in Hunan. In 1983, hybrid varieties HA79317-7 and Xiangwanxian-1 which have moderate resistance to BPH, were grown in about 6% of the hybrid rice area (36% of the Hunan rice area). One of HA79317-7's parents is IR36; Xiangwanxian-1 is a cross with ASD7 (both IR36 and ASD7 carry gene *bph* 2). Most hybrid rice varieties appeared to be moderately resistant in the field. Most local improved varieties were susceptible to BPH. This investigation suggests that HA79317-7 and Xiangwanxian-1 and the hybrid combinations currently used, that are not known to have resistance genes, have not caused the phenotypic changes in *N. lugens* populations of Hunan. □

A parasitic nematode in white striated planthopper (WSPH) of rice

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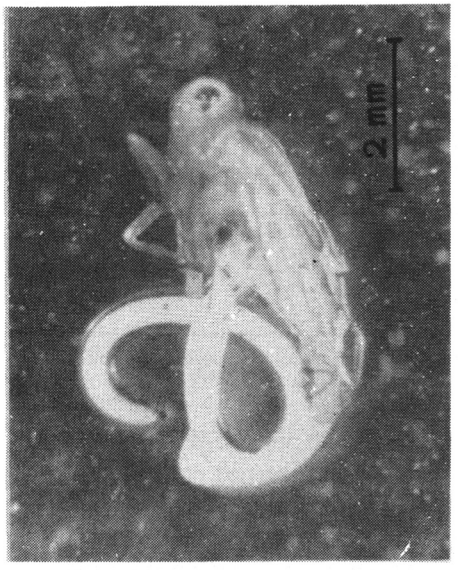
The occurrence of parasitic nematodes in some leafhoppers and planthoppers of rice has been reported in many places. *Nephotettix* spp., *Nilaparvata lugens* (Stål) and *Sogatella furcifera* (Horvath) were reported to have been parasitized by two parasitic nematodes — *Agamermis unka* and *Hexamermis* sp.

We have encountered some individuals of WSPH *Nisia nervosa* (Motsch), another planthopper occasionally seen on rice, parasitized by an unclassified nematode (see figure). The nematode measures about 2-3.5 cm long. About 12% of field-collected WSPH were observed to be parasitized during the winter months (Nov-Dec) at Annamalainagar.



Nisia nervosa adult parasitized by nematode.

A new rice leaffolder (LF) in Kerala

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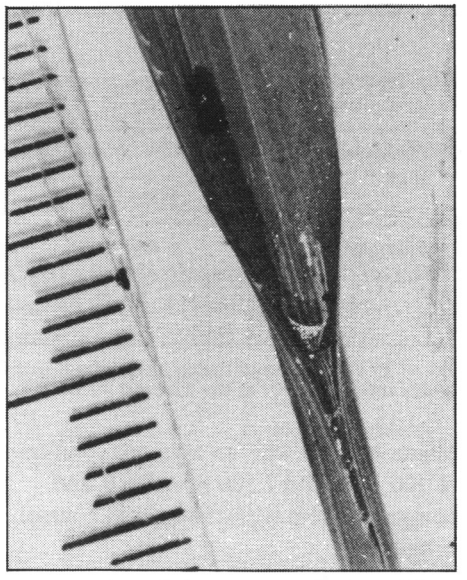
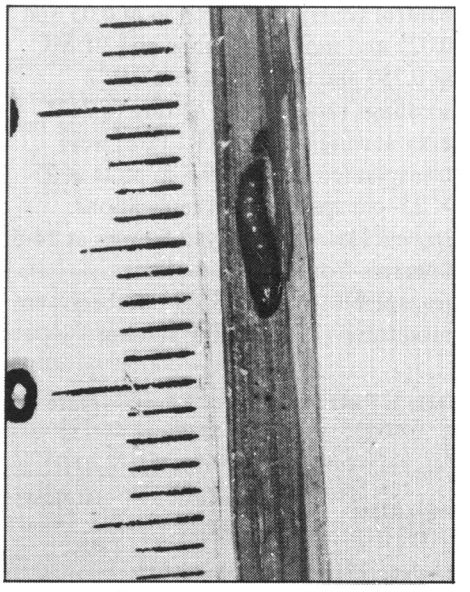
LF infestation in Kerala has so far been attributed mainly to a single species, *Cnaphalocrocis medinalis* Guenée. But recent reports from other states indicate that the LF population is a multispecies complex. Observation of LF-damaged leaves in ricefields in and around RARS revealed a new species, *Brachmia atrotraea* Meyrick (family Gelechiidae), which was earlier reported in Cuttack, Orissa, and Madurai, Tamil Nadu, and in Malaysia. The population is commonly found in leaves of ratoon rice and in weeds.

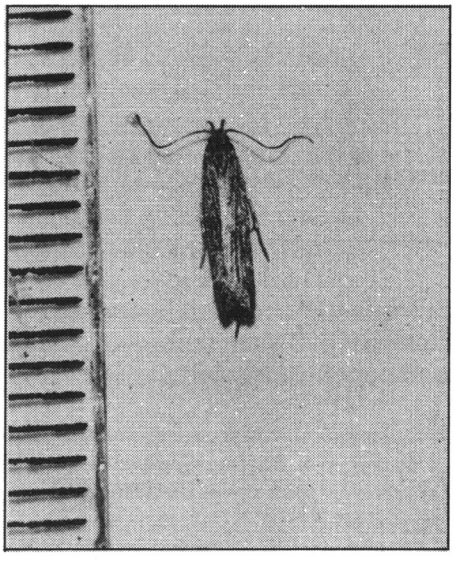
The fully grown larva is distinguished from other LF in having a distinct black head and a prothoracic shield. It folds rice leaves longitudinally, mostly from the tip, and feeds by scraping the epidermal tissues (Fig. 1). Larval length is about 9 mm.



1. Larva of *Brachmia atrotraea* with its leaf fold. Kerala, India, 1987.



2. Pupa of *B. atrotraea*.



3. Adult of *B. atrotraea*.

The brownish larva, measuring about 6 mm, pupates in the folded leaf (Fig. 2). The pale strawcolored and small adult emerges within 1 wk (Fig. 3). Probably because its damage is similar to that caused by *C. medinalis, B. atrotraea* went unnoticed. □

Effect of three insecticides on green leafhopper (GLH) population and tungro (RTV) incidence

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We tested full and half of recommended rates of 3 common insecticides to control GLH: cypermethrin at 0.05 and 0.025 and monocrotophos and BPMC at 0.750 and 0.375 kg ai/ha. IR22 seedlings raised under netting to 21 d after sowing on the IRRI farm were transplanted in 5.0 × 9.8 m plots at 25- × 25- cm spacing, in 4 replications. Insecticides were sprayed 5 times at 14-d intervals from 2 to 58 d after transplanting (DT). GLH numbers were monitored (FARMCOP suction sampler machine) 1 d after each insecticide application. RTV incidence was visually estimated at 40 and 65 DT.

Cypermethrin, monocrotophos, and BPMC were effective against GLH at half of recommended rates (Table 1). Significantly fewer RTV-infected hills also were found (Table 2). Cypermethrin was superior to BPMC in controlling GLH and RTV. □

Table 2. Effect of 3 insecticides on RTV and yield.[a] IRRI, 1986.

Insecticide[b]	Rate (kg ai/ha)	Hills (%) showing RTV symptoms		Yield (t/ha)
		40 DT	65 DT	
Cypermethrin	0.05	10 a	24 a	2.9 a
	0.02	13 a	35 ab	2.8 a
Monocrotophos	0.75	16 a	36 ab	2.5 ab
	0.37	13 a	45 b	2.4 ab
BPMC	0.75	19 a	41 b	2.2 b
	0.37	17 a	46 b	2.1 b
Control		43 b	64 c	1.6 c

[a] Av of 4 replications, In a column, means followed by a common letter are not significantly different at the 5% level by DMRT. [b] Insecticides were applied at 2, 16, 30, 44, and 58 DT.

Table 1. Field evaluation of 3 insecticides to control GLH.[a] IRRI, 1986.

Insecticide[b]	Rate (kg ai/ha)	GLH adults (no./10 sweeps)									
		1st spraying		2d spraying		3d spraying		4th spraying		5th spraying	
		1 DBT	1 DAT	1 DBT	1 DAT	1 DBT	1 DAT	1 DBT	1 DAT	1 DBT	lDAT
Cypermethrin	0.05	4.8 a	1.3 a	7.8 a	1.5 a	7.0 abc	3.0 a	5.5 a	4.0 a	5.5 a	0.3 a
	0.02	4.0 a	2.5 a	10.5 ab	3.0 ab	4.5 a	6.5 ab	4.8 a	3.3 a	7.0 ab	0.0 a
Monocrotophos	0.75	6.5 a	2.8 a	7.5 a	5.8 abc	7.0 abc	6.8 ab	7.0 ab	4.8 a	11.5 bc	1.3 a
	0.37	6.5 a	2.0 a	10.3 ab	8.8 bc	10.5 bc	9.0 b	8.0 ab	5.3 a	12.0 bc	1.3 a
BPMC	0.75	6.3 a	3.8 a	6.8 a	8.0 bc	5.8 ab	9.8 b	8.0 ab	4.0 a	9.5 abc	2.8 a
	0.37	4.8 a	5.0 ab	8.0 a	10.3 cd	7.3 abc	9.0 b	9.8 ab	7.5 a	13.0 c	8.0 b
No insecticide (control)	–	6.8 a	8.5 b	14.5 b	14.8 d	11.3 c	16.3 c	12.0 b	13.0 b	13.8 c	9.8 b

[a] DBT = day before treatment, DAT = day after treatment. Av of 4 replications. In a column, means followed by a common letter are not significantly different at the 5% level by DMRT. [b] Insecticide applied at 2, 16, 30, 44, and 58 DT. Spray volume, 300-500 liters/ha.

Cytogenetic effects of neem seed "bitters" (NSB) on green leafhopper (GLH) males

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Exposure to neem seed derivatives has recently been found to reduce the reproductive potential of several species of insect pests. We investigated this phenomenon in *Nephottetix virescens*.

Using the lacto-aceto-orcein squash technique, we examined the meiotic cells of male progeny derived from *N. virescens* parents caged on TN1 rice plants sprayed with an aqueous solution of 100, 500, and 2,500 ppm NSB and compared them with those from control progeny.

The meiotic process, but not interphase, was significantly affected at 500 and 2,500 ppm NSB. Few spermatogonia carried on the meiotic divisions that produced primary and secondary spermatocytes. This significantly reduced the meiotic index in the progeny derived from treated

Mean frequencies of meiocytes and nonmeiocytes, and meiotic indices in progeny derived from *N. virescens* parents caged on NSB-treated TN1 rice plants.[a] IRRI, 1987.

NSB treatment (ppm)	Frequency (no.)		Meiotic index
	Meiocytes	Nonmeiocytes	
0 (control)	484 a	96 b	0.83 a
100	450 a	197 a	0.69 b
500	86 b	91 b	0.48 c
2500	17 b	89 b	0.45 c

[a] Av of 15 replications. 1 insect replication. In a column, means followed by a common letter are not significantly different at the 5% level by DMRT.