

moths of stem borers (170) and leaf-folder (210) during the study period. The four other colors — yellow, blue, green, and red — were almost equal in attraction, catching from one-third to two-thirds the number of insects in the white-light trap. ■

**Classification of pathogenic groups of *Xanthomonas campestris* pv. *oryzae* and their regional distribution in South China, Guangdong**

*S. M. Shui, J. M. Liu, and S. Z. Wu, Institute of Plant Protection Research of Guangdong, China*

During 1978-80, 211 isolates of *Xanthomonas campestris* pv. *oryzae* were collected from 9 districts in Guangdong Province. Virulence was evaluated on five Chinese differential varieties: Jing-gong 30, Bao-Tai-Ai, Tsai-Ye-Ching 8, Nong-kun 57, and IR26. Flag leaves were inoculated by leaf clipping.

Five bacterial groups could be distinguished. Group I with 16 isolates was virulent only to Jing-gong 30, the susceptible check. Group V with eight isolates was virulent to all five differential varieties. This included IR26, which is known to have the *Xa 4* gene for bacterial blight resistance. Group V bacteria were distributed in the eastern and southern parts of the province.

Group II was composed of 38 (18%) isolates, group III of 49 (23%), and group IV of 100 (47%). Groups III and IV, the predominant groups in the province, were avirulent only to IR26. These two groups appear to be similar to race 1 in the Philippines, based on preliminary evaluation of the IRRI differentials. ■

**Widespread outbreaks of immigrating leaffolders and whitebacked planthoppers in southwestern Japan**

*J. Hirao, Kyushu National Agricultural Experiment Station, Chikugo, Fukuoka, 833 Japan*

Widespread and severe outbreaks of the leaffolder *Cnaphalocrocis medinalis* (Guenée) and the whitebacked plant-

hopper *Sogatella furcifera* (Horvath) occurred in southwestern Japan in 1980. The leaffolder outbreak covered 58,900 ha (34% of the productive paddy area) in Kinki, 112,900 ha (59%) in Chugoku, 61,400 ha (69%) in Shikoku, and 218,000 ha (73%) in Kyushu. Areas affected by the whitebacked planthopper were nearly as large. In Kyushu, the total area of moderate to severe leaf-folder infestations was estimated at 125,000 ha (39%).

The two insect pests cannot overwinter in Japan, except the leaffolder on the subtropical Nansei Islands. The outbreaks were attributed to a large

number of immigrants in several migrating waves from overseas during the unusually long *bai-u* season (June to early August). During July to mid-September, weather in Japan was abnormal. Temperatures were much lower than normal and precipitation was very high, with few sunshine hours. Severity of the outbreaks increased because rainfall on consecutive days prevented the good timing of insecticide applications.

In contrast, the incidence of the brown planthopper *Nilaparvata lugens* (Stal), another immigrating insect pest, was light. ■

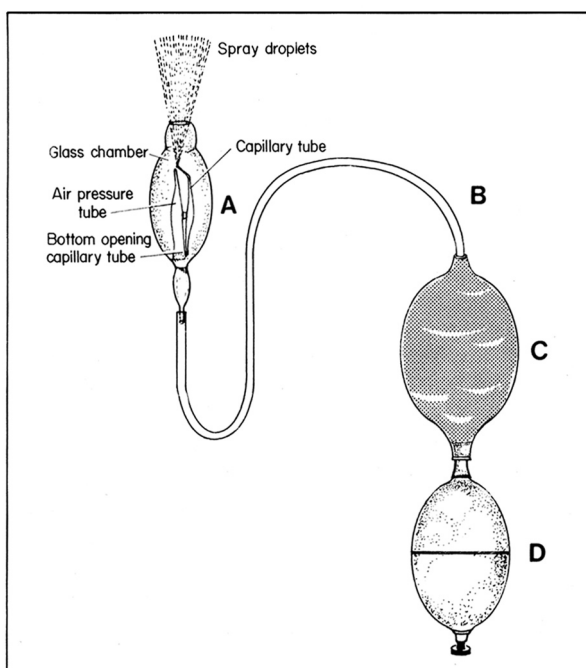
**Atomizer for use in insecticide evaluations**

*A. Mohammed Hanifa and S. Chelliah, Entomology Department, Tamil Nadu Agricultural University, Coimbatore 641 003, India*

Conventional sprayers cannot handle small quantities of spray fluids for controlled insecticide evaluation in potted rice plants. Therefore, a hand atomizer used by asthma patients was modified to serve the purpose (see figure). It consists of a glass unit (A), a rubber tube (B), a rubber air reservoir (C), and a rubber bulb (D).

The glass unit has an air pressure tube through which air flows at high pressure. A bent capillary tube by the side of the air pressure tube draws the spray fluid from the glass chamber and atomizes it by air pressure. The glass chamber can be filled up to the air vent with 3 ml spray fluid, which is adequate to spray a potted plant.

The atomizer discharges fine spray droplets that are deposited uniformly on the plant surface without runoff. It is useful for spraying small quantities of insecticides and other chemicals in laboratory or glasshouse toxicity evaluation studies. ■



Hand atomizer modified for use in controlled insecticide evaluation in potted rice plants. Coimbatore, India.