Granular insecticides for controlling brown planthopper (BPH) and green leafhopper (GLH)

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BPH *Nilaparvata lugens* (Stål) and GLH *Nephotettix virescens* (Dist.) cause heavy losses in Jun-Sep in Thanjavur District. In 1984, we compared four granular insecticides with carbofuran for BPH and GLH control. Treatments (see table) were arranged in a randomized complete block design with 4 replications in 30- m^2 plots planted with ADT31. Insecticides were broadcast in 5.0 cm standing water 10 and 40 d after transplanting (DT) and impounded for 48 h. BPH and GLH adults and nymphs were counted in 10 randomly selected hills/plot at 20, 35, and 50 DT.

Insecticide-treated plots had lower insect populations than the untreated check. Carbofuran 3 G at 1.0 kg ai/ ha effectively reduced BPH population. Ethoprop 10G effectively reduced GLH on 20 and 35 DT, and on 50 DT bromophos ethyl plots had fewest GLH. Carbofuran-treated plots yielded 4.8 t/ha compared with 3.2 t/ha for the untreated check. Increase in yields in Benfuracarb- and carbofuran- treated plots may be due to phytotonic effect.

Mean incidence of brown planthopper and green leafhopper, and grain yield after application of granular insecticides.[a]

Treatment	Formulation	Dose (kg ai/ha)	BPH (no./hill) 20 DAT	BPH 35 DAT	BPH 50 DAT	GLH (no./hill) 20 DAT	GLH 35 DAT	GLH 50 DAT	Grain yield (t/ha)
Benfuracarb	3 G	1.5	0.66 ab	5.66 ab	22.66 ab	4.33 ab	8.33 ab	8.66 ab	4.1 b
Bromophos ethyl	5 G	1.5	1.66 b	11.33 b	18.00 ab	3.66 ab	11.33 ab	6.00 a	2.9 c
Ethoprop	10 G	1.5	2.00 b	5.66 ab	27.00 b	3.00 a	7.66 a	8.66 ab	3.2 c
Quinalphos	3 G	1.5	1.00 ab	7.33 b	34.00 b	3.33 ab	12.33 b	10.00 b	2.8 c
Carbofuran (standard check)	3 G	1.0	0.33 a	4.33 a	14.00 a	3.33 ab	8.00 ab	6.33 ab	4.8 a
Untreated control	–	–	3.00 c	12.00 b	57.33 c	11.00 c	17.66 c	20.00 c	3.2 c

[a]Means followed by a common letter in a column are not significantly different. DAT = days after treatment.

Beauveria bassiana for controlling brown planthopper (BPH) and green leafhopper (GLH)

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We studied the host range of *B. bassiana* on rice insects. The fungus was isolated from 17 insect species of 6 orders, and occurred most frequently on BPH and GLH.

We evaluated *B. bassiana* for controlling BPH and GLH in the field. Four fungus isolates were tested in 40- × 40- × 100-cm cages covering 4 hills of rice. GLH were placed in the cages and treated with dusts containing 11×10^8 *B. bassiana* conidia/g (see table). In a similar experiment, BPH mortality was 60-90% 15 d after treatment. GLH was more susceptible to *B. bassiana* than BPH.

GLH and BPH mortality after *B. bassiana* infection.

Isolate origin	Mortality (%) 7d after treatment	Mortality (%) 10 d after treatment
GLH	78	96
BPH (1)	67	92
BPH (2)	65	91
C. suppressalis	60	91
Control	0	8

Influence of nitrogen fertilizer level and timing on stem borer (SB) incidence

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We evaluated the influence on SB incidence of four N sources at three application levels and two timings at NARP in summer 1985.

IR22 seedlings were transplanted in 7.2-m^2 plots in a split-plot design with 3 replications. No insecticides were applied. Percent deadhearts and total tillers in 30 hills/plot were recorded 50 d after transplanting.

SB damage was significantly lower when N was applied as ammonium sulfate (see table).

Influence of N fertilizer source, level, and timing on SB damage,[a] Navsari, India, 1985.

N source	SB deadhearts (%) 100 kg N/ha T1	100 kg N/ha T2	80 kg N/ha T1	80 kg N/ha T2	60 kg N/ha T1	60 kg N/ha T2	Av (%)
Ammonium sulfate	11	12	10	18	17	21	15
Urea	13	21	30	24	27	15	22
Neem cake-coated urea	16	15	21	21	22	16	19
Urea supergranules	30	11	14	12	20	14	17
Mean	17.50	14.92	19.08	18.90	21.74	16.97	
CD for N source	3.3						
CD for level and time	ns						
CD for interaction	10.1						

[a] T1 = basal application, T2 = 50% basal + 50% 20 d after transplanting.