

**Reaction of rice cultures to major pests. Coimbatore, India, 1987.**

Variety	Damage rating <sup>a</sup>		
	BPH	WBPH	LF
PM5845	3	1	5
PM1409	3	3	5
PM1004	5	1	7
PM1123	7	1	9
PM1381	9	7	7
Nootripathu	7	3	7
PMK1 (PM1023)	9	1	9
TKM9 (local check)	9	9	7
PTB33 (resistant check)	3	3	3
ASD11 (resistant check)	3	3	3
TN1 (susceptible check)	9	9	9

<sup>a</sup> Scored by *Standard evaluation system for rice* 0-9 scale.

at the Paddy Breeding Station, TNAU. One row of susceptible check TN1, two rows of resistant checks ASD11 and PTB33, and one row of local check TKM9 were included. The experiments were replicated twice. Damage was scored on the 0-9 scale of *Standard evaluation system for rice*.

PM5845 and PM1409 showed good

levels of BPH and WBPH resistance (score: 1-3) and moderate levels of LF resistance (score: 5). PM1004 was resistant to WBPH and moderately susceptible to BPH (see table). These cultures are being evaluated under multilocation trials for their yield potential at various locations in Tamil Nadu. □

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**High resistance to whitebacked planthopper (WBPH) in Indonesia**

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Since 1979-83 we have screened 3,872 lines and varieties originating from MORIF, Bogor Research Institute for Food Crops (BORIF), and other countries for WBPH resistance.

**Lines and varieties <sup>a</sup> highly resistant to WBPH in Maros, Indonesia.**

Lines and varieties			
MORIF	BORIF	IRRI	Other countries
M57b-7-2	B40580-Kp23-1	IR93240-6-3	
M57b-38-2	B3894d-17c-Sm-37-3	IR9224-117-2-3-3-2	Utri Rajapan
M57b-39-1	B3894d-17c-Sm-48-3	IR8608-79-3-2	Abu tmuan
M67b-2-2	B3894d-17c-Sm-54-2	IR9782-111-2-1-2	BKNBR1008-21
M170-181	B3894d-17c-Sm-63-2	IR9814-11-3	BKNBR1031-75-4
M170-191	B3894d-17c-Sm-64-2	IR13146-29-3	Acc. 15286
M170-192	B4104c-Sm-40-3	IR13537-44-2	MRC603-303
M43c-26-2	B4111c-Sm-6-2	IR14632-22-3	IET4086 (CR14062)
M7d-35-8	B4111c-Sm-8-1	IR1475349-2	
M7d-35-9	B4111c-Sm-22-1	IR15313-14-2	
M7d-44-1	B4111c-Sm-26-1	IR15795-151-2-3	
M7d-44-2	B4111c-Sm-66-1	IR15795-199-3-3	
M7d-76-1	B4126c-Sm-33-2	IR13240-10-1	
M7d-76-2	B3102d-2-1-Blk	IR13429-47-3	
M7d-76-3	B3616f-Kp-148-2	IR2307-72-2-2-1	
M164-68	B3727d-Pn-19-4-2	IR5853-162-2-3	
M164-76	B3909b-Mr-269-2-1	IR13641-17	
M164-115	B3909b-Mr-269-2-2	IR4432-28-5	
M164-116	B3909b-Mr-269-2-3	IR5853-59-2-2	
M7d-78-1	B3115e-Kp-44-2	IR5853-33-2-2	
M7d-78-2	B3667d-Kp-131-1-1	IR4744-179-1-5-2	
M7d-78-3	B3328e-Sm-11-3	IR2793-18-3	
M7d-83-1	B3065b-Ck-1-K-5-2	IR9093-3-2-2	
M7d-83-3		IR9093-211-6	
M7d-83-4		IR8608-75-3-1	
M7d-83-5		IR13427-60-1	
M175d-1138		IR36	
M175d-1139			
M175d-1140			
M175d-1144			
M175d-1145			
M175d-1073			
M175d-1076			

<sup>a</sup> Scored zero by the *Standard evaluation system for rice*.

Seeds were sown in 15-cm rows in 40 × 30 × 7-cm plastic trays at 25 seeds/row, with 4 replications. TN1 was the susceptible check, Rexoro was the resistant check. Seven days after sowing, seedlings were infested with 5th-instar nymphs at 15-25 nymphs/seedling. Damage was scored when TN1 had 95-100% hopperburn.

Ninety-one varieties and lines were highly resistant (score = 0). Of these, 34 were from MORIF, 23 from BORIF, 27 from IRRI, and the rest from other countries (see table). □

**Reaction of selected rices to whitebacked planthopper (WBPH)**

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We evaluated 31 rice accessions for resistance to WBPH *Sogatella furcifera* in the screenhouse, using the modified seedbox technique. Pregerminated seeds were sown in seedboxes. More than 20 plants of each accession were tested in 2 replications.

Seedlings were infested 7 d after sowing with 2d- to 3d-instar nymphs by evenly distributing insects through the seedbox at 6-8/seedling.

Reaction was measured when the susceptible check died, usually 8-9 d

Designation	Damage rating <sup>a</sup>	Reaction
ARC11324	6.3	S
Bahbolon	5.0	MR
B4032D-MR-1-3-1	6.5	S
CI 5662-2	6.8	S
Citanduy	3.9	MR
GH147 (M) KRAD-78	5.0	MR
GH147 (M) 30KRAD-C-PN7	6.5	S
GH147 (M) 40KRAD 89	7.4	S
IR13240-82-2-3-2-3-1	6.6	S
IR13475-7-3-2	3.7	MR
IR13458-117-2-3-2-3	5.2	MR
IR15529-253-3-2-2-2	4.1	MR
IR15529-256-1	4.3	MR
IR15795-151-2-3-2-2	4.8	MR
IR17307-11-2-3-2	6.7	S
IR2035-117-3	5.3	MR
IR18350-93-2	7.7	S
IR21820-154-3-2-2-3	6.1	S
IR25586-108-1-2-2-2	6.2	S
IR27325-27-3-3	4.2	MR
IR13475-7-3-2	5.1	MR
IR28154-101-3-2	2.4	R
IR29692-65-2-3	5.4	MR
IR31803-32-2	7.6	S
IR32307-107-3-22	3.3	R
IR32429-47-3-2-2	5.3	MR
IR2035-117-3	4.9	MR
IR60	5.0	MR
IR64 (IR18348-36-3-3)	3.2	R
Palman 46	5.8	S
Rathu Heenati	1.7	R
ARC6248 (resistant check)	1.9	R
TN1 (susceptible check)	8.9	S

<sup>a</sup> Means of 40 plants.

after infestation. Individual plant damage was scored using the *Standard evaluation system for rice*. Mean reaction of all plants was used to classify an accession as resistant (R, 0-3.49), moderately resistant (MR, 3.5-5.49), or susceptible (S, 5.5-9).

Four accessions scored R, 15 MR, and 12 S (see table). IR2035-117-3, which is homozygous for *Wbph 1* and *Wbph 2* and is being used as a R check at IRRI, was MR in our tests, indicating a difference in biotype at IRRI and at PAU. Earlier, we reported that *Wbph 1* and *Wbph 2* are not effective in conferring resistance to WBPH in Punjab. □

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## Genetic Evaluation and Utilization OTHER PESTS

### Yield ability of rice varieties in fields infested with root-knot nematode

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We measured yields of three Thai rice varieties — RD6, Khao Dawk Mali 105, and Hahng Yi 71 — growing in fields infested with root-knot nematode *Meloidogyne graminicola* Golden and Birchfield in an experiment at Ubonratchathani Rice Research Center in 1986. The varieties have been considered resistant, moderately resistant, and susceptible.

The experiment, in 4 replications, was under upland conditions in 5- × 7-m plots with 25- × 25-cm spacing. Plots

Yield of rice varieties grown in fields infested with root-knot nematode *M. graminicola*. Ubonratchathani Rice Research Center, Thailand, 1986.

Variety	Yield <sup>a</sup> (t/ha)		Loss (%)
	Non-treated	Treated	
RD6	3.8	4.3	11.6
Khao Dawk Mali 105	3.6	4.4	18.2
Hahng Yi 71	2.9	4.3	32.6

<sup>a</sup>Av of 4 replications.

were fertilized with 24-24-12 kg NPK/ ha. In control plots, we applied 60 kg carbofuran 3 G/ ha; no nematocide was applied in test plots.

Yield loss was highest with Hahng Yi 71 (see table). □

## Genetic Evaluation and Utilization ADVERSE SOILS TOLERANCE

### Tiller growth as an index of salinity resistance

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Tiller growth as an index of salinity resistance was evaluated. Seeds of resistant and sensitive cultivars were

#### Effect of NaCl on the tiller growth of rice cultivars, Baroda, India.

Cultivar	Salinity index <sup>a</sup>	Tillers (no./plant)	Decrease (%) from control in		
			Tiller height	Fresh weight of tillers/plant	Dry weight of tillers/plant
<i>Salt-resistant</i>					
Co 43	58.8	39	14	46	50
CSC1	50.9	46	12	41	29
AU1	45.6	20	14	27	15
<i>Salt-sensitive</i>					
GR3	42.2	50	46	75	84
TKM9	23.5	35	21	46	51
Co 36	21.1	64	43	85	94
IR20	13.6	83	73	93	93
CSC2	5.2	46	7	33	34
TKM4	0.9	85	78	94	97
Mean	30.2	52	34	60	61

<sup>a</sup>Salinity index =  $\frac{\text{grain yield of treated plants}}{\text{grain yield of control}} \times 100$ .