The BLUEBERRY BULLETIN  
A Weekly Update to Growers  
Dr. Gary C. Pavlis, County Agricultural Agent  
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April 4, 2011  
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AT A GLANCE. INSECT AND DISEASE PROBLEMS THAT SHOULD BE CONSIDERED THIS WEEK.

<table>
<thead>
<tr>
<th>PEST/DISEASE</th>
<th>WEEK OF APRIL 4</th>
<th>WEEK OF APRIL 11</th>
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<tbody>
<tr>
<td><strong>GROWTH STAGE</strong></td>
<td><strong>T3 BUD BREAK</strong></td>
<td><strong>IMMEDIATE PREBLOOM</strong></td>
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<tr>
<td>Mummyberry, Phomopsis</td>
<td>In fields with a history of twig blight apply Indar now. If mummy cups are present apply Indar to bushes as leaves begin to unfold (squirrel ear stage).</td>
<td>Scout for leaf strikes and evaluate success of disease management. Target fields for control of secondary phase.</td>
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<tr>
<td>Indar</td>
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<td>Phytophthora root rot</td>
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<td>In fields with confirmed Phytophthora root rot apply ridomil now</td>
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<td>Ridomil</td>
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<tr>
<td>Cranberry Weevil</td>
<td>Scout for adults and evidence of damage. Treat if 20% of clusters with damage or if ≥ 5 weevils/bush</td>
<td>Continue scouting for weevils</td>
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<tr>
<td>Asana, Guthion, Imidan, Mustang Max</td>
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<tr>
<td>Leafrollers, spanworms, gypsy moth</td>
<td>Use pheromone traps to monitor adult flight. Scout for larvae. Treat if over 1 larva/100 clusters.</td>
<td>Continue scouting for larvae. Use same threshold.</td>
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<td>B.t., Intrepid</td>
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BLUEBERRY TWILIGHT MEETINGS

**WEDNESDAY, APRIL 27, 2011 @ 5:30**  
**COLUMBIA FRUIT FARMS**  
534 MIDDLE RD.  
HAMILTON, NJ  
FOR DIRECTIONS, CALL 609-839-0648

**TUESDAY, MAY 24, 2011 @ 5:30**  
**PHILIP E. MARUCCI RESEARCH CENTER**  
125A LAKE OSWEGO RD.  
CHATSWORTH, NJ  
FOR DIRECTIONS, CALL 609-726-1590

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

**Pollination:** Pollination is an important factor in production of the highbush blueberry. Lack of adequate pollination causes reduced yield, small berry size, and a delay in berry maturity. It is chiefly the honeybee which performs this task. While bumblebees are efficient and diligent pollinators (even under more adverse weather condition), their numbers are steadily decreasing.

According to MSU Entomologist, Dr. Roger Hoopingarner, "Historically, feral (wild) honey bee colonies have provided more than half of the pollination in Michigan." Wild bee populations are declining. This is due to changes in our own blueberry production...
practices which remove bee forage and suitable habitat, and there is the problem with mites.

Varroa and tracheal mites are killing wild and managed colonies in the U.S. The varroa mite has completely wiped out all of the wild colonies in Europe. It is certain that our dependence upon this population of bees will be reduced in the next few years.

What does this mean for blueberry producers? What happens when we lose the free pollination service provided by wild bees? You probably already know — more honey bees.

Blueberries have a tremendous number of blossoms per acre. A single bush may have 2,000 to 3,000 blossoms. At a planting density of 870 bushes per acre, that's 1.75 to 2.6 million flowers! Large-block single-variety plantings make it essential that high numbers of pollinators be available at one time.

The number of colonies needed per acre is determined by weather during the bloom period, colony size, variety, and blossom density per acre.

Weather during blossom time affects the honeybee's foraging efficiency. Honeybee activity increases as the temperature increases from 50 to 95°F. Sunshine also increases foraging, especially at lower temperatures. Cold, wet, windy weather decreases foraging activity. Temperatures above 95°F will also reduce foraging as the bees spend their time cooling the hive.

As a general rule, over-wintered colonies are stronger than package bees. A three-pound package may have 12,000 bees, while an over-wintered colony may contain two to three times as many. Honeybee colonies will be smaller in an early bloom year. In essence, the crop has developed faster than the development rate of the forager bees. Are honeybees the answer? Many of you have seen your bees fly out of the hive, past your bushes, and into the woods. This preference for one flower over another is not fully understood. It may be related to the quantity of nectar, pollen, sugar concentration, or flower color. At this time, honeybees are the best bet. For the long term, we need to learn to cultivate the wild pollinators. Take home message: Don’t skimp on bees.

The recommended concentration of hives per acre to use are tabulated below: Remember that the number of hives needed per acre depends on the variety you have.

Sincerely,

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

Editor – Blueberry Bulletin

GP/slp

Very Attractive to Bees:
1 Hive/2 Acre:
- Rancocas
- June
- Rubel
- GN-87

Moderately Attractive:
1 Hive/Acre:
- Weymouth
- Bluetta
- Bluerray
- Pemberton
- Darrow
- Bluecrop
- Duke

Poor Attractive:
2 Hives/Acre:
- Stanley
- Concord
- Berkeley
- Coville
- 1316-A
- Elliott
- Jersey
- Earliblue

* Efficiency of pollination poor, add 1/2 hive more per acre.

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INSECTS

Dr. Cesar Rodriguez-Saona, Extension Specialist in Blueberry Entomology, Rutgers University
Mr. Dean Polk, IPM Agent – Fruit
Mr. Gene Rizio, IPM Program Associate – Fruit

Cranberry Weevil: Beating tray samples done between March 29 through April 4 have been positive for weevil in 30% of our surveys. About 12% of samples have exceeded the threshold of 5/bush. Due to the early timing and cool temperatures, all of the populations seen so far have been close to wooded borders. One field that was sampled on Monday April 4 (75 degrees) had a population of 12/bush at the wooded edge and 1.5/bush 15’ in from the edge. This field also had a very high infestation in 2010. Conditions that are cooler than 60 degrees (especially if cloudy) will not be as favorable for weevil activity as will warmer temperatures. Check your fields often as the temperatures warm.

DISEASE

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

Blueberries will start blooming in two to three weeks and the following diseases may need to be managed.

For mummy berry, plants are susceptible to primary infection and the shoot strikes will start being visible when plants begin to bloom. Remember, scouting for mummy berry should precede any decision to spray. Scout for open cups in wet areas of the fields. Cultivars such as Weymouth, Early Blue, Blu-ray and Jersey are very susceptible whereas cultivars such as Duke, Bluecrop and Elliott are moderately resistant and should pose little problem for this disease. Shoot development is just beginning and either Indar, or Orbit can be used to protect against primary infections (always see label for rates). Remember that fungicides such as Switch, Pristine and Abound are very effective against the secondary phase of the disease and also provide efficacy against anthracnose.

Root rot was severe in some fields last season and those fields should be treated with a Phytophthora fungicide soon. Since the blueberry plant is starting to produce new roots and the disease could be severe in areas with poor drainage. If Phytophthora was present last season, improve drainage in the field as a first step. There are two types of fungicides labeled for phytophthora management.

Phosphite fungicides labeled for blueberry include: Aliette, K-Phite, Phostrol, Prophyte and Rampart. Phosphites are not fertilizer and DO NOT provide a significant source of P. Other compounds marketed as fertilizer do not have sufficient active ingredient to provide disease control and may cause phytotoxicity if concentrations are increased. Phosphites may have phytotoxic effects when not sufficiently diluted (50 gallons/acre) and if the spray water is below pH5.5. Ridomil is labeled for soil applications only. Phosphites (same active ingredient as Aliette) are systemic fungicides with both downward and upward mobility. In other words these products may be applied as a foliar spray and the active ingredient will move into the root zone when leaves are present. At this time of year both types should be applied to the soil since there is insufficient leaf material present to absorb the fungicide.

I have observed symptoms of Twig Blight this week. The disease is caused by a fungus that attacks the flower buds and then grows a few inches into the attached twig. The disease is most prevalent after severe winters or after winters during which mild spells of weather are interspersed with extreme cold temperatures. The most common symptom is the drying up of fruit and flowers as the wood below turns brown, cutting off moisture and nutrients. Weymouth, Sierra, Elliott, Earlblue, Coville, and Berkeley often have severe infections and are rarely entirely free of this disease, whereas Jersey is occasionally moderately damaged by it. Scouting for the disease during bloom will help identify areas prone to the disease in the following season. Fungicides such as Indar made during early bud break (NOW) can help suppress infections and reduce crop loss.