Insect resistance

Whitebacked planthopper populations on rice cultivars

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Whitebacked planthopper (WBPH) *Sogatella furcifera* (Horvath) infestations occur throughout Haryana from the first week of September to harvest. Infested fields show hopperburn patches from late September.

Sixteen medium-duration (135-140 days) rice cultivars were evaluated during 1978 kharif for reaction to WBPH. They were grown in a randomized block design at 20- × 15cm spacing replicated 4 times. Jaya was included as a susceptible check.

Populations ranged from 17 to 222 nymphs/ hill (see table). Variety RP79-8-3-2-1 had the lowest number of WBPH nymphs/hill, PR 106 had the highest. Of 16 cultivars tested, 9 developed hopperburn patches in one or more replications. Cultivars CRl2-178 and PR 106 showed high susceptibility. Local cultivar HAU4-63-3 was less susceptible than many of the cultivars tested. Resistant cultivars are now in minikit trials.

Resistance of rice cultivars to whitebacked planthopper at Kaul, India.

Variety	Cross	Nymphs/hill[a]	
		x + 0.5	Av
RP979-583-2-1-1	RPA5981/Sona	4.17 a	17.075
PAU41-356-1-5	Phulpattas 72/mut. 65	5.79 b	33.15
RP975-284-2-2	Sona/RPW6-13	6.22 bc	38.475
RP6-516-33-6-1	TKM6/IR28	6.76 cd	45.275
Jaya	TNl/T141	6.79 cd	45.875
RP6-516-29-1	TKM6/IR8	6.98 d	48.375
RP6-1899-254	TKM6/IR8	7.17 de	51.225
Sona	GEB24/TN1	8.42 ef	70.725
HAU4-63-3	IR8/Jhona 349	8.73 f	76.025
PAU41-306-1-2	Phulpattas 72/mut. 65	8.80 f	77.25
RP6-516-34-1-8	TKM6/IR8	9.55 g	90.775
UPR70-30-42	IR8/Bas 370	9.74 g	94.475
PAU32-15-2	Bas 370/IR480-5	10.13 gh	102.25
RP633-519-1-3-4	IRI/KBJ-1//IR22	10.54 h	110.725
CR12-178	IR8/CR1014	13.69 i	187.167
PR106	IR8/Peta^5//Bellepatna	14.89 i	221.625

[a]Av of 4 replications. Means followed by the same letter are not significantly different among themselves. Data transformed to x + 0.5.

Taxonomy of Asian and African rice gall midges

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It had been assumed until recently that the rice gall midge in Africa is the same species as the Asian rice gall midge *Orseolia oryzae* (Wood-Mason). Joint studies in 1981 by the Commonwealth Institute of Entomology and the USDA Systematic Entomology Laboratory of a series of reared adults with associated larvae and pupae collected by Dr. J. Etienne, ISRA-Ziguinchor, from rice in Senegal show that the African rice gall midge is a morphologically distinct species. A formal description is being prepared.

A technique for preparation of brown planthopper chromosomes

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Chromosome cytology has been used to determine subtle cytotaxonomic differences between related species, sibling species, subspecies, and biotypes. A simple and rapid technique for preparing meiotic chromosomes is needed to examine and compare large insect samples, especially in studies of insect systematics and evolution. A technique developed at IRRI proved useful in preparing and studying brown planthopper chromosomes. The procedure has three steps.

1. Fixing and dissecting insects — Fifth-instar nymphs and newly emerged males collected from stock cultures at 0700 h are fixed in glass vials containing Carnoy's fluid — 1 part 99.7% glacial acetic acid and 3 parts 95% ethyl alcohol — for at least 2 minutes. A fixed insect is then dissected in a drop of Ringer's solution on a clean glass slide. The head and thorax are discarded and the abdomen is dorsally incised to extract the tiny, translucent testes.
2. Staining, mounting, and labeling — The testes are submerged in a drop of 2% aceto-orcein or carmine solution for 2 minutes. With a fine-tipped, curved needle, each testis is macerated on a clean slide with a drop of 2% aceto-orcein. The cells are kept from drying out by adding a drop of 45% acetic acid. All debris are discarded.

A clean cover slip is placed over the