GLH (Table 1). By 35 DT, the rates did not significantly differ from each other.

RTV was 45-65% at 56 DT and increased to 68-88% by 63 DT. All insecticide rates tested kept GLH below the economic injury level of 25 insects/hill, but did not prevent RTV.

At Lanrang, GLH was found 48-56 insects/40 hills at 18 DT (Table 2). All insecticide rates tested were ineffective at 25 and 32 DT, but were effective at 39 DT, By 53 DT, treatments were not significantly different from each other. Severe RTV infection was found at 60 DT. All treatments were ineffective in suppressing RTV. Buprofezin is slow to control GLH populations because it acts only during molting. The delay allows RTV to be transmitted. □

Table 2. GLH population and RTV incidence at Lanrang, Indonesia, 1986.

Buprofezin concentration (g (ml)/ha	Formulation	GLH[a] (no./40 hills)		Tungro incidence (%)
		25 DT	46 DT	60 DT
250	10 WP	44.7 ab	19.7 ab	99
500	10 WP	30.2 ab	15.5 a	96
1000	10 WP	39.5 ab	17.5 a	98
250	400 EC	40.7 ab	17.5 a	98
500	400 EC	51.2 b	20.7 ab	97
1000	400 EC	28.0 a	17.7 a	95
0 (control)	–	74.5 c	26.7 b	99

[a] In a column, values followed by the same letter are not significantly different at P 0.05.

Knockdown of green leafhopper (GLH) by six insecticides

R.F. Macatula and O. Mochida. IRRI

Some insecticides that control GLH effectively do not always prevent tungro (RTV) infection. This is probably due to slow knockdown, as GLH can transmit RTV before it dies. Using foliar spray and contact toxicity tests, we evaluated four pyrethroids, one carbamate, and one organophosphate in the laboratory for quick knockdown.

In the foliar spray test, 30-d-old potted seedlings of highly susceptible TNl were cleaned, placed on an electrically rotating table, and uniformly sprayed with insecticide, using an Arthur Thomas sprayer. Spray rates were 0.005, 0.15, and 0.01% ai. Control plants were sprayed with distilled water.

Ten minutes after treatment (MAT), the mylar film-caged plants were infested with 20 GLH adults. Knockdown mortalities were recorded up to 24 h after insect release.

In the contact toxicity test, 20 GLH adults were collected from rearing cages, anaesthetized with CO_2 gas for 10 s, and transferred onto petri dishes lined with filter paper. The dishes were placed at the bottom of a Potter's spray tower and sprayed with insecticide solution.

Treated adults were transferred to 15-d-old untreated TN1 seedlings. Mortality was recorded to 60 MAT.

With foliar spraying, adult mortalities were significantly high with all 6 insecticides 1 h after release (Table 1). With direct spraying, the synthetic pyrethroids deltamethrin and cypermethrin showed significantly higher knockdown 5 MAT (Table 2).

Table 1. Effect of foliar spraying of 6 insecticides on *N. virescens* adults. IRRI insectary, 1986.

Insecticide[a]	Rate (% ai)	Adult female mortality (%) at indicated time after release[b]		
		1 h	3 h	24 h
Alphamethrin	0.01	77 c	79 b	90 b
Cypermethrin	0.01	100 a	100 a	100 a
Ethoproxyfen	0.01	100 a	100 a	100 a
MIPC	0.15	98 b	100 a	100 a
Monocrotophos	0.15	79 c	100 a	100 a
Deltamethrin	0.005	100 a	100 a	100 a
Control	–	0 d	0 c	0 c

[a]Spray volume based on 500 liters water/ha. [b]Av of 4 replications. In a column, means followed by a common letter are not significantly different at 5% level by DMRT.

Table 2. Effect of contact spray of 6 insecticides on *N. virescens* adults. IRRI insectary, 1986.

Insecticide[a]	Rate (% ai)	Adult female mortality (%) at indicated time after treatment[b]			
		5 min	10 min	20 min	60 min
Alphamethrin	0.01	2 cd	4 c	15 c	16 c
Cypermethrin	0.01	70 a	92 a	100 a	100 a
Ethoproxyfen	0.01	15 b	21 b	36 b	49 b
MIPC	0.15	2 cd	4 c	0 d	19 c
Monocrotophos	0.15	5 cd	4 c	2 d	2 de
Deltamethrin	0.005	79 a	95 a	100 a	100 a
Control	–	0 d	0 c	0	0 e

[a]S pray volume based on 500 liters water/ha. [b]Av of 4 replications, 20 GLH/replication. In a column, means followed by a common letter are not significantly different at the 5% level by DMRT.

Effect of synthetic pyrethroid insecticides on green leafhopper (GLH) and tungro (RTV)

S.L. Valencia and O. Mochida, IRRI

We evaluated 4 synthetic pyrethroids — ethoproxyfen (0.1 kg ai/ ha), cypermethrin (0.05 kg ai/ ha), alphamethrin, and deltamethrin (0.0125 kg ai/ ha) — for *Nephotettix virescens* GLH and