	90	0	0	0	0	150	156	1	1	1	1
J 1188	120	43	9	0	7	0	113	178	5	3	4	3
IP 1930	87	125	0	0	0	0	70	112	3	15	2	12
IP 2037	148	90	1	0	1	0	130	84	0	0	0	0
2287 ME	46	45	0	0	0	0	135	135	2	4	2	4
2989-109-1	126	60	0	0	0	0	52	149	8	7	6	6
B-Senegal-2-5	205	60	0	0	0	0	60	119	0	3	0	3
B-Senegal-6	105	72	0	3	0	2	150	86	5	1	4	1
K-560	220	80	0	2	0	2	109	215	11	5	6	3
75-Series-1	34	73	0	1	0	1	57	37	0	0	0	0
SDN-347-1	152	63	0	0	0	0	118	36	12	22	10	19
SDN 503	125	62	3	0	3	0	116	141	0	4	0	3
SDN 496	74	54	0	0	0	0	107	120	17	8	14	6
P-7	78	48	0	10	0	8	174	195	0	0	0	0
P-10	59	113	0	2	0	1	190	144	0	3	0	2
114-1-R	112	72	0	0	0	0	106	320	17	11	14	8
7042	42	-1	16	80	14	50	56	19	18	63	13	46
J 1593	84	36	10	23	7	16	172	166	18	16	14	12
7124-3	64	69	0	0	0	0	97	81	0	0	0	0
EB-83-2	118	65	0	0	0	0	97	161	4	4	3	3
EB79-2-2xEB59-3-1	92	45	0	5	0	4	193	110	9	6	6	4
EB-18-3-1	46	50	10	12	8	8	76	120	0	0	0	0
EB209-16xEB150-1-1	115	49	1	4	1	3	253	251	2	1	1	1
IVS 7041	48	32	17	9	10	8	250	208	4	2	3	1
NC 7158	84	74	5	0	2	0	85	134	0	1	0	1
NC 7174	180	73	1	4	1	3	86	69	0	1	0	1
SSC 7218	116	77	0	0	0	0	91	76	0	0	0	0
EC 7088	115	96	5	0	5	0	149	128	7	7	6	6
BJ-104	58	44	12	12	9	8	103	95	4	4	25	3
ICH-165	79	79	15	0	10	0	160	253	3	4	3	3
ICH-154	54	47	7	8	7	5	111	160	4	3	3	2
ICH-118	125	50	0	0	0	0	170	104	7	8	6	6
DMRSP-CO BULK	105	52	0	0	0	0	157	231	7	1	5	1
Local susc.	82	67	92	94	82	77	98	42	39	49	29	37

a/ Mean of five plots in each replication

Table 5. Plant population, downy mildew incidence (%) (incid) and infection indices (%) (severity) of 45 entries and local susceptible in the 1979 IPMDMN at Ludhiana and ICRISAT

Entry	LUDHIANA						ICRISAT					
	Total plants		Incid		Severity		Total plants		Incid		Severity	
	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>
700651	51	47	0	0	0	0	81	101	3	1	1	1
700516	41	48	0	0	0	0	104	101	0	0	0	0
700251	47	28	2	0	1	0	71	92	0	1	0	1
700042	54	46	4	4	2	2	82	83	0	2	0	2
700627	42	45	0	0	0	0	82	102	7	4	3	3
700619	58	45	9	2	7	2	88	90	5	1	2	1
700743	45	45	0	2	0	2	62	82	26	11	11	9
T-128-3 x 700404-1-5-5	51	48	2	0	1	0	93	125	0	0	0	0
700429	54	55	2	2	1	1	119	85	2	0	1	0
700331	55	51	6	4	4	2	74	116	3	0	1	0
MPP-7147-2-1	52	50	8	4	5	3	97	121	2	2	1	1
J-1486 x 700787-2-10	48	38	0	0	0	0	90	125	0	1	0	1
IP 2058	47	53	0	2	0	1	124	90	2	3	1	2
J 1188	51	48	2	0	1	0	83	82	2	0	1	0
IP 1930	48	38	0	0	0	0	94	86	0	2	0	2
IP 2037	52	55	4	4	4	3	101	89	2	0	1	0
2287 ME	54	40	4	5	3	3	79	98	0	3	0	2
2989-109-1	56	46	5	7	4	5	81	74	3	5	1	5
B-Senegal-2-5	55	50	6	4	5	3	97	94	0	1	0	1
B-Senegal-6	55	52	6	4	4	3	122	86	3	5	2	2
K-560	57	58	4	3	2	2	100	94	4	3	2	3
75-Series-1	52	50	10	10	6	8	69	103	12	1	5	1
SDN-347-1	51	48	4	2	3	1	30	71	3	1	3	1
SDN-503	49	58	2	3	2	3	33	95	7	2	3	2
SDN 496	49	54	4	4	3	2	93	95	4	2	2	1
P-7	54	53	13	6	9	5	84	117	0	1	0	1
P-10	55	54	4	2	3	2	89	119	2	0	1	0
114 I.R.	58	46	9	4	5	4	109	126	0	2	0	1
7042	44	51	93	86	73	56	47	61	96	97	88	94
J-1593	50	46	12	11	8	8	108	84	22	14	10	11
7124-3	53	53	8	2	6	1	101	94	0	0	0	0
EB-83-2	54	48	4	0	2	0	81	100	3	2	1	1
EB-79-2-2xEB59-3-1	58	35	5	3	4	1	95	100	6	1	3	1
EB-18-3-1	47	47	0	0	0	0	59	57	0	2	0	1
EB209-1-6x EB150-1-1	57	50	5	4	4	4	112	82	2	2	1	1
IVS 7041	55	52	0	2	0	1	80	102	0	1	0	1
NC 7158	53	47	4	2	4	1	75	85	0	1	0	1
NC 7174	52	51	0	2	0	1	112	97	0	1	0	1
SSC-7218	48	51	0	0	0	0	90	117	2	0	1	0
EC 7088	52	56	10	13	6	9	83	107	2	0	1	0
BJ 104	52	53	10	8	6	5	78	98	60	46	56	40
ICH 165	53	50	2	0	1	0	55	76	0	3	0	1
ICH 154	45	42	2	5	1	4	77	81	3	3	1	1
ICH 118	46	58	0	2	0	1	86	97	5	8	2	5
DHRSP-CO BULK	56	48	4	0	2	0	105	91	0	1	0	1
Local susc. <sup>a/</sup>	45	43	89	90	62	63	113	165	74	79	69	71

<sup>a/</sup> Mean of five plots in each replication

Table 6. Plant population, downy mildew incidence (%) (Incid) and infection indices (%) (severity) of 45 entries and local susceptible in the 1979 IPMDMN at Pune and Kamboinse

Entry	PUNE						KAMBOINSE					
	Total plants		Incid		Severity		Total plants		Incid		Severity	
	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>2</sub>
700651	48	51	4	4	3	2	87	75	5	5	5	1
700516	51	46	2	7	2	2	61	94	8	4	7	4
700251	51	56	6	4	3	1	93	85	11	0	11	0
700042	50	51	0	0	0	0	71	85	20	3	17	3
700627	52	50	0	4	0	4	65	23	21	39	19	33
700619	53	50	0	6	0	5	81	88	21	22	18	21
700743	44	50	9	10	5	6	64	68	2	0	2	0
T-128-3 x 700404-1-5-5	41	49	0	0	0	0	68	78	0	6	0	5
700429	58	49	3	0	2	0	78	84	0	0	0	0
700331	44	48	18	29	15	27	80	59	28	31	26	31
MPP-7147-2-1	49	51	12	6	7	2	76	85	0	3	0	3
J-1486 x 700787-2-10	52	52	0	0	0	0	69	88	3	0	2	0
IP 2058	49	54	0	0	0	0	70	65	5	8	3	6
J-1188	49	38	4	0	3	0	81	80	11	16	9	12
IP 1930	52	44	0	5	0	5	76	73	0	0	0	0
IP 2037	41	38	0	0	0	0	72	86	9	12	9	9
2287 ME	51	56	6	4	3	1	81	98	70	40	64	32
2989-109-1	54	36	6	0	6	0	66	80	2	6	1	5
B-Senegal-2-5	34	54	6	9	6	3	83	76	0	0	0	0
B-Senegal-6	51	51	6	0	4	0	72	68	9	7	8	5
K-560	45	44	7	2	7	2	61	84	3	1	3	1
75-Series-1	52	50	6	0	3	0	60	72	12	6	11	6
SDN-347-1	52	50	15	2	4	1	86	23	4	0	4	0
SDN 503	53	52	4	6	1	1	96	84	13	19	12	16
SDN 496	45	52	4	6	4	3	88	50	6	4	5	2
P-7	49	49	10	14	8	10	90	75	7	8	6	8
P-10	50	49	12	6	9	6	75	76	1	1	1	1
114-1-R	41	51	20	24	20	7	84	81	29	29	28	27
7042	21	14	62	79	41	79	70	63	100	50	100	49
J-1593	36	51	11	6	3	2	80	85	44	16	39	15
7124-3	49	47	0	0	0	0	86	95	0	0	0	0
EB-83-2	46	54	7	7	3	4	81	94	7	6	6	6
EB-79-2-2 x EB59-3-1	55	55	4	4	1	1	41	81	0	6	0	6
EB-18-3-1	51	54	10	0	4	0	77	50	0	0	0	0
EB-209-1-6xEB-150-1-1	41	53	7	2	6	2	76	89	10	5	8	4
IVS 7041	49	54	8	7	4	2	100	70	53	43	45	36
NC 7158	52	44	6	9	1	3	94	84	13	8	11	7
NC 7174	49	48	0	0	0	0	66	78	2	8	1	7
SSC-7218	52	52	0	0	0	0	87	90	3	0	1	0
EC 7088	44	55	0	6	0	2	87	84	18	30	16	27
BJ 104	52	53	21	19	16	13	62	83	45	21	35	14
ICH 165	54	51	4	0	3	0	42	70	3	6	1	6
ICH 154	49	36	0	8	0	8	77	100	5	2	5	2
ICH 118	52	56	6	5	4	5	71	83	9	6	6	6
DMRSP-CO BULK	51	55	0	0	0	0	71	80	14	17	11	13
Local susc. <sup>a/</sup>	47	48	36	37	29	27	66	74	10	17	9	16

<sup>a/</sup> Mean of five plots in each replication

Table 7. Percent infection indices<sup>a/</sup> of 45 entries at 10 locations<sup>b/</sup> in the 1979 IPMDMN compared with infection indices of local susceptibles and the location mean for all these entries

Entry	Auran- gabad	Hyder- abad	Jamna- gar	Hissar	Coim- batore	Mysore	Ludh- iana	ICRISAT	Pune	Kam- boin- se	Max. Inf.	Mean <sup>c/</sup> Inf.
SSC-7218	0	0	0	0	0	0	0	<1	0	<1	<1	0.1
T-128-3 x 700404-1-5-5	0	0	0	0	<1	0	<1	0	0	2	2	0.4
700651	0	0	0	2	1	0	0	<1	2	3	3	0.9
J-1486 x 700787-2-10	3	0	<1	0	2	3	0	<1	0	1	3	0.9
NC-7174	0	1	0	0	2	<1	<1	<1	0	4	4	0.9
B-Senegal-2-5	0	0	0	3	0	1	4	<1	4	0	4	1.2
MPP-7147-2-1	2	<1	<1	0	<1	0	4	1	4	1	4	1.4
IP-2058	0	0	0	0	0	<1	<1	2	0	5	5	0.7
700251	<1	0	0	0	1	3	<1	<1	2	5	5	1.3
ICH-165	0	<1	<1	0	5	3	<1	<1	1	4	5	1.5
K-560	0	0	0	0	<1	4	2	2	5	2	5	1.6
700516	0	0	0	0	0	0	0	0	2	6	6	0.8
EB-83-2	0	0	<1	0	0	3	1	<1	3	6	6	1.5
EB-209-1-6 x EB-150-1-1	0	0	<1	0	2	<1	4	<1	4	6	6	1.7
2989-109-1	0	1	0	0	0	6	5	3	3	3	6	2.1
ICH-154	<1	0	1	0	6	2	2	1	4	3	6	2.1
ICH-118	0	0	1	<1	0	6	<1	3	5	6	6	2.2
EB-79-2-2 x EB-59-3-1	6	0	0	0	2	5	3	2	1	3	6	2.2
P-10	<1	0	<1	0	<1	1	2	<1	7	1	7	1.4
B-Senegal-6	0	0	<1	0	<1	3	4	2	2	7	7	1.9

(Continued)

Table 7 Continued

Entry	Auran- gabad	Hyder- abad	Jam- nagar	Hissar	Colim- batore	Mysore	Ludh- iana	ICRISAT	Pune	Kamb- oinse	Max. Inf.	Mean <sup>c/</sup>
EB-18-3-1	0	0	0	0	8	0	0	<1	2	0	8	1.0
700429	0	<1	0	8	0	1	<1	<1	1	0	8	1.2
75-Series-1	2	2	2	<1	<1	0	7	3	2	8	8	2.7
IP-2037	0	0	0	0	<1	0	3	<1	0	9	9	1.3
NC-7158	0	0	0	<1	<1	<1	2	<1	2	9	9	1.5
IP-1930	0	9	0	0	0	7	0	<1	2	0	9	2.0
P-7	0	0	0	2	4	0	7	<1	9	7	9	3.0
700743	0	0	0	0	0	<1	<1	10	5	1	10	1.7
SDN 496	0	0	0	0	0	10	3	2	3	4	10	2.1
700042	0	2	0	2	6	<1	2	<1	0	10	10	2.2
J-1188	0	0	0	0	6	3	<1	<1	1	11	11	2.3
DHRSP-CO BULK	0	0	0	0	3	3	<1	<1	0	12	12	1.6
SDN-503	0	0	1	1	1	2	2	2	1	14	14	2.5
SDN-347-1	4	0	0	0	0	14	2	2	2	2	14	2.6
700619	0	<1	<1	2	0	<1	4	1	3	19	19	3.0
EC-7088	0	0	1	1	2	6	8	<1	<1	22	22	4.2
700627	0	0	0	0	3	<1	0	3	2	26	26	3.4
114-1-R	2	0	<1	2	0	11	5	<1	13	27	27	6.1
J-1593	3	0	5	1	12	14	8	11	2	27	27	8.1
700331	0	<1	0	0	3	0	3	<1	21	28	28	5.6
IVS-7041	0	0	0	0	9	2	<1	<1	3	41	41	5.5
BJ-104	<1	<1	4	5	9	14	6	48	14	24	48	12.5
2287-ME	0	0	3	0	0	3	3	1	2	48	48	6.0
7124-3	0	0	0	50	0	0	4	0	0	0	50	5.4
7042	49	77	70	35	32	30	65	91	60	74	91	58.3
Location mean for test entries	2	2	2	3	3	4	4	4	5	11		
Local susceptible mean	39	38	25	73	80	33	62	70	28	13		

a/ Means rounded off to nearest whole number except for <1

b/ 1. Aurangabad; 2. Hyderabad; 3. Jamnagar; 4. Hissar; 5. Colmbatore; 6. Mysore; 7. Ludhiana  
8. ICRISAT; 9. Pune; 10. Kamboinse

c/ Means calculated before the location means were rounded off

Table 8. Performance of entries included in the IPMDMN trial for four years

Entry	Mean Severity (%)				Max. Severity (%)			
	'76	'77	'78	'79	'76	'77	'78	'79
SDN 503	<1	1	3	3	2	8	10	14
700251	1	2	2	1	5	9	11	5
700516	1	3	2	1	15	35	12	6
P-7	3	2	3	3	11	11	12	8
P-10	4	3	4	1	-	24	12	7
700651	<1	3	4	1	3	28	29	3
SDN-347-1	3	3	4	3	13	16	24	14
J-1593 <sup>a/</sup>	31	28	14	8	78	78	38	27

<sup>a/</sup> Susceptible check

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