RUTGERS
New Jersey Agricultural Experiment Station

Rutgers Master Gardener IPM Team Report
Report # 9, Week of August 9, 2021

WHAT'S IN THIS REPORT	
NEW PROBLEMS SEEN	**SPOTLIGHTS**
• Downy mildew disease on cucumber plants • Spotted cucumber beetles • Asiatic garden beetles	• Burdock (weed) • Sow and pill bugs (sometimes beneficial, sometimes pest)

GENERAL OBSERVATIONS AND TIPS

Harvesting of summer crops continues. If you find yourself with excess this is a good time to preserve for winter treats from your garden. Many herbs can be frozen or dried. Some vegetables and fruits can easily be frozen. Be sure to follow USDA guidelines if you decide to can produce.
https://nchfp.uga.edu/publications/publications_usda.html
https://njaes.rutgers.edu/food-safety/home-food-preservation/

By this time of year, many of the common insect pests and diseases in Morris County have been observed. Problems reported on earlier this year may now be showing up in your plot, so continue to be vigilant. The drier weather has slowed the progression of some fungal diseases, at least temporarily. When there's no rain for a few days, continue to water your mature plants deeply every few days. If you planted recently for fall harvest, you may have small vulnerable plants that need some extra care. Water these frequently until they get well-established. Also keep weeds in check to give your new crops a good start.

REPORTS ON NEW PROBLEMS

Disease: Downy mildew on cucumber plants ***(Pseudoperonospora cubensis)***	**Where: Morris Township Community Garden, Morris County Park Commission Community Garden, Morris Township Home Garden; July 22**
Description: Downy mildew can infect all cucurbits including cucumber, melon, pumpkin and squash. Pale green to yellow spots form on the upper surface of leaves and later turn brown. Leaf spots are angular bounded by leaf veins. This is most distinct in cucumber plants. A telltale sign of downy mildew is the gray to black fuzz (spores) on the underside of the leaves, giving it a somewhat "dirty" appearance. This may be most evident in the morning or when the leaves are wet. Downy mildew thrives in wet or very humid conditions. The pathogen can move on air currents, splashing water and on the tools and hands of workers. Downy mildew does not overwinter in New Jersey; it blows into the area via air currents.	

Downy mildew disease on cucumber plant

Photo: M. Albright, NJAES

Downy mildew disease on cucumber plant: underside of a leaf, top of a leaf

Photo: M. Albright, NJAES

Top side of cucumber leaf showing downy mildew yellow, angular lesions defined by the veins

Photo: Michigan State University

Underside of a cucumber leaf showing downy mildew dark, fuzzy spore masses

Photo: Michigan State University

Management:

- Plant varieties resistant to downy mildew. See the Cornell reference for a list of cucurbits resistant to downy mildew.
- Water at the base of the plants or use drip irrigation since downy mildew thrives in wet conditions.
- Promote good air circulation by not crowding plants and growing them vertically on trellises or fences.

More Information: Fact Sheet / References

- Rutgers Fact Sheet E310: https://njaes.rutgers.edu/E310/
- University of Minnesota: https://extension.umn.edu/diseases/downy-mildew-cucurbits
- Michigan State University: https://www.canr.msu.edu/news/cucumber_downy_mildew_management_practices_for_home_gardeners
- Cornell University, disease resistant cucurbit varieties: https://www.vegetables.cornell.edu/pest-management/disease-factsheets/disease-resistant-vegetable-varieties/disease-resistant-cucurbit-varieties/

Pest: Spotted cucumber beetles *(Diabrotica undecimpunctata howardi)*	**Where: Denville and Morris Township home gardens (July 24)**

Description: Spotted cucumber beetles were seen recently. A similar pest, striped cucumber beetles, were seen earlier in the season and discussed in Report #5 (June 14th). Both species of cucumber beetles cause feeding damage on the foliage and fruit of cucurbit plants (cucumbers, squash and pumpkins). Spotted cucumber beetles also attack asparagus, beets, cabbage, corn, eggplant, beans, peas, potato, tomato, and a wide variety of flowers. The feeding injury caused by the spotted cucumber beetle is usually less severe than that of the striped cucumber beetle. Both species of cucumber beetles carry the bacterial wilt pathogen that can cause cucurbit plants, especially cucumbers, to wilt and die.

Spotted cucumber beetles are 1/4-inch long, greenish-yellow with a black head and black legs, and 12 black spots.

Photo: Rutgers Fact Sheet F225

Striped cucumber beetles are 1/5- inch long with a black head, yellow thorax and wing covers, and three longitudinal stripes.

Photo: University of Minnesota

Bacterial Wilt caused by cucumber beetles

Photo: M. 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 cucumber beetles away from your plants. Be sure to remove the barrier when cucurbits start to flower unless you are growing a parthenocarpic variety (one that doesn't require insect pollination).
- Choose a pesticide that has a low impact on beneficial insects, such as ladybird beetles and pollinators. Neem is a plant-based pesticide that prevents insects from feeding, which eventually kills them. Pyrethroids and pyrethrins can also be used. Pyrethrins should come in contact with the beetles to be effective.

More Information: Fact Sheet / 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/

Pest: Asiatic garden beetles *(Maladera castanea)*	**Where: Morris Township Community Garden 7/28/2021**

Description: The Asiatic garden beetle is a night feeder that attacks many different vegetable, herb, fruit, and ornamental plants. Adult beetles may be active from late June to the end of October but do the most damage during July and August. Unlike Japanese beetles, adult Asiatic garden beetles notch, shred and strip foliage, rather than skeletonizing it. During the day, they hide in the ground. Beetle grubs feed on roots, damaging plants underground.

Asiatic garden beetles are 3/8 inch long and chestnut brown

Photo: North Carolina State

Asiatic garden beetle larvae are white grubs. Mature larvae are ½ inch long

Photo: North Carolina State

Management:

- Check damaged plants at night for the presence of Asiatic Garden beetles.
- Handpick beetles at night using a flashlight and drop them into a container of soapy water.
- Row covers may protect herb and vegetable planting beds against adult Asiatic garden beetles, unless larvae have overwintered in the soil.
- Help prevent over-wintering by cleaning up the garden in fall.

More Information: Fact Sheet / References

- Rutgers Fact Sheet 293: https://njaes.rutgers.edu/pubs/publication.php?pid=FS293
- Rutgers Fact Sheet 1009: https://njaes.rutgers.edu/fs1009/
- University of New Hampshire: https://extension.unh.edu/resource/asiatic-garden-beetle-fact-sheet
- North Carolina State: https://content.ces.ncsu.edu/asiatic-garden-beetle

BENEFICIAL SPOTLIGHT

Sowbug *(beneficial, sometimes pest)*
(Porcellionidae family)

Left photo: Sowbug adult on slate. Right photo: Pillbug on leaf. Will roll up when disturbed. Photos: Jennifer Basile, NJAES

Description: This tiny crustacean can be found scurrying around your plot, which is part helpful, but can also be part nuisance. There's always a tradeoff. They are beneficial as contributors to the soil food web by consuming decaying matter, which in turn promotes overall soil health. They can become a nuisance in large numbers, since they also feed on seedlings. Fruit that comes in contact with the ground, such as strawberries, melons, and root crops are also susceptible to damage from their feeding.

Characteristics include a grey-brown armored exoskeleton, with seven pairs of legs, length of half inch, antennae and two pointy 'tails' at the end. Sowbugs differ from Pillbugs, aka Roly-Poly, since the end appendage is what prevents them from rolling up when disturbed.

Adults overwinter in plant debris, leaf litter, even under bricks. Mating begins in spring, and females hold the eggs within a brood sac on her underside. After six weeks the young emerge and begin the molting process as they grow into adults. Lifespan averages two years with one to two generations a year. They thrive in moist soils, are harmless and will not bite you. Their natural predators are small mammals, spiders, beetles, toads, and frogs.

Management includes good garden sanitation to remove hiding spaces. The use of landscape fabric can be effective to create a barrier between soil, seedlings, and low fruiting plants.

Fact Sheet / References:

1. Cornell University http://idl.entomology.cornell.edu/wp-content/uploads/Millipedes-Sowbugs-Pillbugs-Centipedes.pdf

2. University of Nebraska https://lancaster.unl.edu/pest/resources/001Sowbugs.pdf

WEED SPOTLIGHT

Common Burdock *(Arctium minus)*	**Where: Dover home garden**

Description: Common burdock is a tenacious biennial that can reach 6 feet tall and produce as many as 15,000 seeds via difficult-to-remove burs that pose a threat to birds, bats, dogs and livestock. First-year growth forms a short, dense rosette of leaves; in its second year, the plant shoots up, forming pink to purple thistle-like flowers, and sends a taproot down as much as a foot. Although the blooms are attractive to pollinators, and the foliage is a food source for the caterpillar of the Painted Lady butterfly, you do NOT want this weed to gain a foothold in your yard. The taproot and the large number of seeds produced make it very difficult to eradicate.

Management: Remove the plants by digging them. Be sure not to let them form flowers and seeds.

Photos: MISIN Midwest Invasive Species Information Network

References:

Invasive Species Extension: https://invasive-species.extension.org/arctium-minus-lesser-burdock/
North Carolina State: https://plants.ces.ncsu.edu/plants/arctium-minus/

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 eight 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, Dover, Morris Plains, Kinnelon, and Morris Township.

Report Editor: Mary Albright
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Sightings Reported by: Mary Albright and Margot Sample