

Efficacy of some Insecticides against White Grubs of Sugarcane

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ABSTRACT

An experiment was conducted to screen out suitable insecticides in controlling white grubs of sugarcane during the cropping season 1994-95 at Kanta farm under Setabganj Sugar Mills Ltd., District Dinajpur. Application of Rajfuran 5G, Vitafuran 5G, Agrifuran 5G, Furacarb 3G, Miral 3G, Marshal 6G and Rugby 10G @ 2.0 kg a.i/ha showed satisfactory white grub control over 80 percent and may be recommended against the pest.

INTRODUCTION

The soil pest like white grubs has been considered as major pest causing serious problem to sugarcane production (Anon., 1979). They feed on sugarcane roots and their activity starts in late February and lasts upto the end of May, showing visible symptoms of yellowing and stunting in cane growth. Its infestation is severe in sandy or sandy loam soils especially in the northern part of Bangladesh (Anon., 1981). Miah *et al.* (1983) and Biswas *et al.* (1994) conducted experiments with different pesticides for the control of white grubs and suggested to apply Furadan 3G (Carbofuran) and other granular insecticides @ 2.0 kg a.i/ha in the middle of March and then one month after the first application followed by irrigation each time. Efforts were made to control white grubs by many workers (Bull and Cullen, 1981; Litsinger *et al.* (1983). Experiment was conducted in the grub prone areas, where Mannan *et al.* (1989) noticed that Macap 5G effectively controlled (over 80%) grubs population and increased cane yield. The aim of this study was to screen out more suitable chemical (s) for effective white grub control.

MATERIALS AND METHODS

The experiment was laid out in randomized complete block design (RCB) at Kanta farm of Setabganj Sugar Mills Ltd. during the crop season 1994-95. There were nine treatments including one standard (Curaterr 5G) and one control. The unit plot size within the replication was 6x5m. The gap between the plots was 2m. The variety Isd 16 was used in the experiment.

The treatments were as follows:

T₁: Marshal 6G@2.0 kg a.i/ha applied in March and April

T₂: Miral 3G@2.0 kg a.i/ha applied in March and April

T₃: Rajfuran 5G@2.0 kg a.i/ha applied in March and April

- T₄: Vitafuran 5G @ 2.0 kg a.i./ha applied in March and April
 T₅: Agrifuran 5G @ 2.0 kg a.i./ha in March and April
 T₆: Furacarb 3G @ 2.0 kg a.i./ha applied in March and April
 T₇: Rugby 10G @ 2.0 kg a.i./ha applied in March and April
 T₈: Curaterr 5G (Standard) @ 2.0 kg a.i./ha applied in March and April
 T₀: Control (check).

The chemicals were applied as per schedule of the treatment in March and April. On both sides of cane lines furrows were made by bullock driven plough. The chemicals were broadcaster in the furrows as well as in the space between furrows, then covered with soils, followed by irrigation. Before irrigation the individual plot was surrounded by soil ridge so as to protect the on rush of irrigation water from one plot to the other. Intercultural operations were made as and when necessary. Data collection on white grub population was made after 2 months of final chemical application. Five clumps per plot were uprooted and all the white grubs were counted. Yield data was recorded during harvest.

RESULTS AND DISCUSSION

Data revealed that different treatments showed more or less similar response in reducing the grub population which were statistically significant (Table 1).

Table 1. Effect of different insecticides on white grub population and cane yield.

Treatments	Grub population (Mean grub/5 clump)	Efficiency over control (%)	Yield (TCH)	Yield increase over control (%)
T ₁ : Marshal 6G @ 2.0 kg a.i./ha	2.50 b*	86.67	41.08	2.41
T ₂ : Miral 3G @ 2.0 kg a.i./ha	2.25 b	88.00	50.59	11.92
T ₃ : Rajfuran 5G @ 2.0 kg a.i./ha	2.50 b	86.67	50.67	12.00
T ₄ : Vitafuran 5G @ 2.0 kg a.i./ha	2.00 b	89.33	46.50	7.83
T ₅ : Agrifuran 5G @ 2.0 kg a.i./ha	1.75 b	90.67	48.17	9.50
T ₆ : Furacarb 3G @ 2.0 kg a.i./ha	1.25 b	88.00	47.58	8.91
T ₇ : Rugby 10G @ 2.0 kg a.i./ha	2.00 b	89.33	49.84	11.17
T ₈ : Curaterr 5G @ 2.0 kg a.i./ha	2.25 b	88.00	45.42	6.75
T ₀ : Control (check)	18.75 a	-	38.67	-
LSD (5%)	2.35		NS	

* Figures accompanied by the same letters are not significantly different at 5% level of probability as per DNMR test.

However, no difference was observed with the standard. Miah *et al.* (1983) proved that Carbofuran effectively controlled white grub population. The test Carbofuran like Rajfuran 5G, Vitafuran 5G, Agrifuran 5G, Furacarb 3G and Curaterr 5G showed effective

control against white grub which indicated above 80% effectiveness over control. Miah *et al.* (1986) suggested that Furadan 3G @ 2.0 kg a.i./ha applied twice (March and April) was found superior to all the treatments. Biswas *et al.* (1994) found satisfactory control of white grub with Furadan 5G and Curaterr 5G. Miral 3G also effectively controlled the pest (Anon., 1994). Similarly chemicals like Marshal 6G, Miral 3G and Rugby 10G also effectively controlled grub population which were statistically significant (Table 1). Here all the chemicals showed significant reduction of white grubs ranging from 86.67 to 90.67 over control. In case of yield, the chemicals showed 2.41 to 12.0% increase over control which was not statistically significant. From the experimental result it can be concluded that Rajfuran 5G, Vitafuran 5G, Agrifuran 5G, Furacarb 3G, Marshal 6G, Miral 3G and Rugby 10G @ 2.0 kg a.i./ha applied in March and April was found very effective for white grub control and may be recommended.

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