Insect resistance

Indian biotypes of the brown planthopper

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The existence of brown planthopper (BPH) biotypes complicates control of the insect by resistant varieties. BPH biotypes, based on differential reactions of rice varieties to BPH injury, have been established. Some entries are resistant to biotype 1 (common in the Philippines), but are killed by biotype 2. Similarly cultivars resistant to biotype 2, found in the Philippines, Indonesia, Thailand, Vietnam, Taiwan, Korea, and Japan, are destroyed by biotype 3, which is not yet abundant in nature. Another biotype found in southern India and Sri Lanka damages varieties that are resistant to biotypes 1, 2, and 3.

Glasshouse screening of rice varieties against the BPH populations found in Hyderabad (southern India) and Pantnagar (northern India) was initiated at Pantnagar in 1974. Results clearly indicate the existence of an additional biotype (the Pantnagar population) that differs from the four mentioned above. When exposed to this biotype, varieties that are resistant to the biotype in southern India and Sri Lanka and those resistant to the three other biotypes at IRRI succumb (see table). New genes for resistance to this biotype must be found; this biotype destroys all varieties with known resistance genes. ■

Reactions[a] to brown planthopper biotypes of rice varieties with genes for resistance to given biotypes.

Variety	Reactions				
	Biotype 1 (IRRI)	Biotype 2 (IRRI)	Biotype 3 (IRRI)	Biotype 4 (Hyderabad)	Biotype 5 (Pantnagar)
	Bph 1 gene for resistance				
Mudgo	R	S	R	S	S
Andaragahawewa	R	S	R	S	S
Dalwa Sanam (MTU15)	R	MR	R	S	S
IR26	R	S	R	S	S
RP9-6	MR	S	R	S	S
	bph 2 gene for resistance				
ASD7	R	R	S	S	S
CR94-13	R	R	S	S	S
H5	R	MR	S	S	S
Murumgakanyani 3	R	MR	S	S	S
Palasithari 60 1	R	R	S	S	S
Murungakayan 101 B	R	R	S	S	S
Murungakayan 303 B	R	MR	S	S	S
C62-1-2 30	R	R	S	S	S
	Bph 3 gene for resistance				
Rathu Heenathi	R	R	R	R	S
Muthumanikan	R	R	R	S	S
PTB 19	R	R	R	R	S
Kuruhondarwala	R	R	R	MR	S
	bph 4 gene for resistance				
Babawee	R	R	R	R	S
Lekamsamba	R	R	R	R	S
Gulai	R	R	R	R	S
	Unknown gene for resistance				
PTB33	R	R	R	R	S
ARC6650	R	R	S	R	S

[a]Based on Standard Evaluation System for rice scale: R = resistant, MR = moderately resistant, S = susceptible.

Unusual occurrence of rice hispa on rice in Himachal Pradesh, India

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An epidemic of rice hispa *Dicladispa armigera,* once a minor rice pest in the Kangra Valley, occurred in 1979. Negligible rains with high ambient temperature and high relative humidity during the paddy seasons contributed significantly to the pest's abundance.

The epidemic was first noticed in early August 1979 at Nagrota, Baijnath, and Palampur. Almost all the varieties grown in the field, particularly the highly susceptible varieties HPU 71, HPU 734, HPU 741, T23 (local Basmati), China 988, and HPU 2004, were severely infested. Moderately infested were HPU 731, HPU 8021, RT42 (Himdhan), Norin 18, and IR579. In a field trial, a spray of permethrin (synthetic pyrethroid as Ambush 25 EC) at 0.025%, quinalphos or endosulfan or methyl-parathion at 0.05% controlled the rice hispa more effectively than BHC did. ■

An alternate biotype of green leafhopper in Bangladesh

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The presence in Bangladesh of a different biotype of green leafhopper (GLH) was suspected in 1967 when field plantings of IR8, which is resistant to GLH in the Philippines, were heavily infested. No apparent differences in morphology of