Suitability of ratoon rice as host to insects

C. G. dela Cruz and J.A. Litsinger, Entomology Department, IRRI

Ratoon rice and transplanted rice (TPR) were compared as hosts for four vegetative and five reproductive stage insect pests. Host suitability was determined by insect survival, developmental period, and weight of insects reared on 3-wk-old ratoon and comparable TPR.

All vegetative pests except *Rivula atimeta* had low survival on ratoon (see table). Except for the yellow stem borer (YSB), reproductive stage pests were unaffected by ratoon. Developmental periods of all rice pests were similar on ratoon and TPR.

Ratoon was clearly less nutritious than TPR; surviving insects were smaller except for the whitebacked planthopper (WBPH). Vegetative stage pests — particularly whorl maggot, caseworm, and green semilooper —were least suited to ratoon. Reproductive stage pests were less affected. YSB actually survived better on ratoon, probably because of larger diameter stems, but the insects were smaller. WBPH developed equally on ratoon and TPR.

Suitability of transplanted (TPR) and ratoon (R) IR1917 rice for development of rice insect pests.[a] IRRI greenhouse, 1983.

Pest	Crop establishment method[b]	Survival[c] (%)	Developmental period[d]		Insects[e]	
			Days	Insects (no.)	Wt (mg)	no.
Vegetative stage						
Whorl maggot *Hydrellia philippina*	TPR	40	24.0	31	0.98	19
	R	17	24.5	12	0.32	19
	Diff.	**	ns		**	
Caseworm *Nymphula depunctalis*	TPR	65	28.3	41	10.70	32
	R	32	29.7	27	6.87	29
	Diff.	*	ns		**	
Green hairy caterpillar *Rivula atimeta*	TPR	88	17.8	48	16.06	57
	R	93	17.8	45	9.68	42
	Diff.	ns	ns		**	
Green semilooper *Naranga aenescens*	TPR	37	14.9	36	22.57	43
	R	25	14.2	27	13.40	35
	Diff.	**	ns		*	
Reproductive stage						
Yellow stem borer *Scirpophaga incertulas*	TPR	27	32.3	12	10.32	48
	R	52	31.5	19	4.13	36
	Diff.	**	ns		*	
Leaffolder *Cnaphalocrocis medinalis*	TPR	55	26.2	43	21.80	40
	R	60	25.8	51	16.06	42
	Diff.	ns	ns		**	
Brown planthopper *Nilaparvata lugens*	TPR	78	15.1	51	1.04	54
	R	82	14.9	49	0.91	30
	Diff.	ns	ns		*	
Whitebacked planthopper *Sogatella furcifera*	TPR	76	13.7	45	0.72	54
	R	70	13.7	46	0.63	42
	Diff.	ns	ns		ns	
Green leafhopper *Nephotettix virescens*	TPR	57	17.9	37	1.04	42
	R	62	18.4	42	0.58	37
	Diff.	ns	ns		*	

[a]Av of 6 replications, 10 insects/replication. Significance is at the .05 (*) and .001 (**) levels. ns = nonsignificant. [b]Plants infested 21 d after ratooning or transplanting. [c]For all insects except whorl maggot (where mature eggs were used), plants were artificially infested with first-instar larvae or nymphs, which were allowed to develop to adulthood. [d]Only surviving insects were considered. [e]Larvae or nymphs allowed to develop on plants 10 d before weighing.

Snail predators of the rice caseworm

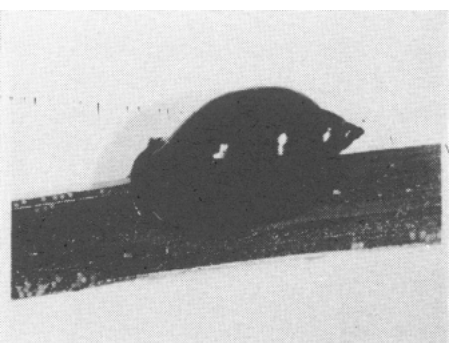
N. Chantaraprapha, Entomology and Zoology Division, Department of Agriculture, Bangkok, Thailand; J.P. Bandong and J.A. Litsinger, Entomology Department, IRRI

Attempts to artificially infest rice plots at IRRI with rice caseworm eggs laid on floating cut leaves failed. Numerous snails were observed in the field plots, predominantly *Radix quadrasi* (Mollendorf) (Lymnagidae) (see figure). After 3 d, 67% of 375 caseworm eggs laid on rice leaves were missing. There were 50 snails/3 rice hills.

To determine whether the eggs were dislodged or killed, caseworm eggs were submerged in 6 cm of water. Snails were introduced into 1/2 of the test basins.

Over 25% of the submerged eggs in containers without snails developed into larvae which made cases from rice leaves. None developed cases in containers with snails.

We conclude that the caseworm eggs were killed by the snails. As snails showed no preference for leaves with caseworm eggs, we conclude that egg mortality is due to inadvertent disturbance and not to predation. Snails grazing on algae growing on submerged rice foliage dislodge caseworm eggs laid on the undersides of floating leaves, killing them.



Caseworm moths lay eggs on the surface of underwater rice leaves. Snail movement dislodges the eggs (seen along the leaf margin ahead of the snail), preventing them from hatching.