RUTGERS
New Jersey Agricultural Experiment Station

Rutgers Master Gardeners of Morris County
Community Garden IPM Team Report #9
August 12, 2022

WHAT'S IN THIS REPORT		
TIP	**NEW PROBLEMS SEEN**	**SPOTLIGHTS**
• Preserving your harvest	• Cercospora on Swiss chard. • Celery leaf curl (anthracnose) • Blackberry Psyllid • Anthracnose on tomato fruit • Spider mites on bean leaves • Sap beetles on corn	• Managing Mexican bean beetles with tiny parasitic wasps

GARDENS SCOUTED FOR THIS REPORT: Morris County Park Commission's Community Garden in Morristown, ValleVue Preserve Community Garden in Morris Township, and Madison Community Garden.

GENERAL OBSERVATIONS

Peak harvest season continues. Hopefully you are still enjoying the product of your garden labors. Try to pick your harvest at its peak. If you have more than you can use or preserve consider giving the excess to your community garden neighbors or a local food pantry. Perhaps even more gratifying than eating your harvest is sharing it.

Continue to be vigilant for issues. If you continue to spot issues early you'll be better equipped to take measures to mitigate damage and continue your harvest for as long as possible.

When plants are diseased or just spent, be relentless about removing them. This will help provide a good environment for existing healthy plants to continue producing and also minimize overwintering of diseases and insect pests.

Now is also a good time to update your garden records before you forget what worked well and what you could improve next year.

TIP

Preserving your harvest

It's hot and there's a lot to do in the garden, but this is also the time to consider preserving some of the fruits of your gardening labors. It's always best to start with fresh, good-quality produce at the proper maturity. This Rutgers nutrition and wellness website, https://njaes.rutgers.edu/home-lawn-garden/nutrition-wellness.php, has links to a lot of good information on preserving foods safely. It also has some ideas on how to prepare and eat produce that's in season. Some options for preserving produce for later use are freezing, canning, dehydrating, fermenting, or making jams and jellies.

Freezing is arguably the easiest way to preserve produce. Some fruits and vegetables can be frozen raw; others should be blanched first. Of course freezer space can be a limiting factor.

Canning may seem daunting if you haven't tried it. Jams and high acid foods can be processed in a water bath canner. This is fairly easy and doesn't require a large upfront expense. Vegetables with less acid should be processed in a pressure canner. This is a more serious endeavor and requires more expensive equipment. It really opens the possibilities to can a wide array of produce, though.

Photo of pressure canner and canned green beans:
M. Sample, NJAES

Drying is also fairly easy and doesn't require a lot of equipment. You can buy inexpensive electric dehydrators. Some foods can also be sun dried outside, but this is a little trickier and dependent on favorable weather conditions. Easy foods to dry in a dehydrator include herbs, such as parsley and dill.

Photo of simple electric dehydrator:
M. Sample, NJAES

When you think of fermenting or pickling you may think of pickles made from cucumbers. A lot of other foods can also be fermented; think sauerkraut, kimchi, or pickled jalapenos. This preserves the food and may have health benefits.

Be sure to follow USDA guidelines for processing food to ensure food safety. For information on preserving foods safely a good place to start is: National Center for Home Food Preservation (uga.edu).

A little bit of effort now could keep you eating “from your garden” well into the cold weather.

REPORTS ON NEW PROBLEMS

Disease: *Cercospora* leaf spot on Swiss chard	**Where: Madison Community Garden (7/26/22)** **Morris Township Community Garden** **Morris Township Home Garden (7/29/22)**

Description: *Cercospora* leaf spot causes small circular leaf spots with a tan or white center and red margins. This disease is the result of a fungus. The spots start off small but can expand in size, resulting in significant loss of foliage. This fungus is favored by high humidity and temperatures between 75 and 85 degrees. It is spread by wind, rain splash, insects, just about anything.

Crops at risk are carrots, beets, spinach, Swiss chard, peanuts, cucumbers, squash, melons and pumpkins. It was seen on beets earlier this year (IPM report 6, week of June 30, 2022), and has recently been seen on Swiss chard.

Cercospora Leaf Spot on Swiss Chard. Photo: Brian Monaghan, NJAES

Cercospora Leaf Spot on Swiss Chard. Photo: Cornell University

Management:

- Clip off 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 and dispose of the material away from the garden.
- 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.
- Practice a two or more year crop rotation since the pathogen can live in the soil for two years.

Fact Sheet / References

- University of Massachusetts Fact Sheet, https://ag.umass.edu/vegetable/fact-sheets/cercospora-leaf-spot-of-swiss-chard-beets-spinach
- Cornell University: https://blogs.cornell.edu/livegpath/gallery/beets-and-swiss-chard/cercospora-leaf-spot-on-beets-and-swiss-chard/#:~:text=Cercospora%20leaf%20spot%20is%20a,provides%20leaf%20wetness%20for%20infection.

Disease: Celery Anthracnose aka Celery Leaf Curl	Where: Morris County Community Garden (8/1/22) Denville home garden (7/25/22)

Description: Celery Anthracnose is a fungus that is seed borne. Signs include stunted plant growth, curling leaves and small brown lesions that develop on the petiole. Lesions on petioles turn dark reddish brown to black as the disease progresses. Lesions displaying gall tissue and adventitious roots are sometimes observed. Invasion by secondary bacteria may lead to heart rot, which can resemble black heart, a physiological disorder of celery caused by calcium deficiency.

Infection and disease development is most common and severe in warm, wet conditions, when celery leaves remain wet for long periods of time.

Spores are spread primarily by splashing rain or irrigation water.

Several common weeds, including common lambsquarters, redroot pigweed, yellow nutsedge, oakleaf goosefoot, and common groundsel may also serve as hosts.

Characteristic curled leaves of celery anthracnose.
Photo: M. Sample, NJAES

Brown lesions on young celery stalk.
Photo: M. Sample, NJAES

Celery plant severely damaged by anthracnose.
Photo: M. Sample, NJAES

Celery plant with curled leaves due to anthracnose.
Photo: S. Brighouse, NJAES

Management:

- Remove infected plants immediately.
- Avoid overhead watering, as this fungus thrives in moist, warm conditions.
- Avoid working within the crop during wet weather, to prevent spread of disease.
- Crop rotation for 4 years.
- Start with clean seed and try planting more resistant varieties such as Merengo, Hadrian, Geronimo, and Balada.
- Clear garden debris in fall.

Fact Sheet / References

- University of Massachusetts: https://ag.umass.edu/vegetable/fact-sheets/celery-anthracnose
- Cornell University: https://rvpadmin.cce.cornell.edu/pdf/veg_edge/pdf152_pdf.pdf

Disease: Blackberry Psyllids *(Trioza tripunctata)*	**Where: Morris County Community Garden (8/1/22)**

Description: Psyllids are sucking insects that resemble miniature cicadas or aphids. This species has a single generation per year and overwinters as adults on conifers. Adults feed on leaves and can cause the leaves to curl. Psyllids don't damage the fruit and rarely severely damage the overall health of the plant. Blackberries that are at least one mile away from conifers are rarely affected. The best control method is not to plant blackberries near conifers if possible.

Characteristic curled leaves caused by blackberry psyllid damage. Photo: Ohio State University

Curled blackberry leaves.
Photo: M. Albright, NJAES

Blackberry psyllids (3.5 – 4 mm).
Photo: P. Nitzsche, NJAES

Waxy substance secreted by psyllid nymphs.
Photo: S. Brighouse, NJAES

Management:

- Plant blackberries at least 1 mile away from conifers if possible
- No action may be necessary if the damage is not severe as the psyllids don't directly damage fruit

Fact Sheet / References

- University of North Carolina: https://rubus.ces.ncsu.edu/2013/06/blackberry-psyllid-in-nc/
- University of Virginia: https://www.virginiafruit.ento.vt.edu/blkbrrypsyllid.html
- Ohio State State University: https://u.osu.edu/cfaescapstone/small-fruits/blackberries/pests/

Problem: Anthracnose on Tomato Fruit	Where: Morris Township home garden (7/29/22)

Description:

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: P. Nitzsche, NJAES

More advanced anthracnose disease. Photo: Cornell University

Management:

- Remove old plant debris, including tomatoes on the ground, since fungal spores can overwinter in infected plant material.
- At the end of the growing season remove and discard all tomato refuse.
- Each year plant tomatoes in a new location away from areas where tomatoes, eggplant, potatoes or peppers were grown in the past three years.
- 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.
- Water at the base of the plant to keep leaves from getting wet.

Fact Sheet / References

- Rutgers FS547*:* FS547: FS547: Diagnosing and Controlling Fungal Diseases of Tomato in the Home Garden (Rutgers NJAES)
- Cornell University: Anthracnose on tomatoes | Vegetable Pathology – Long Island Horticultural Research & Extension Center (cornell.edu)

Problem: Two-spotted spider mites on bean leaves (*Tetranychus urticae*)	**Where: Morris County Community Garden (8/1/22)**

Description:

Two-spotted spider mites, *Tetranychus urticae* (Koch), suck plant juices from the leaves of many vegetable crops, causing a discoloration of leaves due to the loss of chlorophyll. The mites feed on the plants one cell at a time, causing a characteristic stippling of the leaves. Foliage shows distinct pale-yellowish blotches at first, then the entire leaf turns brown, dries, and drops from the plant. As the population increases, the mites spin silken threads across the leaf undersides, often forming large webs over the entire plant. Plants lose vigor, turn brown and die. Spider mites attack nearly all vegetable plants and are readily seen on beans, carrots, cucurbits, eggplant, tomato and potato.

Spider mites on bean leaf picture taken under microscope (actual size of mites is about 1/60 inch). Photo: C. Mathis, NJAES

Bean leaf damaged by spider mites. Photo: M. Sample, NJAES

Management:

- Mow surrounding grass and remove weeds to reduce mite population.
- Avoid over fertilization, especially excess nitrogen.
- Spray or wash plants with water with enough pressure to dislodge spider mites.
- Avoid overuse of pesticides to control other insects as this may lead to an increase in spider mite population.

Fact Sheet / References

- Rutgers Fact Sheet: https://njaes.rutgers.edu/pubs/publication.php?pid=fs235
- University of Minnesota: https://extension.umn.edu/yard-and-garden-insects/spider-mites

Problem: Sap Beetles on Corn (*Carpophilus dimidiatus)*	**Where: Madison Community Garden (8/3/22)**

Description: Sap beetles are a group of beetles that are generally attracted to ripened and/or damaged fruit. In New Jersey they are commonly found in many fruits, tomatoes, and corn. The adult or beetle stage is approximately 1/6 of an inch long and oval in shape. The color ranges from black to dark brown. A helpful identifying characteristic is the club-like antennae. The larvae are yellow to pinkish white grubs, and about ¼ inch in length. They enter corn by chewing on the tassels first, and then entering at the tip of the ear. The adults lay their eggs into the kernels which hatch into the grub stage. Corn that has been damaged by other insects (for instance corn earworm) or birds is more likely to be invaded by sap beetles. The corn sap beetle (*Carpophilus dimidiatus)* can produce up to 4 generations in a season, and overwinters in soil where there is plant debris or tall weeds. They emerge in late spring.

Sap beetle on corn.
Photo: B. Monaghan, NJAES

Management:

- Remove plant debris at the end of the season.
- Remove spoiled or rotting fruit promptly.
- Grow long-husked corn varieties which are less likely to be damaged by other insects and therefore reducing invasion by sap beetles.
- Cover the ears of corn with a bag after pollination to reduce the chances of earworm or bird damage thus reducing invasion by sap beetles.

Fact Sheet / References

- Rutgers Fact Sheet: https://njaes.rutgers.edu/pubs/publication.php?pid=FS243

SPOTLIGHT

Managing Mexican bean beetles with tiny parasitic wasps (*Pediobius foveolatus*)

Description:

Mexican bean beetles can be a serious pest of bean crops in New Jersey. (See IPM report 7 for more info on Mexican bean beetles)

The New Jersey Department of Agriculture (NJDA) has a program to breed a tiny beneficial wasp that is helpful in the control of Mexican bean beetles. The adult wasps or their mummies are available to farmers and community gardens for release in fields where the beetles are a problem. The adults are 2 – 3.5 mm in size and do not bite or sting humans or other animals. This parasitic wasp lays its eggs in Mexican bean beetle larvae. Wasp larvae feed inside the Mexican bean beetle larvae, kill it, and pupate inside it forming a case called a mummy. Wasps will lay their eggs in any size larvae, but it's best to release them when larvae are small. It's also important to time the release when there is a sufficient population of Mexican bean beetles, so the wasps have something to eat.

The wasps can travel several miles in a season, but do not overwinter in NJ.

These wasps were released at the Morris Township community garden on 7/27/22 and 8/4/22, and the Morris County community garden on 8/1/22.

Wasp release Morris Township community garden.

Photo: M Albright, NJAES

Container of wasps under bean plants – Morris County community garden.

Photo: S Brighouse, NJAES

IPM team member preparing to release wasps.

Photo: M Sample, NJAES

Fact Sheet/References:

- NJDA program for biological control of Mexican bean beetle: https://www.nj.gov/agriculture/divisions/pi/prog/buglab/invasive-insects-biocontrol/mbb.shtml
- University of Massachusetts article on biological control of Mexican bean beetles: https://ag.umass.edu/vegetable/fact-sheets/mexican-bean-beetle-biological-control
- Connecticut Agricultural Extension fact sheet: https://portal.ct.gov/CAES/Fact-Sheets/Entomology/Using-Pediobius-Foveolatus-as-a-Biological-Control-for-Mexican-Bean-Beetles-on-Organic-Vegetable-Far

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

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