RUTGERS
New Jersey Agricultural Experiment Station

Rutgers Master Gardener IPM Team Report
Report # 10, Week of August 23, 2021

WHAT'S IN THIS REPORT	
NEW PROBLEMS SEEN	**SPOTLIGHTS**
• Brown marmorated stink bug • Bean mosaic virus	• Soldier beetles (aka leatherwings) (beneficial) • Japanese stiltgrass (weed)

GENERAL OBSERVATIONS AND TIPS

As August draws to a close and the hours of sunlight each day gradually decrease, you may find yourself harvesting large quantities of ripe tomatoes and peppers which are benefiting from the continuing hot weather. If you have managed to avoid the Squash vine borer moth, you may also be picking a great many zucchini and summer squash with plenty of extra to share. If, however, your squash plants are beginning to look rather sad and droopy and you see telltale frass on the stems, waste no time pulling those plants and removing them from the garden to prevent the Squash vine borer larvae from completing their life cycle. The larvae exit the plants they have been infesting after approximately 4-6 weeks. Since the first sighting was July 11, it is quite likely they are now beginning to move on to the next stage of their life cycle.

There is still time to get some quick-growing Fall crops planted such as kale, beets and lettuces. Don't delay as they will need time to mature before really cold weather sets in. Also, don't forget to order garlic bulbs now for planting in October or November or, alternatively, set aside the best heads from this year's harvest to plant for next year's.

Last but not least, take time to enjoy the profusion of beautiful flowers while they are at the height of their bloom and also all the varied and wonderful pollinators they attract.

REPORTS ON NEW PROBLEMS

Disease: Brown Marmorated Stink Bug *(Halyomorpha halys)*	**Where: Morris Township Community Garden, Morris Township and Denville Home Gardens; August 9**
Description: The Brown marmorated stink bug has a mottled brown-grey shield-shaped body. Adults are approximately 5/8 inch long with white banding on their antennae and legs. They are flying insects. This pest usually lays clutches of approximately 28 elliptical-shaped eggs on the underside of leaves. Upon hatching, the nymphs progress through five instars or stages during which they range in size from 2.4mm to 12mm (approx. 2/16 to ½ inch). The first instars resemble ticks and are not very active, remaining near the egg mass. Nymphs have dark reddish eyes and a yellowish-red abdomen with black stripes. Their legs and antennae are black with white banding.	

The Brown marmorated stink bug is native to Asia and was introduced into the United States in the mid-1990's. They produce one to two generations per year in cooler climates and can be a serious agricultural pest as they feed on a variety of tree fruits and vegetables such as apples, cherries, corn, peaches, peppers, tomatoes and soybeans. Feeding damage can lead to pitting and scarring and sometimes a mealy texture. They also feed on leaves, causing a stippled area about 1/8 inch in diameter around the feeding site. They do not chew holes but pierce the epidermis and suck out the juices.

This pest overwinters in confined spaces such as buildings, dead trees and logs. In Spring, they emerge and lay their eggs on wild host plants, then move on to begin feeding on their chosen food crops of which there are many.

Brown marmorated stink bug adult female
Photo: Rutgers, NJAES

Possible Brown marmorated stink bug feeding damage
Photo: M. Sample, NJAES

Brown marmorated stink bug eggs and larvae on butternut squash leaf
Photo: M. Albright, NJAES

Brown marmorated stink bug eggs
Photo: Rutgers, NJAES

First instar of Brown marmorated stink bug
Photo: Rutgers, NJAES

Fourth instar of Brown marmorated stink bug
Photo: Rutgers, NJAES

Management:

- Hand pick adults, nymphs and eggs and crush or deposit in a jar of soapy water.
- Clear away any likely overwintering sites in or near your garden.

More Information: Fact Sheet / References

- Rutgers New Jersey Agricultural Experiment Station: How to Identify the Brown Marmorated Stink Bug (Rutgers NJAES)
- US Environmental Protection Agency (EPA): Brown Marmorated Stink Bug | US EPA
- North Carolina Extension: Brown Marmorated Stink Bug (North Carolina) | NC State Extension Publications (ncsu.edu)

Pest: Bean Mosaic Virus *(Potyviridae family)*	**Where: Madison Community Garden; August 20**

Description: Bean mosaic virus is a worldwide pest organism that causes a variety of symptoms in bean plants which vary according to the type of virus and the variety of bean. Bean Common Mosaic Virus (BV-1 or BCMV) can infect beans and other legumes, including clover. This disease often stunts the plants and reduces yield. Leaves may exhibit a mottled pattern of light yellow and green or a band of darker green may follow the leaf veins while the rest of the leaf remains green. Leaves may become puckered or malformed and often exhibit a downward cupping of the entire leaflet.

A second variety of bean mosaic virus called the Bean Yellow Mosaic Virus (BV-2 or BYMV) can infect beans, gladiolus, clover, peas, lupine, violet and pumpkin. The damage it causes can range from minor to severe and is determined by which strain is causing the infection. Symptoms vary depending on species and age of the plant but can include small yellow spots (about 1/8 inch in diameter) that form on the leaves and spread into each other, causing a mottled yellow and green coloration. With this variety of virus, the intensity of the mottling increases as the plant ages. In severe cases, young leaves may be stiff, glossy and curl upward or be otherwise

malformed. Plants may be stunted with a bunchy appearance. Flowering and fruiting may be delayed and tissue death, even to the extent of the entire plant, may occur.

Bean mosaic virus is spread from plant to plant by over 20 different aphid species, including the black bean aphid which is black to dark olive green in color with white markings. However, disease transmission is non-persistent meaning the aphids will readily acquire the virus by feeding on an infected plant but will only continue to transmit it for a few days to a week.

The Bean Yellow Mosaic Virus **is not** carried by bean seeds. The Bean Common Mosaic Virus **is** carried by seed and the virus can survive up to 30 years on the seed.

Bean Yellow Mosaic Virus
Photo: Cornell Univ., Dept. of Plant Pathology

Bean Common Mosaic Virus
Photo: Cornell Univ., Dept. of Plant Pathology


Possible bean mosaic virus on bean leaves
Photo: B. Monaghan, NJAES

Management:

- Use certified disease-free seed and plant BCMV and BYMV resistant varieties.
- Avoid planting beans near other legumes and *Gladiolus sp.*
- Early control of aphids on plants can help to reduce spread of the disease. A blast of water from the hose can knock aphids off your plants. Lady bird beetles and their larvae are predatory to aphids.

More Information: Fact Sheet / References

- University of Connecticut, College of Agriculture, Health and Natural Resources: Bean Viruses - CT Integrated Pest Management Program (uconn.edu)
- Cornell Univ., Dept of Plant Pathology: Virus Diseases of Beans fact sheet (cornell.edu)

BENEFICIAL SPOTLIGHT

Soldier beetles (aka Leatherwings)
(Chauliognatha pennsylvanicus)

Description: Soldier beetle species all have soft, leathery wing covers as adults, hence their nickname of leatherwings. They are about ½ inch long, tan in color with black heads and legs with a black spot on the thorax and an oval black spot on each wing cover. They are good flyers and act as pollinators on various flowering plants, consuming nectar and pollen.

In the larval stage, they live in leaf litter or under rocks, logs and debris. At this stage, they have large, grasping jaws and can move quite quickly. They feed primarily at night on insect eggs and prey insects such as aphids, mealybugs and caterpillars. They can grow up to ¾ inch long.

Soldier beetles live through the winter as larvae, transforming into pupae in early summer. The adults emerge in late July and are active through August and September. They lay their eggs toward the end of summer, which then hatch and remain in the larval stage until the following spring. There is only one generation per year.

Adult Soldier beetle
Photo: Univ. of Minnesota Extension

Fact Sheet / References:

1. Univ. of Minnesota Extension: Soldier beetles | UMN Extension

WEED SPOTLIGHT

Japanese stiltgrass *(Microstegium vimineum)*	**Where: Morris Twp home garden**

Japanese stiltgrass
Photo: M. Olin, NJAES

Japanese stiltgrass flower/seed head
Photo: J.C. Neal, North Carolina State Extension

Description: Japanese stiltgrass is an invasive plant native to Japan, China, India and central Asia. It grows well in moderately to densely shaded areas that are regularly disturbed by mowing, tilling and foot traffic. It does not grow well in full sunlight or areas with standing water.

This plant grows rapidly and produces abundant seeds, up to 1000 from each plant. The seed remains viable for up to 5 years.

Management: Methods of control include hand pulling and hoeing before the seed drops in mid-August. The plant adjusts to regular mowing by setting seed at a lower height so an alternative strategy would be to mow or remove the plants in early August just before flowering to interrupt seed-set. Mulches can be used to exclude light from the soil in order to prevent germination.

Fact Sheet / References:

- Rutgers Fact Sheet 1237: FS1237: Japanese Stiltgrass Control in the Home Lawn and Landscape (Rutgers NJAES)
- North Carolina State Extension: Japanese Stiltgrass Identification and Management | NC State Extension Publications (ncsu.edu)

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 Olin
General Observations Section: Mary Olin
Beneficial Spotlight: Mary Olin
Weed Spotlight: Mary Olin
Sightings Reported by: Mary Albright, Margot Sample and Brian Monaghan