# At a glance. Insect and disease problems that should be considered this week.

<table>
<thead>
<tr>
<th>PEST/DISEASE/CULTURE</th>
<th>MAY 9- MAY 16 END OF BLOOM</th>
<th>MAY 16 - MAY 23 FRUIT SET</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROST DAMAGED FIELDS (read today’s article)</td>
<td>When damaged fruit begin to decay apply appropriate fungicide.</td>
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<tr>
<td>ANTHRACNOSE</td>
<td>Continue applications on Bluecrop for approximately one more week maintain a 7-10 day interval.</td>
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<tr>
<td>Abound, Cabrio, Captan, Omega, Ziram</td>
<td>Have plants tested for Phytophthora root rot and apply appropriate fungicides for control.</td>
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<tr>
<td>PHYTOPHTHORA ROOT ROT</td>
<td>Consider applications of Omega if picking intervals are extended.</td>
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<td>Phosphite fungicide or Ridomil</td>
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<tr>
<td>ALTERNARIA FRUIT ROT</td>
<td></td>
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<tr>
<td>BOTRYTIS</td>
<td>Unlikely to be a problem this year.</td>
<td></td>
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<tr>
<td>CRANBERRY FRUITWORM (CBFW)</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; treatment if using 2 applications.</td>
<td>Treat again if using 2 applications.</td>
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<tr>
<td>Intrepid/Confirm, Esteem – 1&lt;sup&gt;st&lt;/sup&gt; early trt.</td>
<td></td>
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<tr>
<td>Altacor, Danitol, Delegate, Guthion, Imidan, Lannate, Hero – 2&lt;sup&gt;nd&lt;/sup&gt; later trt.</td>
<td></td>
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<tr>
<td>PLUM CURCULIO</td>
<td>Treat in first post pollination spray.</td>
<td>Monitor for fresh egg scars &amp; treat if needed.</td>
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<tr>
<td>Avaunt, Guthion, Imidan</td>
<td></td>
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<tr>
<td>APHIDS</td>
<td>Monitor for aphid colonies.</td>
<td>Treat if over 10% of terminals are infested.</td>
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<td>Admire, Assail, Actara</td>
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**CULTURE**

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

Visits to fields over the past few days have shown me that pollination is progressing well with many growers pulling out their bees this week. In most cases, fruit set is quite good in spite of the frost many experienced. One grower in the Hammonton area estimated that flower loss was around 15% which in most cases will be compensated for by the plant with bigger berries resulting in no overall loss of volume. Other fields in Burlington County were more heavily damaged but it is always risky to try to estimate loss this early in berry development.

In fields where poor pollination is feared, because of poor bee activity, visual symptoms should be checked before investing in gibberellin sprays to promote set of berries. If a large percentage of flowers are turning purple instead of dropping, while still white, this is a sign of poor pollination. Lack of rapid growth of the ovaries and their discoloration also are indicative of pollination failure. “Red caps” is a designation given to unpollinated berries which turn reddish and/or yellowish and then drop. A small amount of drop is expected and occurs even with good crops. If your estimate of the number of unpollinated flowers (purple flowers plus red cap) is less than 20 percent it may not be profitable to spray with gibberellin. It is almost always profitable to use this spray on varieties which are not attractive to honey bees: Earliblue, Coville, Berkeley, Stanley, 1316-A and Concors. The best timing is when two thirds of the blossoms have dropped. This spray (Pro Gibb-80 oz. per acre with sticker, or Gibrel) is absorbed through the skin of the ovary making it unnecessary for the flower and pistil to be attached.

The following guidelines may be helpful in determining whether Gibberellin is needed:

1. Bee activity has been consistently poor. Unless at least an average of 20 bees can be seen actually entering flowers in a 10 minute period, pollination will be below normal.

2. Flowers are hanging for long periods and turning purplish (wine color) before dropping. When pollination is progressing well blossoms drop while still bright white in color. A vigorous shaking of canes should cause a shower of white corollas dropping to the ground.

3. Ovaries are rapidly swelling soon after flowers drop and are staying green – not turning yellowish or reddish in color.

Sincerely,

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

**Editor, Blueberry Bulletin  GCP/sp**

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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 Fruitworm (CBFW):** CBFW has been flying for 3 weeks. If you have high populations, then a treatment is justified when the bees come out, or in the first post pollination spray. See table at the front of the newsletter. If populations are low, you can wait another 10 days before including materials that are effective for CBFW.
Leafrollers and Other Leps: Sampling shows that 23% of shoot and beating tray samples have been positive for low levels of worms. None of the 135 samples were at threshold levels, and the most common species seen continues to be Green Fruitworm (GFW). None of the GFW was associated with fruit clusters. Only minor foliar feeding has been observed. Since most of these species have 1 generation it is not expected to be present by the time fruit is harvested. We recently began checking fruit for the presence of any injury including worm damage (Leafrollers and CBFW/CFW) and among the 78 recent fruit samples none of the injury seen could be positively connected with worm activity with the exception of 1 sample.

Aphids: About 50% of shoot samples are showing low levels of aphids. In most cases these have been single insects and small colonies. All activity has been close to the crown. Only 7% of samples show any shoot infestation over the 10% level. Several observations of predators have been made recently such as Lady Beetle adults and larvae as well as Lacewings in monitored blocks. Use of harsh insecticides now may create higher aphid levels as a result of their toxic effect on beneficials.

Plum Curculio (PC): Adults are being seen in 6% of our beating tray samples. All PC sampling has been in untreated blocks due to the presence of bees. With bees coming out, and insecticide applications starting, PC presence will decrease. This season we reached our peak of PC activity during the week ending 4/21 when we were finding adults in 9% of samples. In recent years this number was as high as 16%. Low temperatures may have helped suppress PC activity and resulting fruit injury. Scouting records show that in most seasons PC are no longer active by the 1st or 2nd week of June. Fruit Injury: At this point all farms have been scouted for PC fruit injury, and 20% of samples show some level of egg scars. In all but 5 samples the maximum injury level was only 0.1% damage (1 berry in 1000 with egg scars). The highest level seen was at 1.3% (13 in 1000) injury taken at a wooded boarder Duke block in Atlantic County.

### Blueberry Insect Trap Captures

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<th>Blueberry Insect Trap Counts - Burlington County</th>
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Diseases:
By Peter V. Oudemans, Ph.D.
Associate Professor and Extension Specialist
Plant Pathology

So now it is raining!!
After what seemed to be an excellent pollination season we are seeing more rain. This raises the question in many people’s minds: “Have I done enough for anthracnose control?” It is not easy to give a one line answer here, but this is what we know. If you look at the photo (A) of Bluecrop on the next page you will notice several things. First of all the flowers are nearly 100% set. Second, you will notice that the outer bud scales (the heavy brown ones that protect the bud during winter months) have pretty much dropped off the clusters. This means that the primary overwintering reservoir of the anthracnose fungus is gone. So, if you have adequately protected the bushes with fungicides it is likely that very few of the overwintering infections escaped on to the pedicels and fruit. Since Bluecrop is a pretty susceptible variety it will be beneficial to make at least two more fungicide applications before harvest. Dukes and Elliotts are less susceptible and fungicides will provide diminishing returns on these varieties.

Why is there so much variation in bloom?
Dukes are showing tremendous variation in bloom this year. The photo (B) on the following page shows one cane in full bloom with some flowers still closed and other canes with pea sized fruit. These canes are from the same bush! We have looked at many locations this year and this phenomena is widespread. It is likely due to environmental conditions that caused development of some buds to be delayed.

Phytophthora root rot
Leaf symptoms resulting from root rot are now showing. Look for red leaves, especially on the lower parts of the bush. Samples of root tissue can be collected and tested for confirmation of the disease. The most important control measures are:

1. Avoid use of infected planting stock.
2. Maintain as uniform as possible drainage in your field.
3. Do not over irrigate or irrigate to the point of runoff
4. Treat infected bushes with Ridomil or one of the Phosphite fungicides.

This photo shows symptoms typical of Phytophthora root rot. The plant was likely infected in the nursery and then planted into the field. During hot, dry conditions this plant will not be able to survive because an impaired root system makes it more drought sensitive.
Preparation Your Farm Food Safety Plan
Part 1 - Developing Your Farm
Food Safety Mission Statement
Meredith Melendez, Mercer County Senior Program Coordinator, Agriculture and Wesley Kline, Ph.D., Cumberland County Agricultural Agent

Having a farm food safety plan that is specific to your operation makes good business sense. Publicity about illness outbreaks traced back to the farm has created a public that pays much more attention to food safety than they used to. Developing your own farm food safety plan can help to reassure your customers about food safety on your farm and potentially increase your market opportunities. A farm food safety plan will help prove to your customers dedication to on-farm food safety and show them the measures you’ve taken to ensure a safe quality product.

The first step in writing a farm food safety plan is to create a food safety mission statement for the farm. This statement should be brief, consisting of several paragraphs and explain your company’s commitment to food safety, food quality, food sanitation and worker hygiene. This mission statement is specific to food safety only, and is separate from the mission statement of your farm business plan.

The first paragraph of your mission statement should focus on the general philosophy of the farm in regards to food safety and indicate who at the farm is responsible for the food safety program. This first paragraph should include the following statements:

1. The most important mission of the farm is food safety.
2. Management and employees at the farm are committed to producing and marketing safe product through good agriculture and handling practices that focus on principles of food safety and quality.
3. Indicate who on the farm oversees the food safety program.
4. Indicate, when possible, what food safety training the supervisor has had.

The second paragraph of your mission statement should describe through broad statements how food safety is ensured. Statements should show that the following are priorities:

1. Making sure there is no immediate safety risk present in areas where the produce is grown, processed and packed.
2. Making sure there is no immediate risk of contamination of the product.
3. Making sure product is not at risk for contamination by insects, rodents, birds and pets.
4. That employees are appropriately following heath and hygiene practices.
5. That all information and paperwork is documented in an efficient and truthful manner.
And that:
6. Maps are available in the food safety plan of the farm and water movement.

The third paragraph should focus on documentation, the organization of this documentation and the annual review of the food safety plan. Statements can include:

1. The food safety plan will be reviewed annually and updated as needed.
2. All documentation referenced in the food safety plan will be kept on file for a minimum of two years.
3. Employees will be familiar with the food safety plan and will be trained annually and as the farm food safety plan is updated.
You Are Invited To informational Evening Meeting With Dr. Andrew Landers, Cornell University

*Optimizing and Measuring Spray Distribution from Air Blast Sprayers*

Date: May 16, 2012  Time: 7:00pm  
Location: Variety Farms, 548 Pleasant Mills Road, Hammonton, NJ  
Questions: Contact Dr. Gary Pavlis, (609) 625-0056

We are in receipt of an EPA region 2 (NJ and NY) grant to develop drift reducing technology for fruit sprayers.

We will demonstrate an adjustable air louver which controls the amount of air leaving the sprayer. In early season spraying, when there is very little target to intercept the spray, we need a small amount of air; in full canopy we need more air. The louvers are infinitely variable allowing the operator to control the airflow as the canopy changes, each side of the sprayer is independent of the other.

We will also demonstrate, using a fluorescent tracer dye and blacklight, the effect of forward speed, airflow and application volume on deposition within the canopy.

Dr Landers studies and teaches agricultural engineering at Cornell University. He works with application systems in grapes, apples, vegetables and turf grass. Dr. Landers is author of the classic text book, Farm Machinery: Selection, investment and management and has recently published a new book, Effective Vinyard Spraying.
May 7, 2012

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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