This report is prepared by Shuresh Ghimire and Matt DeBacco. It also includes inputs from vegetable specialists from NY, RI, MA, NH, VT, and ME. Your contribution is welcome. Pest observations (photos are great!) can be submitted to Shuresh Ghimire at shuresh.ghimire@uconn.edu. Good information to include: crop, cultivar if known, prevalence/severity of the problem, control strategies used, and your county.

• Black mold

What is documented:
Onion black mold is seen this week in New Haven County (confirmed by the Connecticut Agriculture Experiment Station, New Haven). Black mold, caused by *Aspergillus niger*, occurs in the field or during storage. The fungus grows saprophytically on dead tissue and is a common inhabitant of the soil; spores are also common in the air. Bulb infection usually occurs through injured tissues in the neck or wounds on roots, basal stem plates, or outer scales. Uninjured bulbs are seldom infected. Seeds may be infected, and the pathogen disseminated in infected seeds or transplants. Pre-emergence damping-off can occur if infected seed is planted. The disease is favored by warm temperatures or under warm storage conditions.

What to look for when scouting:
Black mold occurs on both onions and garlic. The fungus is first evident at the top or sides of the bulb where disease or injury has caused an opening in the skin. The fungus develops
between dry, dead outer scales and the first inner fleshy scales of the bulb. Invaded scales initially become water soaked. Under dry conditions diseased scales dry and shrivel, and black masses of spores are visible between outer scales. Diseased scales may also be invaded by soft rot bacteria, causing the whole bulb to deteriorate into a watery soft rot.

**How to control (or reduce) the impact:**

**Culturally**-
Crop rotation, good soil drainage, and the use of clean seed or healthy transplants will help prevent the occurrence of the diseases.

**Applications**-
There are no chemicals for the direct control of black mold. Research indicates that a good fungicide control program for foliage diseases will reduce the incidence of black mold. Storage and transit temperatures below 55°F and as low as 33°F are recommended to suppress black mold development. Handling of bulbs to avoid bruising also reduces injury and invasion sites for the fungus.

**Resource link(s):**
- [http://ipm.ucanr.edu/PMG/r584100411.html](http://ipm.ucanr.edu/PMG/r584100411.html)

- **Corn earworm**

Forty moths per night were trapped this week in Fairfield County. Recommended spray interval for >13 months/night is 3 days. More information about corn earworm management at [https://ag.umass.edu/vegetable/fact-sheets/corn-earworm](https://ag.umass.edu/vegetable/fact-sheets/corn-earworm).
High heat until this last Thursday likely increased the number and severity of **cucurbit disease**. Further, late stage of the plant development makes them more susceptible to various stresses.

- **Plectosporium on cucurbits**

What is documented:
Inspecting the stems of squash plantings there have been numerous outbreaks of **Plectosporium blight** (*Plectosporium tabacinu*). It was found this week across multiple varieties and was noted to be affecting stem (handle) integrity. In severe cases this may even reduce storage life.

What to look for when scouting:
The two images attached from this past week show three distinctive and important stages. The yellow circles indicate early stages of development. The key identifying characteristic is the white diamond like shape to the lesion.

The orange box shows typical symptoms for a more advanced case, which is characterized by the white streaks that seem to follow the veins of the leaf petiole.

The red triangle shows powdery mildew on the leaf stalk and it is important not to get this confused with Plectosporium. What you want to look for powdery mildew is a literal powdery-like appearance that often is seen in clusters and has a fuzzy look to it.

The image on the right with the actual squash shows how it can cover large area once it spreads which can make control difficult and impact the storage time of the harvest.
How to control (or reduce) the impact:
Culturally-
Utilizing drip irrigation can help reduce the overall humidity under the leaf canopy. However, this year’s oppressive humidity has caused a long period of time of favorable conditions.

Applications-
Chlorothalonil products are recommended for this issue. However, it is also important to consider controlling other seasonally important diseases such as powdery mildew and scab. As a result, you may want to consider a tank mix of both a chlorothalonil product (contact) and a systemic one for other potential threats.
Organically there are limited options since no known resistant varieties and fungicides are effective. This may be a case of harvest a little early or right on time to reduce the chance of infection getting established on the actual fruit itself.

Resource link(s):
http://vegetablemdonline.ppath.cornell.edu/NewsArticles/Pump_PlectoNews04.htm
http://ag.umass.edu/vegetable/fact-sheets/cucurbits-plectosporium
http://extension.cropsciences.illinois.edu/fruitveg/pdfs/946_cmplt.pdf

• Gummy stem on cucurbits

Photo credit: Matt DeBacco
What is documented:
First off, I do not like the name of this fungus because it impacts much more than just the stems. That aside, gummy stem (*Didymella bryoniae*) is more likely to be found in melon plantings than pumpkin or winter squash even though it does affect both.

What to look for when scouting:
Key when scouting is the brown lesions on a melon planting that are bordered by a leaf vein and commonly have a yellow halo surrounding them. Often growers will say that it has a similarity to Alternaria (early blight) but if you inspect the lesions closely you will see a more even brown look and no evidence of “tree rings” commonly associated with Alternaria.

How to control (or reduce) the impact:
Culturally-
Plowing under plant material and disinfecting seeds at the beginning of the season are encouraged methods. Planting genetics that are resistant to powdery mildew is also helpful at reducing the potential for gummy stem blight onset.

Applications-
Chemicals typically used for other diseases (Plectosporium and powdery mildew) can also be effective against gummy stem. Organically there are little go to products, but copper based products may help reduce overall severity.

Resource link(s):
https://plantpath.ifas.ufl.edu/u-scout/cucurbits/gummy-stem-blight.html
http://vegetablemdonline.ppath.cornell.edu/PhotoPages/Cucurbit/Gummy/GSBfs1.htm
• Sunscald

What is documented:
With the quick die back of foliage there can be an increased incidence of sunscald. However, the overall threat of this going forward is reduced with reduced daytime high temperatures in the forecast.

What to look for when scouting:
Key point to look for is the presence of damage to the portion of the fruit that is directly facing the sun. Often this will be bleached/white coloration as can be seen in this image.

How to control (or reduce) the impact:
Culturally-
Not much to do, accept try and keep the leaves healthy to provide shading.

Applications-
No applications of products will help directly with this issue.
What is documented:
This is again not a new problem this year, but I wanted to provide an updated image now that we are into September. The progression of angular leaf spot (ALS) in fields is widespread and later in the season you may notice the brown lesions that at this point in the season will typically have holes in the center.

What to look for when scouting:
It will start to appear in the early to mid-season. Small, round water-soaked spots appear on leaf tissue, and expand until they are confined by veins, giving them the characteristic angular look. Under moist conditions a milky white exudate containing bacterial cells may ooze out of the lesion on the lower leaf surface. These wet looking spots will dry out and turn yellow-brown or the dead tissue may fall out leaving a “shot-hole” appearance. Yellowing of the leaf between lesions may occur where disease severity is high. Similarly, water-soaked spots may appear on stems and petioles, drying out to form a whitish crust. Spots can also appear on fruit, where they are tiny and water-soaked but dry to form whitish, chalky, spots.
How to control (or reduce) the impact:
Culturally-
With the weather we have experienced this year (and continue to have) heat and humidity created a near perfect environment for the proliferation of this disease.

Applications-
Copper based products should be repeated as recommended on the products label which is typically a 7-10 days interval.

Resource Link(s):
https://extension.umn.edu/diseases/angular-leaf-spot

- **Bacterial leaf spot on tomatoes**

  **What is documented:**
  This is not something new, but it not only continues to be a problem, but it is being seen on a continual wide spread basis as shown in this current image **bacterial leaf spot** (*Xanthomonas campestris pv. vesicatoria*)

  **What to look for when scouting:**
  Over the season there have been some slight changes, most notability is the incidences of a “hot spot” developing where a certain number of plants will be essentially turn completely brown and die. Adjacent plants and plants in an entire row will exhibit the symptoms shown in the image. Small dark brown lesions are a key feature for this disease.

  **How to control (or reduce) the impact:**
  Culturally-
  Air circulation is beneficial especially in high tunnel situations.

  Applications-
  Copper or Oxidate are your main two options, with copper being much preferred. Kocide 3000 has shown some effectiveness at stopping the progression this year. Organically Cueva has also shown some ability to stop the progression of this disease.

Resource link(s):
http://expertsystm.wixsite.com/tomato/single-post/2015/03/09/Bacterial-Leaf-Spot
• Leaf mold on tomatoes

What is documented:
While this is typically associated as a greenhouse or high tunnel issue, these images are from field grown tomatoes showing symptoms of leaf mold (Passalora fulva). This is a disease that can be quick to start and spread. Control measures are highly recommended upon first detection to reduce the negative impact on your crops.

What to look for when scouting:
The yellow discoloration provided in the image on the right is what an early infection will look like. Turn the leaf over and inspect for the brown discoloration and light tan coloration.

How to control (or reduce) the impact:
Culturally-
Increase air flow is really all that will help reduce the initiation and spread.

Applications-
Chlorothalonil fungicidal applications are encouraged along with effective coverage especially to the undersides of the leaves whenever possible.
Organically, Oxidate should be applied and repeated in a short interval 1-3 days to ensure good coverage.

Photo credit: Matt DeBacco
Resource link(s):
https://ag.umass.edu/vegetable/fact-sheets/tomato-leaf-mold
http://blogs.cornell.edu/livegpath/gallery/tomato/tomato-leaf-mold/

• Powdery mildew and effectiveness of spray control

What is documented:
If you have grown cucurbits you have seen powdery mildew and this image shows just that. However, what is special about this image is the fact that the grower has been making contact-based control applications of milk in this particular case and you can see the spray effectiveness. I know you may initially say, “but I see Powdery, so why would I waste my time spraying?” But look at the image more closely, if you look down the center portion of the leaf (midrib) there is notably an absence of Powdery. Only on the edges is the Powdery apparent. It is hard to tell in this image (I will be honest) but the leaf folds and the midrib area was in direct line of spray applications, so this received the greatest and most direct application of the
control product. This is a classic example of the effectiveness of the spray products and the importance to not only make an application but to follow-up with repeated applications will full coverage of the leaf surface. This is an inherent challenge; a motorized mist blower will allow the grower to efficiently apply products with a minimal time investment. The only resistance is the upfront cost of the mist blower, but factoring in your time and reduced product usage this initial investment will save you in the long run.

What to look for when scouting:
Look at areas that you specifically get good applications of spray products to see if there is a difference. This does require attention to detail, but it can be motivation to keep up with your regular spray applications even if you are still seeing disease increase in your field.

How to control (or reduce) the impact:
Culturally-
Adjusting plant spacing either in row or row to row next year can help improve your spray coverage.

Applications-
Keep to a regular schedule and document your applications.

Resource link(s):
none
• Earwigs

Photo: https://commons.wikimedia.org/wiki/File:Earwig_on_white_background.jpg

What is documented:
Are you seeing mysterious holes in your leaves of your brassicas? Have you ruled out slugs and other likely suspects and still trying to pinpoint the culprit? You may want to consider earwigs. I am not sure why the damage from these was on the rise in a scouted field, but it is worth noting in case you are experiencing some mysterious holes in your leaves.

What to look for when scouting:
The damage does not have any special sign to identify it so this is just another option to consider if you are at a loss for possible explanation for holes in leaves.

How to control (or reduce) the impact:
 Culturally-
Not much culturally that can be done.

Applications-
Common insect control products will likely help control this issue, often the key is to ensure you are getting your chosen product keep in the canopy and not just applying a superficial spray coverage.

Resource link(s):
none
• **Leek moth (reported in VT and NY)**

Check newest leaves for leek moth damage (photo: http://web.entomology.cornell.edu/shelton/leek-moth/damage.html)

**What is documented:**
The leek moth larva is a small, leaf-mining caterpillar. The first generation (May-June) feeds on the leaves. The worst damage is done by the second generation (July-August) as it continues to damage emerging leaves and moves towards the bulb. Feeding damage stunts plant growth, introduces rot and can compromise the storage life of onions and garlic.

**What to look for when scouting:**
Eggs are tiny and translucent. The larvae burrow into the stems and feed down toward the bulb. On hollow leaves, the larvae burrow into the leaf. They then eat leaf tissue from the inside. The obvious damage looks like window panes. On flat leaves like garlic and leeks, the damage is found in the folds of leaves or down between groups of leaves near the stem. Feeding damage can lead to fungal rots.

**How to control (or reduce) the impact:**
Culturally-
Cultural controls include row covers, removal of larvae from the plant, rotate the crop to a non-host crop (i.e. non-Allium crop), and removal of host plant debris at the end of the season where adults overwinter.

Applications- see https://ento.psu.edu/extension/vegetables/insecticides-labelled-for-leafminers
Resource link(s):
http://web.entomology.cornell.edu/shelton/leek-moth/images/RESOURCES/LeekMothfinaladi.pptx (PowerPoint)
http://web.entomology.cornell.edu/shelton/leek-moth/images/RESOURCES/laminatedcardpictures.pdf

• **Downy mildew on cucumber**
  Cucumber variety trial in 2017 in NY showed that good downy mildew suppression was exhibited by DMR 401 (75% control), Bristol (50%), and Citadel (49%). DMR 401 produced substantially more marketable fruit than the other varieties whose yield and fruit quality were severely impacted by downy mildew. Details of trial can be accessed at
  http://vegetablemdonline.ppath.cornell.edu/NewsArticles/DMR%20Cucumber%202017%20Evaluation_Report%20with%20Photos_McGrath.pdf. For more information on cucumber downy mildew management, see [8.17.18 vegetable pest update](#).

• **Dickeya blackleg** (reported in RI)

  Symptoms of Dickeya on potato (Photo: http://vegetablemdonline.ppath.cornell.edu/NewsArticles/Potato-Dickeya.html)
What is documented:
Dickeya blackleg, often just called Dickeya, was observed on Norwis late season potato variety in RI last week. This is a new disease in the USA. It is caused by the bacterium, *Dickeya dianthicola*. High temperatures (exceeding 77 °F) are favorable for Dickeya, consequently the greatest losses have been in the southern portion of the northeast (especially the mid-Atlantic region) and further south. Total crop loss has occurred.

What to look for when scouting:
First symptom is poor emergence (skips in a production field) due to rotting seed. Plants that emerge from contaminated seed wilt and typically have black stems extending upwards from rotting seed piece. Symptoms typically develop following a period of hot weather especially when plants are also stressed. Plant tissue affected by Dickeya typically has an earthy smell.

How to control (or reduce) the impact:
Cultural-
Potato seed that is free of Dickeya is the best management practice for this disease. Dickeya cannot be managed when present in production fields. There are no resistant varieties. This bacterium is not known to be able to survive in soil more than about two months, which is not long enough to be able to serve as a source of inoculum the following growing season.

Applications-
No effective bactericides.

Resource link(s):

Special thanks to Mary Concklin (Fruit IPM Extension Educator) and Donna Ellis (IPM Program Coordinator) for reviewing this report.

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