RUTGERS
New Jersey Agricultural Experiment Station

Rutgers Master Gardeners of Morris County Community Garden IPM Team Report #yy
July 11, 2025

WHAT'S IN THIS REPORT		
TIPS	**NEW PROBLEMS SEEN**	**SPOTLIGHTS**
• Growing plants to attract beneficial insects	• Squash Bug Eggs • Bacterial Wilt on Cucumber Plants • Japanese Beetle • Strawberry Leaf Spot • Cercospora Leaf Spot on Beets • Powdery Mildew on Zucchini • Sun scald on peppers • Downy Mildew on Basil	• Horse Tail (weed)

IPM TEAM REPORTS

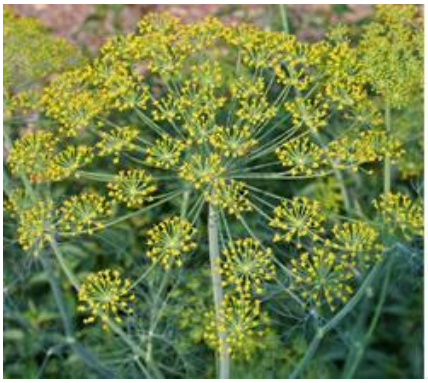
The Morris County Rutgers Master Gardener Integrated Pest Management (IPM) Team scouts one or more community gardens each week. Every other week the team provides IPM Team reports on problems first observed during the two-week period. These reports contain summary descriptions, management methods, and research-based references for more information.

Refer to Rutgers Fact Sheet 1123 and 1124 for all recommended controls or insect and disease pests. They are valuable resources throughout the growing season:
Rutgers Fact Sheet on Vegetable Insect Control: https://njaes.rutgers.edu/fs1123
Rutgers Fact Sheet on Vegetable Disease Control: https://njaes.rutgers.edu/pubs/publication.php?pid=fs1124

The gardens scouted by the IPM Team include the Morris County Park Commission Community Garden, the Morris Township Ted Largman Community Garden, the Madison Community Garden, the Wick Garden in Jockey Hollow National Park, and the Randolph Community Garden. The team also reports on sightings in the Pequannock Community Garden and their own vegetable gardens.

GENERAL OBSERVATIONS AND TIPS

Grow plants to attract beneficial insects




Dill flowers attract a variety of beneficial insects to your garden.
Photo: Univ. of Wisconsin-Madison Extension

In each IPM report, we discuss ways to help combat disease and pests. By using various cultural practices, resistant varieties of vegetables, or organic pesticides, we try to reduce the effects of pest stresses. Another ally one might enlist is to promote beneficial insects. By encouraging these insects, one can decrease the

damage caused by populations of enemy insects. To attract the beneficials, one should plant certain plants. A great number of plants that are most effective are widely grown for human consumption. Cilantro, dill, fennel, radish, thyme, and buckwheat are just a few of the easily grown important plants to help attract beneficials. Once established, these plants are very successful "self seeders" which means they should return as volunteers each season. By allocating a portion of your garden plot to beneficial-attracting plants, you will help reduce pests and improve your harvest results.

Visit this link to the University of Wisconsin-Madison Extension website to view a list of plants that attract beneficial insects. https://hort.extension.wisc.edu/articles/plant-flowers-to-encourage-beneficial-insects/
View this Rutgers University link to view descriptions and photos of beneficial insects.
https://njaes.rutgers.edu/pubs/publication.php?pid=FS295

REPORTS ON NEW PROBLEMS

Problem: Squash Bug Adults and Eggs *(Anasa tristis)*	**First Sighting: Morris Twp Community Garden (6/26) Morris County Community Garden (6/30)**

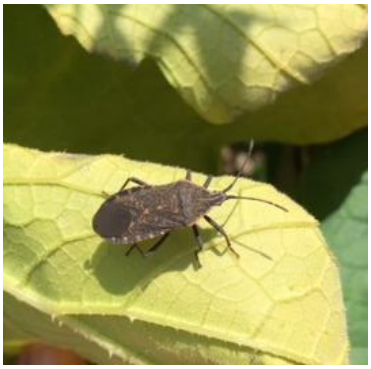
Description: Squash bugs are a major pest of squash and pumpkins. Squash bugs and their nymphs cause damage by piercing and sucking the sap from plants. Squash bug eggs have recently been found on zucchini plants. The adults are flying and mating, and egg laying has begun. These eggs will soon hatch, and their nymphs will suck the sap from leaves, stems and vines of squash, pumpkins, gourds, and melons. Leaves become speckled, later turning yellow to brown. Plants can wilt, and small plants can be killed completely, while larger plants begin to lose runners.

During the feeding process, squash bugs inject a poisonous substance causing a wilt known as *Anasa* wilt of cucurbits, closely resembling a disease called bacterial wilt. Squash bugs can also transmit Yellow Vine Disease of Cucurbits that causes vines to turn yellow and die.

Squash bug eggs close up. Females lay clusters of yellow to bronze-colored eggs on underside of leaf. These will hatch in ten days, and nymphs mature in just over a month. Photo: M. Albright, NJAES

Squash bug adult on leaf. Squash bugs are 5/8th inch long and resemble stink bugs. Adults can overwinter in leaf debris.

Photo: M. Albright, NJAES



Squash bug egg cluster with newly hatched nymphs.

Photo: M. Albright, NJAES

Management:

- Gardeners should inspect their plants and hand-pick adults, eggs and nymphs. Remove and crush them or drop them in a jar of soapy water. The eggs and nymphs are often found on the undersides of leaves.
- Flat boards can be placed on the ground since adults like to hide under them. Gardeners can lift the boards in the morning and destroy the squash bugs found.
- Sanitation is especially important. Remove trash, old vines, dead leaves and plant residue to help prevent the buildup of the pest and remove overwintering protection for squash bugs.
- The insecticide neem can be used for adults and nymphs. As with any insecticide, make sure the product label includes the plant and pest, and follow the instructions on the label.

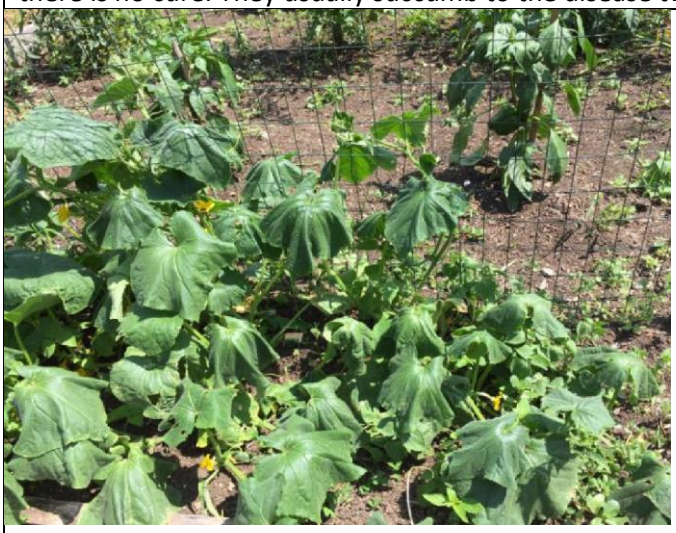
References:

- Rutgers University https://njaes.rutgers.edu/pubs/publication.php?pid=FS228
- University of California http://ipm.ucanr.edu/PMG/PESTNOTES/pn74144.html

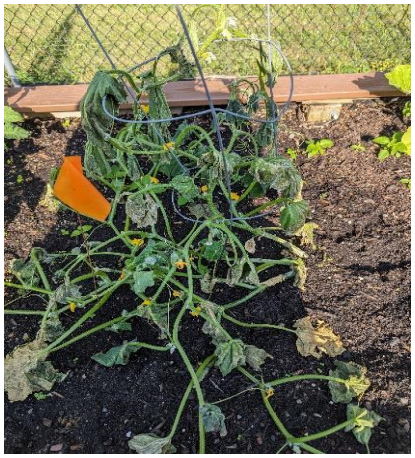
Problem: Bacterial Wilt on cucumber plants *(Erwinia tracheiphila*)	**First Sighting: Morris Twp Community Garden (6/24) Morris County Cmmunity Garden (6/30)**

Description: Bacterial wilt is a bacteria transmitted by the striped and spotted cucumber beetles. The bacterium survives in the beetle gut and is transmitted by contact with the mouth of an infected beetle or their feces. When the beetles feed on leaves and stems, this damaged plant tissue allows an entry point for *E. tracheiphila*. The bacteria multiply in the wound, enter the xylem vessels (water conducting tissues), and move through the petioles to the stems. Masses of bacteria, gums, and resin block the vascular system, resulting in wilt. Bacteria spreads further throughout the plant via adjacent xylem vessels and causes plant collapse and death. 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, zucchini, and pumpkins may also be affected.

Cucumber beetles become active in late May or early June and feed on the blossoms of early flowering plants, such as dandelions, apples, and hawthorns, until their host crops are available. Once a plant is infected with bacterial wilt, there is no cure. They usually succumb to the disease two to six weeks post initial infection.



Bacterial wilt disease affecting an entire cucumber plant. Photo: M. Albright, NJAES



Bacterial Wilt Disease on a cucumber plant. Bacterial Wilt often starts on part of the plant and then progresses. Photo: L. Terraneo, NJAES

Management:

- Scout 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. They fly fast but can be caught and destroyed.
- Practice good garden sanitation. Remove weeds in and around your garden, as they become potential hosts for adults. If a plant shows signs of bacterial wilt, remove the infected plant before more beetles can feed on the plant and spread the bacterium. Stop the cycle.
- Use row covers at planting to prevent beetles from landing and feeding on plants. Be sure to remove the barrier when cucurbits start to flower or try parthenocarpic varieties, which don't require pollinators.
- Plant-based pesticides, such as Neem, prevent insects from feeding, which eventually kills them. Neem can also suffocate the insects but must come in contact with the beetles to be effective. Spinosad may also help manage beetles. Kaolin clay, such as Surround, creates a barrier to leaf surface and disrupts beetles landing and feeding.

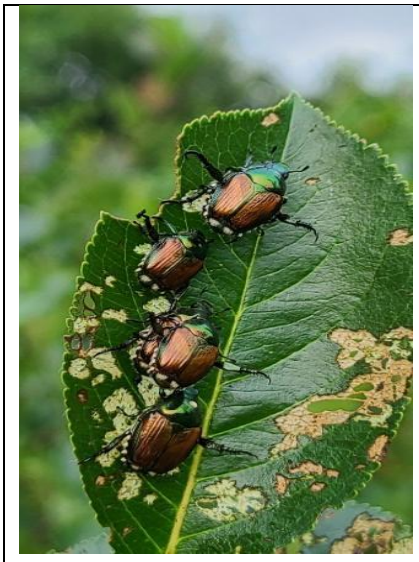
References:

- Rutgers University https://njaes.rutgers.edu/pubs/publication.php?pid=FS225
- Rutgers University https://njaes.rutgers.edu/fs1123/
- University of Massachusetts https://ag.umass.edu/vegetable/fact-sheets/cucurbits-bacterial-wilt

Problem: Japanese Beetles ***(Popillia japonica)***	**First Sighting: Wick Garden (6/26)**

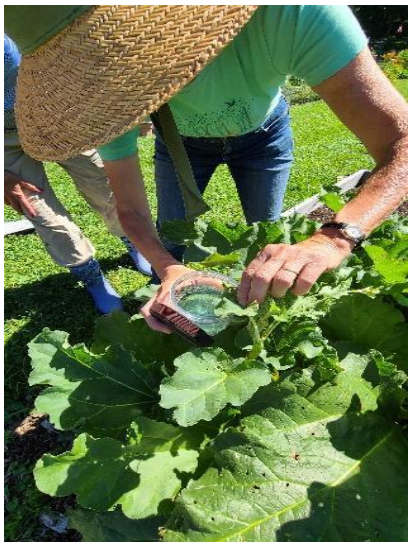
Description: This serious pest of flowers, trees and shrubs, fruits, vegetables, field crops, and turf has returned to the gardens. Adults feed on more than 300 plant species, while the grubs feed mainly on the roots of grasses. This beetle is native to Japan and was first reported in the United States in 1916 in New Jersey. Currently, they are established from Maine to Georgia and in nearly every state east of the Mississippi River and several mid-western states. Beetle larvae (white grubs) have a brown head, cream-colored body and appear "C" shaped. They overwinter in the soil, actively feed on roots and emerge as flying adults when spring soil temperatures warm. These adults then feed on leaves and shoots over a four-to-six-week period. Adults are 9/16 of an inch in length and metallic green with coppery-brown wing covers (called elytra). Adults usually feed on tissue between leaf veins, resulting in leaves with lace-like or skeletonized appearance. They are most active during warm days, feeding on plants exposed to full sun throughout the day. Japanese beetle adults start feeding at the top of plants, migrating downward after depleting food sources.

Top plant choices of feeding are rhubarb, beans, tomatillo, grapes, peach, plum, cherry, rhododendron, roses, and many other ornamentals.

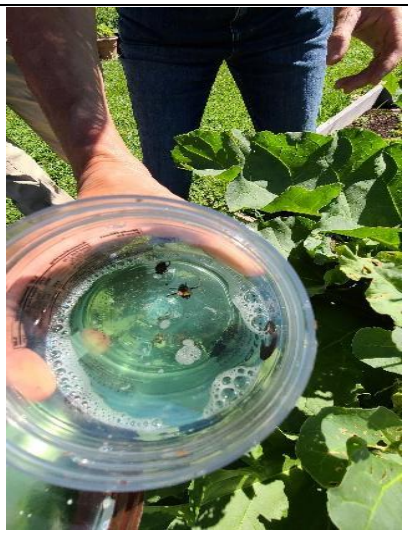


Typical damage caused by adult beetles found at top of plant. Skeletonized leaves are telltale signs of recent activity. Adults assemble in masses and are often mating.

IPM Team member, Mary Olin, demonstrates an easy mechanical method of beetle removal from a rhubarb plant.



All photos: J. Basile, NJAES



Use a cup of soapy water and simply shake beetles into the container. Dispose of remains, but get ready to begin anew, as they can be prolific. Handpicking can also work if you are so inclined.

Management:

- Handpick Japanese beetles daily in the morning or evening when air temperatures are cooler. Collect them in a jar, bucket of soapy water or rubbing alcohol (70% isopropyl alcohol).
- Pheromone traps can be problematic, since they actually attract more than they can capture.

References:

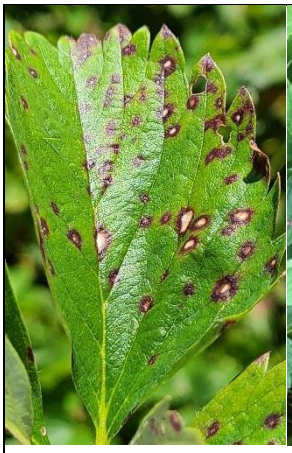
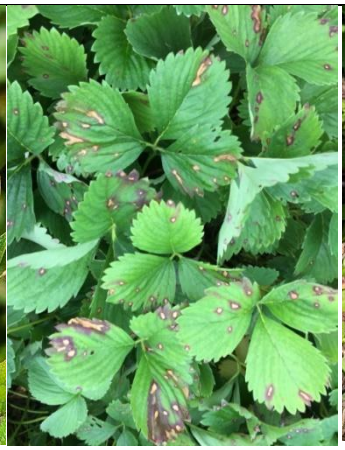
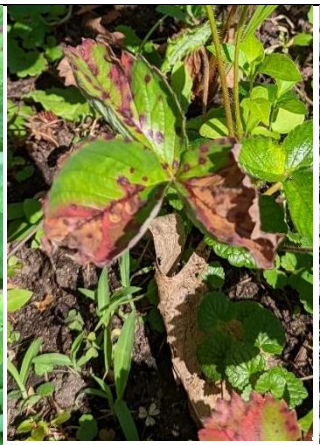
- Rutgers University https://njaes.rutgers.edu/fs1009/
- University of Minnesota Japanese beetles in yards and gardens | UMN Extension

Problem: Strawberry Leaf Spot Disease *(Ramularia grevilleana)*	**First Sighting: Morris County Community Garden (6/30)**

Description: This fungus produces symptoms of small, round, white to tan leaf spots that are surrounded by dark purple to reddish tissue that varies in size. The spots appear scattered over the leaf surface, which reduces leaf function. These spots can also be found on petioles and calices. Older plantings are most susceptible where it occurred previously. This pathogen survives in overwintering leaf tissue.

Leaf spot can affect yield directly because it causes small black spots on fruit, and indirectly because leaf death increases likelihood of sunscald. Additionally, where leaf spot becomes severe, plants can be predisposed to winter injury and flower bud production can be inhibited the following year. Young leaf tissue is susceptible to infection if exposed to a period of leaf wetness that persists for more than 12 hours. Long wet periods over several days combined with warm temperatures over 50°F favor disease development in the spring and in summer after bed renovation.

The fungus also can infect fruit in what is called black seed disease. Berries usually have one or two spots but may have as many as 10. Spots are brownish black, hard, and leathery and appear on one to several achenes. Fruit does not rot but discolors under the spot.




Close up of extensive disease. Photo: M. Sample, NJAES

Management:

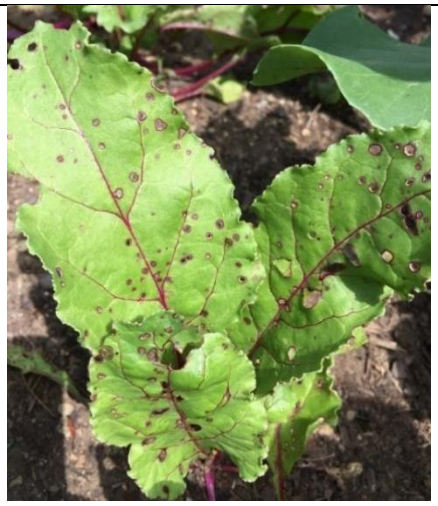
- Space plants properly to allow for air circulation.
- Practice good weed management and garden sanitation.
- Use drip irrigation if possible. Limit overhead watering to minimize the length of time that leaves are wet.
- For June bearing strawberries (not everbearing / day neutral strawberries), renovate the bed after the last harvest by removing old leaves being careful not to damage the crown. A hedge clipper or mower can be used to remove the leaves. Sanitize tools.
- Some moderately resistant varieties are Allstar, Atlas, Cavendish, and Jewel.

References:

- Rutgers University https://njaes.rutgers.edu/fs097/
- Rutgers University https://plant-pest-advisory.rutgers.edu/identifying-and-controlling-strawberry-leaf-spot-2-2/
- Cornell University http://blogs.cornell.edu/livegpath/gallery/strawberries/leaf-spot-of-strawberry/

Problem: *Cercospora* leaf spot disease on beets *(Cercospora spp.)*	**First Sighting: Morris County Community Garden (6/30)**

Description: *Cercospora* leaf spot is an overwintering fungal disease that causes small circular spots with tan or white centers and red halos on leaves. The lesions begin small but can expand in size, resulting in significant loss of foliage. This fungus favors high humidity and temperatures between 75 and 85 degrees. It is spread by wind, rain splash, insects, shared tools, nearly anything in the garden it comes in contact with. Crops at risk are beets, Swiss chard, carrots, spinach, peanuts, cucumbers, squash, melons, and pumpkins.



Cercospora leaf spot on beet plants
Photo: M. Albright, NJAES

Cercospora leaf spot close up on beet plant
Photo: Purdue University

Cercospora leaf spot on Swiss Chard
Photo: B. Monaghan, NJAES

Cercospora leaf spot on Swiss chard
Photo: Cornell University

Management:

- Remove infected leaves.
- Feed and water affected crops regularly to avoid undue stress to plants and harvest infected crops as soon as possible.
- Since the fungus overwinters in plant debris, remove all infected plant material. Throw out, do not compost.
- Avoid planting succession crops of beets, Swiss chard, and spinach close together.
- Water in the morning at the base of the plant to help make sure the plant is not wet during the night.
- Plant resistant beets such as Boldor, Bulls Blood, Cylindra, Detroit Dark Red, and Touchstone Gold.
- Practice a two-year crop rotation.
- Remove weed hosts of lambsquarters and pigweed.

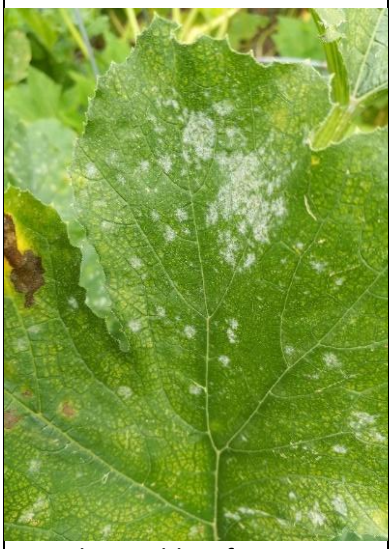
References:

- Rutgers University Controlling Cercospora leaf spot in beet crops in 2023 — Plant & Pest Advisory (rutgers.edu)
- University of Massachusetts https://ag.umass.edu/vegetable/fact-sheets/cercospora-leaf-spot-of-swiss-chard-beets-spinach

Problem: Powdery mildew disease *(Golovinomyces orontii)*	**First Sighting: Pequannock Community Garden (6/29)**

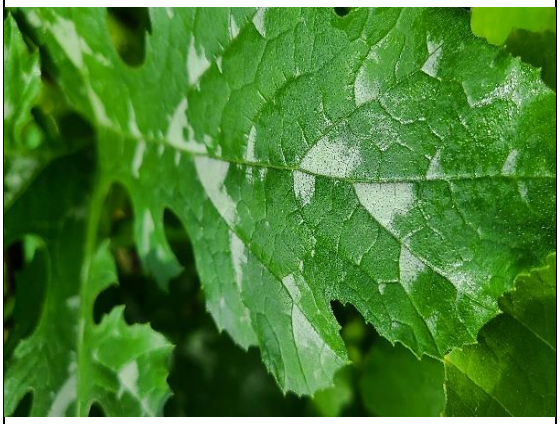
Description: Windborne fungal spores cause this foliar disease. The first signs of infection are white, powdery deposits that can be found on older leaves of various cucurbit family members such as squash, zucchini, yellow summer squash, cucumbers, and melons. It is difficult to avoid during a New Jersey 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 **not** Powdery mildew. This coloration does not rub off, but is part of the plant's regular leaf pattern



Powdery mildew fungus spots on squash plant
Photo: M. Olin, NJAES

Powdery mildew fungus spots on zucchini plant
Photo: M. Albright, NJAES



Normal color variation of some squash, not Powdery mildew fungus.
Photo: J. Basile, NJAES

Management:

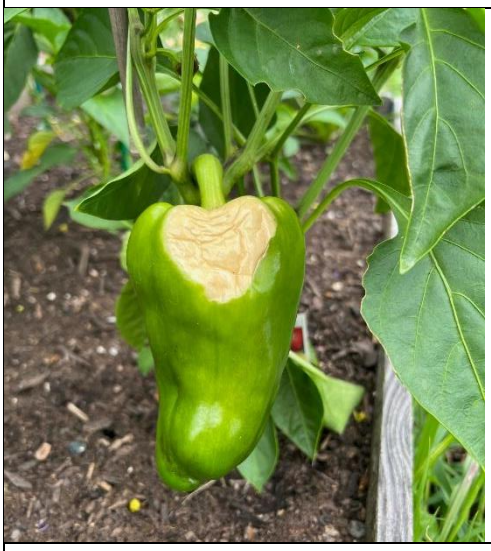
- Provide full sun, air circulation and proper spacing. When planting at-risk crops, leave extra space between plants to promote air circulation and ample room to receive sunlight.
- Remove infected leaves to prevent spread of the disease; throw away and do not compost.
- Apply a spray made of potassium bicarbonate on the leaves to help prevent fungus.
- Remove debris at season end to help decrease spreading any spores.
- Clean your tools.
- Rotate crops (three-to-four-year rotation is ideal).
- Plant resistant varieties such as:
    - Cucumbers: Calypso, Diva, Green Finger, Marketmore, Parks Whopper II and Paraiso
    - Summer squash: Success PM Straightneck, Smooth Operator
    - Zucchini: Astia, Dark Star, Cocozelle, Spineless Perfection
    - Winter squash: Honey Nut, Autumn Frost, Bush Delicata

References:

- Rutgers University https://njaes.rutgers.edu/E310/
- Cornell University https://www.vegetables.cornell.edu/pest-management/disease-factsheets/disease-resistant-vegetable-varieties/
- University of Connecticut https://homegarden.cahnr.uconn.edu/factsheets/powdery-mildew-of-cucurbits/

Problem: Sunscald on Peppers	**First Sighting: Morris County Community Garden (6/30)**

Description: Sunscald occurs when peppers (or tomatoes) are exposed to the sun during hot weather. It is more apparent on plants that have sparse foliage or have lost leaves to disease. Sunscald is especially prevalent on previously shaded plant parts that are suddenly exposed to the sun. Areas damaged by sunscald are vulnerable to attack by insects, fungi, and bacteria.



Sunscald on pepper fruit
Photo: N. Gardner, NJAES

Management:

- Maintain healthy plants with plenty of foliage. Never remove mature foliage from the plants
- Plant pepper varieties that resist diseases that defoliate the plants. One such disease, Bacterial Leaf Spot, is common in New Jersey. A list of disease-resistant peppers can be found at: Disease-resistant pepper varieties (cornell.edu)
- At the end of the season, remove all plant debris to help prevent diseases from overwintering
- Rotate crops. Each year plant peppers in a new location away from where tomatoes, eggplant, potatoes and peppers were grown in the past three years

References:

- Michigan State University: https://www.canr.msu.edu/news/hot_and_sunny_days_promote_sunscald_in_peppers_and_other_vegetables

Disease: Basil Downy Mildew *(Peronospora belbahrii)*	**Morris Township Community Garden 7/7/25**

Description: Basil Downy Mildew is neither a true fungus nor a mold, but a specialized pathogen called "oomycetes". It is wind-borne and can spread quickly, especially during wet, humid conditions. Infected plants develop yellow leaves that can be misdiagnosed as a nutrient deficiency or due to waterlogged soil. However, check the underside of the leaf and there you'll find a fuzzy mass of purplish-brown spores.

Rutgers is asking anyone who observes basil downy mildew on their plants to send infected leaf samples to our researchers. Click on this link to see all the details. https://plant-pest-advisory.rutgers.edu/basil-downy-mildew-samples-wanted-by-rutgers/

Commonly grown sweet basils, such as Genovese, are the most susceptible to downy mildew, but new resistant cultivars are showing potential. Spice types such as Thai, Cinnamon, Lemon, Lime or Red Rosie are also less susceptible.

Underside of basil leaf with fuzzy purplish brown spores of Downy Mildew
Photos: Mary Albright, NJAES

Upper side of a basil leaf with yellowed splotches of Downy Mildew

Devotion

Obsession

Rutgers resistant varieties showing no signs of disease.
Photos: Margot Sample, NJAES

Management:

- Plant resistant varieties. Rutgers has released resistant varieties from their basil breeding program. Try planting Devotion, Obsession, or Passion.
- Cultural practices include proper plant spacing for optimum air flow, plant in full sun and avoid overhead watering.
- Pathogen is transmitted by wind, rain splash, contaminated seed and plants.
- The disease moves from the bottom of plant to the top of plant, so harvest any unaffected leaves from top of plant and use promptly.
- Remove and throw out infected plants to reduce spread of disease.
- Grow some plants in containers indoors.

Fact Sheet / References:

1. Rutgers University Fact Sheet FS1279 https://njaes.rutgers.edu/fs1279/
2. Rutgers University https://sebsnjaesnews.rutgers.edu/2020/09/james-simon-a-breakthrough-in-the-war-against-basil-downy-mildew/
3. Cornell University https://www.vegetables.cornell.edu/pest-management/disease-factsheets/basil-downy-mildew/

WEED SPOTLIGHT

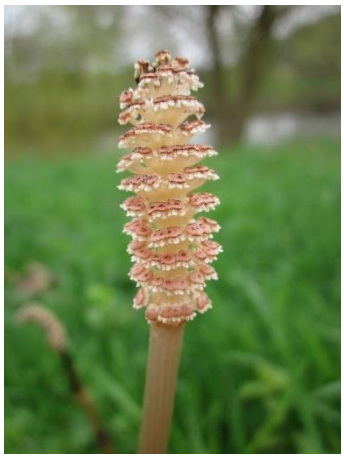
Field Horsetail
(Equisetum arvense)

Description: Field Horsetail is a flowerless, spore-producing, perennial plant that is native to New Jersey and the northern hemisphere. This ancient relative of ferns dates back more than 300 million years to the Carboniferous Period. Its ancestors were the size of trees and found in abundance across the land. The horsetail plant of today stands about two feet tall and favors wet areas like ditches, roadsides, disturbed soils, and meadows for spore germination. It prefers soil that is gravelly or sandy in full to partial sun. Scouring rush, bottlebrush, and horsepipes are some of the common names for horsetail.

This unusual plant has two kinds of stems. Emerging in the spring and growing to about 12 inches, the first is the reproductive stem that is light brown, segmented, and unbranched with dark brown scale-like leaves.
A spore bearing cone develops at the tip. The spores are outfitted with appendages that furl and unfurl in response to moisture and propel the spores into the moist soil. After releasing their spores, these stems will die back. Next, the photosynthetic non-reproductive stems will emerge and persist until frost. These stems look like small pine trees and grow to two feet tall.

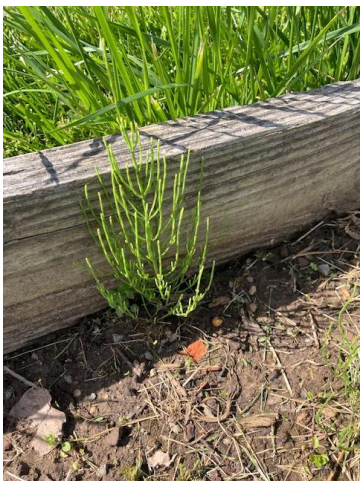
Horsetail has a vigorous root system of tubers and horizontal rhizomes that can be six or more feet deep. Once the plant is established, the root system is the principal method of propagation. This highly adaptable plant can creep from wetter areas into less favorable drier areas.

Although this native plant may have a place in the watershed ecosystem, it is unwanted in the home or community garden bed. Due to its adaptability and aggressive root system, horsetail is very difficult and costly to completely eradicate. Control is the best option. The use of landscape fabric may block stem growth for a time, but the rhizomes may grow out through holes or out the edge of the fabric. The gardener can attempt to drain the energy reserves of the rhizomes by removing the stems every two weeks throughout the growing season. This method requires diligence and will take several years to achieve success.



Close up of spore bearing cone
Photo: NC State Extension, Pixabay

Detail of vegetative, photosynthetic stem
Photo:NC State Extension, Evelyn Simak



Photosynthetic horsetail stem in a Morris County Garden
Photo: B. Monaghan, NJAES

References:

- Michigan State University: Field Horsetail: A Plant As Old As Time - Plant & Pest Diagnostics
- North Carolina State Extension: Equisetum arvense (Common Horsetail, Field Horsetail, Horsetail, Scouring rush, Western horsetail) | North Carolina Extension Gardener Plant Toolbox
- USDA U.S. Forest Service: Common Horsetail

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/
Rutgers NJAES You Tube Channel https://www.youtube.com/user/RutgersNJAES

Report Editor: Brian Monaghan
Tip and Spotlight Sections: Brian Monaghan (Tip) and Jody Carlson (Weed spotlight)