

EVALUATION OF INSECTICIDE TREATMENTS IN BROCCOLI 2006

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Introduction

Broccoli is currently a low acreage crop in Georgia that is being considered by more Georgia vegetable growers in recent years. Unfortunately growers will face the same pests that attack cabbage and collards, namely, diamondback moth (DBM); *Plutella xylostella*, cabbage looper (CL); *Trichoplusia ni*, imported cabbage worm (ICW); *Pieris rapae*, and tobacco thrips *Frankliniella fusca*. The test evaluated some of the newest products labeled and not yet available for this crop.

Materials and Methods

Broccoli was transplanted into two 50 ft rows per 6-ft wide beds on 29 March 2006 and maintained with standard cultural practices at the Lang Farm, Georgia Coastal Plain Experiment Station at Tifton. A total of 500 lbs of 10-10-10 was applied to Tift pebbly clay loam field plots and 140 lbs of ammonia nitrate was sidedressed. Irrigation was done weekly with an overhead lateral sprinkler system. Scouting was initiated on 17 April and continued weekly until harvest. The focus of the scouting was on DBM and CL, by early instar ICW were recorded to keep separate from DBM counts. Six applications of insecticide were made on 6, 13, 20, 27 April and 4, 12 May. Two samples of 6 plants were scouted per plot

approximately 48 h after weekly applications. Mature broccoli heads were harvested from 50 ft of row on 27 April, 9, 12 and 22 May and fruit were categorized as not (0), very slightly (1), slightly (2), moderately (3), heavily (5) and severely damaged (6) and the average weight was measured. Damage ratings for the overall harvested plot and individual heads (for the last two harvests) were reported. Data was analyzed using GLM and LSD tests for separation of means (SAS Institute 1985).

Results and Discussion

The most efficacious treatments against lepidopteran pests in the trial were Novaluron, XDE-175 and Spintor. Avaunt and Proclaim provided intermediate control of DBM which differed from previous trials in the same location where Avaunt was usually one of the most efficacious treatments. The damage ratings corresponded with the level of DBM control. On one date there seemed to be a little activity on tobacco thrips, but the seasonal means were not significantly different between treatments. There was a significant rate response with XDE-175 for some harvest parameters with the lowest rate only providing intermediate reduction of plot damage and increase in marketable yields.

Treatment - rate lb ai per acre	Season-long total Lep. larvae	Total DBM	Total early instar DBM	Total late instar DBM	DBM all stages on 5/9/06	Total CL	Total early instar ICW	Thrips - 5/9/06
1 XDE-175 0.0393	0.8 c*	0.7 c	0.2 c	0.4 cd	1.1 bcd	0.00 b	0.1 b	10 abc
2 XDE-175 0.0232	0.9 c	0.7 c	0.3 bc	0.4 cd	0.9 bcd	0.02 b	0.2 b	12 ab
3 XDE-175 0.0161	1.1 c	0.8 bc	0.5 bc	0.3 d	0.5 cd	0.05 ab	0.2 b	10 abc
4 Novaluron 12 fl oz prod	0.6 c	0.5 c	0.2 c	0.2 d	0.3 d	0.00 b	0.2 b	6 c
5 Spintor 0.0785	0.8 c	0.5 c	0.3 bc	0.2 d	0.3 d	0.02 b	0.2 b	9 abc
6 Avaunt 0.065	1.91 b	1.7 b	0.5 bc	1.1 b	2.9 b	0.02 b	0.2 a	8 bc
7 Proclaim 0.015	1.95 b	1.6 b	0.6 b	0.9 bc	2.5 bc	0.02 b	0.3 a	11 ab
8 Untreated Check	4.2 a	3.8 a	1.0 a	2.2 a	7.0 a	0.11 a	0.3 a	13 a

* Means within columns followed by the same letter are not significantly different (LSD, P<0.05).

Treatment - rate lb ai per acre	Avg. plot damage rating over all harvest	Avg. plot damage rating for marketable harvest	Avg. plot wt. (lbs) of marketable harvest**	Avg. head damage rating by individual plants	Total number of marketable heads with no damage by individual plants	Total number of un-marketable heads, plants with any damage
1 XDE-175 0.0393	0.9 c*	0.9 b	16 abc	0.15 cd	24.3 ab	4.3 b
2 XDE-175 0.0232	1.3 bc	1.0 b	17 abc	0.19 cd	34.3 a	5.8 ab
3 XDE-175 0.0161	1.8 ab	1.2 b	13 abc	0.21 cd	17.8 bc	5.0 b
4 Novaluron 12 fl oz prod	1.0 c	1.0 b	20 a	0.14 d	34.0 a	6.7 ab
5 Spintor 0.0785	1.4 bc	1.2 b	20 ab	0.28 bcd	25.5 ab	9.3 ab
6 Avaunt 0.065	2.1 a	1.7 a	11 bc	0.44 ab	14.3 bc	10.5 a
7 Proclaim 0.015	1.9 ab	1.7 a	11 abc	0.33 bc	15.3 bc	8.0 ab
8 Untreated Check	2.1 a	1.7 a	9 c	0.62 a	9.5 c	10.8 a

* Means within columns followed by the same letter are not significantly different (LSD, P<0.05).

** Treatment effect marginal (P=0.1).