Vegetables

Vegetable Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Lima Beans.
Be sure to watch for spider mites on seedling stage lima beans, especially in areas of the state that have not been receiving adequate rainfall. Both field interiors as well as field edges should be examined for mites. Look for the white stippling along the veins on the underside of the leaves. A treatment should be considered when you first notice the stippling and you find 10-20 mites per leaflet. Kelthane or Capture (6.4 oz/A) have provided the best control in lima beans. The earliest planted field should be scouted for lygus bugs and stinkbugs. Treatment should be considered if you find 15 adults and/or nymphs per 50 sweeps. Lannate, Capture or Mustang can be used if both species are present. The higher labeled rates of Capture (4 oz/A) and Mustang (4.3 oz/A) will be needed if stinkbugs are the predominant insect present.

Peppers.
Corn Borer catches have dropped below 2 per night in all areas of the state except the Harrington, Greenwood and Milford areas. Once trap catches increase to above 2 per night and pepper fruit is ½ inch in size or larger, fields should be sprayed on a 7-10 day schedule for corn borer control. Trap catches are updated three times per week on the IPM website - http://www.udel.edu/IPM/traps/latestblt.html.

Potatoes.
As we approach harvest on the earliest planted potatoes, be sure to continue to sample for potato leafhoppers and aphids. Both potato leafhopper adults and nymphs can be found in fields. The treatment threshold is 0.5 - 1 adult per sweep or 1 nymph per 10 leaves. Actara, Provado, Furadan or a pyrethroid will provide control. Aphid populations are still low. If fields are greater than 2 weeks from harvest, the threshold is 4 aphids per leaf. Within 2 weeks of harvest, the treatment threshold increases to 10 aphids per leaf. In general, Colorado potato beetle populations are moderate in most fields. If Admire, Platinum or Tops MZ Gaucho were used at planting be sure to alternate to cryolite, Agri-Mek or Spintor when threshold levels of larvae or newly emerged adults are detected.

Snap Beans.
In the Harrington, Greenwood and Milford areas, fresh market and processing snap beans in the bud to pin stage will need to be sprayed for corn borer. Seedling beans should still be watched carefully for thrips and leafhopper activity. We continue to see an increase in leafhopper and thrips activity. If both insects are present, the threshold for each should be reduced by 1/3. The thrips threshold is 5-6 per leaflet and the leafhopper threshold is 5 per sweep.
Sweet Corn.
Fresh market silking sweet corn should be sprayed on a 5-6 day schedule in all areas of the state except in the Harrington, Georgetown and Wyoming areas where sprays are needed on a 4-day schedule. Be sure to check the IPM website for the most recent BLT catches in your area (http://www.udel.edu/IPM/traps/latestblt.html).

Pea Enation Mosaic Virus - Ed Kee, Extension Vegetable Crops Specialist; kee@udel.edu

Many pea fields exhibit the pea enation virus disease on some small percentage of plants, but it is noticeable. Stunted plants, distorted leaves, and the small, distorted pods, with only one or two peas are the typical symptoms. Some fields may have as much as 3-5% of the plants showing these symptoms.

The virus is spread by aphids. Aphids have not been a huge problem this year, but the symptoms indicate the presence and spread of the virus.

Licensed and Bonded Produce Buyers and Dealers - Ed Kee, Extension Vegetable Crops Specialist; kee@udel.edu

Licensed and Bonded Produce Buyers and Dealers.
The State of Delaware law requires produce buyers and brokers of large quantities to be bonded and licensed with the State. A list of licensed buyers is available from Cliff Hudson, Delaware Department of Agriculture, at 302-739-4811.

Cold Weather Affects Fruit Set of Early Watermelons – Derby Walker, Extension Ag Agent, derby@udel.edu and Tracy Wootten, Extension Associate - Vegetable Crops, wootten@udel.edu

Some early planted watermelons have little to no crown fruit set due to cold growing conditions. Cool weather conditions early in the growing season may result in female flowers opening several days before male flowers, resulting in delayed fruit set.

Watermelons produce separate male and female flowers on the same vine. A female flower can be easily recognized by the swelling of its base which resembles a tiny watermelon. Normally a female flower may be found at every seventh to tenth node. Thus, plants usually produce about 10 times more male flowers than female flowers.

Female (left) and male (right) flowers

(Photo taken from University of Georgia Watermelon Fact Sheet)

For successful pollination to occur, both female and male flowers must be open on the same day. The minimum temperature for the opening of watermelon flowers is 59° F.

Optimum growth of watermelon plants is achieved at temperatures of 68-86°F.
Vegetable Diseases - Kate Everts, Extension Vegetable Pathologist, University of Delaware and University of Maryland; everts@udel.edu

Watermelons.

From the University of Maryland and University of Delaware
Latest EFI values from local weather stations
Any questions please call (410) 742-8788

MELCAST for Watermelons
EFI Values (Environmental Favorability Index)
Do not use MELCAST if there is a disease outbreak in your field, it is a preventative program.

<table>
<thead>
<tr>
<th>Location</th>
<th>06/19/02</th>
<th>06/18/02</th>
<th>06/17/02</th>
<th>06/16/02</th>
<th>06/15/02</th>
<th>06/14/02</th>
<th>06/13/02</th>
<th>06/12/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridgeville, DE</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Charles Co.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Collins Farms</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Galestown, MD</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Georgetown, DE</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Glenville, MD</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Hebron</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hog Creek Rd.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Salisbury, MD</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Vincent Farms</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Westminster</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>White Marsh</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

The first fungicide spray should be applied when the watermelon vines meet within the row. Additional sprays should be applied using MELCAST. Accumulate EFI (environmental favorability index) values beginning the day after your first fungicide spray. Apply a fungicide spray when 30 EFI values have accumulated by the weather station nearest your fields. Add 2 points for every overhead irrigation. After a fungicide spray, reset your counter to 0 and start over. If a spray has not been applied in 14 days, apply a fungicide and reset the counter to 0 and start over. The first and last day listed above can be partial days so use the larger EFI value of this report and other reports for any specific day.

If, for some reason, a serious disease outbreak occurs in your field, return to a weekly spray schedule

More detailed information concerning MELCAST and sample data sheets are available on the web at http://www.agnr.umd.edu/users/vegdisease/vegdisease.htm.
**Vegetable Diseases**  -  *Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu*

**Late Blight Advisory**

Potato Disease Advisory.

**Disease Severity Value (DSV) Accumulations as of June 19, 2002 are as follows:**

*Location: Joe Jackewicz Farm, Magnolia, DE. Greenrow: April 10, 2002*

Remember that 18 DSV’s is the threshold to begin a spray program for late blight.

<table>
<thead>
<tr>
<th>Date</th>
<th>Total DSV</th>
<th>Spray Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/1</td>
<td>12</td>
<td>None</td>
</tr>
<tr>
<td>5/11</td>
<td>19</td>
<td>5 days, low rate</td>
</tr>
<tr>
<td>5/19</td>
<td>23</td>
<td>10 days, low rate</td>
</tr>
<tr>
<td>5/22</td>
<td>23</td>
<td>10 days low rate</td>
</tr>
<tr>
<td>5/27</td>
<td>27</td>
<td>10 days low rate</td>
</tr>
<tr>
<td>5/29</td>
<td>30</td>
<td>7 days, low rate</td>
</tr>
<tr>
<td>6/3</td>
<td>33</td>
<td>7 days, mid-rate</td>
</tr>
<tr>
<td>6/5</td>
<td>33</td>
<td>10 days, mid-rate</td>
</tr>
<tr>
<td>6/9</td>
<td>38</td>
<td>7 days, high-rate</td>
</tr>
<tr>
<td>6/13</td>
<td>39</td>
<td>10 days, high-rate</td>
</tr>
<tr>
<td>6/16</td>
<td>58</td>
<td>5 day mid-rate</td>
</tr>
<tr>
<td>6/19</td>
<td>60</td>
<td>10 day mid-rate</td>
</tr>
</tbody>
</table>

All potatoes have reached more than 18 DSV’s. The Wisdom potato software program generates spray recommendations.

Late blight has not been a problem here in Delaware for many years and unless you have seed from an unknown source, the risk of late blight is very low.

**NOTE:** For this greenrow date and location we have accumulated 512 P-days as well. P-days are a measure of potato plant growth somewhat similar to growing-degree-days. When **400 P-days** have been exceeded, conditions for **early blight infection** are more favorable and disease may begin to show up 5-7 days later. Sprays for early blight susceptible varieties should begin if early blight is expected to be a problem.

The period from June 12th to the 15th was very favorable for late blight and other foliar diseases. Accumulated 19 DSV's during that period.
Field Crops

Field Crop Insects - Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Alfalfa.
Continue to sample fields for potato leafhopper. Remember that nymphs can quickly cause damage and once you see yellowing yield loss has already occurred. Since small plants are most susceptible to damage, the treatment threshold is 20 per 100 sweeps in alfalfa 3 inches or less in height and 50 per 100 sweeps in 4-6 inch tall alfalfa. Since many fields are close to harvest or have just been cut, be sure to check fields within a week of cutting for leafhoppers feeding on regrowth. Ambush, Baythroid, Lorsban, Mustang, Pounce or Warrior will provide control.

Soybeans.
As part of a Delaware Soybean Board funded project, we have begun a statewide survey for the Soybean Aphid. This survey is being coordinated with survey efforts conducted by the Delaware Department of Agriculture as part of the Cooperative Agricultural Pest Survey Program. Although the soybean aphid has never been detected in Delaware or Maryland, it was found on the western shore of Virginia last September. Throughout the summer, we will be sending the results of our survey to the soybean aphid watch website. This website has received its first report of soybean aphid on soybeans on June 16, 2002 in Winneshiek County, Iowa. You can find more information on the soybean aphid as well as determine when aphids are found in areas throughout the country by accessing the following website:
www.pmcenters.org/Northcentral/Saphid/Aphidindex.htm

Grain Marketing Highlights - Carl German, Extension Crops Marketing Specialist; clgerman@udel.edu

Commodity Markets Expected to Trade Mixed Until Finding New Direction.
Futures prices at the Chicago Board of Trade are expected to bounce around for the remainder of this week and next, at least until the release of the June 28th Stocks in All Positions report, and the 2002 Acreage report. Currently Dec '02 corn futures are trading at $2.27; Nov '02 soybeans at $4.69; and Jul '02 wheat at $2.92 per bushel. The end of this week will mark the first notice day for nearby Jul '02 corn, soybean and wheat futures.

Sparks Releases June Acreage Estimates.
Sparks Commodities is now forecasting U.S. corn plantings at 77.797 million acres, down 1.25 million acres from USDA's March Prospective Plantings report and more that two million acres more than last year's acreage. Much of the shift in corn acres is expected to go to sorghum plantings.

Sparks estimates U.S. soybean plantings at 74.966 million acres, two million acres greater than USDA's March report. In the meantime, commodity traders will await the June 28th USDA reports.

Marketing Strategy.
With the '02 wheat harvest now underway it is necessary to note the spread between the Jul '02 and Dec '02 wheat futures, and the price strength being bid into nearby Jul '02 futures. The spread is currently 13 cents per bushel, with Jul '02 at $2.92 and Dec '02 at $3.05 per bushel. More distant futures contracts are within a close proximity to the nearby contracts. This type of bidding pattern is indicative of trader expectations for a short crop, the extent of which won't be known until the July 10th crop report for winter wheat and the September 10th crop report for spring wheat. Therefore, any '02 wheat not sold at harvest will need to be stored at least until December before the market delivers its final tally. Expectations for a short crop should result in
strong basis offers for wheat sold at harvest. Last year’s Eastern Shore July wheat basis was recorded at 11 under for the Northern Eastern Shore, and 22 under for the Southern Eastern Shore. The average July wheat basis, for the past five marketing years, on the Northern Eastern Shore was 30 under (ranging from -43 to -11), and 31 under on the Southern Eastern Shore (ranging from -38 to -22).

Clarity Injury on Soybeans
Richard W. Taylor, Extension Agronomist, rtaylor@udel.edu, and Derby Walker, Jr., Extension Ag Agent, Sussex County derby@udel.edu

With many folks spraying their Roundup Ready® soybeans in the past couple of weeks, an occasional problem we’ve seen in the past has developed. That problem is related to the ability of glyphosate formulations to solubilize residues of previously used herbicides, if tank cleanout has been inadequate. In particular, the growth regulator type of herbicides, Clarity, Banvel or 2,4-D, used on corn, and can cause significant visual injury on soybeans. We recently observed a soybean field that had been sprayed with Roundup and was showing typical injury symptoms, leaf cupping, dark green leaves, and crop stunting. In areas of one field that had been irrigated since the contaminated spray was applied, symptoms were worse in areas of the field that had not been watered.

Photo 1. Severe cupping of newly emerging soybean leaves and effect on terminal growing point due to Clarity residue injury following spray application of Roundup (Photo by R. Taylor)

Photo 2. Cupping of soybean leaf due to Clarity residue injury following spray application of Roundup (Photo by R. Taylor)
Manganese Deficiency is Showing Up on Soybeans  - Richard W. Taylor, Extension Agronomist, rtaylor@udel.edu

In many fields, manganese deficiency symptoms are showing up. Manganese deficiency is characterized by dark green veins and light green (mild deficiency) to yellow (moderately severe deficiency) to white (severe deficiency) interveinal leaf tissue. The symptoms often are most severe on the most recently emerged leaves. Manganese deficiency symptoms are similar to the deficiency and toxicity symptoms of some of the other micronutrients.

How do you avoid this problem if you must switch back and forth among crops and herbicides? Proper tank cleaning is the most effective answer to the dilemma. The procedure is often listed at the end of the herbicide label. For Clarity, a relatively complicated process, must be followed but the important aspect is the use of 1 gallon of household ammonia per 100 gallons of water to fill the tank and flush the boom and nozzles. After it is run through the nozzles for a short time, the entire ammonia water solution should be left in the tank for several hours or preferably overnight and then flushed through the tank. The tank is then filled half full of water and again flushed out. The above is not the complete procedure, but does give you an idea of how important using the right proportion of ammonia and letting it sit for a long time is. Be sure when rinsing out tanks, to follow all label directions to avoid spray injury on non-tolerant crops.

Another issue is leaving a “few gallons” of 30% in the bottom of a spray tank or nurse tank. These few gallons may be enough to cause serious leaf burning and may even kill some plants where there is overlap.

Photo 1. Severe interveinal chlorosis on no-till single-crop or full-season soybean. Note dark green veins with tissue between veins yellow to almost white. Younger leaves are most affected since Mn is not mobile in the plant (Photo by R. Taylor).

Yield reductions can be avoided to a large degree by early diagnosis and treatment with foliar application of Mn. Ignoring or not catching the problem until later in the season can not only reduce yield potential, but make a foliar application more difficult and possibly more expensive.

Photo 3. Stunting of soybeans (2 rows on right) compared to unaffected rows on left due to Clarity residue injury following spray application of Roundup (Photo by R. Taylor)
Photo 2. Severe interveinal chlorosis on no-till single-crop or full-season soybean. Note dark green veins with tissue between veins yellow to almost white (Photo by R. Taylor).

Where the symptoms are widespread and moderate to severe, foliar Mn applied at 1 to 2 lbs Mn per acre can boost yields significantly. Since the crop is still in the vegetative stage, mild to moderate symptoms can be alleviated with a 0.5 lb Mn per acre foliar spray. Research in Delaware, Virginia, and North Carolina have shown that soybeans are very responsive to foliar Mn especially when applied early although sometimes on very young beans a second application may be needed.

Even if you do not apply foliar Mn, you should be making note of which fields and where in the field symptoms occur so you can monitor these areas in the future. If wheat or barley are to be planted this fall, careful monitoring early will allow you to apply Mn to the small grains before they are severely injured by Mn deficiency. You should also note the areas so you can do soil testing to determine the underlying problem. Check to see if the native Mn concentration in the soil is too low or whether the soil pH is too high since the higher the pH the lower the availability of Mn in the soil. Also, any factor restricting root growth (compaction, drought, etc.) can aggravate Mn deficiency symptoms and should be corrected if possible.

Alfalfa and Alfalfa Grass Mixtures Approach Second Hay Harvest - Richard W. Taylor, Extension Agronomist, rtaylor@udel.edu

Many of the alfalfa and alfalfa-grass hay fields I have observed this week are approaching 1/10 bloom stage of growth for the alfalfa component. With warm, sunny weather in the forecast for this weekend, many of you may want to consider going for that second cutting. After removing the hay, keep in mind that this is the ideal time to apply the potash (K), phosphorus (P), and boron (B) that the crop will need to do well during the summer stress period. Generally, we recommend that you apply about half your potash at this time and the rest in the late summer following the fourth cutting if you’re on a five-cut system or following the third cutting if you’re on a four-cut system. All of your crop P and B needs can be applied at this time.

Photo 1. Alfalfa-orchardgrass mixture regrowth ready for second hay harvest. (Photo by R. Taylor)
Photo 2. Alfalfa component of an alfalfa-orchardgrass mixture is approaching the 1/10 bloom stage of growth. (Photo by R. Taylor)

Ag Fact

There are approximately 100,000 acres of pickling cucumbers in the United States, with slightly more than half of the acreage harvested mechanically. Ten thousand people are employed in the pickle processing/manufacturing industry.

In Delaware and Maryland, over 7,000 acres are planted on 14 different farms. All acreage is harvested mechanically. Nearly 1,000 people are employed in the manufacturing phase of the industry on Delmarva.

UPCOMING EVENTS:

A Day On The Farm

Date: Saturday, June 22
Time: 11 a.m. to 4 p.m.
Location: Ramsey’s Farm
For more information and directions, see page 10.

Weather Summary

Week of June 14 to June 19, 2002

Rainfall:
- 0.09 inches: June 14, 2002
- 0.05 inches: June 15, 2002
- 0.03 inches: June 16, 2002

Readings taken for the previous 24 hours at 8 a.m.

Air Temperature:
- Highs Ranged from 82°F on June 17 and 19 to 72°F on June 14.
- Lows Ranged from 63°F on June 17 to 56°F on June 16.

Soil Temperature:
- 74°F average for the week.
- (Soil temperature taken at a 2 inch depth, under sod)

Web Address for the U of D Research & Education Center:
http://www.rec.udel.edu

Compiled and Edited By:

Tracy Wootten
Extension Associate - Vegetable Crops

Cooperative Extension Education in Agriculture and Home Economics,
University of Delaware, Delaware State University and the United States
Department of Agriculture cooperating, Robin Morgan, Dean and Director.
Distributed in furtherance of the Acts of Congress of May 8 and June 30,
1914. It is the policy of the Delaware Cooperative Extension System that
no person shall be subjected to discrimination on the grounds of race, sex,
disability, age or national origin.