

24 and 48 h after insect release.

The LC₅₀ values to larvae varied considerably among the test insecticides (see table). Cartap was most toxic at all in-

stars.

LC₅₀ values of 5 replications of dimethylvinphos on 1st-instar larvae ranged from 3.4 to 4.3 ppm at 24 h and 3.1 to

3.7 ppm at 48 h, indicating that leaf dipping method produces stable results and is a simple way of determining insecticide toxicity to rice leaffolder larvae. □

A technique for preparing rice plants for brown planthopper rearing

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Brown planthopper (BPH) colonies have been reared on susceptible TN1 since the host resistance breeding program began at IRRI in the late 1960s. Five TN1 plants are transplanted in 10-cm-high clay pots, 12 cm in diameter, which are put on tables in the open. Six- to eight-week-old plants are placed in cages and adult male and female BPH released on the plants. After 3 days the plants are transferred to other cages where nymphs emerge in about 1 week.

Until 1976 the BPH population was limited to BPH biotype 1, and occasional stray insects that laid eggs on the plants created no problem because they belonged to the same population as was being cultured for screening. However, when BPH biotype 2 became dominant

BPH egg hatchability on rice plants after hot water treatment.

Seedling age	Water temperature (°C)	Nymphs (no./plant) hatched after submergence in hot water			
		Control	20 min	30 min	40 min
6 wk	41	120	40	25	5
	44	110	30	0	0
8 wk	41	122	20	8	2
	44	125	25	0	0

on the IRRI farm in late 1976, the stray BPH biotype 2 adults laid eggs on the plants before they were used for collecting biotype 1 eggs. Nymphs collected from these plants were a mixture of biotypes 1 and 2. We have tried several ways of maintaining pure colonies. Washing the plants with a water jet before egg caging removed stray adults and nymphs, but not the eggs. Because BPH oviposits in the leaf sheaths, we removed the outer leaf sheaths of plants before egg caging. This minimized contamination, but did not eliminate it.

We then evaluated hot water treatments to kill the BPH eggs within the plants. Six- and eight-week-old TN1 plants were caged with BPH adults. After 3 d of egg laying the plants were submerged in hot water (41°C and 44°C) for 20, 30, or 40 min. Control was no-hot-water treatment. After the treatment, plants were put in the insect-free cages to evaluate egg-hatching after 9 d. The 30-minute treatment in 44°C water killed all the eggs (see table), and did not reduce the growth or vigor of rice plants. We are now using this technique. □

Chemical control of thrips in the rice nursery

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Rice thrips *Baliothrips biformis* (Bagnall) severely damage rice nurseries in the Imphal Valley, Manipur, in Jul and Aug. Nymphs and adults suck the sap of leaves, which turn yellowish and curl from the margin to the middle. Resowing often is necessary.

We tested 1 application of 6 commonly available insecticides for thrips control in 12-day-old P33 nurseries in Aug 1982. Carbaryl, endosulfan, chlorpyrifos, malathion, phosalone, and quinalphos were applied at 0.05% concentration in 5-m² plots with 4 replications. Insecticides were applied with a 3-liter compression sprayer. Initial adult and nymph

Efficacy of insecticides on thrips.

Insecticide	Population of thrips ^a							
	Before treatment		1 DAT		3 DAT		7 DAT	
	A	N	A	N	A	N	A	N
Carbaryl	11	105	0 a	0 a	0.5 a	0.3 a	1.5 a	6 a
Endosulfan	19	77	0 a	0 a	0.5 a	0 a	1.5 a	32 a
Chlorpyrifos	24	13	0 a	0 a	0.3 a	0 a	1.3 a	13 a
Malathion	26	143	0.3 a	0 a	2.5 a	4.3 a	6 a	82 c
Phosalone	14	152	0 a	0 a	0.5 a	0 a	0.8 a	4 a
Quinalphos	19	160	0 a	0 a	0.8 a	0 a	0 a	0.3 a
Control	23	85	12	180	14	76	35	63 bc
CD (P = 0.05)	NS	NS	0.62	2.22	0.62	1.68	1.22	2.70

^aA = adults, N = nymphs. DAT = days after treatment. In a column, values followed by a common letter are not significantly different at the 5% level.

populations were recorded separately for each treatment and replication. Thrips population was counted at 1, 3, and 7 d after spraying.

All insecticides caused significant pop-

dation reduction, and by day 3 had reduced populations to a negligible level in all treatments. After 7 d, quinalphos followed by phosalone and carbaryl had best results (see table). □