

the severe yellowing and stunting of the seedlings, but seedling growth was similar in Pangil peat soil, where disease incidence was greater.

The difference in disease severity may be due to the available soil nutrients that affect the plant tissues and the biochemistry of the host. Nutritional factors change the host's growing status,

cell structure, and chemical composition. The soil chemistry may affect pathogenesis, resulting in effects on disease incidence and severity. Plant nutrients required for pathogenesis are affected by the availability of soil nutrients that control plant growth and vigor and influence the plants' resistance to blast. Different varieties may respond

differently to the same nutritional environment, as demonstrated by Carreon, KTH 17, and IR442. The effect of excess or deficient essential elements in the soil on disease incidence and severity appears to depend on the combination of such elements as well as on the host and the pathogen. ■

Pest management and control INSECTS

Flight activities of brown planthopper, whitebacked planthopper, and their predator *C. lividipennis* in Malaysia

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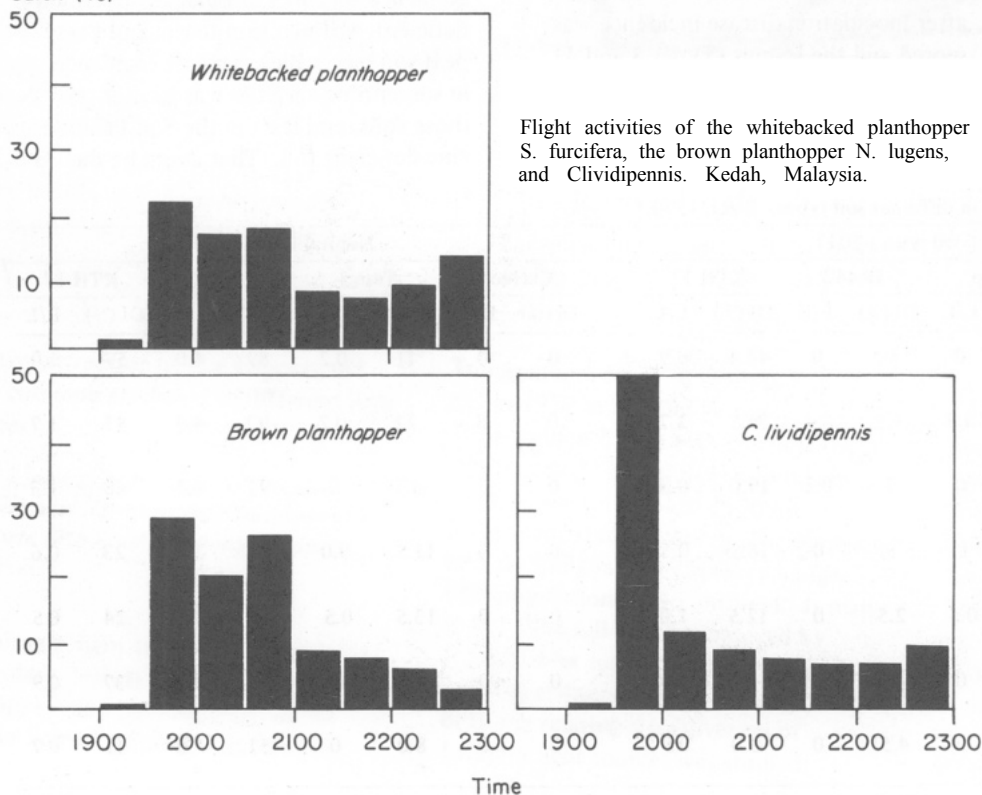
The largest outbreak of the whitebacked planthopper (WBPH) *Sogatella furcifera* reported in Malaysia occurred in the Muda Irrigation Scheme in June 1979. It established the need for continuous surveillance of the pest. Light traps are an efficient device for monitoring the

planthoppers and some of their natural enemies. The light trap consists of a kerosene pressure lamp suspended about 1.8 m over a basin of water. Light traps were set in the Crop Protection building in Telok Chengai to study the flight activities of WBPH and the brown planthopper (BPH) and their predator *Cyrtorhinus lividipennis* at half-hour intervals from 1830 to 2300 hours.

Data from catches during 13 nights were analyzed. The percentage catch for each of the three insects was

calculated (see figure). Flight activities begin after 1900 hours, when the Kedah sky darkens. The main activity for all 3 insects appears to occur from 1930 to 2000 hours. Both WBPH and BPH continue to be active until 2100 hours. *C. lividipennis* is most active from 1930 to 2000 hours. The study indicated that light traps must be lighted only from 1900 to 2200 hours to monitor the BPH and WBPH in the Muda Irrigation Scheme. ■

Catch (%)



Effect of depth of submergence on incidence of bacterial blight and white grub infestation in transplanted rice

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Water submergence was conducive to the spread of bacterial blight caused by *Xanthomonas oryzae*, but it effectively checked white grub infestation in transplanted IR24 in a field experiment at Pantnagar, India.

The disease incidence in the deep submergence treatment was significantly higher than that in the saturation and rainfed treatments, but similar to that in shallow submergence (see table).

White grub infestation decreased with increasing depth of submergence. Significantly fewer plants were damaged