Vegetable Crops

Vegetable Crop Insect Scouting
David Owens, Extension Entomologist, owensd@udel.edu

Potatoes
Continue scouting for Colorado potato beetle and potato leafhopper. Colorado potato beetle thresholds are 50 adults or 200 small larvae per 50 stems. Leafhopper thresholds are 1 adult per sweep or 1 nymph per 10 leaves.

Historically, European corn borer has been an important pest of potatoes, we have not captured a single ECB moth in our 10 blacklight traps or 6 pheromone traps.

Cole Crops
Continue scouting for worms and harlequin bugs. As we approach head formation in spring broccoli, please note thresholds decrease from 30% infested plants to 5%. There is a wide range of good IPM-friendly materials to choose from for worm pests that will preserve natural enemies. This can be especially important if you are going to have subsequent cole crop plantings in the same locale later this season. Unfortunately, the best treatments for harlequin bugs are pyrethroids and neonicots. Pyrethroids are highly damaging to natural enemies.

Eggplant and Tomato
The most important early season pest of eggplant and tomato are flea beetles. They will leave a shot hole feeding pattern in the leaves. The adults are very small, usually dark colored. Suggested thresholds are 2-8 per plant depending on the size of the plant and growing conditions.

Cucurbits
Cucumber beetles continue to move into new plantings, although their intensity seems to have dropped off from just a few weeks ago. At this time, care needs to be taken to ensure treatments do not negatively impact pollinators. If bees are expected within 7-14 days, it might be better not to use a soil neonicotinoid treatment. Foliar sprays would result in less or no residue in flower nectar and pollen. Excellent cucumber beetle materials include acetamiprid, thiamethoxam, and carbaryl. Note that carbaryl is extremely toxic to pollinators and has a tendency to flare mites.

Begin scouting field edges for spider mites. They typically begin moving into fields around the first two weeks of June. Unless a population developed in a greenhouse, the most likely place they will be found first is around field edges bordering weedy areas - field ditches, center pivot points, obstacles such as old cemeteries etc. Along wood lines, take note of any pokeweed growing. This weed is usually one of the first to be heavily infested by mites and will turn a yellow-pink color when mites feed on it. Of the miticides, abamectin has been the most consistent, best performer in UD spray trials, but pay attention to pollinator protection language on abamectin product labels. At this time, if a treatment is deemed necessary, you might only need to treat the borders, depending on how a field is setup and where the mites are located.

Onion
Small grains are drying down, and this is the time of the year when thrips begin moving in large numbers seeking alternative hosts.
Thresholds are 2-4 immature thrips per leaf. Immatures tend to concentrate at the base of the leaf in the sheath. Getting good coverage with the alliums can be tricky, twin flat fans tend to work a bit better, and use high gallonage.

**Sweet Corn**

Our earliest sweet corn may begin silking soon. Be advised that trap counts have risen recently for corn earworm, with some indicating the potential for a 3-day spray schedule, others a 4-day spray schedule and still yet others capturing very low numbers of earworm. Please note we do not typically move our traps, traps adjacent to silking sweet corn may capture more moths at a given farm than our traps indicate. Many thanks to Dick Monaco for checking traps this year. Insect trap counts and thresholds can be found at [https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/pest-management/insect-trapping/](https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/pest-management/insect-trapping/).

Traps are checked every Monday and Thursday. Thursday trap counts are as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th>Blacklight Trap</th>
<th>Pheromone Trap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dover</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>Harrington</td>
<td>0</td>
<td>58</td>
</tr>
<tr>
<td>Milford</td>
<td>0</td>
<td>82</td>
</tr>
<tr>
<td>Rising Sun</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Wyoming</td>
<td>0</td>
<td>67</td>
</tr>
<tr>
<td>Bridgeville</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Concord</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td>Georgetown</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Greenwood</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Laurel</td>
<td>2</td>
<td>71</td>
</tr>
<tr>
<td>Lewes</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

**Snap Beans**

Continue scouting for defoliating insects and for potato leafhopper. Of the defoliators, bean leaf beetle probably poses the greatest concern because it will scar pods later. Thresholds for potato leafhopper are 5 adults or immatures per sweep.

**Squash**

Squash vine borer may begin to emerge from the soil by the end of next week. This insect typically emerges around 1,000 growing degree days from January 1. In Georgetown we are at 780 and will probably be between 900 and 950 by next Friday.

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**Pay Attention to Potassium Now for Quality Tomatoes Later**

*Emmalea Ernest, Extension Fruit & Vegetable Specialist; emmalea@udel.edu*

Early planted tomatoes should be receiving additional nitrogen (N) and potassium (K) applications as sidedress or fertigation at this time. The tomato section of the [Mid-Atlantic Commercial Vegetable Production Recommendations](https://www.udel.edu/academics/colleges/canr/food-and-agriculture-majors/commercial-vegetable-production/) includes specific recommendations for nutrient applications to tomatoes grown on bare ground and in plasticulture systems. Reproduced below is the table with recommendations for fertigating plasticulture tomatoes on sandy, low organic matter soils (higher nutrient requirements) and fine texture, high organic matter soils (lower nutrient requirements).

Adequate nitrogen is essential for plant growth, but potassium is especially important in fruiting vegetables like tomatoes. Potassium is a part of many vital processes in the plant, but related to fruit production it is involved in moving proteins and sugars into the fruit and regulating sugar production. Tomatoes without adequate potassium develop a ripening disorder called yellow shoulders, in which the top of the tomato fruit remains firm and turns yellow rather than red. Inadequate potassium can also reduce fruit yield and affect quality factors related to flavor in tomatoes. Potassium applications through fertigation should be initiated before flowering starts, with rates increasing later in the season as fruits form.
Fertigation Schedule Examples for Fresh Market Tomatoes
This table provides examples of fertigation schedules based on two common scenarios - sandy coastal plain soils (top chart) and heavier upland soils (bottom chart). Note that this schedule assumes that N and K are applied to the soil before planting, as well as through fertigation. Modify this schedule based on your soil test results and base fertility.

<table>
<thead>
<tr>
<th>Stage and Description</th>
<th>Weeks</th>
<th>Days</th>
<th>N</th>
<th>N</th>
<th>N</th>
<th>K:\O</th>
<th>K:\O</th>
<th>K:\O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preplant (lb/A)³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Early vegetative</td>
<td>1-2</td>
<td>1-14</td>
<td>0.5</td>
<td>3.5</td>
<td>7</td>
<td>0.5</td>
<td>3.5</td>
<td>7</td>
</tr>
<tr>
<td>2 Late vegetative</td>
<td>3-4</td>
<td>15-28</td>
<td>0.7</td>
<td>4.9</td>
<td>9.8</td>
<td>0.7</td>
<td>4.9</td>
<td>9.8</td>
</tr>
<tr>
<td>3 Early flowering</td>
<td>5-6</td>
<td>29-42</td>
<td>1</td>
<td>7</td>
<td>14</td>
<td>1</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>4 Flowering and fruting</td>
<td>7-8</td>
<td>43-56</td>
<td>1.5</td>
<td>10.5</td>
<td>21</td>
<td>1.5</td>
<td>10.5</td>
<td>21</td>
</tr>
<tr>
<td>5 Early harvest</td>
<td>9-11</td>
<td>57-77</td>
<td>2.2</td>
<td>15.4</td>
<td>46.2</td>
<td>2.2</td>
<td>15.4</td>
<td>46.2</td>
</tr>
<tr>
<td>6 Later harvest</td>
<td>12-14</td>
<td>78-98</td>
<td>2.5</td>
<td>17.5</td>
<td>52.5</td>
<td>2.5</td>
<td>17.5</td>
<td>52.5</td>
</tr>
</tbody>
</table>

Fertigation recommendations for 75 lb N and 75 lb K\O²
For soils with organic matter content greater than 2% or fine texture and high or optimum K

<table>
<thead>
<tr>
<th>Stage and Description</th>
<th>Weeks</th>
<th>Days</th>
<th>N</th>
<th>N</th>
<th>N</th>
<th>K:\O</th>
<th>K:\O</th>
<th>K:\O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preplant (lb/A)³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Early vegetative</td>
<td>1-2</td>
<td>1-14</td>
<td>0.25</td>
<td>1.75</td>
<td>3.5</td>
<td>0.25</td>
<td>1.75</td>
<td>3.5</td>
</tr>
<tr>
<td>2 Late vegetative</td>
<td>3-4</td>
<td>15-28</td>
<td>0.35</td>
<td>2.45</td>
<td>4.9</td>
<td>0.35</td>
<td>2.45</td>
<td>4.9</td>
</tr>
<tr>
<td>3 Early flowering</td>
<td>5-6</td>
<td>29-42</td>
<td>0.5</td>
<td>3.5</td>
<td>7</td>
<td>0.5</td>
<td>3.5</td>
<td>7</td>
</tr>
<tr>
<td>4 Flowering and fruting</td>
<td>7-8</td>
<td>43-56</td>
<td>0.75</td>
<td>5.25</td>
<td>10.5</td>
<td>0.75</td>
<td>5.25</td>
<td>10.5</td>
</tr>
<tr>
<td>5 Early harvest</td>
<td>9-11</td>
<td>57-77</td>
<td>1.1</td>
<td>7.7</td>
<td>23.1</td>
<td>1.1</td>
<td>7.7</td>
<td>23.1</td>
</tr>
<tr>
<td>6 Later harvest</td>
<td>12-14</td>
<td>78-98</td>
<td>1.25</td>
<td>8.75</td>
<td>26.25</td>
<td>1.25</td>
<td>8.75</td>
<td>26.25</td>
</tr>
</tbody>
</table>

¹Rates above are based on 7,260 linear bed ft/A (6 ft bed spacing). If beds are closer or wider, fertilizer rates should be adjusted proportionally.
²Drive rows should not be used in acreage calculations. See section C 3. Fertigation for more information.
³Base overall application rate on soil test recommendations.
⁴Applied under plastic mulch to effective bed area using modified broadcast method.
⁵For extended harvest after 10 weeks continue fertigation at this rate.

This table is from page 445 of the 2024-2025 Mid-Atlantic Commercial Vegetable Production Recommendations.

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**Fruit Crops**

**Fruit Crop Insect Scouting**
David Owens, Extension Entomologist, owensd@udel.edu

San Jose scale crawlers should be active now. If you experienced injury on fruit last year (red spots where crawlers settled to feed), control measures should be taken, and especially if a dormant oil application was not made during the winter months. Good options include Centaur (buprofezin) and Seize or Esteem (pyriproxyfen).

White peach scale should already have emerged. If no peach scale treatments were made but trees have significant numbers of scale, another generation should be present around mid-July. North Carolina reports crawler peaks of early May, mid-July, and early September.

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**Agronomic Crops**

**Agronomic Crop Insect Scouting**
David Owens, Extension Entomologist, owensd@udel.edu

**Corn**
Outside of very sporadic cutworm activity, corn insect pests are quiet right now. Continue scouting for cutworm and stink bug on young plants prior to V5-V6. Stink bug are usually only associated with late terminated small grain cover crop. NCSU uses a threshold of 13 bugs per 100 plants.

**Soybean**
Injury and damage from seedcorn maggot is apparent in some fields. Continue scouting emerging beans, particularly in New Castle County and nearby areas of Maryland for slug.
feeding. Typically slug impact wanes after Memorial Day.

Defoliator pests of note that are active right now include bean leaf beetle, green cloverworm, and grasshopper. Grasshopper eggs have begun hatching. While we do not have a threshold for grasshopper in the mid-Atlantic, keep note of areas with high nymph activity. If defoliation begins to reach 30%, a treatment may be advisable.

Sorghum
Scout for grasshopper and cutworm injury in young sorghum and for stand injury from slugs in no-till fields. Sorghum can tolerate as much as 15% stand loss without significant yield loss. Grasshopper thresholds vary but in general are between 5 and 8 nymphs per square yard. Their populations tend to be greatest around field borders and especially near drainage ditches.

Sunflower
For the second time in consecutive years, slugs have destroyed emerging sunflower in my garden. We observed severe slug feeding on sunflower a couple of years ago in eastern Sussex County. Check sunflower plots to make sure that an adequate stand has indeed emerged, particularly in no-till fields.

Alfalfa

Early Season Moth Activity
This is the last report for cutworm and armyworm moth activity. Many thanks to Joanne Whalen and Dvid Armentrout for providing assistance. Trap counts are as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th># of Nights</th>
<th>Total Catch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salisbury, MD</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Seaford, DE</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Sudlersville, MD</td>
<td>7</td>
<td>0 7</td>
</tr>
<tr>
<td>Harrington, DE</td>
<td>7</td>
<td>3 21</td>
</tr>
<tr>
<td>Smyrna, DE</td>
<td>7</td>
<td>4 0</td>
</tr>
<tr>
<td>Middletown, DE</td>
<td>7</td>
<td>1 29</td>
</tr>
</tbody>
</table>

Checking Corn Vegetative Growth Stages for Sidedressing
Jarrod O. Miller, Extension Agronomist, jarrod@udel.edu

Corn at our research station planted early May is at V4, while corn planted in mid-April is past V6 and has already been side-dressed. If you are unsure of which stage you are at, one common method is to count leaves based on the presence of the collar (Figure 1a). While many leaves can be emerged from the whorl, only those with collars are considered fully developed. So the corn plant in Figure 1a would be at V3, even though the fourth leaf is present, but still lacking the collar. As the season progresses, lower leaves are often lost. If fields are lacking in macronutrients N, P, or K, lower leaves could senesce and be lost earlier are nutrients are cannibalized and moved up to new growth (Figure 1b). If you have missed scouting some fields, you may be further ahead that you realize. One trick is to write the leaf number with a sharpie on a selected plant in the field (Figure 1c), but this will require more frequent scouting.

Harvest Aids for Small Grains
Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

There have been a few calls about harvest aids for small grains due to poor weed control. There are only a few options available as harvest aides for wheat and feed barley (nothing labeled for
malting barley). While 2,4-D and dicamba are labeled, we generally do not recommend them for this region.

Aim, Defol, and Sharpen will “burn off” the leaves and provide some drying of the stems, but they are unlikely to kill weeds. And they will not influence weed seed production. When desiccating weeds to facilitate harvest, these products work best on clear, sunny days with high temperature and high humidity. Good spray coverage is important to maximize their effectiveness.

Sharpen up to 2 fl oz
- labeled for feed barley and wheat
- include methylated seed oil and ammonium sulfate
- wait until the hard-dough stage or later
- label says to allow up to 10 days for optimum desiccation although actual time depends on environmental conditions

Aim up to 2 fl oz
- methylated seed oil or crop oil concentrate is required
- nitrogen fertilizer or ammonium sulfate is allowed
- do not harvest for 7 days

Defol up to 4.8 qts
- wheat only
- recommended with non-ionic surfactant or crop oil
- do not harvest for 3 days

Glyphosate
- labeled only for wheat used for feed and feed barley (not labeled for malting barley nor wheat grown for seed)
- apply to feed barley after the hard dough stage when grain moisture is 20% or less; apply to wheat after the hard dough stage when grain moisture is 30% or less.
- see specific glyphosate formulations for adjuvant recommendations.
- apply up to 1 lb ae/A
- apply at least 7 days before harvest

**General**

**Guess the Pest! May 31**
David Owens, Extension Entomologist, owensd@udel.edu

Congratulations to Sara Collins for correctly identifying last week’s non-pest as Polyphemus moth. This particular specimen is a female. She will emit a powerful pheromone that will attract any male from up to several miles away. Polyphemus prefer to feed on elm, birch, willow, oak, and hickory. They do not feed as adults and thus do not live long.

As small grain harvest approaches, fields with weed issues become painfully apparent. This field has more than just wheat in it. What is this weed?
Be Sure to Scout Early Planted Fields for Weeds
Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Looking at my early-planted fields I am seeing weeds starting to emerge even with the “stronger” soil-applied treatments. Even with the best soil-applied herbicide programs, we expect to see weed breaks.

In addition, we are starting to see warmer days and weeds are going to be growing faster than during cooler weather. Weed will be reaching 3 to 4 inches sooner than had they emerged in early May.

Finally, the early planted corn is developing a canopy that can interfere with spray coverage.

Don’t get caught off-guard, be sure to scout these fields and devise a solid approach for your “next step”.

Bagworms are Hatching Now
David Owens, Extension Entomologist, owensd@udel.edu

Bagworms are a threat to conifer windbreaks. They have begun hatching in Georgetown and will continue hatching for the next two weeks. If trees experienced significant numbers of them last year or you have a lot of ‘new’ bags in trees from last year, prepare to treat in mid-June. Do not wait until you see significant defoliation in August before wanting to treat. By then, it will be too late to do much good.

Announcements

UD Weed Science Field Day
Wednesday, June 26, 2024   9:00-11:00 a.m.
University of Delaware
Carvel Research and Education Center
16483 County Seat Highway, Georgetown, DE

Event will include:

- herbicide evaluations in corn, soybeans, and vegetables
- integrated weed management trials, focusing on cereal rye for weed suppression
- crop safety evaluation from herbicide treatments

There is no fee for this event and it is open to all. If you have questions, please contact Mark VanGessel (mjv@udel.edu)

Salinity Affected Lands in Transition (SALT) Conference
June 11 & 12, 2024    8:30 AM - 4:30 PM
Hyatt Regency, Cambridge, MD

Join us for a two day conference discussing the effects of saltwater intrusion on agricultural fields and forests in the Mid-Atlantic. Sessions will include Field and Crop Responses, Landscape Evolution, Water Management, Soils in Transition, Ghost Forests, and Socio-Economic Issues.

Register online at: https://www.agroecologylab.com/salt-conference-2024. Registration closes on June 3.

Pre-Exam Training for DE Pesticide Applicators Category 03
Wednesday, June 5, 2024   8:00 AM - 3:00 PM
Delaware State Fairgrounds, DDA Building, Harrington, DE

This event is for anyone wanting to obtain a Category 03 (Ornamentals & Turf) Delaware pesticide applicators license who would like some training prior to taking the exam.
Are you a Corn Farmer? We Want to Pay You to Earn 1 DE Nutrient Management Credit!

Farmers in DE who grow corn and are interested in learning more about in-season nitrogen modeling tools can participate in a 30-minute, farmer-friendly computer simulation. All participants are paid for participation (up to $150 in a gift card) and earn 1 DE Nutrient Management Credit (1 MD credit also available) for using N model outputs to make management decisions on a virtual farm. Responses are anonymous and personal information will not be shared outside the project team. If you are interested, please fill out this form and you will be sent instructions by email to participate.

Chance to Win $50 Amazon Gift Card by Filling Out a Survey about Mental Well-being

Farmers and ranchers, farm workers, foresters, aquaculture and marine producers and others who live in Delaware Communities and those who work in agriculture related industries are invited to participate in a short survey about mental health and stressors. Your chance of winning the gift card is 1 in 100!

For more information and to participate please visit the anonymous link below. A survey in either English or Spanish is open now through the end of May 2024. https://bit.ly/Cultivemos

Participation in this project is anonymous and is entirely voluntary. You may skip any question that you do not wish to answer, and you may discontinue at any time. Please consider participating in this important Northeast region study. Survey results will help extension educators learn more about these barriers to getting help and what ideas can be shared for reducing the stress farmers, ranchers and growers face.

Participants who complete the survey are eligible to be entered in a drawing for a $50 Amazon gift card. One person will be selected randomly from each state. If you have questions about this survey, feel free to contact Maria Pippidis.
Weekly Crop Update is compiled and edited by Emmalea Ernest, Extension Fruit & Vegetable Specialist and Drew Harris - Kent Co. Ag Agent

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