

## SUGARCANE & ITS PROBLEMS

### BIOLOGICAL CONTROL OF SUGARCANE BORERS THROUGH TRICHOGRAMMA CHILONIS ISHII IN NAYAGARH DISTRICT OF ORISSA

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#### ABSTRACT

Field release of Trichogramma chilonis Ishii for the control of sugarcane borers were made in 1994 and 1995. In the four released sites, the early shoot borer incidence ranged from 1.8 to 2.7% and 2.1 to 3.4% in 1994 and 1995 whereas, the incidence of stalk borer ranged from 3.6 to 4.8% and 2.8 to 4.3% in the two test years. The incidence of the early shoot borer was 9.8 and 12.6% in 1994 and 1995 whereas, the internode borer was 11.9 and 13.7% in the test years.

#### INTRODUCTION

The early shoot borer, Chilo infuscatellus Snellen and stalk borer, Chilo auricilius Dudgeon are the most important insect pests of sugarcane in Nayagarh which are amenable to bio-control by Trichogramma chilonis (Sitanatham, 1980; Mishra and Pawar, 1987). Work on biocontrol of these pests is rather scanty in the region. An attempt was therefore, made at the Nayagarh area for their control by Trichogramma chilonis in 1994 and 1995.

#### METHODOLOGY

Four sugarcane fields were identified in different villages for inundative release of T. chilonis on the early shoot borer and stalk borer in 1994

and 1995. One field was taken as the check. The parasitoid was released @ 50,000/ha/week starting from 21 days of planting (DAP) to 210 DAP. Weekly observations on dead heart and stalk borer incidence were recorded from five sample units of 5 m x 5 m area in the test fields. The data were statistically analysed as per Gomez and Gomez (1984). Fresh 'Tricho cards' were exposed in the released fields after 220 DAP for recovery of the parasitoids.

#### CONCLUSION

Data presented in Table 1 show that in 1994 the early shoot borer incidence was 1.8 to 2.7% in different test fields whereas, in the check field it was 9.8%. Similarly the stalk borer incidence ranged from 3.6 to 4.8% in the parasitoid released fields as against 11.9% in the check field. In 1995, the trend was identical to 1994. The early shoot borer incidence ranged from 2.1 to 3.1% and the stalk borer from 2.8 to 4.3% in parasitoid released plots whereas, the check plot had 12.6% early shoot borer and 13.7% stalk borer. The results indicated that all the released fields had significantly lesser borer damage than check plots. The parasitoid was recovered 15 days after the release was ceased. There was no natural parasitization as was evidenced in the checkfields from where there was no recovery of the parasitoid.

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TABLE 1

Effect of *Trichogramma chilonis* release on the incidence of sugarcane borers at Nayagarh

Location	Area	Percent damage by				Parasitoid recovered	
		Early shoot borer		Stalk borer		1994	1995
		1994	1995	1994	1995		
Panipoila	1.0	1.8 (1.50)	2.7 (1.79)	3.6 (2.04)	2.4 (1.71)	52.8	69.3
Barabati	0.7	1.4 (1.39)	3.4 (1.96)	4.1 (2.12)	2.8 (1.82)	49.7	61.9
Koska	0.7	2.7 (1.79)	2.1 (1.62)	4.8 (2.30)	3.4 (1.97)	51.3	58.0
Sajanapada	1.0	2.2 (1.63)	3.1 (1.90)	4.4 (2.20)	4.3 (2.19)	57.1	54.6
Saradhapur (CHECK)	1.0	9.8 (3.21)	12.6 (3.60)	11.9 (3.52)	13.7 (3.76)	0.0	0.0
C.D. (P=0.05)		(1.38)	(1.41)	(1.08)	(1.17)		

Figures in parentheses are  $\sqrt{x + 0.5}$  values

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## REFERENCES

- Gomez, K.A. and Gomez, A.A. (eds) 1984. *Statistical procedure for Agricultural Research*, Los Banos, Philippines, IRRI, 294 pp.
- Jena, B.C. Nayak, N. and Parida, A.K. 1994a. *Control of sugarcane early shoot borer in Orissa*, Indian Sugar Vol XLIV (4): 251-255.
- Jena, B.C. Nayak, N. and Parida, A.K. 1994b. *Control of sugarcane stalk borer and top borer in Orissa*. Co-op. Sugar, Vol. 26 (3): 183-185.
- Mishra, A.D. and Pawar, A.D. 1987. *Biological control of early moth borers of sugarcane by Trichogramma in North Bihar*. J. Biol. Control, 1(1):70-71.
- Sitanatham, S. 1980. *Inundative release of Trichogramma and integration with insecticidal methods*. In *Biological Control of Sugarcane Pests in India*. S. Sitanatham and A.R. Solayappan (eds), pp. 43-60- TNSFCSF Ltd., Madras India.