Vegetables

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

Cucumbers.
Cucumber beetle populations are lighter compared to last week; however, you should continue to scout all fields for cucumber beetles and aphids. Fresh market cucumbers are susceptible to bacterial wilt, so treatments should be applied before beetles feed extensively on cotyledons and first true leaves. Pickling cucumbers have more tolerance to wilt, but a treatment may be needed if you find 2 or more beetles per plant and significant damage can be found on the cotyledons. A treatment should be applied for aphids if 10 to 20 percent of the plants are infested with aphids. Actara, Fulfill, Thiodan or Lannate will provide aphid control. Be sure to watch for bees foraging in the area and avoid insecticide applications on blooming crops.

Melons.
Continue to scout all melons for aphids, cucumber beetles, and spider mites. Aphid and cucumber beetles are still present, but populations are lower than last week. Be sure to avoid repeated use of pyrethroids to avoid flair ups with mites later in the season. All fields should be sampled carefully for spider mites. We are starting to find both immature and adult mites at low population levels. A treatment will be needed if you find 20-30 percent of the plants infested with 1-2 mites per leaf. Agri-Mek, Capture or Danitol will provide control; however, multiple applications may be needed.

Peppers.
Field consultants indicate that the earliest planted peppers should be blooming next week and the first corn borer egg masses can be found on the leaves. Since fruit is not present, larvae hatching from these egg masses will feed on the leaves then move into the petioles and stems. A pyrethroid application should be considered in the next week, especially if egg masses are found and trap catches are above 10 per night in your area. As soon as fruit is 1/2-inch size and corn borer trap catches are above 2 per night, fields should be sprayed on a 7-10 day schedule for corn borer control.

Potatoes.
Continue to sample fields for Colorado potato beetle adults and larvae. Small and large larvae can now be found in numerous fields. The threshold is 4 small larvae per plant or 1.5 large larvae per plant. If multiple life stages are present, reduce these thresholds by one-half. Remember, Actara or Provado should not be used in fields where Admire, Platinum or Tops MZ-Gaucho were used at planting to avoid the development of resistance. You will need to use Spintor, cryloite, or Avaunt plus PBO. A corn borer spray will also be needed this week. Ambush, Avaunt, Baythroid, Furadan, Penncap, Pounce or Spintor will provide control. If a pyrethroid, Avaunt, Penncap or Spintor are used, 2-3 applications may be needed.
If you are scouting for infested terminals, the first treatment should be applied when 20-25 percent of the terminals are infested. Furadan or Monitor will provide the best control if you are waiting until you see infested terminals. Two applications may be needed if populations are heavy. Potato leafhopper populations continue to increase. As a general guideline, controls should be applied if you find 1/2 to one adult per sweep and/or one nymph per every 10 leaves. Since nymphs can cause damage quickly, sprays should be applied soon after nymphs are detected. Dimethoate, a pyrethroid, Actara or Provado will provide control.

Snap Beans.
Continue to scout seedling stage fields for leafhopper and thrips activity. Potato leafhopper activity has increased and nymphs can be detected. The thrips threshold is 5-6 per leaflet and the leafhopper threshold is 5 per sweep. If both insects are present, the threshold for each should be reduced by 1/3. Dimethoate, Lannate, Orthene, Asana, Capture, or Warrior will provide control of both insect pests. If plants are approaching the bud stage, Orthene will control thrips, leafhoppers and corn borers. Once corn borer catches reach 2 per night, fresh market and processing snap beans in the bud to pin stages should be sprayed for corn borer. Orthene or Address (acephate) should be used at the bud and pin stages on processing beans. Once pins are present on fresh market snap beans and trap catches are above 2 per night, a 7-10 day schedule should be maintained for corn borer control. Lannate, Asana, Capture, Warrior or Mustang are labeled. Acephate has a 14-day wait until harvest.

Sweet Corn.
We have seen an increase in corn borer whorl infestations (as high as 60% infested plants). If infestation levels are above 15% at the time of treatment, multiple applications will be needed to avoid corn borer damage in the ear. The first silk sprays will be needed as soon as ear shanks are visible. Silk sprays are needed on a 3-4-day schedule in Kent and Sussex Counties. Be sure to check our website (http://www.udel.edu/IPM/traps/latestblt.html) for the most recent moth catches in your area.

Vegetable Crop Diseases – Bob Mulrooney
Extension Plant Pathologist; bobmul@udel.edu

Sweet Corn.
Pythium root rot continues to be seen in wet areas and in fields with a history of Pythium. The primary root system is usually brown and the corn is stunted and yellow. These stunted yellow plants are generally found in the wettest spots in the field or where soil is compacted such as turn rows and headlands. If planting or replanting into areas with potential emergence problems from Pythium be sure the seed is treated with Apron, Allegiance or Maxim XL. Another alternative would be to apply Ridomil Gold EC either in a band or broadcast at the 0.5-1.0 pt rate/A. This has not been a standard practice here, but may provide some control. What we really need is some dry, warm weather.

Pythium Root Rot on Sweet Corn.

Note that the primary or lateral seminal roots are dead and the secondary roots or nodal roots above the primary roots are healthy.
WET SOILS IMPACTING VEGETABLE CROPS
Written by William Nesmith, University of Kentucky and edited for Delaware

The prolonged wet weather Delaware has experienced for the past two months has been taking a significant toll on vegetable crops. Grower's abilities to transplant and conduct other normal field operations have been seriously hampered. On those crops that have been planted, additional problems are mounting. Infectious disease activity has been increasing rapidly. Aggressive spray programs for potential disease problems are important. Another area of major concern, but often overlooked, is the damage to the plant associated with the saturated root zone.

When soils are water-saturated, plants roots can be in an oxygen-deficient condition and thus respiration and metabolic activities can be markedly impacted due to low oxygen and high levels of carbon dioxide and other chemicals. Therefore, most of the functions normally performed by the root system are in potential jeopardy of performing poorly or in altered manners. The temperature at the time of the saturation and the duration of the events greatly impact the severity and symptom pattern.

Saturated soils result in loss or reduction in normal root functions. Nutrient and water adsorption and their translocation are often impacted; consequently, wilting, yellowing, stunting, and nutrient deficiencies are the most common symptoms associated with flooded soils with most vegetables. During periods of high evaporation or high temperatures, the above-ground symptoms of saturated soils usually involve wilting and severe stunting, but the cool temperatures have limited such development this year. As temperatures start to increase, expect to see much more of the sudden wilting and yellowing of plants.

Hormonal imbalances often occur when roots are in saturated soils, especially at cool temperatures, as production declines in the root-made hormones while stress/aging hormone production increases in other parts of the plant. These shifts create serious imbalances in the levels, ratios, and timing of hormones which results in abnormal plant development. Some plants are showing strong leaf epinasty (bending and twisting of the leaf petioles) resulting from increase ethylene production, while adventitious roots proliferate from the stem due to auxin imbalance. Timing of flower production and development can also be greatly impacted, which can significantly impact timing of fruit for critical market windows.

In some plants, the cortex of flood-damaged roots will be slightly darker in color and with time, discoloration may be noticed in the lower vascular system of the plants. Such plants are prime targets for infection by a wide range of soil borne fungi and bacteria, too.

Where plants are taking up herbicides, normal degradation may not be occurring, resulting in herbicide damage from materials normally tolerated by the crop.

Vegetable Diseases – Kate Everts, Extension Plant Pathologist, Univ. of MD and Univ. of DE; everts@udel.edu

Gummy Stem Blight Fungicide Update.
Watermelon growers often ask if there are any new products for management of gummy stem blight on watermelon. This is the best currently available information for Delmarva’s watermelon growing area.

Strobilurin Chemistry (QoI class fungicides) – We have resistance to this class of fungicides in our area (Quadris, Flint and Cabrio). Do not use strobilurins (QoI fungicides) where resistance exists. When using strobilurin fungicides in other areas; 1) use a 1:1 rotation with a different class of chemistry that is effective on gummy stem blight, such as chlorothalonil (Equus, Echo, Bravo); 2) use correct labeled rates; 3) Do not apply more
than four applications per season; 4) Begin fungicide applications early in the disease epidemic, when disease pressure is relatively low; and 5) discontinue applications when 20% of foliage is infected with gummy stem blight.

Chlorothalonil (Bravo, Echo, Equus) is the best available fungicide for control of gummy stem blight, where strobilurin resistance occurs. In all the trials we’ve conducted in 2000, 2001 and 2002 chlorothalonil alone has provided equal disease control to chlorothalonil alternated with Quadris, Flint or Cabrio. In other words, where resistance occurs, the strobilurins don’t provide any additional advantage in managing gummy stem blight.

Other products that growers have mentioned are Arnicarb and Oxidate. I can find no data on Arnicarb on gummy stem blight control on any cucurbit including watermelon. There is no available evidence that it works in the field. There is no available data that Oxidate is effective on gummy stem blight in watermelon (or other cucurbit) in field applications. Always beware when applying new products where there is no supporting data, high disease levels may occur.

**Fungicide Application Timing.**
Plant pathogens are, generally, not visible in a field before disease has occurred. Therefore, most diseases are managed with fungicide sprays applied prior to disease development. Maintaining a protectant/systemic fungicide on the foliage means spraying on a calendar schedule or using a forecasting model such as MELCAST to time sprays.

The best time to apply a fungicide is **before** rain occurs. This places a protective barrier on the plant during the period of time that infection is likely to occur. Nearly all pathogens need moisture to infect. The bottom line: try to apply fungicides prior to a rain, ideally in time that they can dry on the plant surface.

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

**Alfalfa.**
Potato leafhopper populations significantly increased at the end of last week. All fields should be scouted for leafhoppers, especially since nymphs are starting to show up and "hopper burn" can be found in a few fields. Remember that once yellowing occurs, damage has already been done. The treatment threshold is 20 per 100 sweeps in alfalfa 3 inches or less in height, 50 per 100 sweeps in 4-6 inch tall alfalfa, and 100 per 100 sweeps in 7-11 inch tall alfalfa and 150 per 100 sweeps if alfalfa is greater than 11 inches tall. Early cutting can be used as a control strategy if you plan to cut in 5-7 days. If the harvest is delayed and threshold levels are present a short residual insecticide should be used. If economic levels are present before harvest and a field is cut instead of sprayed, be sure to check fields within a week of cutting for leafhoppers feeding on regrowth. A pyrethroid, Furadan or Lorsban will provide control.

**Field Corn.**
Be sure to sample fields for grasshoppers feeding on small plants. A grasshopper treatment should be considered if you find 5-8 grasshoppers per square yard. Asana, Dimethoate, Lorsban, Furadan and Warrior will provide control but multiple applications may be needed.

Unfortunately, slugs remain active in many fields, especially where corn stalk residue is present. The good news is that we have seen good results with the Deadline MPs (metaldehyde bait) for slug control in the last couple of weeks. Although the label states 10 - 40 lbs per acre broadcast, we have seen good results with 10 lbs. broadcast applied with a cyclone spreader. It is important to calibrate the spreader so you are getting at least 5 pellets per square foot. Also, the best results have been observed when applications were made and...
there was at least one day of sunny weather after an application. In general slugs stop feeding in 2-3 hours even though it may take them 2-3 days to die. If conditions remain extremely wet, slugs sometimes can absorb enough moisture to compensate for the water lost in mucus production so a second application may be needed. If you are replanting areas and you are unable to till the area, you should consider using this material as soon as plants are spiking if the weather remains wet and slugs are present in fields.

**Soybeans.**

As long as soil remains cool and wet, you should continue using a seed treatment for seed corn maggot control. No-till fields are the most susceptible to damage from maggots. We can also still find slugs feeding on early-planted no-till fields. Since the growing point is above the ground on soybeans, the metaldehyde baits--TrailsEnd LGs and Deadline M-Ps -- are the only options and should be considered as soon as slug damage is detected.

Continue to watch all emerged fields for bean leaf beetles and grasshoppers. A treatment for bean leaf beetle will be needed from plant emergence to the second trifoliate when you find 2 beetles per ft. row and a 25% stand reduction. A pyrethroid, dimethoate or Lorsban will provide control. The treatment threshold for grasshoppers is 1 per sweep and 30% defoliation. Asana, Furadan, Lorsban, or Warrior will provide grasshopper control.

We are starting to find low levels of spider mites in soybeans. Look for the white stippling at the base of the leaves, which indicates the presence of mites. Treatment will be needed when you find 20-30 mites per leaflet or 10% of plants with 1/3 or more leaf area damaged. Dimethoate, Lorsban and Parathion (aerial application only) are the only available options so early detection and control will be critical.
will develop over the next 6 to eight weeks. In the meantime CBT new crop corn prices are expected to remain extremely volatile over the next six months, according to one private grain analyst.

World corn stocks at the end of the '03/'04 marketing year are now pegged at 83.3 million metric tons, compared to 95.75 mmt for '02/'03 and 128.39 mmt for '01/'02. World corn stocks, if realized, will decline by 35% in just two marketing seasons. The highest carryover in the last ten years for world corn stocks occurred in '98/'99 when world carryover stocks were at 172.4 mmt. In '86/'87 stocks were recorded at 205.1 mmt.

Those attending the "Grain Marketing Strategies Conference" last December will recall another interesting factor to throw into the fray, that is world consumption for corn is outpacing world production. This year's production of world corn is now projected at 621 mmt, compared to last year's 593 mmt. Meanwhile, world corn consumption is now estimated at 634 mmt, compared to last year's 626 mmt. This does not portend to mean that we are going to run out of corn anytime soon. However, the world stocks-to-use ratio is declining which means that the corn price should respond in kind. Further, it is also duly noted that annual world coarse grain consumption is also outpacing production.

Marketing Strategy
The bottom line is that we can expect corn prices to remain volatile for the near term. The extent of an expected price rally is likely to be hampered by the fact that, so far, we are not experiencing any crop threatening weather problems throughout the Corn Belt. With December corn futures trading at $2.43 per bushel in this morning’s trade it is time to hold up on advancing new crop corn sales.

Considering the volatility displayed in commodity futures bidding across the board this past week, it also appears to be prudent to hold up on advancing new crop soybean and wheat sales. The weekly export sales report issued on 6/19 was considered strong to favorable for corn, wheat, and soybeans. It is noted that SRW head scab is prevalent throughout the U.S. growing area.

**Weed Science Field Day - Mark VanGessel, Extension Weed Specialist, mjv@udel.edu**

The Weed Science Field Day will be held on Wednesday, June 25th, starting at 8:15 a.m. at the University of Delaware, Research and Education Center. We will meet in the tree grove on the north side of Rt. 9. This is an opportunity to look at research plots evaluating a wide range of herbicide programs for corn. (Due to rains, the soybean planting has been delayed.)

**UPCOMING EVENTS:**

'Ag Adventure' Offers Free Family Fun June 21

Families are invited to explore the diverse world of New Castle County agriculture at “Ag Adventure” from 10 a.m.-4 p.m., Saturday, June 21, at Hoober Inc., a farm located on Route 301, south of Middletown, near the Maryland state line. Free and open to the public, Ag Adventure will be held rain or shine.

Cosponsored by UD’s Cooperative Extension, Ag Adventure brings together three agricultural events at one location—“Day on the Farm,” the 4-H/FFA New Castle County Livestock Classic, and an Antique Tractor Pull.
**Day on the Farm**
At the fourth annual “Day on the Farm,” kids can find their way out of a straw-bale maze and get a close-up look at tractors and other farm equipment. Free hayrides and farm-fresh food, including homemade ice cream, will be available.

More than 30 exhibitors will attend, including apiarists practicing the centuries-old art of beekeeping and scientists demonstrating the high-tech wonders of global positioning system (GPS) equipment. Visitors will learn where different foods come from, how biotechnology aids farmers and consumers, and about the many products—from food to fuel—made from soybeans.

“Our ‘Day on the Farm’ exhibits get rave reviews every year,” New Castle County Extension agent Carl Davis said. “Our goal is to present hands-on learning experiences that are entertaining and educational for all ages—from young kids to adults.”

**Antique tractor pull**
Ag Adventure visitors also can check out the action at the Antique Tractor Pull. Competitors use their antique tractors to pull a weighted sled as far as possible along a dirt track in this action-packed sport.

**Livestock show**
Ag Adventure also features the 4-H/FFA New Castle County Livestock Classic, which gives young 4-H and FFA members a chance to get livestock show experience before the Delaware State Fair. Exhibitors will parade their carefully groomed goats, sheep, pigs, and cows through the show ring for judging.

Major sponsors of Ag Adventure include UD’s Cooperative Extension, Hoober Inc., Syngenta Corp., Delaware Farm Bureau and the New Castle County Conservation District. For more information on Ag Adventure, call New Castle County Extension, at 831-2667.

Article taken from University of Delaware’s Electronic Newsletter – UDAILY, June 17, 2003 Edition

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### Weather Summary

[http://www.rec.udel.edu/TopLevel/Weather.htm](http://www.rec.udel.edu/TopLevel/Weather.htm)

**Weeks of June 13 to June 18, 2003**

**Rainfall:**
- 0.19 inches: June 13
- 0.18 inches: June 17
- 0.04 inches: June 18

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

**Air Temperature:**
- Highs Ranged from 88°F on June 14 to 64°F on June 17
- Lows Ranged from 72°F on June 14 to 57°F on June 17

**Soil Temperature:**
- 75°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](http://www.rec.udel.edu)

*Compiled and Edited By:*
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*Extension Associate - Vegetable Crops*

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