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EXTENSION

Vegetable Pest Alert

July 2, 2022

Early blight on tomatoes and eggplants was found on high tunnel- and field- grown tomatoes as well as on eggplants this week in CT. It first appears as small brown to black lesions on older foliage. The tissue surrounding the initial lesion may become yellow, and when lesions are, numerous entire leaves may become chlorotic. As the lesions enlarge, they often develop concentric rings giving them a 'bull's eye' or 'target-spot' appearance.

Early blight and Septoria leafspot can be very destructive of tomato and both diseases may occur together, and both may be seed-borne. For next seasons: hot water treat seeds at 122º F for 25 minutes. Plow under plant debris after harvest. Rotate away from tomatoes for at least 2 years. Provide optimum nutrition throughout the season. If planting in an area with a history of either disease, begin fungicide applications before disease is evident, usually when first fruit are half grown. See https://nevegetable.org/crops/disease-control-23 for management options.

Early blight of tomato (Photo: UMN Extension)

Spider mites on eggplant was observed this week in Northford, CT. The two-spotted spider mite is the most common mite species that attacks vegetable and fruit crops in our region. Spider mites can occur in tomato, potato, vine crops such as melons, cucumbers, and other crops in addition to eggplants. Two-spotted spider mites have up to 20 generations per year and are favored by excess nitrogen and dry and dusty conditions. Outbreaks are often caused by the use of broad-spectrum insecticides which interfere with the numerous natural enemies that help to manage mite populations. As with most pests, catching the problem early will mean easier control.

Feeding injury often gives the top leaf surfaces a mottled or speckled, dull appearance. Leaves then turn yellow and drop. Large populations produce visible webbing that can completely cover the leaves.

Spider mite damage on eggplant (photos: S. Ghimire)

In the field, spider mites are favored by hot dry weather, which also aggravates injury by stressing the plant. Damage is often underestimated since the wounds and the pest are not apparent to our eyes without close inspection. Leaves become blotched with pale yellow, reddish brown spots ranging from small to large areas on both upper and lower leaf surfaces. Other symptoms caused by either severe or constant attack include distorted leaves, overall loss of plant vigor (in spite of adequate moisture and nutrition), whitening or spotting of leaves, yellowing of the plant or some of the leaves, and in some cases loss of foliage and death

Overhead irrigation or prolonged periods of rain can help reduce populations. Do not over-fertilize. Avoid weedy fields and do not plant eggplant adjacent to legume forage crops. Avoid planting eggplant near dusty, high-traffic farm roads. Scout by searching leaves for symptoms and webbing, and using a 10- to 15X hand lens to identify mites. See https://nevegetable.org/crops/insect-control-8 for spray options.

Sap beetles in sweet corn

Sap beetles were recently seen in high numbers in CT and were also observed in MA. Sap beetles are usually a secondary pest in corn and don't tend to drive pesticide sprays. They are especially attracted to peaches or other rotting fruit, so you may notice more sap beetles if your sweet corn is located near an orchard. Sap beetle adults lay eggs in ear tips and larvae feed in the kernels before dropping to the ground to pupate in the soil. Cultivars with exposed ear tips are more susceptible to damage than those with good tip cover.

Sap beetles adults and larva on sweet corn (photos: Utah Extension)

Scout blocks at full tassel and early silk to determine if beetles are present. Unfortunately, there are no specific thresholds based on scouting. Insecticides may be warranted in fields with a previous history of 10% ear damage. Research in Maryland showed that ear infestation begins just after silk emerges and that 1 or 2 applications made 3 and 6 to 7 days after silking begins is more effective than later or more applications. Insecticides will reduce the number of damaged kernels and ears but will not completely control heavy infestations. Sap beetle adults and larvae are not susceptible to the *Bt* toxin that is present in *Bt* corn. Efficacy trials have shown that carbaryl (Sevin), lambda-cyhalothrin (Warrior II), bifenthrin (Bifenture), and methomyl (Lannate) are more effective than most other insecticides. However, carbaryl cannot be used during the early silk period while corn is shedding pollen and does not allow for hand harvesting after use.

Tobacco hornworm was observed this week in CT. It is also called a sphinx moth or Carolina sphinx moth. Tobacco hornworm and tomato hornworm both look similar (6 pairs of yellow spots in tobacco hornworm vs 5 pairs in tomato hornworm) and are pests of tomatoes. The adults are large moths, predominately gray or gray-brown with lighter markings. They emerge from over wintered pupae in the soil in late spring or early summer. This tunnel had severe hornworm problem last year.

Look for the large pellet-like fecal droppings on the plastic under the plants, defoliation of leaves with only bare stems remaining, or surface feeding scars on green fruit. Caterpillar infestations usually begin in July and may extend through September. Use selective insecticides to preserve natural enemies and avoid secondary pest outbreaks (i.e. aphids). Bt containing product (e.g. Dipel and XenTari) are effective and should be rotated for resistance

management. These products must be ingested; apply in evening or early morning, before larvae are actively feeding. Adherence will improve with use of an approved spreader-sticker.

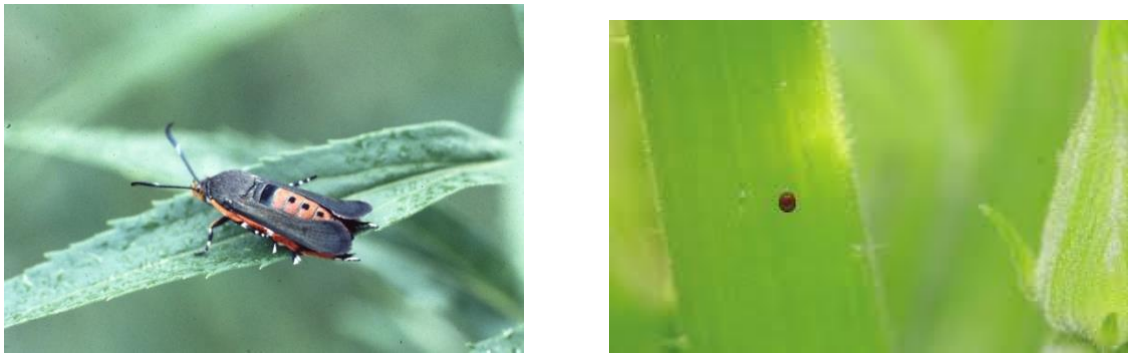
Adult form of *tomato hornworm*, sometimes called the five-spotted hawkmoth. Photographs by Jeremy Whipple, MPTN (left); by John Capinera, University of Florida (below).

Spotted cucumber beetles does not overwinter here but disperses from more southern areas. They were spotted this week at a farm in South Windsor, CT. It feeds in a very wide range of crops and weeds and is often found in flowers. Adults are yellowish green with 12 black spots and a black head. This pest rarely builds up to damaging levels in New England. However, note that striped cucumber beetles are a key pest of all cucurbits crops in our region and requires cultural and often chemical controls to prevent direct feeding damage and transmission of bacterial wilt. Scout and treat for spotted cucumber beetle the same way as for striped cucumber beetles.

Squash lady beetle aka squash beetle adults were spotted this week at a farm in Woodbridge, CT. Most lady beetles in North America are beneficial as both adults and larvae, feeding primarily on aphids. They also feed on mites, small insects, and insect eggs. The two exceptions are the introduced Mexican bean beetle, and the squash beetle. The adults and larvae of both species feed on plants. Usually squash beetles exist in such small numbers that they do not require control. However, extensive defoliation on young plants, or direct fruit feeding, may necessitate management. Squash beetles have seven large black spots on each wing covering (Mexican Bean Beetles have eight on each wing covering), and an additional four smaller black spots on the middle portion (thorax) of the beetle, just behind the head. Mexican bean beetle most often builds up to damaging levels where snap beans are grown in the same or adjacent fields over successive years.

Squash Beetle adult and larva.

Squash vine borers. The trap capture (Scentry Heliothis pheromone trap) was 8 in a farm in Berlin, 2 in a farm in Norwich, 6 in a farm in Falls Vilalge. They lay their eggs on the base of cucurbit plants (winter squash, pumpkins, zucchini are hosts, cucumber, watermelon, and butternut are not hosts). Once larvae have bored inside the stem, insecticide application will have little control. So, application should be applied with the first sight of adult activity. Threshold for spraying is 5 moths/trap for crowning cucurbits and 12 moths/trap for vining cucurbits. Treat base of stems thoroughly to target hatching larvae. Some selective materials used for other caterpillars in squash, such as spinosyns and *Bacillus thuringiensis* aizawi, have demonstrated efficacy in trials. See New England Vegetable Management Guide for spray options.



Squash vine borer adult (left) and egg laid singly on the stem of a cucurbit (photo credit: Alan Eaton, University of New Hampshire Cooperative Extension)

Corn earworm (CEW). Trap captures are low this week. It was 0.33/night in a farm in Berlin; 0 in Shelton, and 0.1/night in Norwich. CEW feeds in a wide range of crops and among vegetables its favorite crops are corn and tomato (hence it is also known as 'tomato fruitworm').

Table. Spray Intervals for Corn Earworm based on moth captures in Heliothis net traps.

Moths/Night	Moths/Week	Spray Interval
0 - 0.2	0 - 1.4	no spray
0.2 -0.5	1.4 - 3.5	6 days
0.5 - 1	3.5 – 7	5 days
1 - 13	7 – 91	4 days
Over 13	Over 91	3 days

Corn earworm, photo by D. Ferro

European corn borers (ECB) are continuing to be trapped. This week 5 ECB NY moths were captured in a trap set Berlin; 1 ECB NY in Shelton; 1 ECB IA in Norwich this week. Corn with newly emerging tassels should be scouted weekly for the presence of ECB larvae by inspecting the tassels of 50 to 100 plants, in groups of 5 to 20 plants throughout the field. Treat if more than 15% of the plants have one or more larvae present. Use of selective products to control ECB will conserve natural enemies of aphids and ECB.

Continue to be on the lookout for

- Tomato Spotted Wilt Virus (TSWV)
- Verticillium wilt on eggplant
- Basil downy mildew
- Squash bugs
- Squash vine borers
- Bacterial leaf spots on peppers
- Imported cabbageworm and diamond back moth in brassica
- Colorado potato beetle
- Potato leaf hopper
- Thrips and aphids on tomato, peppers
- Brassica flea beetle
- Striped cucumber beetles
- Allium leaf miner
- Fall armyworm

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