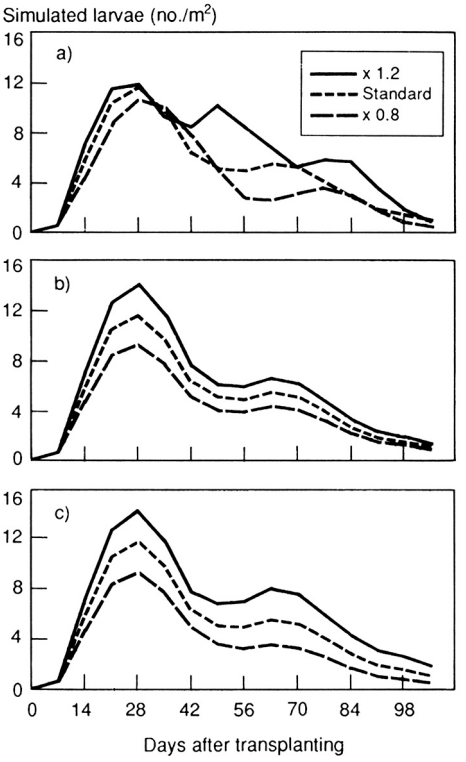

2. Effect on YSB larval populations in 1987 WS of small changes in development rate (a), immigration rate (b), and oviposition rate (c).

semisymmetrical (Fig. 2c); a 20% alteration brought about the same amount of absolute changes in the first peak density but resulted in a higher increase (45.7%) in the second.

SIMYSB has been designed for application in YSB management. The user or researcher may choose to investigate single or combined common pest control tactics. Novel control strategies examined using the computer may lead to the design of useful field experiments. □

Life cycle of *Micraspis* sp. on brown planthopper (BPH) and rice pollen

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The coccinellid *Micraspis crocea* (Mulsant) feeds on plants and on leafhoppers and other small insect pests of rice. It also has been observed feeding on rice flower pollen. Beetles are abundant in ricefields and could help suppress populations of several insect pests.

But because they feed on pollen, many farmers consider them a pest and often spray insecticides to control them.

We studied *M. crocea* in the greenhouse, using the BPH *Nilaparvata* lugens (Stål) and flowering rice panicles. Adult beetles collected from fields were caged on TN1 rice plants with BPH nymphs. Beetle eggs collected daily were placed in petri dishes lined with moist filter paper to determine incubation time. Individual larvae were placed in 2- × 20-cm glass vials with rice stems and second- and third-instar BPH. We reared 75 larvae using this procedure.

Another set of 75 larvae were reared in vials containing flowering rice panicles. Panicles and BPH were changed daily. Ladybeetle larvae were observed to determine time between stages, pupation period, and emergence of adults. Newly emerged adults were reared on both rice panicles and BPH to determine longevity.

Biology of *Micraspis* sp. on BPH nymphs and flowering panicles. IRRI greenhouse, 1988.

Stage	Developmental period on[a] (d)	
	BPH nymphs	Flowering panicles
Incubation period	4.0 ± 0	4.0 ± 0
1st instar	3.2 ± 0.07	3.35 ± 0.08
2d instar	3.4 ± 0.11	3.3 ± 0.15
3d instar	4.2 ± 0.17	4.4 ± 0.18
4th instar	4.4 ± 0.14	7.1 ± 0.24
Pupal stage	4.0 ± 0	4.0 ± 0
Egg to adult	23.1 ± 0.33	26.1 ± 0.38
Adult longevity	94.4 ± 4.41	74.47 ± 3.57

[a]Mean of 75 insects ± standard error.

In general, *Micraspis* sp. survived and developed successfully on both pollen and BPH (see table). This could explain why this beetle is so abundant during rice flowering and during BPH outbreaks. More detailed studies are underway to determine the effects of rice pollen feeding.

Simulated yellow stem borer (YSB) population dynamics: modeling and evaluation

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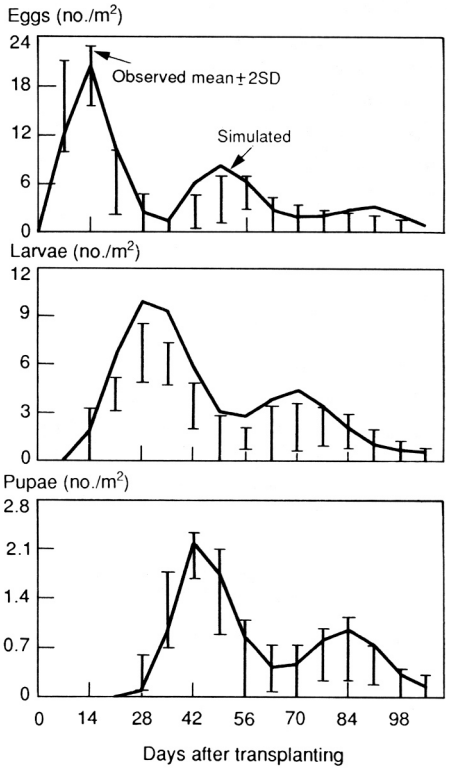
A simulation model of YSB *Scirpophaga incertulas* population dynamics (SIMYSB) was constructed using the state variable approach and boxcar train technique.

YSB population dynamics in a farmer's field were compared to model output for 1987 wet season (WS) and 1988 dry season (DS). A 2,500-m^2 field in Calauan, Laguna, Philippines, was transplanted with C168 (local long-duration variety susceptible to YSB) and not treated with insecticides. The field was subdivided into 50 plots.

Weekly pest sampling started shortly after transplanting. Each week, all plants in three plots selected at random were examined for adult moths and egg masses; 25% of the plants were sampled for dissection.



1. Simulated and farmer's field YSB egg, larval, and pupal populations, Calauan, Philippines, 1987 WS. First-instar larvae were excluded.