

## Vegetable Pest Alert

July 8, 2023

**Brassica caterpillar pests:** Be on the lookout for Caterpillars of imported cabbageworm (ICW) and diamond back moth (DBM).



ICW (left) and DBM (right) larvae

Damage of ICW includes round or ragged feeding holes and deposits of wet, green or brownish frass. DBM when disturbed, wiggle vigorously and may drop off the plant on a string of silk. DBM feeding causes small, round holes and tends to be spread across the foliage rather than concentrated in the head.

Scout fields by checking leaves (top and bottom) on 25 plants across the field. Treat plants between the start of heading and harvest if 20% or more of the plants are infested. The most critical time to scout and apply chemical controls is just prior to head formation. Use a 10% to 15% threshold throughout the season for kale, collards, mustard, and other leafy greens.

Parasitic wasps that attack caterpillars include *Cotesia rubecula* on ICW and *Diadegma insulare* on DBM; their small white cocoons may be found on leaves. DBM has become resistant to many synthetic and microbial insecticides. Even if you are getting excellent control of this pest with the materials presently being used, you should alternate between effective materials to retard development of resistance. Newer materials and the aizawai strain of *Bacillus thuringiensis* will usually provide better control of resistant DBM than older products. See <http://nevegetable.org/crops/insect-control-3> for spray options.

### **Alternaria leaf spots and black rot of brassica**

Be on the lookout for foliar diseases like Alternaria leaf spot and black rot which can be expected to spread after all of the recent rain. Disease spread may be inevitable with all of this rain, but minimizing working in fields with wet foliage can help slow the spread. Spray options:

<https://nevegetable.org/crops/disease-control-3>



Black rot symptom on a cabbage leaf

### **Leaf mold of tomato**

The recent hot, humid weather in combination with tomato plants rapidly growing into dense plantings in high tunnel or greenhouse creates the perfect environment for the fungal diseases like leaf mold. To control leaf mold, it is critical to improve airflow and reduce humidity by venting, pruning, and checking placement of fans. Removing infected foliage can slow the spread of disease from leaf to leaf and plant to plant. See

<https://nevegetable.org/crops/disease-control-24> for spray options.



Early leaf mold symptoms: yellow spots on surface of leaf.



Typical early leaf mold lesions: yellow on top of leaf, brown and sporulating on underside of leaf.

Photos: Cornell Univ. Coop. Ext.

### Leaf curling in tomatoes

Curling or distortion of leaves can be caused by various factors such as moisture or heat (physiological) stress, viral infection, insects, mites, or herbicide injury. Correct diagnosis is critical for successful management.

**Physiological leaf roll** from excessive moisture and nitrogen, several pruning, root damage or transplant shock are usually apparent in the lower leaves with an upward cupping of leaflets. Usually, this condition has minimal impact on plant growth and fruit production.

**Herbicide injury:** When tomato plants are exposed to the herbicide 2,4-D, typical symptoms include downward rolling of leaves and twisted growth. In addition, stems may turn white and split; fruit may be deformed. Whereas glyphosate injury causes yellow to white coloring of the growing point area.



Physiological leaf roll



2,4 D injury on tomato plants (photo: Emma Lookabaugh)





Tomato plant showing typical glyphosate injury of the yellow to white coloring of the growing point area.

#### **Viral infection:**

There are several viral diseases that can infect tomato plants. The symptoms may include mottled light and dark green on leaves. Leaves may be curled, malformed, or reduced in size. If plants are infected early, they may appear yellow and stunted overall.



Potato Virus Y (PVY) on tomatoes.



Tomato Spotted Wilt Virus (TSWV) symptoms include necrotic spots on the upper sides of young leaves – Cornell University.

Broad mite damage: Early feeding is mainly concentrated near the growing point on the underside of a leaf near the stalk, which tends to cause the leaf to curl and become twisted and distorted.



Leaves of tomato twisted and deformed by broad mite feeding.

G Brust, University of Maryland

**Gummy Stem blight/black rot of watermelon** was spotted this week in CT. Black rot is the fruit rot phase of the gummy stem blight pathogen. It is characterized by a distinctive black decay of the fruits of all cucurbits. Symptoms include brown, gummy exudate from the stem; small fruiting bodies may appear as black specks in diseased tissue. Stems may be girdled on seedlings and the plant dies, or on older plants stem cankers lead to wilt and decline. Small, water-soaked spots develop on fruit, enlarge, and exude gummy material and contain many black, fruiting bodies.





Leaf spot of gummy stem blight showing zones.

Photo credit: Virginia DuBose, Clemson University.

The pathogen may be carried in or on seed. In the field, the fungus can survive in infected plant residue for more than one year. The disease is favored by relative humidity over 85% and leaf wetness periods greater than one hour. The optimum temperature for disease development is 75-77° F. Leaves are penetrated directly by the fungus, stems are infected through wounds or expansion of leaf lesions, and fruit are infected through flower scars or wounds. Wounding, striped cucumber beetle injury, aphid feeding, and Powdery Mildew all predispose plants to gummy stem blight infection.



This image shows the vine lesions how they can be seen only in specific sections. Sometimes the plant will die before the different lesions merge. One way to reduce gummy stem blight's ability to spread is to promptly bury crop debris. The black fruiting bodies eject airborne spores that help them spread to healthy tissue. (Photo: Matt Debacco)

Rotate out of cucurbits for two years. Crop debris should be plowed under promptly after harvest. Control of black fruit rot starts with control of gummy stem blight. Control cucumber beetles, aphids, and powdery mildew. Satisfactory control can be obtained by regular application of protectant fungicides ([New England Vegetable Management Guide](#)).

**Bacterial wilt of cucumber** was observed this week in CT. Bacterial wilt is transmitted by cucumber beetles. Cucumber, muskmelon and summer squashes are highly susceptible to wilt, pumpkins and winter squashes are less susceptible, and watermelon is not. Seedlings at the cotyledon and 1- to 3-leaf stage are more susceptible to infection with bacterial wilt than older plants. Thus, it is especially important to keep beetle numbers low before the 5-leaf stage. Use crop rotation to reduce beetle numbers. Adult striped cucumber beetles can overwinter in field edges with this bacterial pathogen in their gut and infect susceptible plants next year. To prevent bacterial wilt in highly susceptible crops such as cucumber, muskmelons, summer squash, and zucchini, treat when there is 1 beetle for every 2 plants. Less wilt-susceptible crops (butternut, watermelon, most pumpkins) will tolerate 1 or 2 beetles per plant without yield losses. Spray within 24 hours after the threshold is reached. Timely and effective early control will prevent the need for sprays during flowering when bees are active in the crop.

**Because this bacterium is transmitted systemically by cucumber beetles, copper or any other fungicide sprays are of no value.** Rogue infected plants.

Squash vine borers also cause similar wilting of cucurbit plants. Check at the base of the stem for holes or frass, or cut open the stem to check for the squash vine borer larva on a wilted plant.



Bacterial wilt of cucurbit causes sudden wilting of plants. When dipped in water, milky white bacteria oozes streams from a freshly cut stem of the wilted plant



**Powdery mildew of cucurbits** is developing now. Scout fields regularly and apply fungicides early in disease development. Fungicides should be applied at the first sign of disease as powdery mildew spreads rapidly and cannot be controlled once disease is well established. See <https://nevegetable.org/crops/disease-control-18> for spray options. A great resource by Meg McGrath, Cornell on cucurbit powdery mildew with organic and conventional management options: <https://www.vegetables.cornell.edu/pest-management/disease-factsheets/cucurbit-powdery-mildew/>



Powdery mildew on squash



**Downy mildew of cucurbits:** Cucurbit downy mildew (CDM) symptoms were identified and the CDM pathogen was isolated from cucumber plants in Cheshire County, southwestern NH, on Friday July 7, 2023. It was also detected in Atlantic County, New Jersey about a month ago. Growers should continue applying a preventative fungicide regularly to cucumber and cantaloupes. These are listed in the [New England Vegetable Management Guide](#).



Cucurbit downy mildew on upperside and underside of cucumber leaf

**Preventative materials effective against CDM:**

- Chlorothalonil
- Mancozeb
- Copper (less effective than chlorothalonil or mancozeb but OMRI-listed options available and also effective against bacterial diseases)

**Effective CDM-targeted materials include:**

- Orondis
- Omega
- Ranman
- Zampro
- Zing! or Gavel
- Ariston, Curzate, Tanos
- Previcur Flex

Presidio, Revus, and Forum are currently ***not*** recommended due to pathogen resistance.

**Purple blotch of onions** was seen this week in CT. It often begins on older leaves as small, sunken, water-soaked lesions with light centers. Lesions enlarge as disease progresses and turn purple to brown, often with yellow rings that create a distinctive bull's-eye pattern. Bulb rot symptoms begin as soft, water-soaked areas; eventually, bulbs turn dark reddish-purple, then brown/black.

The pathogen overwinters in crop residue on or near the soil surface. Spores are produced and new plants infected during periods of warm (77-85°F) humid weather. The spores are spread by wind and splashing rain or irrigation. Purple blotch and *Stemphylium* leaf blight sometimes occur on the same plant at the same time. Microscopy is necessary to distinguish the two fungi; however, control measures for both species are the same.



Start with pathogen-free seed/sets. Avoid excessive nitrogen. Rotate out of onions for at least three years. Remove or plow under plant debris. Allow onions to cure properly before leaf removal.



Continue to be on the lookout for the following pests that were covered in [the previous pest alerts \(2023\)](#):

- **Squash vine borers:** report from 1 farm in Berlin for this week: 23 moths/week. 5/week is the threshold for susceptible cucurbits like summer squash.
- **European corn borers:** reports from 2 farms for this week. NY strain- 1, IA-0 and Hybrid-0, and 2% infestation in the field at a farm in Berlin; 1 of each type, total 3 ECB at a farm in Shelton.
- **Corn earworm:** 1.16 moths/night in Berlin (= 4-day spray schedule), and 0/night in Shelton.
- **Mexican bean beetles**
- **Japanese, oriental and Asiatic garden beetles**
- **Imported cabbageworm**
- **Potato leafhopper**
- **Squash bugs**
- **Colorado potato beetles**
- **Striped cucumber beetles**
- **Onion thrips**
- **Solanaceous flea beetles**
- **Brassica flea beetles**



## Vegetable IPM Field Workshop

August 8, 2023 Rain date August 9

10am – 2:30pm

**UConn Plant Science Research and Education Facility**

59 Agronomy Road, Storrs CT

Join UConn Extension Faculty at the Plant Science Research Farm to learn about important vegetable pests and management options.

Presentation topics include:

- ☐ UConn Plant Diagnostic Lab updates
- ☐ Powdery mildew and downy mildew management
- ☐ Alternaria survey results and fungicide sensitivity evaluation
- ☐ Biodegradable plastic mulch: impacts on crops and soil
- ☐ Allium insect pests
- ☐ Evaluation of a push and pull system for diamondback moth management
- ☐ Remote sensing of potato leafhopper damage and drone demonstration



- ☐ There is no cost to attend this workshop but **registration by July 31 is required**. Seating is limited - reserve your spot today!
- ☐ Complimentary lunch and refreshments will be offered
- ☐ Register online (preferred) at this link: <https://forms.gle/2pAd28Jg6tRkewzS6> or call 860-486-0572 to register by phone.
- ☐ 2.5 pesticide recertification credits approved in PA and 1A categories.
- ☐ Questions can be e-mailed to [ana.legrand@uconn.edu](mailto:ana.legrand@uconn.edu) or leave a message at 860-486-0572.
- ☐ If you require an accommodation to participate in this event, please contact organizer at above e-mail or phone number by July 31, 2023.

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## CT Dept of Ag grant deadlines for FY 23-24

CT Dept of Ag has come out with this helpful image to help us remember when grant deadlines are coming up this next season. Most of them that apply to you farmers will take place in the cooler months, except for the Organic Certification Cost Share which opens in August and closes in October. If you want more information about any of these grants, check the Dept of Ag website here: <https://portal.ct.gov/DOAG/Commissioner/Commissioner/Agency-Grants-and-Loans>. Some of them already have webinars from previous years that can help you navigate if the grant program is right for you.



## DoAG Grants FY 23 & 24

[CTGrown.gov/grants](https://CTGrown.gov/grants)



Program Name	Anticipated Application Period	Eligible Applicants	Contact
<i>Farm Viability Grant</i>	March 31 - May 12, 2023	Municipalities, Regional Councils of Gov't, and Agricultural Nonprofits	Alison.Grabarz@ct.gov (860) 993-5275
<i>Organic Certification Cost Share Program</i>	August 1 - October 3, 2023	Certified Organic producers, handlers or both.	Alison.Grabarz@ct.gov (860) 993-5275
<i>Farmland Restoration Grant</i>	October - December 2023	Owners and tenants/lessees/permittees, with owner(s) approval, of CT farmland	Eileen.Perivertzov@ct.gov
<i>Dairy Grants on behalf of CT Milk Promotion Board</i>	September 2023 February 2024 July 2024 February 2025	CT dairy farmers who pay into check-off dollars	Allison.Hughes@ct.gov (860) 500-8918
<i>Farm Transition Grant</i>	November 1, 2023 - January 10, 2024	CT farmers and agriculture cooperatives	Alison.Grabarz@ct.gov (860) 993-5275
<i>Specialty Crop Block Grant</i>	January-March 2024	Universities or colleges, municipalities, ag non profits, State agencies, and councils of gov'ts	Rebecca.Eddy@ct.gov (860) 573-0323

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