**AT A GLANCE. INSECT AND DISEASE PROBLEMS THAT SHOULD BE CONSIDERED THIS WEEK.**

<table>
<thead>
<tr>
<th>PEST/DISEASE</th>
<th>WEEK OF APRIL 25</th>
<th>WEEK OF MAY 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROWTH STAGE</strong></td>
<td><strong>BLOOM</strong></td>
<td><strong>BLOOM</strong></td>
</tr>
<tr>
<td>Anthracnose</td>
<td>Spray all cultivars on a 7-10 interval</td>
<td>Spray all cultivars on a 7-10 interval</td>
</tr>
<tr>
<td>Phytophthora</td>
<td>Treat symptomatic areas</td>
<td>Treat symptomatic areas</td>
</tr>
<tr>
<td>Scorch, Phomopsis</td>
<td>Scout and map areas with infected plants. Destroy Scorch infected bushes</td>
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</tr>
<tr>
<td>Botrytis</td>
<td>Maintain anthracnose spray schedule and scout for signs of Botrytis</td>
<td>Maintain anthracnose spray schedule and scout for signs of Botrytis</td>
</tr>
<tr>
<td>Cranberry Weevil</td>
<td>Should be controlled</td>
<td></td>
</tr>
<tr>
<td>Asana, Guthion, Imidan, Mustang Max</td>
<td></td>
<td></td>
</tr>
<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>
</tr>
<tr>
<td>B.t., Intrepid</td>
<td></td>
<td></td>
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</tbody>
</table>

**BLUEBERRY TWILIGHT MEETING**

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  

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 pet 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. 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.

Sincerely,

Editor — Blueberry Bulletin

GP/SP

INSECTS

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

(continued next page)
**Cranberry Weevil (CBW):** About 63% of beating tray samples have been positive for CBW while 10% have been over threshold. Now that we are into the bloom period the CBW will seek out other hosts and leave the open flowers alone (although some injury can still occur on the scattered closed tight flowers). Since the CBW appeared on March 29, it has been a relatively quiet season for weevil activity. Very few samples this season have indicated that CBW had moved much past wooded boarders. See chart for a seasonal comparison.

<table>
<thead>
<tr>
<th>SEASON</th>
<th>BLOOM</th>
<th>1st CBW CATCH</th>
<th>OVER THRESHOLD</th>
<th>1st PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>4/25 - 5/21</td>
<td>2-Apr</td>
<td>17</td>
<td>24-Apr</td>
</tr>
<tr>
<td>2010</td>
<td>4/11 - 5/12</td>
<td>19-Mar</td>
<td>12</td>
<td>5-Apr</td>
</tr>
<tr>
<td>2011</td>
<td>4/23 -</td>
<td>29-Mar</td>
<td>10</td>
<td>12-Apr</td>
</tr>
</tbody>
</table>

**Plum Curculio (PC):** Only 1 PC adult was caught this past week. This makes a total of 2 so far this season.

**Lepidoptera Larvae and Leafrollers:** Only one larva was seen this week in beating tray samples. Starting April 25 we will be sampling shoots (in addition to tray samples) for the presence of worms. These results will be reported as "Leafroller Larvae - % Shoot Infestation" and the suggested treatment threshold will be 5%.

**Thrips:** Based on our “Thrips Activity Predictions” ([http://benedick.rutgers.edu/Blueberryweather/ddalc2.php](http://benedick.rutgers.edu/Blueberryweather/ddalc2.php)), so far thrips have accumulated a total of 160.32 degree-days. Thrips require approx. 380-400 degree-days to reach 10% activity. Thus, no thrips activity is expected this week.

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**DISEASE**

*Peter V. Oudemans, Ph.D.*

*Associate Professor and Extension Specialist*

*Plant Pathology*

You should be scouting fields for the following issues:

1. **Pollination.** Are the blossoms beginning to drop? Are dead or dying blossoms dropping to the ground. If your answer is yes to these questions the chance of Botrytis is low. If blossoms are hanging on or getting attached to developing fruit or leaves the chance of Botrytis is high. All dead or dying blossoms represent an entry point for Botrytis.
2. **Scorch and Stunt.** Symptoms are beginning to show. Flag bushes for removal.
3. **Phytophthora root rot infested areas should be treated now.** Look for stunted bushes with poor set. Have them tested for Phytophthora infection.
4. **Stem Canker will start showing and should be examined to determine if the infections are penetrating the woody tissues.** Report instances of cane dieback due to stem canker.
5. **Phomopsis Twig Blight should be very evident now.** Document fields where it is a problem and target for treatment in 2012.
**Anthracnose Control:** We are well into bloom at this point and anthracnose controls should be started already or very soon. Remember, fields that receive sufficient fungicide coverage during bloom and immediate post bloom should not experience significant anthracnose problems and will not need to rely on the less effective, later season applications. Abound, Cabrio and Pristine are all strobilurin fungicides and are vulnerable to resistance build-up. DO NOT make more than two applications in a row with these strobilurin fungicides. Use Captan or Omega or Ziram to separate applications.

**Blueberry Scorch Disease:** Symptoms of the Blueberry Scorch Virus will begin to appear this week and next. The disease causes flowers to die without being fertilized and can result in major crop losses. In Burlington and Atlantic counties fields with 70-90% of the plants infected have been observed. Thus, this disease represents a serious threat to the blueberry industry.

Growers and scouts should watch for development of scorch at this time and flag all suspect bushes. Symptoms are easily seen during bloom and you should be aware that this disease is present on your farm. If it is present, map the locations of infected bushes and flag these bushes. Mapping the locations will make it easy to monitor for the disease in future years. Any scorch infected bushes should be cut back and removed. Aphid scouting and management should be made high priority in fields with infected plants.

Symptoms of the disease vary depending on the cultivar. In Weymouth, Duke, Elliott, and Chanticleer classic symptoms of scorched blossoms and a *Phomopsis*-like die-back are commonly seen. In other cultivars such as and Bluecrop the blossom scorch is less common and fruit may appear to set but will not develop. The plants may also appear chlorotic (yellowing similar to nitrogen deficiency) and partially defoliate. The disease may be easier to see by standing back from the bushes rather than close inspection. Shortly after bloom the plants will begin to recover. Even though symptom expression may not occur every year, infected bushes remain a source of inoculum in the field increasing the possibility for disease spread.

A virus causes Blueberry Scorch and aphids can carry the virus on the sucking mouthparts or the stylus and inject the virus into the cell while feeding on plant sap. Eventually (after two to three years), the plant will exhibit symptoms. Once a plant is infected it does not recover. Although infected plants may appear healthy during some years the infection is persistent and will greatly reduce berry production over the long term. Furthermore, the infected plants represent a source of inoculum that can be transmitted to healthy plants. For these reasons, it is a very good practice to remove infected plants. The virus is easily transmitted from mother plants to rooted cuttings making it critical to obtain cuttings from healthy mother plants only. Recently, the NJ Department of Agriculture surveyed a number of NJ nurseries. These nurseries are now certified to be free of the Scorch virus. Growers should avoid purchasing plants from nurseries that are not certified. Introduction of scorch on to a farm will increase the risk of spreading the disease to other fields and also increase the cost due to removal and replanting.

Recognizing blueberry scorch virus and *Botrytis* blossom blight. **A.** Blueberry scorch virus causes a systemic blight in susceptible cultivars such as Elliott and Duke. In other words all blossoms are blighted on a single bush. **B.** and **C.** Botrytis blight will sporulate on blossoms and frequently spreads to leaves as a result of spores dripping from infected flowers.
Pesticide Applicator or Dealer Storage Inventory and Cover Letter Submittal Due May 1st to Fire Department

All licensed pesticide applicators, as well as dealers, who store pesticides are required by law to send a copy of their storage inventory(ies) with an explanatory cover letter to the local fire company by May 1st each year. In New Jersey, all licensed pesticide applicators and dealers who store pesticides are required per N.J.A.C. 7:30-9.5 to maintain a list of the pesticides stored or likely to be stored during the license year. A storage inventory should be kept separate from the actual storage area.

The Rutgers NJAES Pest Management Office 'Records & Forms' webpage provides two editable templates for submittal to the Fire Department that meet the minimum regulatory requirements. See the webpage at www.pestmanagement.rutgers.edu/PAT/record_forms.htm.

You may also devise your own format that suits your needs as long as it meets the requirements of N.J.A.C. 7:30-9.5.

1. **Pesticide Storage Inventory Form** - The purpose of the inventory is to provide local fire departments with an accurate description of things stored by location in case of fire or other emergency. We suggest filling out a form per storage address of your establishment.

2. **Cover Letter** - All licensed pesticide applicators and dealers who store pesticides are required by law to send a copy of their storage inventory(ies) with an explanatory cover letter to the local fire company. Specifically, NJDEP regulations provide: "The cover letter shall explain that this list has been sent pursuant to N.J.A.C. 7:30-9.5(b).4".

3. Recent revisions to the New Jersey regulations now require a written description or diagram depicting the exact location of the area on the property where the pesticide is stored. Our template cover letter provides a space to write that description or indicate that a diagram is enclosed.

Submittal to the fire department is required annually by May 1st of each year (this does not pertain to pesticides stored for personal use, or to those storing pesticides at loading or application areas for less than 7 days).

Applicators and dealers must keep the cover letter on file for a minimum of three years and should have it available for NJDEP upon request.

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**USDA news items of interest to New Jersey farmers**

**USDA Natural Resource Conservation Service (April 12, 2011)** – Certified organic producers and those transitioning to organic production may apply for funding to implement resource conservation practices on their farms. While applications are accepted on a continuous basis, the cutoff date for this application period is set for May 20, 2011. Organic Initiative funding is provided through NRCS’ Environmental Quality Incentives Program (EQIP). Under EQIP Organic Initiative contracts, NRCS provides financial payments and technical assistance to help producers implement conservation measures in keeping with organic production. The 2008 Farm Bill limits EQIP payments for organic operations to $20,000 per year per person or legal entity, with a maximum total of $80,000 over six years. Producers interested in applying for EQIP Organic Initiative funding must submit applications through their local NRCS Service Center, which can be located through the Web site at http://www.nj.nrcs.usda.gov/contact/.
April 25, 2011

BLUEBERRY BULLETIN

If you have any comments about this newsletter, please make them in the space below and mail to:
Dr. Gary C. Pavlis, County Agricultural Agent
Rutgers Cooperative Extension of Atlantic County
6260 Old Harding Highway, Mays Landing, NJ 08330

I would like to see an article on the following subjects:______________________________________________________

I would like to comment on the following articles:______________________________________________________________
Title:_______________________________________________ Date:______________________________________________
Comment:________________________________________________________________________________________
________________________________________________________________________________________________

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