RUTGERS
New Jersey Agricultural Experiment Station

The Blueberry Bulletin

A Weekly Update to Growers

May 12, 2021 **Vol. 37, No. 8**

BLUEBERRY Virtual Twilight Meeting

Thursday- May 27, 2021
6pm
Zoom meeting information to be sent via email to growers closer to date

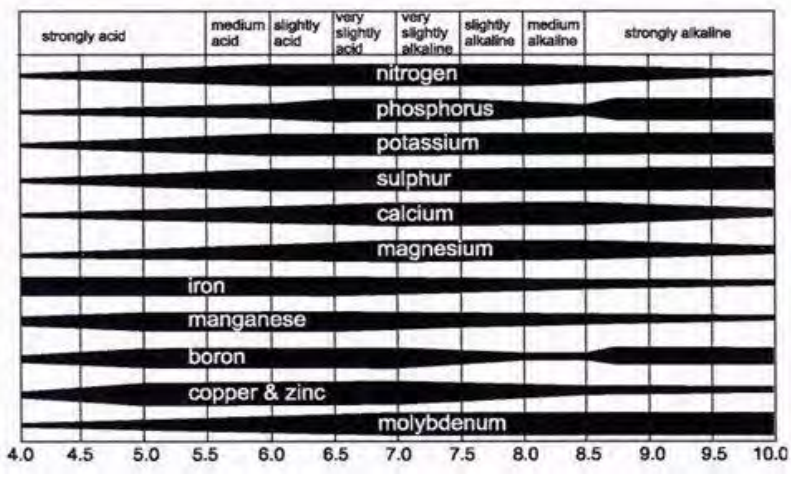
Visit the Blueberry Bulletin webpage at
www.njaes.rutgers.edu/blueberry-bulletin

BLUEBERRY CULTURE

Dr. Gary C. Pavlis, Ph.D.
Atlantic County Agricultural Agent

One component of the Rutgers IPM program for blueberries is conducting a soil and leaf analysis of the farms in the program. This year 236 soil samples were taken and analyzed. What alarmed me about the results was the fact that even though it is common knowledge that the optimum pH range for highbush blueberries is 4.5 to 4.8, an over whelming number of fields were not within that range. In fact, 43% of the fields came back with a pH of under 4.0 and 79% came back under 4.5. A pH this low drastically affects the uptake of nutrients in the blueberry plant. See the chart below.

Fertilizer costs the grower money but if the plant cannot take it up, the money is wasted. The result is decreased cane growth and as a result, lower yields. I would advise growers to apply lime as soon as you can to raise the pH into the correct range. This can be done at any time. Once the proper range has been established, an annual maintenance of lime is warranted. Realize that the annual application of ammonium fertilizers drives the pH down.



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

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

Leps and Gypsy Moth Larvae: this past week scouting, gree fruitworms, spanworms and leafrollers averaged .023 larvae per bush was with a high of 0.2 larvae per bush. These are under treatment thresholds and need no treatment. However, counts of gypsy moth larvae increased some, and averaged .7 larvae per bush with a high of 1.5 larvae per bush. In general, higher counts are in Burlington County, but some fields in both Atlantic and Burlington Counties have been treated. The treatment threshold is set at a total 'worm' number of 1 larva per bush. Since gypsy moth larvae grow so fast, it may be advisable to be a little conservative and slightly reduce the treatment threshold. Various B.t.s are the products of choice as long as bees are still in the fields.

Plum Curculio: PC adults are showing some increased activity, but are still at fairly low numbers because of the cool weather. This Does Not change the strategy for the first post bloom treatment, which should still target PC activity as soon as the bees come out. PC adult levels averaged 061 adults per bush with a high of 0.7 per bush. Highest levels are found along wooded borders.

Cranberry Fruitworm Traps: CBFW adults averaged 0.076 per trap with a high of 1. Treatments for this pest are not yet due.

Aphids: Some aphids are starting to show up, but at very low numbers. Remember that aphids transmit the Blueberry Scorch Viruss (BlScV) . Anytime you deal with an insect vector of such a severe disease, then the tolerated insect population should be as close to "0" as practical. We are seeing a little scorch this year, but not as much as last year. We have seen symptoms on 3 farms this season. However, unless you removed all the scorch plants from last year, the disease is still present on your farm.

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 highbush 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 BlScV and its several strains.

Monitoring and Control. Since disease transmission is a main concern in commercial blueberry farms, only very low aphid populations are tolerated, especially if BlScV 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 or Movento, two newly registered insecticides in blueberries with novel modes 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.

Figure 1. Young aphid colony on leaf
Photo- Carrie Denson

Week Ending	CBW Adults/Bush (Beating Tray)		Leps./Bush (Beating Tray)		PC/Bush (Beating Tray)		Gypsy Moth/Bush (Beating Tray)	
	Avg	Max	Avg	Max	Avg	Max		
4/9	2.1	21	-	-	-	-		
4/16	1.5	6.6	-	-	-	-		
4/23	-	-	0.014	0.1	0	0		
4/30	-	-	0.008	0.1	0.017	0.4	0.014	0.4
5/7	-	-	0.023	0.2	0.061	0.7	0.049	1.5

Week Ending	CBFW Traps (AC)	
	Avg	Max
5/7	0.076	1

DISEASE

By Peter V. Oudemans, Ph.D.
Professor and Extension Specialist
Plant Pathology

Timing	Leaf Drop	Stem blight	Anthracnose
Week of May 17	Applications should start this week	N/A	Assess bloom progression. Dukes may be out of danger
Material	Quadris Top, Quash	N/A	Check PHI for all sprays
Week of May 24	Spray affected fields	Scouting	Assess bloom progression. Dukes may be out of danger
Material	Quadris Top, Quash	Removal	Check PHI for all sprays
Week of May 31	Completed	Scouting	Bloom complete interval can be increased
Material	N/A	Removal	Refer to recommendations

Basically a repeat from last week

Disease management choices: Leaf drop sprays should begin this week in fields where the pathogen is present. QuadrisTop or Quash are good choices (save Proline for post-harvest Black Shadow). We are guesstimating Duke harvest to begin around June 13 so please calculate all PHIs based on this date.
Understanding the target: With the leaf drop fungus spores are coming from the leaves on the ground and are being launched from there to the undersurface of leaves. Therefore, fungicide applications should target the undersurface.
Other diseases: this is the time to scout for Scorch, stem blight, phomopsis twig blight, and botrytis.

—

WEEDS

Dr. Thierry E. Besançon, Extension Weed Science Specialist, Rutgers University

With favorable weather conditions for germination and growth during the last few days, some of the summer weeds have started to emerge, including one of the most troublesome weeds in our blueberry plantations! Field bindweed (*Convolvulus arvensis*) is an aggressive rhizomatous perennial vine that belongs to the morningglory family. It spreads by seeds and by a deep, extensive root system. Reports indicate that seeds can persist in soil for up to 60 years, and that roots can grow up to 30 feet deep.

Field bindweed identification

Picture 1 - Field bindweed seedling (Michigan State University)

Picture 2 - Field bindweed flower (Oregon State University)

Field bindweed trails prostrate along the ground until it comes in contact with other plants or structures. Stems will then rotate in a circular patter until it makes contact with a solid structure (overhead irrigation pipes, trees, blueberry bushes, other weed species, etc.), then it will wrap around the structure as it grows. Seedlings (picture 1) emerged in spring. Cotyledons are square to kidney-shaped. Young leaves are alternate, bell-shaped with nearly parallel leaf margins and generally rounded tips. Leaf bases are lobed. No cotyledons are present when young plants emerge directly from the rhizome. When juvenile stems are broken, they exude a milky sap. On mature plants, leaves are arranged opposite along the stem and are arrow shaped. Lobes at the base of the leaf point away from the petiole. Stems are smooth to slightly hairy.

Flowers (picture 2) are present from June to September and are trumpet shaped, pink to white in color. Field bindweed has two leaf bracts that grow from ½ to 1 inch below the flower, and is a key identification characteristic. Flowering is indeterminate, so flowers will continue to develop along growing stems until first frost

Field bindweed control

Mowing will not help to control field bindweed because the plant is growing prostrate on the ground (Picture 3). Cultivation may help to reduce bindweed growth and control it over the time but has to be repeated at frequent intervals. Once cultivated, it will usually take 2 weeks to the plant to regenerate fully functional above-ground vegetation, meaning that cultivation

has to be repeated every 7 to 10 days. Consistency in cultivating bindweed-infested soils will promote the progressive depletion of carbohydrates stored in the root system by not allowing the plant to move back carbohydrates produced in the leaves to the roots.

Picture 3 - Field bindweed in Blueberry (T. Besançon)

It is critical that NO timing be missed or be late! One single missed tillage can negate all the effort expended up to that point. Expect to continue the effort for 4 to 6 months! Success may require more time if the effort was not started when carbohydrate reserves in the weed were low at the start of the process.

Herbicides can be used to control field bindweed in nursery or mature plantations **as long as NO herbicide is allowed to contact crop green bark, wounded trunk, leaves, or suckers.**

Applications of **glyphosate** containing herbicides (like Roundup) are effective as long as the herbicide is applied on plants that are actively growing and have flowers in late spring/early summer and late summer/early fall. Spring or fall applications may be more effective than applications made during mid-summer. Spot-apply the higher percentage solution on the label of the product you use and thoroughly wet the foliage up to the drip point.

A safer option than glyphosate is to spray **quinclorac** (Quinstar 4L).Quinclorac is an auxin-disruptor type of herbicide with preemergence and postemergence activity on several annual and perennial broadleaves and grasses. It is very effective against large crabgrass, barnyardgrass, foxtails, catchweed bedstraw, clover, morningglory, bindweeds, lambsquarters, ragweed, Canada thistle and Russian thistle. Bindweed plants should be actively growing and at least 4 inches long when treated with quinclorac. A banded application to highbush blueberry at 12.6 fluid ounces per acre may be made from the end of dormancy, through the season up to 30 days before harvest. The PHI is 30 days and no more than 25.2 fluid ounces can be applied per acre and per year. To achieve consistent bindweed control, the use of spray additive with quinclorac is required. Crop oil concentrate (COC) or methylated seed oil (MSO) at 2 pints per acre is recommended.

Repeated applications will be necessary, as the root system on this plant can be so immense that insufficient herbicide is absorbed with a single application. Use repeated applications, but allow the plant to grow and produce flowers before each subsequent application. More translocated herbicide will be moved to the root system when the plant is flowering than when vegetatively growing.