Field reaction of rice varieties to WBPH and LF at Kaul, India.

Variety		WBPH damage[a] (0-9)	LF damage (%)
RP2068-18-35	Swarudhan/Veluthachera	1^{+}	4
RP2068-17-3-7	-do-	1^{+}	3
RP2068-18-4-5	-do-	0^{+}	1
RP2068-18-2-6	-do-	0.5	6
RP2068-16-9-5	-do-	0.5	11
RP2068-18-4-7	-do-	0.5	12
RP2068-18-2-11	-do-	4	9
CO 29	CO 13/CO 14	0.5^{++}	5
Balamawee	Donor	4	6
TN1	Susceptible check	9	21
T7	Donor	5	4
IET8770	MTU4407/WGL 26888	7	4
IET8769	-do-	7	6
IET8868 (OR405-4)	–	4	9
IET7800	IR20/Shakti	5	9
IET837 1	Phalguna/ARC6650	4	11
IET8817 (CR372-48)	–	1	1
RP2199-292-31	Phalguna/TKM 6	6	8
RP2199-84-2	-do-	7	2
RP2199-296-3	-do-	5	11
RP2199-286-26	-do-	5	4
BKNBR1088-83	IR2030-203-3-1/RDl	4	8
T2005	Donor	2	7
Vaizhaeppoo Samba	Donor	2	2
IR4707-106-3-2	IR1888-156/IR2061-213-2	8	5
CO 42	RP31-49-2/Leb Mue Nahng	4	7
RP2071-18-1-1	Swarudhan/NLR9674	4	22
RP2071-22-5-3	-do-	4	11
RP2076-46-4-2	IET6314/NLR9674	4	10
RP2069-3-4-1-2	Swarudhan/Andrewsali	1^{+}	9
RP2069-3-4-4-6	-do-	1^{+}	4
RP2069-3-5-2-2	-do-	1^{+}	5
RP2069-39-3-1-4	-do-	1^{+}	10
RP2068-12-1-8-1	Swarudhan/Veluthachera	1^{+}	11
RP2068-15-1-4-2		1^{+}	4
RP1579-26	Phalguna/ARC6650	5	3
RP1579-27	-do-	7	12
RP1579-28	-do-	5	9
RP1579-29	-do-	5	10
RP1579-47	-do-	4	8
RP1579-48	-do-	4	24
RP1579-53	-do-	4	11
RP1579-54	-do-	4	33

[a] + = did not flower, ++ = late flowering.

was rated based on percent leaves damaged per 5 hills. Damage was rated the 3d week of September, when TN1 showed hopperburn.

RP2068-18-3-5, RP2068-17-3-7, RP2068-18-4-5, CO 29, IET8817 (CR372487), Vaizhaeppoo Samba, and RP 2069-344-6 were resistant to both insects (see table). T7, IET8770, RP2199-84-2, and RP1579-26 were resistant to LF. RP2068-18-2-6, RP2068-16-9-5, RP2068-184-7, T2005, RP2069-34-1-2, RP2069-3-5-2-2, RP2069-39-3-1-4, RP2068-12-1-8-1, and RP2068-15-1-4-2 were resistant to WBPH.

The International Rice Research Newsletter (IRRN) invites all scientists to contribute concise summaries of significant rice research for publication. Contributions should be limited to one or two pages and no more than two short tables, figures, or photographs. Contributions are subject to editing and abridgment to meet space limitations. Authors will be identified by name, title, and research organization.

Individuals, organizations, and media are invited to quote or reprint articles or excerpts from articles in the IRRN.

Varietal screening for leafhopper and planthopper resistance at Varanasi, India

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We evaluated seedlings of 24 rices commonly grown by farmers in Eastern Uttar Pradesh and those from an upland rice project for resistance to leafhoppers *Nephotettix virescens* and *N. nigropictus,* brown planthopper (BPH) *Nilaparvata lugens,* and whitebacked planthopper (WBPH) *Sogatella furcifera.*

Hoppers were reared on TN1. Ten seedlings per variety were grown in each 60- × 40- × 10-cm tray with 5-7 cm of soil. Resistant Ptb 33 and susceptible TN1 and Jelhore were included for comparison. Ten days after sowing, 8-10 2d- and 3d-instar nymphs each of BPH and WBPH and 3-5 leafhopper adults were released on each plant. Each species had three replications in separate trays. The trays were put in an aquarium covered with wire mesh.

Damage was rated by the *Standard evaluation system for rice* when 90% of the TN1 plants died. Five cultivars had resistance to BPH, 11 to WBPH, 9 to *N. virescens,* and 8 to *N. nigropictus.* Only Ptb 33 was highly resistant to BPH (Table 1).

Cultivars with moderate resistance were studied for nymphal survival. Three replications of 1st-instar nymphs of each insect species were placed on 30-d-old plants in pots covered with glass chimneys. Percent nymphal survival, recorded 15 d later, was between 60 and 80% for all varieties but Ptb 33, on which 43-53% of nymphs survived (Table 2).

Table 1. Varietal reaction to leafhoppers and planthoppers, Varanasi, India.

Variety	Reaction[a] to			
	N. lugens	*S. furcifera*	*N. virescens*	*N. nigropictus*
OR34-16	S	MR	MR	MR
Jaya	MR	S	MR	S
CR202-2	S	MR	MR	MR
Culture 1	MR	MR	S	S
CR132-168-73	S	MR	S	MR
IR8	MR	S	MR	S
Saket 4	S	MR	MR	S
DR92	S	S	MR	S
RP79-24	S	S	MR	MR
Mtu 17	S	S	S	S
Nagina 22	S	S	MR	MR
RP79-27	S	S	S	S
CR142-2-10	S	S	S	S
RP79-5	S	S	S	S
Cauveri	S	MR	S	S
IR28	S	MR	S	MR
Pusa33	S	S	S	S
Jelhore	S	MR	S	MR
C7306	S	MR	S	S
FH109	S	S	S	S
IET5725	MR	MR	S	S
CR115-107	MR	S	S	S
TN1	S	**S**	S	S
Ptb 33	R	MR	MR	MR

[a]R = resistant, MR = moderately resistant, and S = susceptible.

Table 2. Nymphal survival of rice leafhoppers and planthoppers on moderately resistant varieties at Varanasi, India.

Variety	Survival (%) of insect species[a]		
	N. lugens	*S. furcifera*	*Nephotettix* spp.
Jaya	63	–	73
IR28	–	67	87
RP79-24	–	–	70
Jelhore	83	77	73
IR8	70	–	77
OR34-16	–	67	73
CR202-2	–	80	73
Nagina 22	–	–	87
Saket 4	–	80	80
DR92	–	–	83
CR132-168-73	–	87	80
CR115-107	70	–	–
Culture	160	70	–
IET5725	67	77	–
Cauveri	–	57	–
C7306	–	73	–
TN1	97	100	100
Ptb33	43	47	53

[a]– = not studied; a mixed population of *N. virescens* and *N. nigropictus* was used.

Genetic Evaluation and Utilization
AGRONOMIC CHARACTERISTICS

Performance of IR64 at Tamil Nadu Rice Research Institute (TNRRI)

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IR64 (IR18348-36-3-3) was evaluated at TNRRI in the 1983 International Rice Yield Nursery-Early trial and in 1984 yield trials. IR64 matured in 110-115 d and yielded 0.5 t/ha more than TKM9, IR50, and ADT36 (see table). It has short stature and long, slender grains, and is resistant to brown planthopper, gall midge, and yellowing syndrome, a serious disease in Tamil Nadu.

Performance of IR64 at TNRRI, Aduthurai, India.

Variety	Grain yield (t/ha)			Flowering duration (d)
	1983 kuruvai	1984 kuruvai		
		Trial 1	Trial 2	
IR64	3.4	5.6	5.3	65-70
TKM9	4.9	5.0	4.8	75-80
IR50	2.4	–	4.6	70-75
ADT36	–	–	4.7	80-85

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Genetic Evaluation and Utilization
DEEP WATER

Elongation ability of deep water rice at two nitrogen levels

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Deep water Habiganj Aman II seeds were sown in earthen pots with 8 kg soil and 0 or 8 g urea fertilizer per pot. The 5 replications had a pot each with 10 plants. Triple superphosphate and muriate of potash were applied at 5 g/pot. Five weeks after sowing, the pots were placed in concrete tanks, flooded, and water was raised 10 cm/d for 9 d. A single seedling was taken from each pot every 2 d to record chlorophyll content and internode elongation.

Elongation rate of all plants increased for 4 d after flooding and then gradually