

Efficacy of Jet-Ag against spotted wing *Drosophila* in highbush blueberry

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Objectives:

To determine the effectiveness of Jet-Ag® for control of spotted wing *Drosophila* in highbush blueberries.

Methods:

A replicated spray trial was set up in the summer of 2017 at the Trevor Nichols Research Center in Fennville, Michigan. Four replicates of three half-row plots were set up in a ‘Bluecrop’ field at the station in order to test the effectiveness of Jet-Ag for control of spotted wing *Drosophila* (SWD) over the course of several weeks. Jet-Ag was tested as a standalone treatment as well as a rotational product in a conventional insecticide program. The treatments tested and dates of individual insecticide applications are listed in Table 1. Insecticide application rates were as follows: Mustang Maxx (4 oz per acre), Lannate LV (3 pints per acre), Imidan 70WP (1.33 lbs per acre), Jet-Ag (1 gallon per 100 gallons). The water pH was balanced for the Imidan application using TriFol (0.5 pints per 100 gallons). Sprays were applied once every seven days with one additional mid-week application after a rainfall event. All applications were made with an Airblast sprayer at a rate of 50 gallons of water per acre.

Plots were assessed by collected ripe fruit samples once a week for four weeks and testing the fruit for *Drosophila* larvae using a filter salt test method. Ripe fruit samples (3-5 oz) were collected from the interior of bushes within each plot and the total number of *Drosophila* larvae in each sample were counted. The average total number of *Drosophila* larvae per ounce of fruit data for the first three weeks (24 July, 31 July, 7 August) were not normally distributed and were analyzed using a Kruskal-Wallis test. The average total number of *Drosophila* larvae per ounce data for the final assessment date (August 14) were normally distributed after being log transformed (X+1) and were analyzed using analysis of variance. Means separation for the August 14 date were conducted using Fisher’s least significant difference test. All averages are presented \pm SE and an alpha value of 0.05 was used for all statistical analyses.

Table 1. Insecticide programs and application dates for treatments in a Jet-Ag spray trial for control of spotted wing *Drosophila* in 2017.

Treatment	Date Insecticide Applied:				
	18-July-2017	21-July-2017	25-July-2017	1-Aug-2017	8-Aug-2017
Untreated	None	None	None	None	None
Mustang Maxx, Lannate, Imidan	Mustang Maxx	Lannate	Imidan	Mustang Maxx	Lannate
Mustang Maxx, Jet-Ag, Jet-Ag	Mustang Maxx	Jet-Ag	Jet-Ag	Mustang Maxx	Jet-Ag
Jet-Ag	Jet-Ag	Jet-Ag	Jet-Ag	Jet-Ag	Jet-Ag

Results:

Overall infestation in trial plots was low for the first two weeks of the trial and only began to increase in the third week of the trial. Infestation increased rapidly between 7 August and 14 August, especially in untreated plots (Fig. 1). There were no significant differences among treatments in the first three weeks of the trial (24 July: $df=3,13$; $H=3.1$; $P=0.37$, 31 July: $df=3, 13$; $H=6.5$; $P=0.09$, 7 August: $df=3, 13$; $H=2.82$; $P=0.42$). However, in the fourth week there were significantly fewer larvae in the chemical treatments than the untreated controls ($df=3, 13$; $F=3.91$; $P=0.037$).

The results from this trial indicate there may be a fit for Jet-Ag as a rotational partner in an insecticide program. It should be noted that the bushes used in this trial are of moderate size and are planted with black weed fabric under the bushes. Fields with larger bushes and/or more weed growth under the bushes may have higher in-field SWD than in this trial and could potentially end up with different results than those found in this trial.

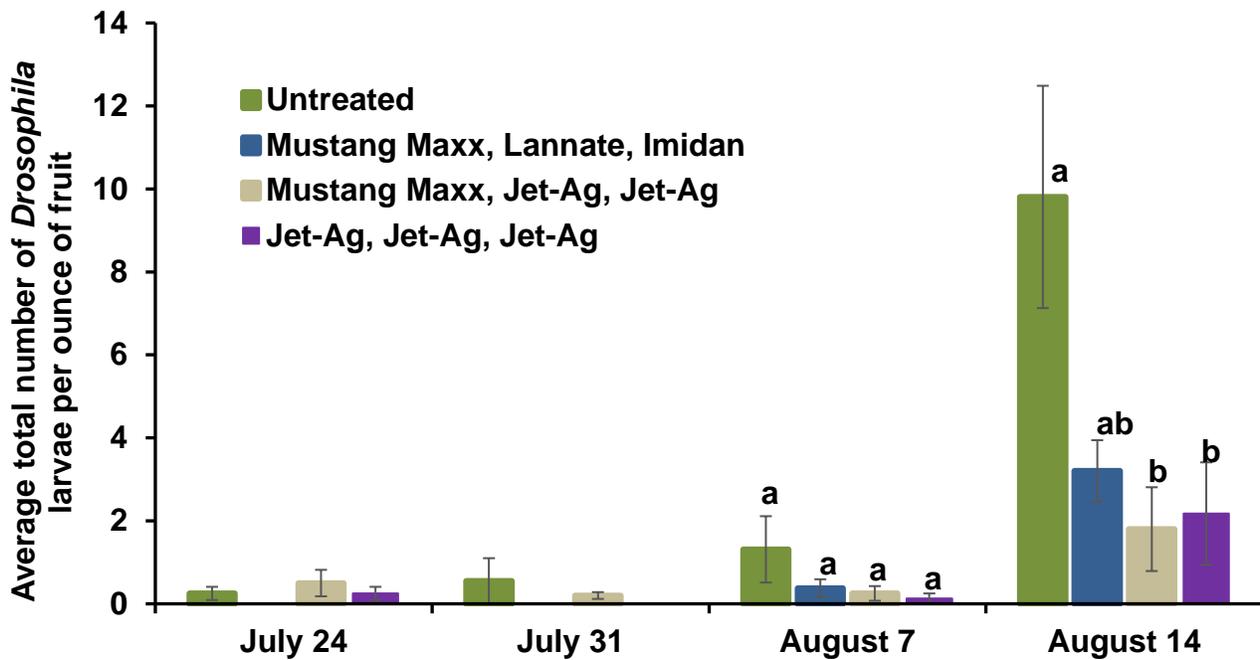


Figure 1. The average total number of *Drosophila* larvae per ounce of ripe fruit. Ripe fruit samples were collected from blueberry bushes treated with one of three insecticide programs or were left untreated. Averages are presented \pm SE and averages with different letters within each week are statistically different at an alpha value of 0.05.

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