

EFFICACY OF SELECTED INSECTICIDES AGAINST DIAMONDBACK MOTH IN MUSTARD GREENS

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Introduction

The diamondback moth (DBM), *Plutella xylostella*, is a key pest of cole crops and greens in Georgia. Management of this pest relies heavily on insecticidal control and insecticide resistance is a constant threat with this species. A grower in Mitchell County reported poor control of DBM with SpinTor, which normally provides excellent control of this pest. A small plot study was established in one of his fields to evaluate the efficacy of SpinTor and other selected insecticides against the diamondback moth larvae.

Materials and Methods

The trial was conducted in a field of mustard greens. Plants were near harvest maturity. Plots were two rows (6 feet) wide and 20 feet long. The experiment was established as a randomized complete block with 4 replications. Insecticides evaluated were:

SpinTor 2SC at 0.023 and 0.047 lb AI/ac

Avaunt 30WG at 0.065 lb AI/ac

Proclaim 5SG at 0.0075 lb AI/ac

Diamond 0.83EC at 0.078 lb AI/ac

Non-treated check

All insecticide treatments were tank mixed with NuFilm 17 at 4 oz/ac. Insecticide applications were made on Oct 1 and 5, 2003. Treatments were applied with a CO₂ pressurized backpack sprayer, with three TX10 hollow cone nozzles per row. Applications made on Oct. 1 were applied in 40 GPA, and applications on Oct. 5 were applied in 34 GPA.

Five leaves were randomly selected from each plot on each sample date and all DBM larvae were counted on each leaf. Each plot was visually rated for defoliation on each sample date, with percent defoliation visually estimated. Where significant differences were detected (ANOVA; $P < 0.05$), means were separated with DMRT ($P = 0.05$).

Results and Discussion

SpinTor failed to reduce DBM populations after the first application, and although it suppressed populations after the second application, it failed to reduce the foliage damage ratings. This strongly supports the assumption that the DBM population in the area had become resistant to spinosad. Larvae were collected and sent for resistance testing, but results have not been

provided.

Avaunt, Proclaim and Diamond provided improved efficacy, but did not reduce populations to sub-threshold levels until after the second application. The control obtained with these products supports reports of no cross-resistance among these chemistries and suggests that resistance can be delayed if not avoided by proper insecticide rotation, with no loss of efficacy.

Table 1. Diamondback moth larval densities and plot defoliation ratings, Mitchell County, 2003.

Treatment	DBM larvae per leaf			Percent foliage damaged		
	Oct 5	Oct 10	Oct 14	Oct 5	Oct 10	Oct 14
Check	6.83 a	5.90 a	0.00 a	37.5 a	58.8 a	66.3 a
SpinTor.023	9.25 a	3.10 b	0.00 a	26.3 a	51.3 a	61.3 a
SpinTor.047	7.17 a	1.10 bc	0.00 a	22.5 a	45.0 a	50.0 a
Avaunt	3.00 b	0.05 c	0.00 a	26.3 a	20.0 b	18.8 b
Proclaim	3.25 b	0.05 c	0.00 a	20.0 a	18.8 b	16.3 b
Diamond	2.75 b	0.05 c	0.00 a	27.5 a	25.0 b	22.5 b

Numbers within columns followed by the same letter are not significantly different (DMRT; P=0.05)