Control of Lepidopterous Pests on Cabbage, 2003

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Interpretive Summary

All treatments had fewer worms and more marketable cabbage heads than the untreated plots.

Introduction

Cabbage is a widely grown crop in Tennessee during the spring and fall. The summer months are too hot for successful cabbage production. Acreage for fresh market usage has expanded greatly in recent years as an alternative to tobacco. The cabbage-worm complex; including imported cabbageworm and cabbage looper can destroy a crop quickly. This can be worse in the fall growing season due to higher numbers of breeding adults being present. Insect control incorporating good Integrated Pest Management (IPM) strategies should be implemented for a successful cabbage crop. Eleven insecticide treatments were evaluated for efficacy against these pests at the Plateau Experiment Station, Crossville in 2003.

Materials and Methods

The site was prepared using conventional tillage in late April. Fertilizer was broadcast at 300 lb/A of 15-15-15 before final disking May 12. Bensulide (Prefar 4E) at 5.5 lb ai/A and Trifluralin (Treflan 4 EC) at 0.75 lb ai/A were incorporated on May 12 for weed control. Transplants of 'Stone Head' were set on May 14. Plots were three rows on 3 ft centers, 15 ft long. Ten plants were planted in each row. Experimental plot design was randomized complete block with four replications. Insecticide applications were made using a 2.5 gal compressed CO_2 hand sprayer calibrated to spray 35 gpa at 40 psi. Treatments took place after weekly insect counts on June 19, June 26, and July 3. Another insect count was carried out before the harvest on July 13. The center row of each plot was harvested July 13, and the number of marketable heads and the weight of the heads was taken. All data was analyzed using the analysis of variance method, and the means were separated by Duncan's multiple range test at the 0.05 level.

Results and Discussion

All treatments had significantly fewer worms than the untreated plots (Table 1). All treated plots also had more marketable heads, and more pounds of cabbage per plot than the untreated plots. The combination of both Dipel and Xentari with other insecticides proved to be effective in worm control, with no phytotoxic effects. No significant differences were found between the number of heads harvested and the

yield per plot.

Table 1. Number of worms present on cabbage heads and marketable yield evaluated at the Plateau Experiment Station, Crossville, 2003.

Treatment Formulation	Rate lb ai/A	Worms / 10 Heads				No. Market Heads	
		June 19[z]	June 26	July 3	July 13		
Dipel 10.3 DF	0.052	0.25 b	0.50 b	0.50 b	0.75 b	8.50 a	1
Dipel 10.3 DF	0.100	0.25 b	0.25 b	0.50 b	1.00 b	8.00 a	2
Xentari 10.3DF	0.052	0.25 b	1.00 b	1.25 b	1.75 b	9.25 a	2
Xentari 10.3DF	0.100	0.25 b	0.00 b	0.00 b	0.50 b	9.00 a	2
Xentari 10.3DF	0.150	0.50 b	0.00 b	0.25 b	1.00 b	9.25 a	2
Danitol 2.4 EC	0.100	0.25 b	0.00 b	0.00 b	0.25 b	8.50 a	2
Danitol 2.4 EC	0.200	0.00 b	0.00 b	0.25 b	0.25 b	7.75 a	2
Dipel 10.3 DF Danitol 2.4 EC	0.052 0.100	0.00 b	0.00 b	0.00 b	0.00 b	8.75 a	1
Xentari 10.3DF Danitol 2.4 EC	0.052 0.100	0.25 b	0.00 b	0.00 b	0.25 b	9.50 a	2
Spintor 2 SC	0.063	0.25 b	0.25 b	0.25 b	0.50 b	9.00 a	2
Avaunt 30 WG	0.063	0.00 b	0.00 b	0.00 b	0.00 b	8.00 a	1
UTC	---------	7.75 a	8.25 a	9.50 a	8.50 a	4.50 b	1

[z] Means within a column followed by the same letter are not significantly different at the 0.05 level of probability, Duncan's multiple range test.

This research represents one season's data and does not constitute recommendations. After sufficient data is collected over the appropriate number of seasons, final recommendations will be made through research and extension publications.