



<b>WHAT'S IN THIS REPORT</b>		
<b>NEW PROBLEMS SEEN</b> <ul style="list-style-type: none"> <li>• Powdery mildew on squash</li> <li>• Septoria leaf spot on tomato</li> <li>• Blister beetles</li> <li>• Bacterial wilt on cucumber</li> </ul>	<b>PROBLEMS LIKELY TO BE SEEN SOON</b> <ul style="list-style-type: none"> <li>• Anthracnose on tomato fruit</li> </ul>	<b>SPOTLIGHTS</b> <ul style="list-style-type: none"> <li>• Beneficial: Eastern American toad</li> <li>• Weed: Buckthorn plantain</li> </ul>

#### **GENERAL OBSERVATIONS AND TIPS**

This is peak season for summer harvests, so enjoy the product of your garden labors. The hot weather in June and early July helped some crops grow vigorously. The damp weather we had in June also gave many plant diseases an ideal environment to establish themselves in the garden. Try to be vigilant and recognize insect pests and diseases before they become serious issues. Pick your produce frequently so you can enjoy it at its peak and to avoid rotting fruits that can be attractive to pests. Practice good garden sanitation; remove spent plants and weeds to give your crops the space they need to thrive. It's not too late to plant now for a fall harvest. Consider seeding carrots or beets. Cole crop and lettuce seedlings can be planted in the garden soon for a fall harvest. Keep in mind that plants will mature more slowly in the cooler months, so add a week or two to the days to maturity on the seed packet when doing your planning.

## REPORTS ON NEW PROBLEMS

Disease: Powdery mildew on squash	Morris Township Community Garden 7/15/21
<p><b>Description:</b> This foliar disease is caused by windborne fungal spores. The first signs of infection are white, powdery deposits that can be found on older leaves of various cucurbit family members such as squash, zucchini, yellow summer squash, cucumbers and melons. It is difficult to avoid during a NJ summer, as favorable conditions are hot and dry weather followed by humidity. As this fungus spreads throughout the plant, you'll notice the plant leaves begin to turn yellow, dry and wither. Eventually, both the plant vigor and yield will be affected by lack of photosynthesis. Of note, there is also normal white coloration on the leaves of many squash varieties that is <b>not</b> Powdery mildew. This coloration does not rub off, but is part of the plant's regular leaf pattern.</p>	
<p>Powdery mildew fungus spots on zucchini</p>  <p>Photo: Mary Albright, NJAES</p>	<p>Normal color variation of some squash, not powdery mildew fungus. Photo: Jennifer Basile, NJAES</p> 
<p><b>Management:</b></p> <ul style="list-style-type: none"> <li>• Provide full sun, air circulation and proper spacing. When planting at-risk crops, leave extra space between plants to promote air circulation and ample room to receive sunlight.</li> <li>• Remove infected leaves to prevent spread of the disease, throw away and do not compost.</li> <li>• Try a spray made with potassium bicarbonate on the leaves to help prevent fungus.</li> <li>• Remove debris at season end to help decrease spreading any spores.</li> <li>• Clean your tools.</li> <li>• Rotate crops (3 to 4 year rotation is ideal).</li> <li>• Plant more resistant varieties.</li> </ul>	
<p><b>More Information: Fact Sheet / References</b></p> <ul style="list-style-type: none"> <li>• Rutgers FSE310 Diagnosing and Managing Important Cucurbit Diseases in the Home Garden, <a href="https://njaes.rutgers.edu/E310/">https://njaes.rutgers.edu/E310/</a></li> </ul>	

- University of California, Agriculture and Natural Resources, <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7406.html>
- University of Connecticut, <http://www.ladybug.uconn.edu/FactSheets/powdery-mildew-on-cucurbits.php>

**Disease: Septoria leaf spot on tomato**

**Denville Home Garden and Morris Township Community Garden  
7/15/21**

**Description:** Septoria leaf spot disease was observed on leaves of tomato plants in a Denville home garden and the Morris Township community garden. Septoria is a common disease seen in tomato plants in New Jersey. It occurs under the same conditions as early blight, which was also recently seen. Management for the two diseases are the same and they can occur together. Both diseases usually begin on the lower, older leaves of plants. As the condition progresses newer, higher leaves are affected, wither and defoliate. Prolonged wet humid weather is favorable to the septoria fungus and allows the condition to worsen. The disease spores can overwinter on plant debris. Good cultural techniques can help prevent spread. Copper based fungicides may be considered to prevent the disease. Fungicides only work as a preventative; they don't kill the fungal disease.



Tomato leaf infected with Septoria leaf spot.  
Photo: Rutgers Fact Sheet 547



Septoria leaf spot on tomato leaf.  
Photo: Margot Sample, NJAES

**Management:**

- Avoid overhead watering and water at plant base. Water early in the day to allow plants to dry quickly.
- Mulch with landscape fabric or straw early to prevent the fungus from splashing up onto the plant. Use hardwood mulch for paths only.
- Provide good air circulation, provide at least 18" between plants. Fungal diseases like moist, humid conditions.
- Stake or cage plants to limit foliage and fruit contact with the soil.
- Rotate as much as possible. Try to grow where no solanaceous crops have been grown for three years or longer.
- Remove all plant debris since fungal spores of the disease can overwinter in infected plant material.
- Control weeds.
- Use an organic copper based fungicide to help prevent the disease. Be sure the product label includes the plant and disease, and follow all instructions on the label.



**Fact Sheet / References**

1. Rutgers University Fact Sheet FS547, <https://njaes.rutgers.edu/fs547/>
2. Rutgers University Breeding Program, <https://breeding.rutgers.edu/tomatoes/>

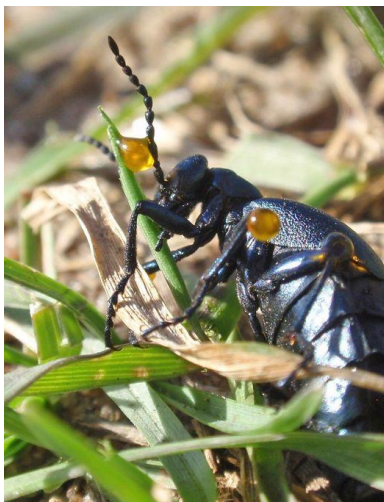
**Problem: Blister beetles****Where: Morris Township Community Garden  
7/20/21**

**Description:** Several species of blister beetles feed on foliage, buds, fruits, and flowers of a variety of garden crops in NJ. They also feed on ornamentals and trees. They are particularly fond of alfalfa and weeds such as goldenrod. They are difficult to control with pesticides, but may be acceptable in small numbers in the garden. They overwinter as a pseudopupa, enter a pupal stage in spring and emerge as adults in June or July. Only adults feed on plants. There is one generation a year. They are named blister beetles because they secrete an oil, cantharidin, which can blister skin if there is contact. Handle with care and wear rubber or plastic gloves if touching them.



Adult blister beetles and damaged Swiss chard leaf: Photos: Mary Albright, NJAES

Blister beetle showing yellow liquid that oozes from its joints when threatened:  
Photo: Michigan State University



**Management:**

- Reduce host plants such as the weed goldenrod
- Handpick wearing rubber or plastic gloves
- Do nothing if the damage is tolerable (but do avoid contact with them)

**Fact Sheet / References:**

1. Rutgers fact sheet 222 – blister beetles: <https://njaes.rutgers.edu/pubs/publication.php?pid=FS222>
2. Michigan State University article on blister beetles: [https://www.canr.msu.edu/news/blister\\_beetles\\_handle\\_with\\_care](https://www.canr.msu.edu/news/blister_beetles_handle_with_care)
3. University of Florida article on blister beetles: [https://entnemdept.ufl.edu/creatures/urban/medical/blister\\_beetles.htm](https://entnemdept.ufl.edu/creatures/urban/medical/blister_beetles.htm)

**Problem: Bacterial Wilt on cucumber plants**

**Where: Morris Twp. Community Garden 7/20/21**

**Description**

Bacterial wilt is caused by the bacteria *Erwinia tracheiphila*. *E. tracheiphila* is transmitted by the striped and spotted cucumber beetles. The bacterium is transmitted by contact with the mouth of the infected beetle. When the beetles feed on leaves and stems, there is some damage to the plant tissue. This allows for an entry point for *E. tracheiphila*. The bacteria multiplies in the wound, enters the xylem vessels (water conducting tissues), and moves through the petioles to the stems. Masses of bacteria, gums, and resin plug the vascular system, resulting in wilt. Bacteria spread throughout the plant through adjacent xylem vessels causing further obstruction of the vessels. Infected plants retain the bacteria becoming a source of infections for other plants. Cucumber and muskmelons are more susceptible to bacterial wilt than winter squashes and watermelon. Summer squash and zucchini may also be affected.

Cucumber beetles carry the bacterial wilt pathogen that can cause plants, especially cucumbers, to wilt and die. These beetles become active in late May or early June and feed on the blossoms of early flowering plants, such as dandelions, apples, and hawthorn, until their host crops are available.

Once a plant is infected with bacterial wilt, there is no cure.

Bacterial Wilt disease on cucumber plant.

Photo: Mary Albright, NJAES



Striped Cucumber Beetles seen earlier on the same plant.

Photo: Mary Albright, NJAES



**Management:**



- Check for cucumber beetles early in the season, especially in the cotyledon and first to third true-leaf stage, when the plants can suffer defoliation and bacterial wilt. Once beetles are present, monitor more frequently (every couple of days).
- Keep your garden clean. Remove weeds in and around your garden, as they may be potential hosts for adults. If a plant is showing signs of bacterial wilt, remove the infested plant before more beetles can feed on the plant and spread the bacterium.
- Use a physical barrier, such as a floating row cover, during early to mid-June to keep the Striped Cucumber Beetles away from your plants. Be sure to remove the barrier when cucurbits start to flower.
- Pesticides can be used to control Cucumber Beetles. Neem is a plant-based pesticide that prevents insects from feeding, which eventually kills them. Pyrethrins should come in contact with the beetles to be effective. Spinosad (for example, Captain Jack's Deadbug Brew) and Kaolin Clay may help manage beetles.

**References:**

- Rutgers NJAES Cucumber Beetles FS225:  
<https://njaes.rutgers.edu/pubs/publication.php?pid=FS225>
- UMN Extension Cucumber Beetles in Home Gardens: <https://extension.umn.edu/yard-and-garden-insects/cucumber-beetles>
- Rutgers Fact Sheet 1123 Vegetable Insect Control Recommendations for Home Gardens:  
<https://njaes.rutgers.edu/fs1123/>
- University of Massachusetts Extension Vegetable program  
<https://ag.umass.edu/vegetable/fact-sheets/cucurbits-bacterial-wilt>



## LIKELY TO BE SEEN SOON

Problem: Anthracnose on Tomato Fruit	Likely to be seen soon
<b>Description:</b> Anthracnose fruit rot is a soil-borne disease that affects ripe tomato fruit. Infections go unnoticed on green fruit and as fruit ripens depressed circular water-soaked spots appear on red fruit. These spots may slowly enlarge and produce black fungal structures (microsclerotia) in the center of the lesion just below the skin surface. Microsclerotia can overwinter in the soil and infect tomatoes the next growing season.	
Anthracnose on tomato fruit. Photo: Mary Albright, NJAES 	 More advanced anthracnose disease. Photo: Cornell University
<b>Suggestions:</b> <ul style="list-style-type: none"> <li>• Remove old plant debris, including tomatoes on the ground, since fungal spores can overwinter in infected plant material.</li> <li>• At the end of the growing season remove and discard all tomato refuse.</li> <li>• Each year plant tomatoes in a new location away from areas where tomatoes, eggplant, potatoes or peppers were grown in the past three years.</li> <li>• Make sure tomatoes have good air circulation to dry the leaves. Staking or caging tomatoes brings the plants up off the soil and allows more rapid drying of the plant.</li> <li>• Water at the base of the plant to keep leaves from getting wet.</li> </ul>	
<b>More Information: Fact Sheet / References</b> <ul style="list-style-type: none"> <li>• Rutgers FS547, <i>Diagnosing and Controlling Fungal Diseases of Tomato in the Home Garden</i>: <a href="#">FS547: Diagnosing and Controlling Fungal Diseases of Tomato in the Home Garden (Rutgers NJAES)</a></li> <li>• Cornell University, <i>Anthracnose on Tomatoes</i>: <a href="#">Anthracnose on tomatoes   Vegetable Pathology – Long Island Horticultural Research &amp; Extension Center (cornell.edu)</a></li> </ul>	



## BENEFICIAL SPOTLIGHT

### Eastern American Toad (*Anaxyrus americanus* previously known as *Bufo americanus*)



Toads found camouflaged in garden can often be overlooked. Photos: Jennifer Basile, NJAES

**Description:** This toad is found throughout the state and is one of your top garden helpers. In spring, breeding begins and eggs are laid in vernal pools and ponds. They undergo complete metamorphosis with tadpoles developing into toadlets within two months. Toads are up to 4 inches in length and females are larger than males. Lifespan is generally one to three years. Hibernation occurs by burrowing beneath the frost line or deep within leaf litter. A secretion from their Parotid gland, located behind their eyes, makes them unappetizing to predators. Characteristics include a light line extending along the back, skin is mottled in shades and spots of brown, beige, and grey with warts scattered throughout. If you happen to have one in your plot, lucky you. These generalists keep populations of crickets, slugs, snails, grasshoppers and other invertebrates in check. And, no, you will not get warts if you handle one.

#### Fact Sheet / References:

1. Penn State University, <https://www.dept.psu.edu/nkbiology/naturetrail/speciespages/americantoad.htm>
2. University of Maine, <https://extension.umaine.edu/signs-of-the-seasons/indicator-species/american-toad-fact-sheet/>

## WEED SPOTLIGHT

### Buckhorn plantain (*Plantago lanceolata* L)



Clump of narrow leaves rising from basal rosette, with erect stems and flower heads. Photos: Jennifer Basile, NJAES

**Description:** This low growing broadleaf perennial is now blooming throughout gardens, fields and pastures. Look for a basal rosette clump of narrow leaves with erect stems that are topped with little white and taupe flowers. Height and width reaches 12 inches. Management includes handpulling or mowing before flowers set seed. Due to a fibrous taproot, can be persistent in the garden. Be sure to completely pull, as any remaining root will regenerate. Non toxic to cattle.

#### Fact Sheet / References:

1. Rutgers University, <https://njaes.rutgers.edu/weeds/weed.php?buckhornplantain>
2. University of Massachusetts Amherst, <https://ag.umass.edu/turf/fact-sheets/buckhorn-plantain-in-lawns>

## ***ADDITIONAL RESOURCES***

**All Rutgers Gardening and Landscaping Fact Sheets & Bulletins**

<https://njaes.rutgers.edu/pubs/subcategory.php?cat=5&sub=1001>

**Rutgers Master Gardener Program** <https://njaes.rutgers.edu/master-gardeners/>

**Rutgers Soil Testing Laboratory** <https://njaes.rutgers.edu/soil-testing-lab/>

**Community Gardening Series** <https://njaes.rutgers.edu/community-garden/>

**Office of the New Jersey State Climatologist** <https://climate.rutgers.edu/stateclim/>

**Rutgers New Jersey Weather Network** <https://www.njweather.org/>

**Ticks and Tick-borne Disease** <https://njaes.rutgers.edu/tick/>

## ***PEST MONITORING APPROACH FOR 2020/21***

During 2018 and 2019, teams of Rutgers Master Gardeners conducted regular inspections of two community gardens: the Morris County and Madison Community Gardens.

Due to Covid-19 restrictions during 2020/21, the team is reporting on problems observed in their own vegetable garden plots rather than inspecting all the plots in the community gardens. The team's plots are in six locations in Morris County including the Madison Community Garden, Morris Township ValleVue Community Garden, Morris County Community Garden, as well as home gardens in Denville, Kinnelon, Morris Plains, and Morris Township.

**Report Editor:** Margot Sample

**Beneficial and Weed Spotlights:** Jennifer Basile

**Sightings Reported by:** Mary Albright, May Olin, and Margot Sample