

The Blueberry Bulletin

A Weekly Update to Growers

May 16, 2019

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AT A GLANCE...

BLUEBERRY GROWER TWILIGHT MEETING

Thursday, May 30, 2019 @ 5:30 p.m.
Atlantic Blueberry Company
7201 Weymouth Rd.
Mays Landing, NJ 08330

Visit the Blueberry Bulletin webpage at
www.njaes.rutgers.edu/blueberry-bulletin

CULTURE

Dr. Gary Pavlis, County Agricultural Agent, Rutgers University

Fertigation Guidelines:

Growers have asked me for some guidelines for fertigating blueberries. As you may be aware, our research in New Jersey has shown that fertilizing blueberries a little at a time through the trickle system has shown to be very beneficial. Increases in yield have been seen each year of the research. In addition, increases in fruit firmness have often been seen. Thanks is given to Mary Beth Sorrentino, USDA-CSRS for some of the technical information in this article.

Over the years the following guidelines have been developed:

1. Determine the amount of Nitrogen required/acre/year for each field. Total N should be based on leaf analysis the year before however 60# of Nitrogen/A is a good base recommendation for mature plants if a leaf analysis has not been conducted.
2. Multiply total acres to be fertigated by #/A and convert to total gallons for the season.
3. Fertigation period is 6-8 weeks, starting at $\frac{3}{4}$ bloom. Fertigate once a week for 1-2 hours during the normal irrigation schedule. Run irrigation a minimum of $\frac{1}{2}$ hour before and $\frac{1}{2}$ hour after fertigation. If travel time from the injection point to the final application point is longer, allow for one hour before and after fertigation time of travel. This will ensure application uniformity to the furthest emitter within the zone. As a rule of thumb, for a scheduled irrigation, irrigate at least 3-4 hour during a 1-2 hour fertigation. Using a 1gph emitter, irrigate 4-6 hours every 3 days, with a .5 gph emitter, irrigate 8-12 hours every 3 days. This is based on no rainfall and ET rates of .2"-.26"/day.
4. Install tensiometers to monitor soil moisture within the 12"-18" root zone depth. For loamy sands and sandy loams irrigate when readings are 20-30 CB on the tensiometers. This will supply needed water and fertilizer to the root zones.

5. Injection pump should be sized for maximum acreage/zone that you plan to irrigate/fertigate at one time (2 hour injection time, for a 4 hour irrigation per zone). Example- a 10 acre drip system at 60# N requirement/acre will need 600 gallons of liquid 10-10-10. If injection is scheduled for once a week for 8 weeks, 75 gph injection pump is recommended for a one hour injection period. If you inject for 2 hours, the rate is lower (37.5 gph injection rate). If zones are over 10 acres, plan for between 50-100 gph injection rate. A lower injection rate can be used with a longer fertigation/irrigation period.

INSECTS

Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University

Mr. Dean Polk, IPM Agent – Fruit

Ms. Carrie Denson, IPM Program Associate – Fruit

Plum Curculio (PC) - PC adult counts decreased some, probably due to the colder temperatures that inhibit adult activity. This week's average for PC adults was 0.04 per bush with a maximum of 0.6 per bush. Adults have been and will continue to lay eggs until they are controlled (Figure 1). With respect to early fruit injury, this past week's average was 0.15% of injury to fruit with a maximum of 1.4% injured fruit. If nothing was done, we assume that most of this injured fruit (aside from chewing injury) already contain young larvae.

Therefore, this is the main insect pest to control at this time. The first post pollination spray should be the “work horse” for PC control. Some PC will continue to come in from border areas after this spray, but this application is the main one for PC control. The two strongest materials for PC include Imidan and Avaunt. If you are exporting fruit to Canada, or the United Kingdom/EU, you must watch the MRL issue. For Imidan (phosmet) use and U.S. consumption you can apply up to 5 applications (5 lb a.i.) per season and a 3 day PHI. The Canadian label has a 15 day PHI and a maximum of 2 applications per season. The MRL for Canada is 5 ppm, which can be easily met even with more than 1 application, but probably more than the 3 day PHI. The MRLs for the EU are all 10 ppm, or the same as in the U.S. Avaunt has a 1.5 ppm in the U.S., a 0.1 ppm in Canada, and a 0.8 ppm level in the UK/EU. Avaunt is registered in the EU, but not on blueberries. In the U.S., it is registered for up to 4 applications per season on blueberries, with a 7 day PHI. So this makes it almost impossible to use if you are shipping to Canada, but OK for shipping to the UK/EU with 1-2 early applications. **However, if you might ship to Canada, forget the Avaunt and go with the Imidan.** As a general rule pyrethroids are weaker than Imidan on PC. Lannate is



Figure 1. Fresh PC injury on multiple berries. Photo - Carrie Denson

also not recommended, since it is weak on PC. Exirel is also not particularly strong on this pest, and is better saved for later applications. Anything used for PC control will also control any leafroller larvae and cranberry fruitworm.

Leafroller, Other Lep. and Gypsy Moth (GM) Larvae: Numbers of leafroller larvae and other non-gypsy moth larvae remained close to the same levels as during the previous week, averaging 0.04 per bush with a maximum of 0.6 larvae per bush. An average of only 0.05% of growing shoots can be found with Lep. larvae. We are still finding a minimal amount of GM throughout Burlington and Atlantic Counties. This week's average for GM was 0.004 with a maximum of 0.2 larvae per bush. All sampling shows numbers below the treatment threshold of 1 larva per bush.

Aphids: Aphids are starting early this year, but were probably slowed down by the recent cool weather. We started to see aphids on the lower shoots this past week (Figure 2). Average infestation levels were 1.6% of shoots infested with a maximum 14% in one case. Colony sizes were at a minimal of 1 aphid per shoot. Therefore, aphids can be watched, but should not be targeted at this time, especially at the expense of good PC control.

Life Cycle. Aphids are soft bodied, slow moving insects. The adults are on average about 2 mm long, light to dark green. They have piercing-sucking mouthparts, and two siphunculi (cornicles) that protrude to the rear from the 6th abdominal segment. Nymphs resemble the adults, but are smaller and wingless.

There are four principal species of aphids that attack blueberries: the blueberry aphid, *Illinoia pepperi* (present in Michigan), *I. azaleae* (present in New Jersey), the (western) blueberry aphid, *Ericaphis fimbriata*, and the green peach aphid, *Myzus persicae*. Aphids overwinter as eggs, which are deposited on stems and small shoots. Eggs hatch in the spring. At this time of the year, immatures feed on tender new growth, usually on the undersides of leaves at the top or bottom of blueberry bushes. Males and egg-laying females are produced in the fall. There are several generations per growing season.

Aphids suck sap from tender growth and new shoots, especially from developing terminal foliage. Under heavy populations, a sooty mold can develop on the honeydew secreted by the aphids. This is usually of minor importance in blueberries, since growers seldom allow aphid populations to build up to high densities. Of more importance is the fact that many aphids function as disease vectors. In blueberries, aphids can transmit blueberry scorch virus (BIScV) and its several strains.



Figure 2. Young aphid colony on leaf. Photo - Carrie Denson.

Monitoring and Control. Since disease transmission is a main concern in commercial blueberry farms, only very low aphid populations are tolerated, especially if BScV is a known problem. Aphids may be present while bushes are in bloom, but populations don't start to build up until after bloom. Monitoring should begin as soon as bees are removed and continue through at least the first picking. Sampling should be biased in new terminal growth, and data recorded as the percent of terminals infested with aphid colonies. Where disease transmission is an issue, a colony should be defined as a minimum of 1-2 aphids, either nymphs or adults.

Treatment is justified if greater than 10% of terminals are infested with live aphids. The neonicotinoids Assail, Actara, and Imidacloprid (e.g. Admire Pro) provide good aphid control. Also, for resistance management, you may want to consider using Sivanto, a newly registered insecticide in blueberries with a novel mode of action. Lady beetles, lacewings, syrphid flies, and other biological controls are often abundant in blueberry farms at this time of the year and may help maintain aphid populations at low levels.