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New Jersey Agricultural
Experiment Station

The BLUEBERRY BULLETIN

A Weekly Update to Growers

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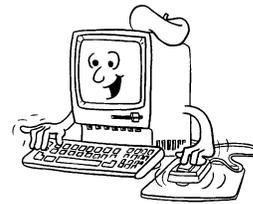
AT A GLANCE..

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

To mulch or not to mulch, that is the question.

Growers who are planting blueberries on heavier soils than those found in the Pine Barrens of New Jersey realize that highbush blueberries require a soil with a high organic matter content. To that end, the standard recommendation to increase the organic matter of the blueberry planting is to put peat moss or some other composted material in the planting hole to get the blueberry plant off to a good start and to apply a mulch around the base of the plants on a yearly basis to increase the organic matter of the soil. This recommendation along with diligent pH monitoring has resulted in successful highbush blueberry plantings in non-traditional blueberry soils.

The use of mulch in blueberry culture is a given on these soils, however, there are good mulches and bad mulches, advantages and disadvantages to mulch and the question is being asked, should growers in New Jersey with classic blueberry soils mulch. Many different materials have been tested as a mulch around the world. In general, suitable mulches include grass clippings, peat moss, buckwheat hulls, shredded leaves, straw, wood chips, and sawdust. Some of these are better than others however. Peat moss and buckwheat hulls are very expensive. The use of grass clippings has occasionally resulted in phytotoxicity due to herbicides in the grass. In addition, fresh clippings can raise the temperature of the root zone as they break down. Straw can release nitrate nitrogen and decrease the ammonium form in the blueberry root zone.

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Lastly, leguminous hay can be bad because it releases nitrogen in the fall which can delay the blueberry plant from entering dormancy. The result is an increase in winter damage.

There can be other disadvantages to using mulch in a blueberry field. Mulch ties up Nitrogen, and often plants tested for nitrogen levels via leaf analysis show deficiencies. The use of mulch often requires an increase in fertilizer application rates. The problem comes in making a guess as to how much to increase the rate. This largely depends on the kind of mulch used and the degree to which it is decomposed. A leaf analysis should give the grower some indication of the amount needed to provide the optimum level of nitrogen.

In addition to increased nitrogen costs, there are the added costs of the mulch and its' application. The process can be mechanized however such equipment is costly and may not be cost effective for a small operation.

Other problems which have surfaced with mulching are the increased problems with mice and voles. Both find the mulch a very suitable place to live and they can damage blueberry plants.

Lastly, the problem of scab beetles increases when mulch is used, again because mulch is very suitable for their life cycle. Farms that experience Japanese, Oriental or Asiatic Beetle grub problems must realize that the problem may become worse with the use of mulch.

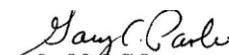
That's all the bad news. There are many advantages of using mulch in a blueberry planting. I have already mentioned that mulching increases the organic matter of the soil and blueberries thrive when the organic matter is high. Mulch also lowers the root zone temperature in the summer and keeps the roots warmer in the winter. Both are excellent for healthy roots. The increase in organic matter also results in an increase in soil moisture which is beneficial in times of drought.

I have been skeptical about New Jersey growers using mulch. I really couldn't see the reason given the added costs and all the disadvantages listed above. After all, our soils have all the characteristics needed by highbush blueberries, low pH, high organic matter, well drained, etc. However, after looking at the soil analysis results over the last 10 years I realize that our soils have changed. We fertilize with 10-10-10 which contains nitrogen in the ammonium sulfate form. Years of using this form drives the pH down. So soils that were historically 4.5 are now 3.5. The pH must be adjusted to the correct range. In addition, I have noticed that due to our practice of roto-tilling the middles for weed and pest control, we have lowered the organic matter levels in the soils. The use of mulch may very well be a good practice in New Jersey. I would just warn growers to be aware that there are pluses and minuses to mulching

Fertilizing Newly Planted Fields

Growers putting in a new field have requested information on fertilization. First, no fertilizer should be placed in the planting hole. When the plants are set out in the fields, usually in April or early May, the fruit buds should be rubbed or pruned off. With no crop present and only a small area of soil requiring fertilizer, about 125 lbs/A of 10-10-10 is sufficient (1 ½ oz./bush). Sidedressing with a fertilizing spreader will require higher rates to compensate for open areas between plants. Special caution should be observed as to the time of fertilizing after planting. Fertilizer should not be applied until a second growth starts. For example, if plants are set out while dormant, do not fertilize while the first crop of leaves is unfolding and changing from light green to dark green, wait for new growth. Making the first field application too soon has frequently caused reddened foliage and a delay of several weeks of the starting of new growth. Keep the fertilizer at least 2 inches away from the crowns of the young plants. In late June, the application of fertilizer is usually made.

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

Leafrollers and Other Leps During Bloom: This includes the larvae of various leafrollers like redbanded leafroller and obliquebanded leafroller, but also green fruitworm, spanworm, tent caterpillars, and gypsy moth. Our treatment threshold during bloom is 1 larva per bush combined species. While we are seeing larvae of both various leafrollers and tent caterpillars, the numbers are very low. Even the maximum combined level was only 0.2 larvae per bush. No treatments are needed at this time. However, keep an eye on field edges where Eastern tent caterpillars can blow into the fields from their tents from the surrounding woodline.

Table 1. Summary of insect counts seen during the week of 4/16-4/22

	Cranberry Fruitworm Adults	Leafroller Larvae	Tent Caterpillar Larvae	Plum Curculio
Avg	0.012	0.003	0.003	0.005
Highest	0.3	0.1	0.1	0.2

Cranberry Fruitworm (CBFW): Fruitworm adults have just started to be seen in traps that were placed in fields during the previous week. This is just the start of the flight, which should increase rapidly over the next couple of weeks. There is 1 generation per year. After the adults mate, the females will deposit eggs around the calyx of newly formed fruit. Depending on the population, CBFW is usually one of the primary insect targets for the 1st post pollination insecticide after the bees have been removed. DO NOT treat now. It is both too early and of course bees are in the field, but plan on a “worm” effective insecticide after the bees are removed.

Life Cycle: Cranberry fruitworm has one generation a year. It overwinters as a fully-grown larva within a cocoon made of silk and soil particles (hibernaculum). Pupation occurs during the early spring and moths begin to emerge during the second-third weeks of May. Male moths emerge 3-4 days earlier than females. Adults are brownish gray with a pair of white markings on each forewing (see Picture 1). The eggs are pale-green, flat, and are laid singly, along the inside rim of the calyx cup. Eggs hatch in 5-7 days and the newly emerged larva is pale yellowish-green. Upon hatching, larvae bore into the fruit usually near the junction of stem and berry. The larva remains inside a fruit until its content is consumed, and then it moves to another fruit. A larva may feed on as many as 5-8 berries. Cranberry fruitworm infestations can be recognized by the presence



Picture 1. Adult cranberry fruitworm (Photo by Z. Szendrei)

of webbings filled with excrement in berries (see Picture 2). Infested fruit prematurely drop.

Scouting and Control: Time of treatment can be established based on data from pheromone traps. The number of males caught in the traps provides information on the presence and distribution of cranberry fruitworm within a field. Traps are usually placed at the wooded borders of fields, where pressure tends to be high. Growers with a history of high fruitworm populations should especially be aware of the importance of monitoring. In addition, eggs may be scouted for after early fruit set. Larval infestation is difficult to detect early in the season, but as larvae grow, the increasing numbers of fruits affected and frass produced provide a clear indication of infestation.



Picture 2. Cranberry fruitworm damage to developing fruit (Photo by Z. Szendrei)

Cranberry fruitworm can be controlled by registered insecticides. Either one or two applications may be needed, depending on the population level. If trap counts are high, then an early application of an insect growth regulator (Intrepid or Esteem) may be used when the first eggs start to hatch. In New Jersey this may be just prior to the peak flight. This would be followed by a second application soon after bloom. Post-bloom applications with broad spectrum materials (such as Danitol, Asana, Mustang Max, or Imidan), or with newer softer materials such as Assail, Altacor, Avaunt, or Delegate can be done 7-10 days following the first application and after bees are removed. If trap counts indicate a lower population, then a single insecticide application may be made post-bloom. Broad spectrum insecticides are harmful to beneficial insects, and can only be applied after the removal of honeybee hives.

Plum Curculio (PC): PC adults are present at very low numbers. They are mating and laying eggs on newly formed fruit. This will go on as long as the PC is active, and as long as young fruit is present. There IS NOTHING you can do now, except be aware of the location of the insect pressure and treat as soon as the bees are removed with a PC effective material. Generally the pyrethroids are somewhat weak for PC, but choices like Imidan and Avaunt do a good job for both PC and early Leps.

Spray Injury: We have seen several areas of spray injury over the past 10 days. Not to bring back bad memories of the Captan/Diazinon episode that occurred years ago, but that was an illustration about how tender young blueberry tissue can be injured when various carriers, adjuvants or active ingredients are combined in the spray tank. What we are seeing appears to be from a combination of spreader/sticker combined with an EC insecticide plus a WDG formulation of a fungicide (Asana + Quash) applied prebloom, shortly before the bees went into the fields. Petals have burn spots or at worst could never open (see Picture 3 below). Like when this happened before, we still do not want to recommend tank mixes, especially early in the season.

Figure 3. Spray injury on 4/24 from a prebloom tank mix application



Photo – Carrie Denson