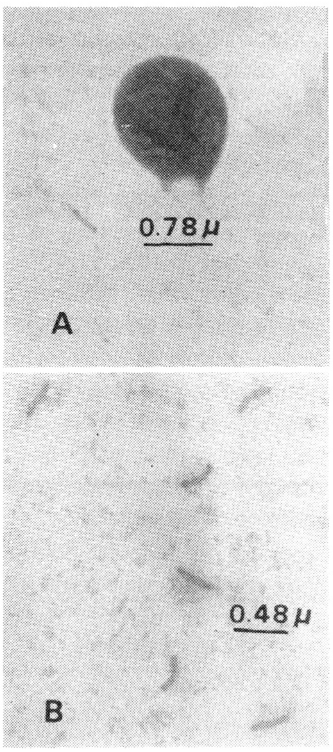
released virions were stained with 2% phosphotungstic acid (PTA) and examined under electron microscope. The rod-shaped virions (Fig. 2) were 367.84 ± 26.85 nm long and 64.37 ± 5.63 nm wide.

This is the first known evidence of a nuclear polyhedrosis virus from *P. mathias* in the Philippines. □



2. Virions released from the polyhedra after 1-h treatment with 0.05 M $NaCO_3$ at 30°C. A) Virions in the polyhedral membrane; B) virions released from polyhedra.

Simulation of rice yield reduction caused by stem borer (SB)

E. G. Rubia, Entomology Department; and F. W. T. Penning de Vries, Multiple Cropping Department, IRRI

We adapted a rice crop growth model to simulate yield reduction caused by SB on irrigated IR64 at IRRI. Grain yield predicted by the model correlated well with yield obtained by clipping tillers in the field.

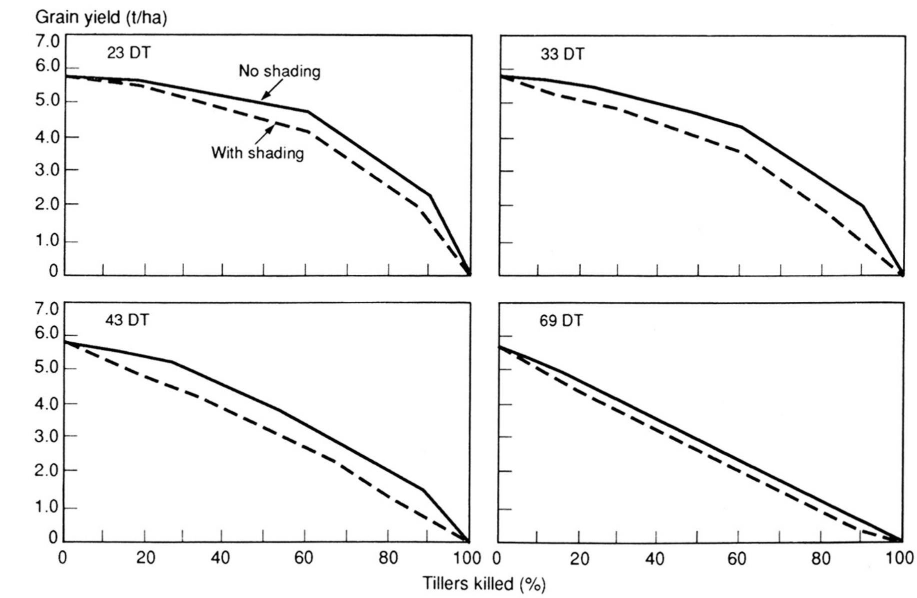
The computer simulations predicted that up to 20% deadhearts at the vegetative stage would cause no significant reduction in grain yield–young plants could compensate for lost tillers. Damage at the grain filling stage (whiteheads) caused an almost proportionate yield reduction (see figure).

This suggests that spraying against SB at the early vegetative stage is often unnecessary, since young rice plants can tolerate considerable damage.

The computer simulations also suggest that yield reduction caused by SB is larger at low N levels since compensation then is less effective. Such physical factors as low radiation also can aggravate SB damage.

Clipping tillers is an artificial method for mimicking deadhearts or whiteheads. It is relatively easy to carry out, but, unlike with natural SB damage, tillers removed by clipping no longer provide shade. We also used the model to compute how much results of experiments using the clipping method need to be adjusted to agree with natural SB damage (see figure).

Using the same model, similar field experiments and simulations were conducted at several research institutes under various weather conditions and using different varieties. Results confirmed that the model is not location specific. □



Simulated grain yield of IR64 in response to damage inflicted at 4 crop stages—active tillering (23 d after transplanting [DT]), maximum tillering (33 DT), panicle initiation (43 DT), and flowering (69 DT)—by clipping a fraction of tillers in each hill. Full lines (—) represent response when tillers are removed, dotted lines (- - -) represent response when killed tillers are kept in place (natural stem borer damage). The difference is due to shading.

Life history of water strider *Limnogonus fossarum* (F.)

E. G. Rubia and K. L. Heong, Entomology Department, IRRI

L. fossarum is a common predator in wetland ricefields in the Philippines. An adult female water strider can consume up to 20 BPH a day.

We collected 100 eggs laid on cut TN1 rice stems. Emerging nymphs were released separately in 9-cm-diam petri dishes filled with distilled water and enclosed in 14-cm-high mylar cages with nylon mesh tops. Each cage contained cut TN1 stems and BPH for food. The cages were kept at 25-30 °C, 70-90% RH, and 12/24 h illumination.

As adults emerged, they were paired and kept inside 0.5-gal containers for oviposition. Survival and female fecundity were recorded daily.

Life cycle of the water strider was