Bio-Efficacy of Various Insecticidal Formulations Against Sorghum Shootfly, *Atherigona soccata* Rondani

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ABSTRACT

Trials conducted during kharif 1984 and 1985 at Surat for the protection of sorghum CSH 5 variety from shootfly (*Atherigona soccata* Rondani) infestation showed that seed treatment with carbofuran (3.5 ST) 3.5 per cent, soil application of carbofuran (3 G) and monocrotophos (10 G) 2 g/m row were most effective treatments for obtaining high grain and stover yields.

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INTRODUCTION

The sorghum shootfly (*Atherigona soccata* Rondani) is a limiting factor for sorghum CSH 5 cultivation. Paul *et al.*, (1981) reported its incidence in late sown kharif crop to the extent of 84 to 89 per cent with 43 to 51 per cent loss in grain yield. Use of insecticides viz., phorate, disulfoton, carbofuran, fensulfothion and isofenfos provided satisfactory protection to the sorghum crop against shootfly (Vedamoorthy *et al.* 1965 and Jotwani and Sukhani, 1968). However, for the South Gujarat region no information on the bio-efficacy of synthetic insecticides against *Atherigona soccata* Rondani is available.

MATERIALS AND METHODS

An experiment was conducted at the Main Sorghum Research Station, Gujarat Agricultural University, Surat during late kharif seasons of 1984 and 1985, using high yielding hybrid sorghum CSH 5. The trials were carried out in a randomized block design with three replications. The sowing of the experiment was done on August 18, 1984 and September 9, 1985. The crop was nourished with 80 kg N and 40 kg P_2O_5 per hectare. There were seven treatments including control (Table 1) in the experiment. The shootfly attack was counted on the 28th day after germination on the basis of deadhearts. The data on the grain and stover yields were also recorded. The data were subjected to statistical analysis and the results are furnished in Table 1.

RESULTS AND DISCUSSION

The pooled data on the bio-efficacy of various insecticidal formulations against sorghum CSH 5. in South Gujarat Agro-climatic condition (Table 1) revealed the effectiveness

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TABLE 1

Bio-efficacy of various insecticidal fromulations on *A. soccata* and yield of sorghum. (Pooled over 1984 and 1985).

Treatments	*Deadheart (%)*	*Yield (%/ha)*	
		Grain	*Stover*
Carbofuran 3 G @ 2 g/m row at the time of sowing	39.96 (41.25)	29.64	63.16
Oncol 50 WP 5% a.i. seed treatment	42.68 (45.96)	25.98	59.04
Carbofuran 50 SP 5% a.i. seed treatment	44.60 (49.30)	21.75	59.04
Carbofuran 35 ST @ 3.5% a.i. seed treatment	40.36 (41.94)	28.04	62.43
Monocrotophos 10 G @ 1.5 g/m row at the time of sowing	42.20 (45.12)	25.75	59.53
Monocrotophos 10 G @ 2 g/m row at the time of sowing	40.83 (42.75)	27.94	65.58
Untreated control	55.50 (67.92)	18.20	46.70
S. Em. +	1.25	0.89	2.13
C. D. 0.05	4.33	2.57	6.14
C. V. %	4.46	9.52	9.75

Figures in parentheses are retransformed values.

of all insecticidal treatments as compared to control. However, among the insecticides, soil application of carbofuran (3 G) @ 2 g/m row had the maximum effect on the shootfly as it produced minimum deadhearts percentage (41.25%). This was significantly lower than carbofuran (50 SP) 5 per cent seed treatment. All the remaining treatments were at par with these treatments. These results are partially in agreement with those of Singh and Thobbi (1982), who found that 5% a.i. seed treatment of oncol (50 WP) and granular application of monocrotophos (5 G) and carbofuran (3 G) gave effective control of sorghum shootfly.

Soil application of carbofuran (3 G) gave significantly higher grain yield as compared to carbofuran (50 SP) 5 per cent seed treatment

oncol (50 WP) 5 per cent seed treatment and soil application of monocrotophos (10 G) @ 1.5 g/m row. In case of other treatments the differences in the grain yield were at par. However, all these insecticides gave significantly higher yield than no treatment. Effect of insecticides on stover yield showed significantly higher yield than control However, monocrotophos (10 G) produced significantly higher fodder yield than oncol (50 WP) and carbofuran (50 SP), whereas remaining three treaoments were at par with monocrotophos (10 G), oncol (50 WP) and carbofuran (50 SP).

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