

EFFICACY OF WHORL STAGE INSECTICIDE APPLICATIONS AGAINST FALL ARMYWORM IN SWEET CORN

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Introduction

Fall armyworm is a common pest of sweet corn in south Georgia. In Spring production it can be a pest in corn ears as populations develop later in the production season. Corn grown in late spring or fall can be attacked by this pest throughout the season. In this later production, fall armyworm can decimate fields during the whorl stage, with larvae somewhat protected within the whorl of the plants. This study was conducted to evaluate the efficacy of selected insecticides, used on a weekly schedule during the whorl stage, to protect sweet corn from fall armyworm.

Materials and Methods

Sweet corn, var. Serendipity, was planted 18 Aug, 2006, at the University of Georgia's Tifton Vegetable Park, in Tifton, Georgia. After stand establishment, experimental plots measuring 2 rows (on 36 inch center) by 23 feet were established in a randomized complete block design with four replications. Plots received three applications of the designated treatments on a roughly weekly basis. Applications were made on 6, 14 and 20 Sept. The insecticides evaluated and the rates applied are indicated in Table 1. All insecticides were applied with a CO₂ pressurized backpack sprayer (60 PSI) in a total volume of 40 gpa with 3 hollow-cone nozzles (broadcast application; one nozzle nearly over-the-row on each row and one between the rows). All treatments were tank mixed with a silicone surfactant (Flood at 0.05% v/v).

Efficacy was evaluated by monitoring plant damage. All plants in each plot were examined by looking down into the whorl. Plants

were considered damaged if obvious feeding and/or insect frass was abundant. Number of damaged plants was recorded for each plot on each sample date. Number of damaged plants per plot was analyzed with the PROC ANOVA procedure of PC-SAS. Where significant differences were detected ($P < 0.05$), means were separated with LSD ($P < 0.05$).

Damaged plants at the end of the field (outside the test) were destructively sampled to collect larvae for species identification. All larvae collected were fall armyworm larvae. During sampling, numerous moths were noted inside the whorl of plants. Although a few corn earworm moths were seen, the vast majority of moths were fall armyworm. Egg masses (armyworm) were also seen while conducting visual plant examinations.

Results and Discussion

Significant differences were detected among treatments for the number of plants with whorl damage on both sample dates (Table 1). Novaluron and SpinTor provided the best control of fall armyworm in the whorl stage corn. Novaluron did not show a rate effect, with both rates performing similar. The pyrethroid insecticides (Warrior and Baythroid XL) generally provided significant suppression of damage, but were a little weak on this species of caterpillar. This is not surprising, as pyrethroid insecticides generally provide moderate control of this species. Avaunt performed similar to the pyrethroid insecticides in this test.

Table 1. Number of plants per plot damaged by fall armyworm, whorl stage sweet corn efficacy test, Tifton, Georgia, 2006.

Treatment	Rate (per acre)	Damaged Plants Per Plot	
		Sept. 18	Sept. 25
Check		36.75 a	34.50 a
Baythroid XL	2.2 oz.	16.25 b	29.25 a
Baythroid XL	2.8 oz.	16.75 b	18.00 b
Avaunt 30WDG	3.5 oz.	6.00 c	11.25 b
Warrior 1SC	3.84 oz.	5.00 c	11.25 b
SpinTor 2SC	6 oz.	1.75 c	1.25 c
Novaluron 0.83EC	9 oz.	0.25 c	1.25 c
Novaluron 0.83EC	12 oz.	1.5 c	1.50 c

Numbers within columns followed by the same letter are not statistically different (LSD; P=0.05).