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New Jersey Agricultural
Experiment Station

The BLUEBERRY BULLETIN

A Weekly Update to Growers

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AT A GLANCE..

BLUEBERRY TWILIGHT MEETING

THURSDAY, MAY 25, 2017 @ 5:30PM
ATLANTIC BLUEBERRY COMPANY
7201 WEYMOUTH RD., HAMMONTON, NJ
FOR DIRECTIONS, CALL 609-561-8600

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Culture

Dr. Gary C. Pavlis, Ph.D.

Atlantic County Agricultural Agent

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:

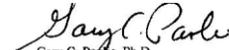
1. Determine the amount of Nitrogen required/acre/year for each field. Total N should be based on leaf analysis the year before however 60# of Nitrogen/A is a good base recommendation for mature plants if a leaf analysis has not been conducted.
2. Multiply total acres to be fertigated by #/A and convert 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 hours 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.

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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.

Sincerely,



Gary C. Parks, Ph.D.
Atlantic County Agricultural Agent

Editor - Blueberry Bulletin
GP/slp

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): Some growers are now putting on their first post pollination insecticide, while others are on their second application. The most critical pest that needs to be controlled just after bloom is plum curculio (PC). We monitor PC in several different ways: 1) % of fruit with old egg scars, 2) % of fruit with new egg scars, 3) # of PC per bush found in beating tray samples, and 4) # per trap (new this year). Each method has a purpose. Most of the egg scars present occurred as the fruit was set during the bloom period. Therefore these will be old egg scars, and with the exception of some insecticide penetrating the skin to kill very young larvae during the 1st spray, nothing can be done with that infestation now. Those fruit will prematurely ripen, and the berries should fall off prior to the first picking. Looking at new egg scars is a way to see if there are any PC females currently active and laying eggs. The presence of new egg scars would indicate a continued need for PC active insecticides. The number of PC adults per bush also provides a similar indication of ongoing activity, and would indicate that a PC insecticide is needed. The use of a new PC trap also monitors ongoing activity, and should be more sensitive than scouting individual bushes at a specific time (or weather condition).

Over the past week we have seen a slight increase in the number of egg scars being seen. As of 5/18 we are also still seeing live adults in beating trays, as well as a few adults in the traps. Therefore, for most farms PC is still a target. Your most effective choices include Avaunt, and Imidan, and in some cases, Exirel if other pests justify the expense.

Leafrollers and Other Leps: Over the past 2 weeks the number of leafroller larvae, spanworms and other Lep larvae has held steady at very low levels, with a slight increase seen these past few days. An action threshold would be an average of 1 larva per 100 blossom clusters. Our

average numbers have been .04-.05 larvae per 100 blossom clusters, with a maximum of .5 larvae per 100 clusters. Therefore the overall concern for Lep larvae is minimal at this time. This does not include cranberry fruitworm, which is normally timed for a few weeks later.

Aphids: Aphid populations have been very low, and have just started to increase over the last week. Aphid insecticides are normally applied when average populations reach 10% of the growing shoots infested with healthy colonies. The neonicotinoids (IRAC 4A) include Actara, Assail, and Imidacloprid (Admire). All of these are very effective for aphids. Both Actara and Admire are very toxic to bees. Actara is somewhat effective for weevil adults. Sivanto (IRAC 4D), applied at 7-10 oz is also very effective for aphid control. We have heard that some buyers are requesting a “no neonicotinoid” spray program. This would challenge an aphid control program and leave the following 3 materials as the non-neonic. alternatives: 1) Sivanto, 2) Exirel @ 13.5-14 oz/A (also toxic to bees), and Lannate, which in recent years has only been suppressive. The pyrethroids are labeled, but generally do not do a good job on aphids. Exirel (costs are higher) also has activity against blueberry maggot and cranberry and cherry fruitworm. It also has activity against plum curculio. While the Exirel label suggests combining with a spray adjuvant for PC control, that practice may be very risky with blueberries.

Life Cycle. Aphids are soft bodied, slow moving insects (see photo). 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. These include: 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 on blueberries

Aphids suck sap from tender growth and new shoots, especially from developing terminal foliage. Under heavy populations, a sooty mold can develop on the honey dew 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.

Monitoring and Control. Since disease transmission is a main concern in commercial blueberry farms, only very low aphid populations is tolerated, especially if BIScV 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.

The Bottom Line: The bottom line for this week and into next week for most growers is to target PC with Avaunt or Imidan, and pay attention to aphids as the populations increase.