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Abstract

The Brown/Sutton/Hartman sooty blotch flyspeck (SBFS) warning system, developed in North Carolina and modified in Kentucky, extends the period between first cover and second cover fungicide sprays until a total of 175 hours of wetness has been measured in the orchard canopy. After the second cover, sprays are made at 2-week intervals until harvest.

Keywords

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Evaluating the Impact of Spray Volume on Effectiveness of the Sooty Blotch/flyspeck Warning System at Three Commercial Orchards in Central Iowa

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Introduction

The Brown/Sutton/Hartman sooty blotch flyspeck (SBFS) warning system, developed in North Carolina and modified in Kentucky, extends the period between first cover and second cover fungicide sprays until a total of 175 hours of wetness has been measured in the orchard canopy. After the second cover, sprays are made at 2-week intervals until harvest.

In our replicated field experiments at the ISU Horticulture Station, the warning system was consistently as effective as calendar-based spray timing in suppressing SBFS and other summer diseases (secondary scab and fruit rots). But in our demonstration trials in commercial orchards, the warning system resulted in commercially unacceptable levels of SBFS in 12 of 28 site-years. One possible reason for these failures may be that a higher spray volume is necessary when timing the first cover and second cover sprays using the SBFS warning system. In other words, it is possible that concentrate spraying (60 gal/A or less on semi-dwarf trees) may not be compatible with use of the warning system.

The objective of this research was to determine whether spray volume (gallons per acre) of the first cover and second cover fungicide sprays influences control of sooty blotch and flyspeck (SBFS) when using the

SBFS warning system to time the second cover spray.

Materials and Methods

Three cooperators tested the impact of two different spray volumes on the Brown/Sutton/Hartman SBFS warning system performance. The three cooperators set aside three blocks of five trees (cv. Golden Delicious) for each treatment. Two treatments were based on delaying the second cover using the SBFS warning system and included a "low volume" treatment and a "high volume" treatment (Table 1). The third control treatment was calendar-based, applying fungicides every 14 days. Trials were conducted at Deal's Orchard, Jefferson, IA; Community Orchard, Fort Dodge, IA; and Pella Orchard, Pella, IA. Following the second cover spray, all treatments were sprayed with the grower's standard volume every 14 days until harvest.

Spectrum WatchDogTM electronic leaf wetness sensors were placed in the lower canopy of an apple tree in each orchard and monitored weekly. Growers were kept informed of the accumulated hours of leaf wetness and advised to spray with Topsin M + Captan when the 175-hour threshold was reached for the low- and high-volume treatments. Following the second cover spray orchards were sprayed every 14 days until harvest.

At harvest, 50 apples from each tree (25 from the upper half of the tree, 25 from the lower half) were evaluated for incidence of SBFS. For statistical analysis, individual trees were treated as replications.

Results and Discussion

The incidence of SBFS varied from 0 to 19% (Table 1). However, there were no differences ($P = 0.2189$) in the percent of marketable apples [less than 2% of the fruit surface covered with SBFS (USDA extra fancy)] (Table 1). When comparing the percent of apple with any SBFS, orchards #1 and #2 did not differ according to fungicide schedule, but the warning system did not adequately protect orchard #3. It is noteworthy, however, that

orchard #3 used alternate-row spraying with each application; this practice probably does not provide sufficient coverage for use in conjunction with use of the SBFS warning system. Spray volume did not influence the control of SBFS.

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Table 1. Comparison of SBFS spray timing and volume in three commercial orchards in central Iowa.

Grower	Spray timing and gallons/acre	Date of first cover	Date of second cover	Number of sprays	Marketable apples (> 2% SBFS) (%)	Apples with SBFS (%)
1	Warning system 40	5/28/09	8/05/09	2	0	6.0
	Warning system 80	5/28/09	8/05/09	2	0	2.6
	Calendar based 40	5/28/09	6/11/09	6	0	0
2	Warning system 50	5/25/09	6/25/08	5	0.4	4.0
	Warning system 100	5/25/09	6/25/08	5	0	2.8
	Calendar based 50	5/25/09	6/08/08	6	2.4	2.0
3	Warning system 40	5/28/09	7/08/08	4	8.4	18.8
	Warning system 80	5/28/09	7/08/08	4	7.2	10.4
	Calendar based 40	5/28/09	6/10/08	6	0	0