Welcome to the 2019 WEEKLY VEGETABLE NOTES from UConn Extension Vegetable IPM Program. In addition to reports from CT farms, it also includes inputs from vegetable specialists from MA, NY, RI, NH, VT, and ME. Your contribution is welcome. Pest observations can be submitted to Shuresh Ghimire at shuresh.ghimire@uconn.edu. Good information to include: crop, cultivar if known, prevalence/severity of the problem (photos are great!), control strategies used, and your county.

We have also created a private Facebook group “UConn Extension- Vegetable IPM” for Connecticut Vegetable growers specifically commercial producers to use it as an interactive and useful resource. Feel free to join the group if not already done and share photos (insects/diseases), questions, ideas, etc. that may be helpful to you and other growers!

In this issue, we have:
- Pest Alerts
- Cool, Wet Spring: Managing the Planting Delay
- Twilight Meeting: Backpack Sprayer Calibration and Field Scouting

**Pest Alerts**

**Sweet Corn:** European corn borer (ECB)

Adult ECB (left) and Heliothis net traps (right) (Photos: UMass Extension)

ECB moths are about ¾ inches long, light brown in color with lighter bands on the wings. European corn borer survives the winter in the larval stage, protected inside the stalks of wild
plants and corn stubble. Destruction of corn stubble in the fall, or in early spring before emergence of moths, is important for controlling overwintering populations of ECB.

In southern and central New England there are two generations of ECB during the growing season. The first flight begins in late May or early June.

**Monitoring:**
Pheromone traps capture male moths and are used to monitor when the moth flight starts, peaks and ends, and how big the population is. There are two strains of ECB: the Iowa strain and the New York strain. Designate one trap for each strain, and place the two traps 50 to 100 feet apart in a weedy or grassy border of the corn field. To catch the beginning of first flight, put traps up by mid-May.

Field scouting: Field scouting for ECB begins when the tassels first appear in the whorl. Walk in a V or X pattern to sample plants in groups of five. To make a decision about the need to spray, you will need to sample 50-100 plants. Close inspection may be needed to find small ECB larvae feeding within whorl or tassels.

Action threshold at pre-tassel to green tassel: If 15% or more of plants have one or more ECB caterpillars or show fresh feeding damage, a spray is needed. Information about management options are available at [https://nevegetable.org/crops/insect-control-6](https://nevegetable.org/crops/insect-control-6).

**Brassica:** [Cabbage Root Maggot](https://nevegetable.org/crops/insect-control-6) is a pest of cabbage, broccoli, and related (cruciferous) crops and weeds. Adult flies lay their eggs at the base of plants and larvae tunnel in stems and roots. Light infestations can kill small seedlings and transplants, delay plant development, or render root crops like radish unsalable; high populations can kill older plants or reduce yield.

The NEWA cabbage Maggot model estimates that we had peak flight (50% emergence) of the overwintered population in the first week of May, and now we are at >75% emergence. You can check the Degree Days Accumulation and pest predication at your location at: [http://newa.cornell.edu/index.php?page=cabbage-magot](http://newa.cornell.edu/index.php?page=cabbage-magot).
Yellow sticky cards attract adult flies and can be deployed in or slightly above the canopy. Check and change cards every 3-5 days. If you have transplants hardening off in a cold frame or outdoors, flies may find them and lay eggs in the flats. To check for eggs in the field or in flats, look for white eggs that are laid along the stem, or in and on the soil near the stem of young transplants. Eggs may be more abundant in wetter areas of the field. See below the table for comparison among seed corn, cabbage and onion maggots.

<table>
<thead>
<tr>
<th></th>
<th>Seed Corn</th>
<th>Cabbage</th>
<th>Onion</th>
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<tbody>
<tr>
<td><strong>Host</strong></td>
<td>40 different plants, large germinating seeds, seedlings (including allium and brassica!)</td>
<td>Brassicas</td>
<td>Alliums</td>
</tr>
<tr>
<td><strong>First peak flight</strong></td>
<td>360 GDD base 40°F</td>
<td>452 GDD base 40°F</td>
<td>735 GDD base 40°F</td>
</tr>
<tr>
<td><strong>Adult</strong></td>
<td>Small: ~3mm, 3 stripes on the thorax</td>
<td>Medium: ~5mm, 2 stripes on the thorax.</td>
<td>Large: ~6mm.</td>
</tr>
<tr>
<td><strong>Eggs</strong></td>
<td>Hatch in 2-4 days</td>
<td>Hatch in 7-10 days</td>
<td>Hatch in 2-5 days</td>
</tr>
<tr>
<td><strong>Larvae (maggot)</strong></td>
<td>Active for 3 wks</td>
<td>Active for 2-4 wks</td>
<td>Active for 2-3 wks</td>
</tr>
<tr>
<td><strong>Pupae</strong></td>
<td>In soil for 1-2 wks before next gen adults emerge</td>
<td>In soil for 2-3 wks before next gen adults emerge</td>
<td>In soil for 3-4 wks before next generation adults</td>
</tr>
</tbody>
</table>
Check out this recent webinar on cabbage maggot management: [https://www.youtube.com/watch?time_continue=2364&v=--bz13nflThA](https://www.youtube.com/watch?time_continue=2364&v=--bz13nflThA)

**Flea Beetle**: Brassica flea beetles only feed on brassica crops; those found on corn or solanaceous crops are different species. Adults spend the winter outside the field, in shrubby or woody borders, and move into fields in May and begin feeding and mating. Eggs are laid in soil near the plant. Larvae feed on root hairs and pupate underground. New adults emerge in late July or early August and feed throughout August. Spring crops are damaged by over-wintered adults, while fall crops are damaged by summer adults.

No surprise, brassica flea beetle damage has been observed in many farms in CT. Row cover provides great protection, but some chewing through row cover was also observed! Check out this recent webinar on flea beetle management: [https://www.youtube.com/watch?time_continue=113&v=qMqjCw_4szQ](https://www.youtube.com/watch?time_continue=113&v=qMqjCw_4szQ)

Brassica flea beetles damage without row cover (left) and with a row cover (right) (Photos: S. Ghimire)

**ANTS**: In broccoli and cabbage transplant, some plants roots had ant feeding (observed in 3 farms in CT). Tiny black ants were seen at the site (image below). Also in MA, in a high tunnel tomatoes that were planted 3 weeks ago, all plant roots had ant feeding! Diatomaceous earth provides some control.
Lettuce: **White grub**, a larva of a scarab beetle, is white with a C-shaped body, brown head, and three pairs of legs. The hind portion of the abdomen is slightly enlarged and appears darker. They were found in lettuce plots in CT. Insecticides may be needed to control adult beetles if numbers are high and damage is significant. The [New England Vegetable Management Guide](https://www.ct.gov/ctefo/en-vision-project/document-library) lists products for this pest in asparagus, basil, okra, and sweet corn. For controls in other crops, check the label of commonly used broad spectrum synthetic pyrethroids, carbamates, and neonicotinoids. Organic options include neem products and pyrethrin.
To put it nicely, the weather is dictating a revision of many folks’ planting plans. Working a field too early, before it has had time to properly dry out, will reduce the soil health and can cause long-term damage. Compaction is the primary concern. **Compacted soil can interfere with all sorts of root-zone plant and soil functions, including:**

- root exploration of the soil and nutrient/water uptake
- water percolation into and through the soil profile
- reduced soil air, increased soil water, and therefore greater incidence of anaerobic conditions
- nitrogen loss, promoted by anaerobic and water saturated conditions
- Increased root rot incidence (stressed roots + disease favoring, poorly drained soil conditions)

Compaction can occur in both the plow layer (usually top 6-8”) and deeper in the soil. Plow layer compaction is caused by traffic, working the ground too wet, and the downward pressure of the plow implement on the soil. Traffic compaction is both a surface and subsurface compaction concern. Subsurface layers that are wet can be compacted even if upper soil layers are friable, and the depth to which compaction can occur is based on axel weight. Iowa State Extension cites a compaction risk to soil at a depth of 12” when it is at field capacity and driven over by vehicles with more than 7-8 tons of weight per axle.

**To help avoid compaction:**

- Check the moisture of your soil throughout the plow layer to see if it is friable. Friable soil will easily form a ball when squeezed, without dripping moisture, and will shatter when that ball is dropped onto the ground.
- Larger tires, when properly inflated, help distribute the weight of equipment over a larger surface area.
- When possible, reduce the intensity of your tillage. Disc instead of moldboard if you can. This will reduce plow pressure on the soil aggregates and reduce the formation of compacted plow pans at the bottom of your tillage depth.
- Control the flow of traffic as much as is practical. Can you follow the same tractor passes to fit, fertilize, apply PRE herbicides to the field, or plant? Doing so will reduce the land area subjected to compaction from traffic.

Obviously there is pressure to get caught up as soon as possible. Here are some other **benefits of waiting until your ground is fit for field operations:**

- Applied N will stay put better than N applied to wet (and compacted, anaerobic) ground.
- Reduced risk of root rots. Pythium and friends like wet soil. Plant roots do not. Drier soils = less favorable disease environment and less susceptible (less stressed) plant roots.
• Greater plant ability to grow deep roots in search of moisture later. If the summer turns dry, plants will have a hard time growing through compacted soils to access moisture, which means you'll need to irrigate more frequently.

• Your field will drainage won’t be worse next year because it was worked too soon this year

• You’ll kill more weeds if you wait. The summer annual weeds are delayed by cold, wet soils and many have not yet germinated, so your final bed prep step(s) may not help reduce the seed bank and lighten the load on your PRE herbicides like it normally would.

• The soil is cold. Seeds take longer to germinate and transplants take longer to establish. Both are more susceptible to disease in cool, wet soils.

• Many PRE herbicides have a higher crop injury risk in cool, wet soils, especially if the crop is slow-growing and cannot metabolize the active ingredient as efficiently. Plus, PREs only control weeds for so long, and the more the weed germination period overlaps with the window of herbicide efficacy, the fewer weeds you’ll have.

To help manage the delay:

• Slow transplants down by restricting water and lowering greenhouse temperature. Don’t send them into drought stress, just change your watering schedule to deliver smaller amounts more frequently to raise them on the drier side. Keep the greenhouse temperature above the chill injury range for the most cold-sensitive crop you’re raising.

• Increase greenhouse space by kicking mature plants out into cold frames or onto wagons. Plants on wagons can harden off outside during the day, and be drawn into a slightly warmer building during cold nights.

• Go over your equipment one more time and make sure everything is in the best working order possible.
UConn Extension Vegetable IPM Program
Twilight Meeting: Backpack Sprayer Calibration and Field Scouting

Date: Thursday, June 6th, 2019 4.30 pm-7.00 pm
Location: Fulton Park, Cooke St, Waterbury, CT
(Further directions to the site will be provided later)

2.5 Pesticide Recertification credits for this meeting is under review.

Research Farm Manager of Griswold Research Center, The Connecticut Agricultural Experiment Station, Robert Durgy will lead a hands-on workshop to help you evaluate the effectiveness of your backpack spray applications. Key components include nozzle selection, correct calculations, and calibrating for your sprayer pressure at your walking speed.

Field scouting is a crucial step in integrated pest management. A detailed assessment of pests or abiotic problems helps to make appropriate management plans. Scouting assesses the magnitude of pests or abiotic disorders within a field. In this workshop, UConn Extension’s Vegetable Specialist Shuresh Ghimire will demonstrate scouting techniques and diagnostics and identification of insects, diseases, and disorders for vegetable crops.

RSVP to shuresh.ghimire@uconn.edu or 860-870-6933 by June 1st