

brown planthopper was high while methomyl and methyl parathion were ineffective ovicides.

Solutions of the same insecticides and concentrations were tested for larvicidal activity by spraying on 25-day-old TN1 seedlings. One day after treatment, leaves were cut from the seedlings placed in petri dishes with

Activity of certain insecticides at 0.04% concentration on the eggs and larvae of rice leaf folder.^a IIRI laboratory, 1979.

Insecticide	Eggs hatched (%)	Larval mortality (%)
Methyl parathion	0	100
Carbofuran	0	100
Triazophos	0	100
Methomyl	17.5	100
Control	100.0	0

^aAV of 4 replications.

moistened filter paper, and infested with 10 freshly hatched larvae. Forty-eight hours later, living and dead larvae were counted. All larvae on the treated leaves were dead, but those on the control were alive and active (see table). ■

Occurrence of brown and whitebacked planthoppers in Uttar Pradesh, India

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The presence of brown planthopper (BPH) in Uttar Pradesh was first noticed during 1969 kharif at Pantnagar University farms. Since then, it has infested the crop regularly, except in 1970 when the crop was free of attack. High incidence in most of the years resulted in typical hopperburn.

During a survey in 1977 kharif, BPH was widespread throughout the state. In some places, particularly the tarai region, where the farmers usually grow high yielding varieties with high doses of fertilizers, the attack produced hopperburn at the boot-leaf to hard dough stage of the crop. Varieties Jaya, IR8, IR24, Saket 4, Pusa 2.21, Ratna, and Bala were severely damaged and the BPH populations ranged from 100 to 1,000 per hill in the hopperburned plots.

The weather was warm and humid and the fields had standing irrigated water.

The whitebacked planthopper *Sogatella furcifera* has also attacked the crop regularly since 1969. However, the degree of infestation varies. Infestation was severe only in 1972 and 1977, when typical hopperburn occurred during the late tillering phase of the crop. In a 1972 trial, the control of the pest resulted in 99% increase in yield. Under field conditions IR20 (in 1972) RP633-510-1-3-4-1, and IR36 (in 1977) showed some resistance. ■

Effects of biocides on brown planthopper adults on rice

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The brown planthopper (BPH) attacks high yielding rices, particularly at the ripening stage. Chemical control of BPH at crop maturity is hazardous because of the possibility of toxic residues in the grain and straw. Therefore, BPH control through the use of the biocides *Bacillus thuringiensis* (Thuricide HP), and aqueous extracts of leaves of neem *Azadirachta indica* and *Eclipta alba* (a weed) was explored at CRRI.

Thirty-day-old TN1 seedlings were

Effectiveness of three biological formulations on brown planthopper adults^a. Central Rice Research Institute, Cuttack, India, 11 - 13 April 1977.

Treatments	Mortality (corrected to 1%) at	
	24 h	48 h
<i>Thuricide HP</i>		
0.25 kg/100 liters water	100	100
0.50 kg/100 liters water	100	100
0.75 kg/100 liters water	100	100
1.0 kg/ 100 liters water	100	100
<i>Aqueous extract of Eclipta alba</i>		
Extract of root portion	52	70
Extract of shoot portion	35	70
<i>Aqueous extract of neem</i>		
Hot water neem leaf extract	60	100
Neem leaf extract (1st fraction)	42	62
Neem leaf extract (2d fraction)	30	55
Mortality (%) in control	0	0

^aAv of 4 replications. Max temp = 34.4°C; min temp = 22.2°C; mean max temp = 33.7°C; mean min temp = 24.°C; mean relative humidity = 74%.

transplanted in earthenware pots (15-cm diam). At 40 days, the plants were sprayed with the biocides with a fine atomizer until the runoff stage. The sprayed plants were allowed to dry naturally for 1 hour, then 10 BPH adults were caged in each pot. The treatments were replicated four times with untreated plants as the control. Mortality counts were taken 24 and 48 hours after insect release.

All doses of Thuricide gave 100% BPH mortality (see table). Insect mortality was considerable with both root and shoot extracts of *E. alba* and with neem extracts acquired by different methods. ■

Leaf folder outbreak in tarai and hill regions of Uttar Pradesh, India

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The leaf folder *Cnaphalocrosis medinalis* Guenee is becoming a common rice pest. The insect's first outbreak in Uttar Pradesh occurred in 1977 kharif at the Pantnagar University farms. A survey in September 1977 showed high populations of the pest not only in the tarai but also in the hilly regions (up to 1.500 m altitude).

As much as 60% of the rice leaves was damaged at the University farms and in some farmers' fields. The population began to appear in the field in July and remained until October, producing four or five generations. The early sown and upland crops suffered heavily. Ekalux 25 EC sprayed at 0.5 kg a.i./ha gave good field control. ■

Whorl maggot damage on flag leaf

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Whorl maggot *Hydrellia* sp. regularly damages rice at the RPTI farm throughout the year. It often attacks