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**Key words :** NPV, *Spodoptera litura*, agglutination, haemagglutination inhibition, gel diffusion.

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## Biological Control of Early Moth Borers of Sugarcane by *Trichogramma* in North Bihar

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Under the North Bihar conditions, species of moth borers, viz., *Chilo infuscatellus* Snellen, *Sesamia inferens* Walker and *Raphimetopus ablutella* Zeller, occur as shoot borers of sugarcane. However, *C. infuscatellus* outnumbered the other two (Misra *et al.*, 1986). In addition, *Scirpophaga excerptalis* Walker appears soon after the shoot stage of the crop and continues to cause substantial damage until July-August each year.

Use of *Trichogramma* spp. in sugarcane ecosystem has been demonstrated by Sithanantham (1980) and Tuhan and Pawar (1983) in Tamil Nadu and Punjab, respectively. At the Harinagar farm, biocontrol trials commenced in 1980 against *C. infuscatellus* (Misra *et al.*, 1984). Based on the encouraging results in a four acre field, a *Trichogramma* breeding laboratory was commissioned in June, 1984 for mass breeding of the host

TABLE 1. Effect of *Trichogramma* release on the incidence and damage by borers on sugarcane at Harinagar farms.

Farm	Sugarcane area (ha)	Year	Percent damage by	
			Shoot borers	Top borer
Banjaria (release)	96.9	1985	0.5 (23.5)	0.4
		1986	0.5	0.9
Gonra (Control)	152.1	1985	8.3 (132.3)	6.2
		1986	2.7	6.5

Figures in parenthesis represent early moth borer larvae collected / ha

and parasites. The releases of *Trichogramma chilonis* (Ishii) and *T. japonicum* Ashmead @ 20,000 wasps per acre per week commenced in September, 1984. One year releases in 242.33 acres at Banjaria farm has recorded heavy reduction in the total moth borer complex attack during 1985 (Misra *et al.*, 1986).

Further releases of the wasps were made during 1985 and 1986 in the cool hours of the day @ 20,000 wasps per acre per week at the Banjaria farm which remained free from pesticidal treatment during both the years. The effectiveness of the parasites was assessed based on percent damaged shoots during the trial years at the release and control farm (Gonra) situated two km apart. Further, average collection of borer caterpillars per acre was also considered for assessment of the effectiveness of the releases. In addition, for recovery tests, *Corcyra* egg cards were placed at different points at Banjaria farm on five successive days where no wasps were released since one week.

Data presented in table 1 reveal that the attack by shoot borers and top borer at Banjaria farm during April, 1985 and 1986 was significantly low as compared with Gonra farm serving as control. This is further

supported by the fact that the average collection of caterpillars per ha at Banjaria was low as compared with Gonra. Examination of *corcyra* egg cards revealed parasitism of eggs. These direct and indirect recoveries suggest the positive role played by the parasites.

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Key words : *Trichogramma* spp., sugarcane moth borers, field release, effectiveness.

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