stems exceeded 40%. Two crop loss assessment experiments indicated that substantial yield loss is caused by larval feeding.

To control yellow rice borer, half of a farmer's field received 22 insecticide applications (2 basal applications of carbofuran and 20 sprays of diazinon). The other half served as a check. Grain yields and borer incidence at harvest were assessed in 5 paired plots 16 m^2 each. Yellow rice borer was the predominant pest species. Despite the intensive insecticide schedule, 9% of the stems in the treated plot were infested and whiteheads were present (see table). The high level of borer activity in the untreated plot was associated with a 21.0% reduction in yield. Correcting for the infested stems in the treated plot gave a 31% total yield loss.

Yellow rice borer incidence at harvest and grain yields in a farmer's field at Agrakhola and in a pot experiment at Joydcbpur, Bangladesh, 1978.

Treatment	Infested stems (%)	Whiteheads (no./16 m^2)	Grain yield (t/ha)	Grain wt (g/pot)	Panicle wt (g)
	Farmer's field, Agrakhola				
Insecticide-treated	9.0	14.4	3.8		
Check	33.2	31.2	3.0		
Difference	24.2**	22.8**	0.8**		
	Pot experiment, Joydebpur				
Pots exposed to borers	21.5	–	–	16.6	1.6
Pots not exposed to borers	1.5	–	–	26.2	2.2
Difference	20.0**	–	–	9.6**	0.6**

At Joydebpur, two matched sets of potted Habiganj Aman II plants were allowed to elongate in metal tanks. One set was then exposed to yellow rice borers. Larval feeding reduced grain weight by 36.7%. Yield loss was due mainly to a reduction (27.7%) in panicle weight and, to a lesser extent, to a reduction in panicle number (13.2%). As a result of larval feeding, plants exposed to borers had fewer main stems and basal tillers but compensated for the damage by producing more branches (nodal tillers). ■

GENETIC EVALUATION AND UTILIZATION

Temperature tolerance

Reaction of rice varieties to heat injury

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Seventy-three IRRl rice cultivars were sown in raised nursery beds on 2 June 1979 at Borkhera. Germination was good and uniform. When seedlings were 9 days old, the maximum daily temperature rose suddenly and ranged from 45.6 to 47.2°C during a 1 week period.

The degree of seedling mortality due to heat injury varied considerably. The varieties with less than 30% seedling mortality were rated as resistant; those with 31 to 60% mortality were moderately susceptible; and those with more than 60% highly susceptible. The rices were classified according to seedling mortality as follows:

- *Resistant:* Getu, CSR 1, CSR 3, IET5233, IR2053-436-1-2, IR2307-247-2-2-3, IR4227-104-3-3-1, IR4227-109-1-3-3, IR4422-480-2-3-1, IR4573-22-3-17, IR4707-34-3-1, IR4711-34-2-3, IR34816-70-1, IR4819-77-1-2, IR4859-38-3-3, IR5623-97-3, IR5623-189-3, Pokkali, MR359, Nona Bokra, Nona Sail, C23-2-1, C23-51, IR4-11, IR4639-57-3-1, IR153-9430-3, IR26, IR4432-28-5, IR4595-4-1-15, IR4619-48-3-3-6-1, IR4630-22-2-5-1-2, IR4763-73-1-12, IR9884-3-3, IR9884-54-3, IR10168-52-4-2, IR10198-66-2, IR330206-18-3, IR330206-29-2, K19-1, KI14-1, Pattambi 25315, Pattambi 25316, Pattambi 25331, Pattambi 25333, Pattambi 25335, Pattambi 25336, Pattambi 25337, TNAU17069, TNAU13223-7-2, H33, M23, M114, M117, M152, M242, and M432.
- *Moderately susceptible:* IR4829-89-2-1, IR5785-37-1, IR35785-162-3, IR5853-118-5, IR11418-15-2, Lemo, IR42, IR1820-210-2, and TNAU 17005.
- *Susceptible:* Palman 579, IR4870-15-1-1, IR9109-71-2-1, IR11418-19-2-3, and M148. ■

Pest management and control

Search for alternate insect vectors of rice ragged stunt disease

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The ability of *Nephotettix nigropictus, N. virescens, Recilia dorsalis,* and *Sogatella furcifera* to transmit rice ragged stunt was tested through daily serial transmission with different acquisition access times.

A total of 14,443 seedlings of TN1 were inoculated by 1,182 insects (542 seedlings by 98 N. nigropictus with 2- or 4-day acquisition feeding, 2,290 seedlings by 120 *N. virescens* with 4-day acquisition feeding, 8,546 seedlings by 785 *R. dorsalis* with 1- to 16-day acquisition feeding, and 3,065 seedlings by 179 *S. furcifera* with 2- or 4-day