

Vegetable Pest Alerts

June 21, 2024

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EXTENSION

What to be on the lookout for...

Heat stress in plants:

High heat and moisture stress can cause pollination issues including blossom drop and fruit abortion in tomatoes, peppers, eggplants, and promote male flowers in cucurbits. In the case of cucumbers, squash, and pumpkins, cool temperatures promote development of female flowers, and the ratio of male to female flowers is reduced. Generally high temperatures promote male flowers and delay female flower development. Typically for pumpkins, daytime temperatures of 90 ° F or above and nighttime of 70 °F or above lead to abortion of female flower buds.

Conservation tillage, particularly no-till or strip-till, used in conjunction with soil cover practices (like cover crops) can lead to a range of soil health benefits including greater drought resilience and improved agricultural productivity. Paper, plastic (white, white on black, or reflective), or straw mulches provide soil cooling effect. Plastic and straw mulches also conserve soil moisture. But black plastic mulch increases the soil temperature, especially when there is not enough soil moisture.

Pesticide damage to plants (phytotoxicity)

Phytotoxicity may occur when pesticides (especially soaps, oils, and sulfur compounds) are sprayed under adverse weather conditions, especially in high temperature and on stressed plants. Phytotoxicity may also result when incompatible chemicals are applied at the same time. Damage may also occur due to wind drift onto nontarget or sensitive plants.

Apply pesticides during the cooler part of the day, such as the early morning or evening. Treatments made in the early morning allow foliage to dry before temperatures reach 85–90°F. Treat when conditions allow plants to dry quickly. Apply pesticides only after crops have been irrigated and show no signs of moisture stress. Do not apply pesticides with a fertilizer. Always check label directions for cautions regarding sensitive plants and combining pesticides.

Below are some pictures of possible phytotoxicity.



*These squashes were sprayed with Pristine + Pyganic. The Pristine label mentions "... evaluation indicates that tank mixes of additive, adjuvants, and/or other products with Pristine may result in injury... that under some conditions (particularly **high temperatures** and/or high additive rates), application of Pristine in combination with certain rates of silicone-based or oil-containing (petroleum or crop) additives or adjuvants can cause injury to some cucurbit crops".*

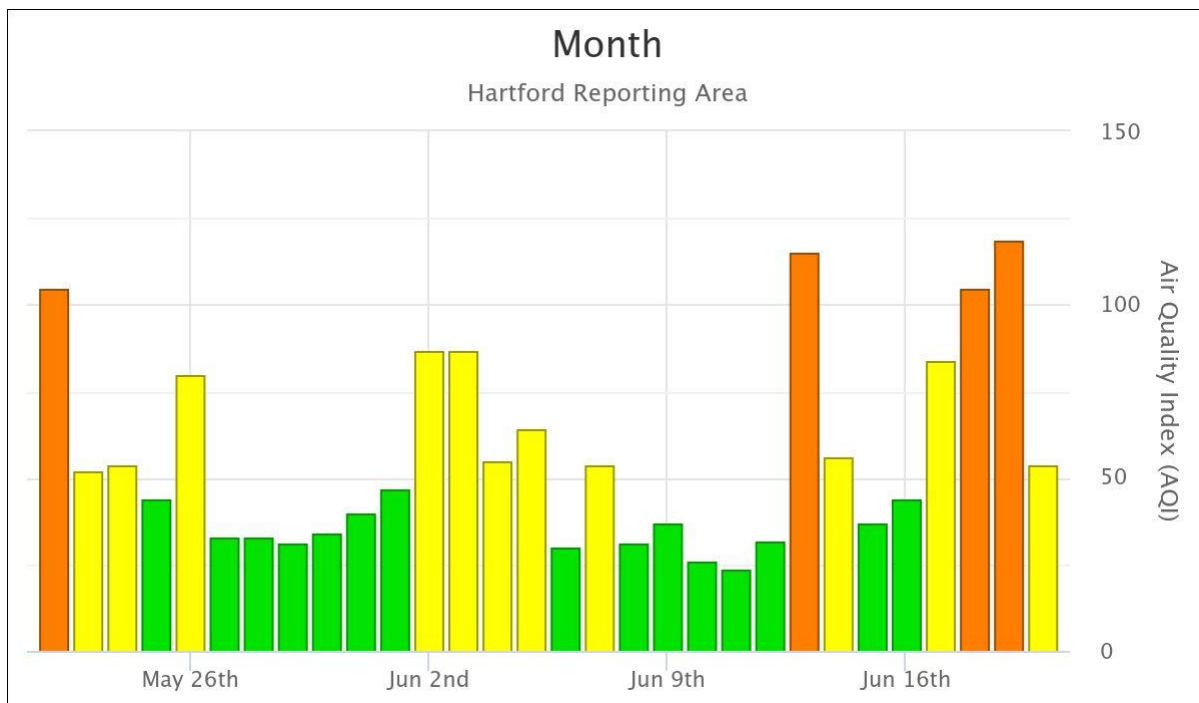


Possible pesticide + heat injury on cucumber plant from Assail spray.

Ozone injury

Ozone is the most common air pollutant in the eastern United States. Ozone is formed by the action of sunlight on products of fuel combustion. It is moved from areas of high concentration (cities, heavy traffic areas) to nearby fields by wind. Common symptoms of ozone injury are very small irregularly shaped spots that are dark brown to black or light tan to white on the upper leaf surface. Injury is usually more pronounced at the leaf tip and along the margins. Injury is most likely during hot, humid weather with stagnant air masses.

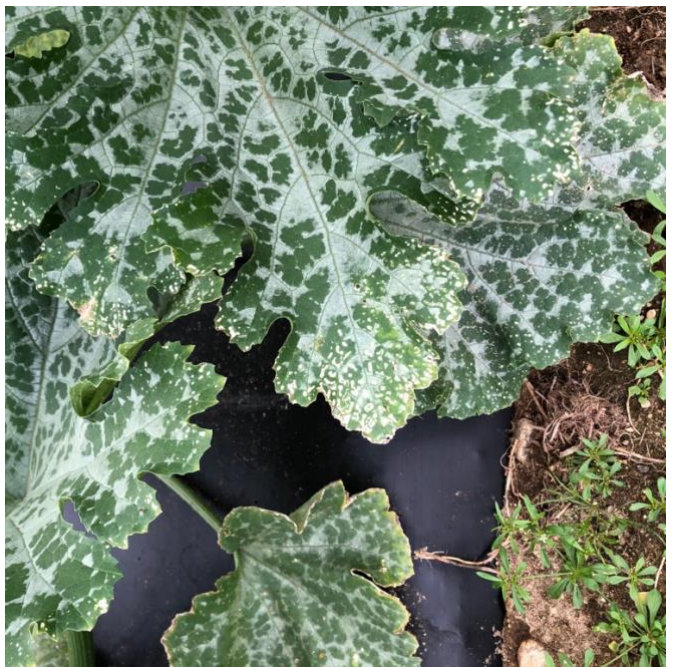
There were a few surges on ozone level to toxic levels for crops in Connecticut this month (figure below). Ozone injury in susceptible vegetable varieties develops when ozone levels are over 80 ppb for four or five consecutive hours, or 70 ppb for a day or two when vegetable foliage at a susceptible stage of growth. See Air Quality Guide for Ozone and Particle Pollution: <https://floridadep.gov/air/air-monitoring/content/air-quality-index-aqi> to see the relationship between AQI and Ozone levels. For example, ozone concentrations would be 71-85 ppb when AQI is 101-150. Susceptible vegetables are cucumber, potatoes, watermelons, cantaloupes, snap beans, pumpkins, and squash.



This chart shows the daily AQI in Hartford for the last 30 days. **Source:**

<https://www.airnow.gov/?city=Hartford&state=CT&country=USA>

The recommendation is to the extent possible avoid additional stresses on the plants. Do not apply unwarranted pesticides or nutrients. Note which varieties show fewer symptoms and, in the future, select varieties that are less susceptible.



Potential ozone injury on *cantaloupe* (top left, *Maryland Extension*), *cucumber*, and *squash* (bottom right).

Onion thrips

Onion thrips are active, and we expect their numbers to rise rapidly with these hot temperatures. Heavy rain or overhead irrigation can lower populations. Scout plants along field margins where infestations build early, as well as checking across the field. Look closely between the leaf blades to find the light-yellow nymphs or darker adults. Damage may appear as silver lines, white patches, tip dieback, curling and twisting of leaves, slowed growth, reduced bulb size and yields, or if severe enough can result in plant death. Begin applications when damage is first noticed or when there are 3 or more thrips per leaf.

The most effective material for organic growers is spinosad (e.g. Entrust) applied with insecticidal soap (e.g. M-Pede) to increase efficacy. Entrust can only be used two times in a row before rotating to a different insecticide class. Neem oil (e.g. Trilogy) and azadirachtin (e.g. Azatin O) may be effective also if applied when populations are still low. Pyrethrin (e.g. Pyganic) can provide knockdown control. See <http://nevegetable.org/crops/insect-control-14> for more spray options.



Thrips nymphs on onion leaf
(Photo: UMass Extension)

Striped cucumber beetles

Striped cucumber beetles are active. Young plants are particularly vulnerable to the feeding damage from SCB, as well as to bacterial wilt, the disease vectored by SCB. Adults overwinter primarily in field edges near last year's crop, with a small proportion remaining in the field. With the onset of warm days (> 50° F), beetles feed on pollen in early-blooming wild plants. High tunnel and greenhouse cucumbers draw beetles first, followed by early field crops.

Cucumber and muskmelon are highly susceptible to bacterial wilt; treat those crops if 1 beetle is found for every 2 plants. Butternut, watermelon, and most pumpkins are less susceptible to bacterial wilt and can tolerate 1-2 beetles per plant. Cover new plantings with row cover to exclude beetles, or plan to protect them with an insecticide. There aren't many bee-friendly options for chemical control, so get populations under control early on to prevent the need to spray during flowering or consider spraying in the evening after bees have stopped foraging. The most effective OMRI-listed material is pyrethrin (e.g. Pyganic). Small plants can also be protected using kaolin clay (e.g. Surround),



Striped cucumber beetles

which needs to be reapplied to protect new growth. See <https://nevegetable.org/crops/insect-control-7> for the list of pesticides that can be used to control SCB.

Squash vine borer

SVB moths have been caught in traps this week (7 moths this week in a trap in Berlin, CT). In the next few weeks, female moths will lay their eggs at the base of thick-stemmed cucurbit crops (e.g. summer squash, zucchini, giant pumpkins, and some winter squash. Thin-stemmed crops like cucumber, watermelon and butternut squash are less habitable for the larvae). 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.

Monitor with a Scentry Heliothis pheromone trap. 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 (above) and egg laid singly on the stem of a cucurbit (photo credit: Alan Eaton, University of New Hampshire Cooperative Extension)

Mexican bean beetles

Be on the lookout for Mexican bean beetles. Adults and larvae feed primarily on leaves, but when numbers are high, they will also damage pods. Feeding damage over 10-20% can cause yield loss. Plants are most sensitive in the pod fill stage. Scout for MBB by searching plants for adults, eggs and larvae, and assessing damage. Prompt destruction of crop residue after harvest helps lower overwintering populations. Avoid continuous production of beans in the same or adjacent fields year after year. Annual releases of the larval parasitoid *Pediobius foveolatus*, timed to coincide with egg hatch, can help control beetle larvae.



Mexican bean beetle adult, eggs, and larvae (photo: UMass Extension)

Field experiments at Virginia Tech have shown that MBB are less likely to colonize and deposit eggs on beans planted on metalized and white plastic mulches, compared to bare ground and black plastic. Beans planted on metalized and white plastic mulches also had less foliar damage, less pod damage, and significantly greater yields than beans grown on black plastic and bare ground.

Azera (combination of azadirachtin and pyganic) or Suffoil X (petroleum oil) are labeled, and are more effective at larval stage.

Potato leaf hopper

Potato leafhoppers are being seen in susceptible crops such as beans and potatoes. They are also an important pest of eggplant. Presence of nymphs indicates an established population. Signs of injury begin with leaf veins turning pale, followed by yellowing or browning of areas of the leaf or leaf tips, which is known as ‘hopperburn’. Leaves become brown, curl up, and die. Plants may be stunted, and yields reduced or lost. This process may take less than a week. PLH may also vector many viruses.

Scout using sweep net or observing adults flying up when plants are shaken. Nymphs can be counted on undersides of leaves. Seedling beans should be treated if they have 2 adults per foot of row. From 3rd trifoliolate leaf to bud stage, treat when PLH exceed 1 nymph/leaflet or 5



Hopper burn on the left and potato leafhoppers on the right.

adults per foot of row, and repeat application in 7 to 10 days, if necessary. In potatoes, treat if more than 1 adult per sweep is found or more than 15 nymphs are found per 50 leaves. Be sure to treat lower leaf surfaces. In fields where a systemic seed treatment was used, foliar treatment should not be needed before bloom. See <http://nevegetable.org/crops/insect-control-18> for spray options.

Corn earworm. CEW moths have begun to be captured in traps across the region. Trap capture was 3/week this week in a farm in Berlin, CT. 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').

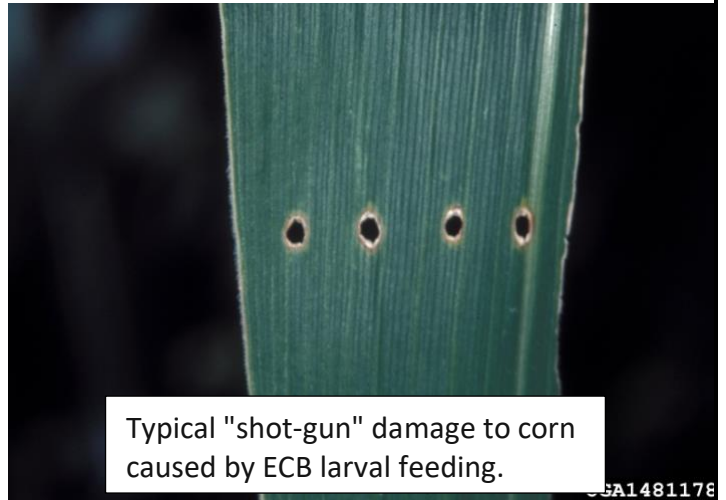
Table. Spray Intervals for Corn Earworm based on moth captures in Heliothis net traps.

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, but in low numbers. 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.



Thanks for reading!

This report was prepared by Shuresh Ghimire, UConn Extension. All photos in this publication are credited to UConn Extension Vegetable IPM Program unless otherwise noted.

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