The attraction of brown planthoppers and green leafhoppers to colored lights

V. Kr. Sathiyanandam and A. Subramanian, Paddy Experiment Station, Aduthurai, Tamil Nadu, India

To study the attraction of brown planthoppers and green leafhoppers to colored lights, observations were made using petromax lights covered with yellow, green, and red shades. The lights were distributed October to December 1979 on the bunds of paddy fields every night from 1800 to 2000 hours. Insect pests trapped in water with a few drops of kerosene in a tray around the lights were collected and identified (see table).

Both insect pests were more active during October than during November and December. Yellow attracted considerably more brown planthoppers and green leafhoppers than did green and red.

Attractiveness of colored lights to brown planthoppers and green leafhoppers at Aduthurai, India.

Light color	Trapped brown planthoppers (no.)				Trapped green leafhoppers (no.)			
	Oct	Nov	Dec	Total	Oct	Nov	Dec	Total
Yellow	6036	442	78	6556	5073	355	127	5555
Green	2937	188	40	3165	1634	178	72	1884
Red	2409	235	36	2680	1397	220	67	1684

Time of transplanting and gall midge incidence in Manipur

S. Amu Singh, district agricultural officer, Tengnoupal, Chandel, Imphal, Manipur, India

Time of transplanting and incidence of gall midge were studied during the 1979-80 insect outbreak in Imphal West. Three highly susceptible rice varieties received no pesticide application. Fifty hills per variety, replicated four times, were sampled. Percentage silver shoots was calculated as the ratio of number of silver shoots to number of tillers per 50 hills at maximum tillering.

The later the planting date, the higher the gall midge incidence (see table). The State Department of Agriculture currently recommends transplanting the test varieties in June and July. However, by June gall midge incidence is already high.

Time of transplanting and incidence of gall midge in 3 varieties in Imphal, India.[a]

Time of transplanting	Silver shoots (%)			
	Punshi	Phouoibi	IR24	Average
2d week June	10.81 (10.98)	6.83 (15.06)	8.12 (16.48)	8.59
3d week June	15.21 (22.37)	12.05 (19.93)	12.96 (21.07)	13.41
4th week June	24.63 (29.42)	17.96 (25.00)	17.36 (24.27)	19.98
1st week July	26.1 3 (30.71)	20.36 (25.85)	21.09 (26.73)	22.52
2d week July	28.03 (3 1.97)	22.52 (28.33)	27.02 (31.20)	25.86
3d week July	37.03 (37.29)	27.80 (31.83)	31.94 (34.05)	32.26
CD (P = 0.05)	9.65	7.73	8.89	

[a] Figures in parentheses are transformed angular values.

The International Rice Research Newsletter (IRRN) invites all scientists to contribute concise summaries of significant rice research for publication. Contributions should be limited to one or two pages and no more than two short tables, figures, photographs. Contributions are subject to editing and abridgement to meet space limitations. Authors will be identified by name, title, and research organization.

Effect of custard-apple oil and neem oil on the life span of and rice tungro virus transmission by *Nephotettix virescens*

V. Mariappan, R. C. Saxena, and K. C. Ling, International Rice Research Institute

Most insect damage results from direct feeding or indirect transmission of pathogenic organisms during feeding. Antifeedant chemicals offer a novel approach to pest control. Seed oils of neem *Azadirachta indica* and custard-apple *Annona* sp. possess marked antifeedant properties. These plants are widespread in many rice-growing countries in South and Southeast Asia.

Oils were emulsified with 0.1% liquid detergent and tested at 5 concentrations (5, 10, 20, 30, and 50%). Crude neem seed oil was expelled from decorticated seeds obtained from India. Custard-apple seed oil was obtained by methanolic extraction of seeds obtained at IRRI. Ten-day-old TN1 rice seedlings were sprayed 3 hours before they were exposed to the viruliferous vector insect. Control plants were sprayed with a 0.1% detergent solution. Treated seedlings were placed in glass test tubes (15 × 1.5 cm) and covered with polyvinyl caps.

Viruliferous insects used were *N. virescens* adults reared on virus-free 45-day-old TN1 rice plants and allowed 4-day acquisition feedings on source plants. A viruliferous insect was released into each test tube for inoculation feeding. After 24 hours, the viruliferous insect was transferred to another freshly treated seedling and inoculated seedlings