Table 1. Reactions of 8 rice varieties to RTV infection with 1, 3, and 5 insects per seedling in mass screening and test tube inoculation.[a]

Variety	Mass screening			Test tube screening		
	1	3	5	1	3	5
ARC11554	R	R	R	R	R	R
Basmati 375A	R	R	R	R	I	I
Latisail	I	S	S	S	S	S
Peta	I	I	S	S	S	S
Ptb 18	R	I	I	R	S	S
TKM6	S	S	S	S	S	S
IR28	R	R	I	R	I	S
TN1	I	S	S	S	S	S

[a] Resistant (R) = 0-30% seedling infection, intermediate (I) = 31-60% seedling infection, and susceptible (S) = 61-100% seedling infection.

Table 2. Presence of RTBV and RTSV in RTV-infected plants of 8 rice varieties as detected by latex agglutination.

Variety	Plants tested (no.)	Plants (no.) that reacted to		
		RTBV+ RTSV	RTBV	RTSV
ARC11554	25	1	12	0
Basmati 375A	6	0	5	0
Latisail	31	18	10	1
Peta	31	15	11	2
Ptb 18	17	2	3	0
TKM6	33	4	25	0
IR28	30	5	21	0
TN1	29	19	9	0

mass inoculation and from resistant to susceptible in the test tube inoculation as GLH number increased.

Seedlings infected with RTV at 3 GLH/seedling were tested for RTV-associated viruses by latex agglutination. Many infected Latisail, Peta, and TN1 plants reacted to rice tungro bacilliform virus (RTBV) and rice tungro spherical virus (RTSV) (Table 2). Most ARCl 1554 and Basmati 375A plants reacted only to RTBV.

GLH fed on RTV-infected plants were given daily serial transmissions to 7-d-old seedlings of each variety. GLH retained the virus for 2 d on ARCl 1554, IR28, Peta, and Ptb 18; 3 d on Latisail; 4 d on TKM6; and 5 d on TN1.

Genetic Evaluation and Utilization
INSECT RESISTANCE

Genetic analysis of resistance to brown planthopper (BPH) in selected rices

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ASDl1, IET5741, IET6315, T7, and V.P. Samba were identified as BPH resistant in greenhouse screening at the Paddy Breeding Station, Coimbatore. We studied the genetics of resistance of those varieties by crossing each with Vaigai, a BPH susceptible variety.

The F1 seedlings were resistant to BPH in all the crosses, indicating the dominant nature of resistance in those varieties (see table). The F2 population segregated as 3:1 resistant:susceptible, indicating that resistance is conditioned by a single dominant gene. The F3 population was studied only in Vaigai/ V.P. Samba. It segregated as 1 resistant: 2 segregating: 1 susceptible, thus confirming the monogenic nature of BPH resistance in V.P. Samba.

Reaction to BPH in F1, F2, and F3 progenies of crosses between Vaigai and BPH-resistant varieties

Cross	F1 reaction	F2 seedlings			F3 families			
		Resistant (no.)	Susceptible (no.)	X^2 3:1	Resistant (no.)	Segregating (no.)	Susceptible (no.)	X^2 1:2:1
Vaigd/ASD11	Resistant	238	85	0.297	Not tested			
Vaigai/IET5741	Resistant	198	85	3.826	Not tested			
Vaigai/IET6315	Resistant	241	92	1.225	Not tested			
Vaigai/T7	Resistant	207	76	0.518	Not tested			
Vaigai/V. P. Samba	Resistant	236	83	0.234	53	106	41	2.16

Insect pest resistance of IR5-IR62

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We evaluated IR varieties for resistance to 15 insect pest species in the greenhouse, screenhouse, and field. Hopper resistance was determined in 7- to I0-d-old seedlings by the standard seedbox screening test. Stem borer resistance was evaluated by infesting plants 30 d after transplanting and determining percent deadhearts. Leaffolders *Cnaphalocrocis medinalis* and *Marasmia patnalis* were placed on 30-d-old plants in greenhouse tests. *Nymphula depunctalis* larvae were placed on 11-d-old plants in greenhouse tests. Screening for *Hydrellia philippina* was with natural field populations. *Stenchaetothrips biformis* were released in the greenhouse when plants were at the first-true-leaf stage. *Scotinophara latiuscula* nymphs were placed on 15d-old plants growing in seedboxes and *Leptocorisa oratorius* on plants at milk stage.

Recently recommended IR varieties are resistant to biotypes 1, 2, and 3 of *Nilaparvata lugens* (see table). Most varieties are resistant or moderately resistant to the *Nephotettix* species. Only a few varieties are moderately resistant to *Sogatella furcifera, Recilia dorsalis, S. biformis,* and *S. latiuscula.* Many are moderately resistant to *Chilo suppressalis,* but only a few are to *Scirpophaga incertulas.* Only IR40 is moderately resistant to *H. philippina* and no variety has resistance to *C. medinalis, M. patnalis, N. depunctalis.* and *L. oratorius.*