

# Evaluation of Verimark for Tomato Spotted Wilt Management in Georgia's Tobacco Production

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## INTRODUCTION

Our goal is to provide quality applied research data to growers in Coffee County, as well as growers across the state of Georgia. This year's on farm research trial focus was on using Verimark and Admire Pro to control spotted wilt caused by the *Tomato Spotted Wilt Virus* (TSWV) transmitted by tobacco thrips in flue-cured tobacco.

In 2015, DuPont chemical company labeled a group 28 systemic insecticide called Verimark. As the result of a merger, ownership was transferred to Food Machinery Corporation (FMC). Earlier, in 1998, Bayer Crop Science had labeled a group 4A insecticide called Admire 2E; later reformulated as Admire Pro.

These insecticides were found to suppress insects, including those that transmit TSWV, thus helping maintain plant health. Verimark and Admire Pro must be applied to and rinsed off foliage before drying 7-10 days prior to transplanting. The roots actively take up the insecticide from the plant media/soil allowing for adequate thrips control, thus reducing the impact of TSWV.

## OBJECTIVES

Evaluate Verimark and Admire Pro as stand-alone and combination treatments for control of spotted wilt in tobacco.

## MATERIALS AND METHODS

❖ In 2019, field trials were conducted at five locations; four were on-farm trials in Coffee and Atkinson Counties, and one was at the Bowen Farm (BF) on the University of Georgia Tifton Campus.

❖ The treatments used for all five trials were: an untreated check, Verimark, Admire Pro, and Verimark plus Admire Pro. The rates used for Verimark and Admire Pro were 2.25 (Verimark) and 0.8 (Admire Pro) ounces per 1,000 tray cells applied as a spray-on/rinse-off tray drench.

❖ TSWV evaluations were made on every plant in each replication at all locations every two weeks beginning two weeks after transplanting and continuing until the twelfth week after transplanting.

❖ Treatments were compared using PROC MIXED with mean separation using Tukey's LSD ( $p=0.05$ ).

### BOWEN FARM TRIAL (1):

❖ The plants for the Bowen Farm trial were grown in a greenhouse at the University of Georgia Tifton Campus.

❖ The plants at the Bowen farm were treated with Verimark and Admire Pro on March 26 and transplanted March 28.

❖ Tobacco was transplanted in a randomized complete block with four, single row replications containing 78-83 plants per replication.

### COFFEE/ATKINSON COUNTY ON-FARM TRIALS (4):

❖ Plants for the Coffee and Atkinson County trials were grown in a greenhouse in Coffee County.

❖ The plants received the Verimark and Admire Pro treatments as a spray-on/rinse-off tray drench on April 8. The treated seedlings were transplanted April 10-12.

❖ Tobacco was transplanted in a randomized complete block with three single row replications containing 180-205 plants per replication.

## RESULTS

**Table 1.** Final percent TSWV symptomatic transplants twelve weeks after transplanting for five locations in 2019 field trials.

Treatment	Location				
	BF#1	BS#1	MT#1	WM#2	JA#2
Check	18.0	26.9	10.6	12.5	39.5
Verimark	9.9	30.3	7.8	13.5	35.8
Admire Pro	12.0	26.1	7.5	9.7	30.8
Verimark/Admire Pro	9.2	28.8	5.8	13	30.3
<b>LSD (0.05)</b>	<b>3.2†</b>	<b>ns</b>	<b>4.0</b>	<b>ns</b>	<b>6.6</b>

† Denotes significant difference between treatments within each location at the 0.05 probability level.

**Table 2.** Final TSWV symptomatic plants per 1,000 tray cells after tray drench treatment with Verimark and Admire Pro at five locations during the 2019 field trials.

Treatment	Final % Spotted Wilt
Untreated Check	22.7
Verimark @ 2.25 oz	17.8
Admire Pro @ 0.8 oz	16.8
Verimark+Admire Pro as above	15.1
<b>LSD (0.05)</b>	<b>3.8</b>

**Table 3.** Economic cost analysis per 1,000 seeded tray cells and per acre between treatments when compared to the untreated check in 2019 field trials.

Treatment	Cost/1,000 seeded tray cells	Cost/A (7,000 plants)
Untreated Check	\$0.00	\$0.00
Verimark @ 2.25 oz	\$14.62	\$102.34
Admire Pro @ 0.8 oz	\$0.88	\$6.16
Verimark+Admire Pro as above	\$15.50	\$108.50

❖ In the 2019 field trials, (Table 1.) when data for the three trials where a treatment response occurred are combined so that each trial becomes a replication, a clearer picture of response is seen. All chemical treatments suppressed TSWV compared to the untreated check but the chemical treatments were not significantly different ( $p=0.05$ ) from each other (Table 2.).

## CONCLUSIONS

- ❖ Verimark and Admire Pro were evaluated for spotted wilt suppression at five on-farm field trials in 2019.
- ❖ All treatments suppressed TSWV compared to the check but the chemical treatments were not significantly different from each other.
- ❖ With the current state of crop prices and the similar spotted wilt suppression observed in these trials for Admire Pro and Verimark, growers will certainly want to pay attention to the cost per acre of the systemic insecticide they choose.



**Image 1.** Illustrates how the plants were laid out in the greenhouse with a string separating the treatments to prevent confusion during transplanting. Each tray was marked with a stake indicating treatment.



**Image 2.** Illustration of how the tobacco plants were transplanted in the on-farm research trials; three one row reps per treatment with 180 to 205 plants per rep.



**Image 3.** Dr. Paul Bertrand, retired UGA Extension Pathologist (turquoise long sleeve shirt), and I (red short sleeve shirt) talking to participants of the 2019 GA-FL Tobacco Tour about the treatments in the on-farm research trial.

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