RUTGERS
New Jersey Agricultural Experiment Station

Rutgers Master Gardener IPM Team Report
Report # 2, Week of May 1, 2022

WHAT'S IN THIS REPORT			
TIPS	**NEW PROBLEMS SEEN**	**PROBLEMS LIKELY TO BE SEEN SOON**	**SPOTLIGHTS**
• Harden off tender seedlings • Rhubarb culture	• Flea Beetles	• Asparagus Beetles • Leaf Miners	• Thistles – Bull thistle and Canada thistle

GENERAL OBSERVATIONS AND TIPS

Tip #1: Harden off tender seedlings.

Hardening off is a process whereby tender seedlings, started in a controlled environment, are exposed gradually to the sorts of challenges they will face outdoors such as variable temperature, direct sunlight and wind. The hardening process causes physical changes to the seedlings that will enable them to better withstand the more stressful environment they will experience in the garden. Changes include thickening of the cell walls, reduction of freeze-prone water in the plant, triggering of root development and the accumulation of carbohydrates. Soft, succulent plant growth will become firmer and harder. Well hardened-off plants can withstand an unexpected temperature dip with minimal damage, whereas tender seedlings could be seriously damaged or even killed outright.

The hardening off process involves the following steps:

- Begin 1-2 weeks before you plan to set plants out in your garden. Refer to your seed packets for transplant date in your area or, if purchasing seedlings, ask your nurseryman. Last frost date for your area is a key metric. The last frost date in Morris County, NJ typically occurs between mid-May to early June.
- For cool weather plants, temperatures should be at least 45-50°F when you begin placing your seedlings outside. For heat-loving plants such as tomatoes, cucumbers, etc., wait until nighttime temperatures are consistently above 50°F.
- Place seedlings in a shaded, protected spot for 2-3 hours, bringing them in at night or if temperatures drop. Gradually increase the amount of sunlight the seedlings receive until, the final day or two, they can remain outside for 24 hours.
- Reduce frequency of watering to slow plant growth but do not allow plants to wilt.
- Avoid putting tender seedlings outside on windy days.
- A cold frame is an excellent place to harden off your seedlings but a sheltered spot, such as a porch, will also work.

References: Penn State Extension, https://extension.psu.edu/hardening-transplants

Tip #2: Rhubarb culture.

Rhubarb is one of the earliest crops to appear in the spring garden. It is a perennial which sends up long stalks from a central crown. While the stalks are edible, the leaves contain oxalic acid and are toxic if consumed. Trim and discard the leaves immediately upon harvesting in order to keep the stems as crisp as possible. Use only firm and upright stalks. A severe frost in late spring can cause leaf damage, identifiable as a brown or black discoloration along leaf margins. This may cause oxalic acid crystals to move into the stalks so avoid eating damaged, soft or mushy stems.

If a seed stalk appears, it is recommended to remove it promptly in order to conserve the plant's energy for stalk production.

Like many perennial plants, rhubarb benefits from division every few years. This should be done very early in the season as new growth is just starting. A sharp, clean shovel can be used to cut the plant in half or in thirds and the new divisions moved to a prepared planting site. As a heavy feeder, rhubarb consumes many nutrients from the soil. It is, therefore, recommended to move your rhubarb plants to a new site periodically and rotate a different crop into the rhubarb patch.

Rhubarb plants with seed stalks which can be removed to conserve plant energy
Photo: Mary Albright, NJAES

References:

- Univ. of Minnesota Extension, https://extension.umn.edu/vegetables/growing-rhubarb#harvesting-923466
- Ohio State University Extension, https://ohioline.osu.edu/factsheet/hyg-1631

REPORTS ON NEW PROBLEMS

Problem: Flea Beetles *(many species)*	**Where: Morris County and Morris Township Community Gardens**

Description: Since most flea beetles are very small, new gardeners often wonder what is causing the holes in their plant leaves. Flea Beetles feed on many different vegetables including tomato, potato, eggplant, radish, Swiss chard, sweet potatoes, kale and others. Flea beetle infestation may affect the growth of young plants and can be a significant pest of eggplant. Flea Beetles are so small they can sometimes be mistaken for specks of soil but will jump if disturbed.

Flea Beetle holes on radish plant
Photo: M. Albright

Flea Beetles on eggplant
Photo: P. Nitzsche, NJAES

Management:

- Row covers can protect young plants.
- Plants grown from small seeds are less tolerant to flea beetle damage than transplants, thus planting large-seeded crops or transplants can help.
- Early season plantings usually have more severe flea beetle infestations. Delaying planting, if possible, can reduce flea beetle problems.

Fact Sheet / References:

Rutgers fact sheet FS233 Flea Beetles, https://njaes.rutgers.edu/pubs/publication.php?pid=FS233

LIKELY TO BE SEEN SOON

Pest: Common Asparagus Beetle
(Crioceris asparagi)

Description: The Common Asparagus beetle, Crioceris asparagi (Linnaeus), is 1/4 inch long, slender, and blue-black in color with three, yellowish-white squares on each wing cover. Asparagus beetle adults feed on young shoots during the harvest season, chew holes in the shoots, and lay small, dark brown eggs standing on end on the spears

There is also a Spotted Asparagus Beetle but they are usually active later in the season (mid-May).

Asparagus beetle eggs
Photo: Univ. of Maryland

Common asparagus beetle
Photo: Univ. of Minnesota

Asparagus beetle larvae
Photo: Univ. of Minnesota

Management:

- Hand pick any existing beetles, larvae and eggs and destroy them.
- Asparagus in the affected area should be harvested daily.
- The best time to check for asparagus beetles is in the afternoon when they are most active.
- Organic controls include neem, pyrethrin, and Spinosad. Be sure to read the label, make sure asparagus beetles are included, and follow the directions.

Fact Sheet / References:

- Rutgers University: https://njaes.rutgers.edu/FS221/
- University of Minnesota: https://extension.umn.edu/yard-and-garden-insects/asparagus-beetles

Pest: Leaf Miners
(Various species)

Description:
Leaf miners lay eggs that hatch within a week and the larvae burrow immediately into the leaf. They feed on the leaf tissue for nearly 12 days forming "mines" and then fall to the soil and pupate. Nearly three weeks later, the next generation of flies will hatch and the cycle begins anew. Crops most affected are spinach, Swiss chard, beets and lambsquarter.

Leaf miner larvae in Swiss chard and tunnel damage on leaf
Photo: M. Albright, NJAES

Leaf miner eggs
Photo: Utah State University

Management:

- Remove affected leaves to help decrease the impact of subsequent generations of leaf miners. There are three to four generations per year.
- Remove nearby weeds as these may harbor leaf miners. Keep the garden clean.
- Rotate crops as pupae may overwinter in soil.
- Thorough cleanup of debris in the fall.
- Spinosad (Captain Jack's Deadbug Brew) and Neem Oil may help prevent egg laying, but will not kill the larvae that are already in leaves. Timing is critical, scout your plants for eggs.
- Row covers can be effective.

Fact Sheet / References

- Rutgers University, https://njaes.rutgers.edu/pubs/publication.php?pid=FS276
- Penn State Extension https://extension.psu.edu/leaf-miners

WEED SPOTLIGHTS

This week's report includes some of the weeds seen during the recent community garden inspections by the IPM Team. These weeds, if left to grow to maturity, can become serious problems in the garden.

Bull Thistle
(Cirsium vulgare)

Description: This plant is a biennial, taking two years to bloom. The first year a 4 to 18 inch rosette of deeply lobed and hairy leaves develops above a large and fleshy taproot. Each leaf lobe is tipped by a spine. Flowering stems appear the second year, reaching a height of approximately 3 feet. Production of pink to reddish purple flowers occurs from June until October. The flowers produce numerous seeds which are dispersed by the wind and can survive in soil for more than 10 years. This plant is not native to North America, originating in Europe and Asia. It is considered an invasive weed.

Use a shovel when digging out Bull Thistle in order to remove as much of the taproot as possible.

Bull Thistle Rosette
Photo: M. Olin, NJAES

Flowering Bull Thistle
Photo: Univ. of Massachusetts Extension

References

- University of Minnesota Extension, https://extension.umn.edu/identify-invasive-species/bull-thistle
- Penn State Extension, https://extension.psu.edu/bull-thistle-identification-and-management
- University of Massachusetts Extension, https://extension.umass.edu/landscape/weeds/cirsium-vulgare

Canada Thistle
(Cirsium arvense)

Description: Canada thistle is a highly invasive, non-native perennial that can spread rapidly through its extensive horizontal root system. Each year it appears as a rosette of lobed, spiny-edged leaves close to the ground. Left to grow undisturbed, it can reach a height of 4 feet. This variety of thistle grows as separate male and female plants. The male plants do not produce seeds but a female plant can produce up to 5000 seeds that disperse easily and remain viable in the soil for up to 20 years.

Limited patches of this aggressive plant might be managed by using a digging fork to carefully lift the plant and as much of the root system as possible. Any bits of root left behind can, potentially, generate new sprouts. Remove all parts of the plant and dispose of it away from the garden. Avoid placing it on the compost pile. Then monitor the area regularly and dig up any new plants when they are small.

An alternative method is selective cutting or mowing. Constantly cutting the plant down stresses the root system which consumes its carbohydrate resources producing new shoots without sufficient replenishment through photosynthesis. You must be consistent in cutting down new plants every 7-10 days in order for this method of eradication to be successful.

Canada thistle rosettes
Photo: M. Olin, NJAES

Closeup of Canada thistle
Photo: M. Olin, NJAES

Fact Sheet / References

- Rutgers University, file:///C:/Users/Owner/Downloads/Canada%20Thistle%20fs1173%205-2022.pdf
- North Dakota State University, Organic Management of Canada Thistle — Publications (ndsu.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/
Rutgers NJAES You Tube Channel https://www.youtube.com/user/RutgersNJAES

Report Editor: Mary Olin
Tips and Weed Spotlights: written by Mary Olin with input from Margot Sample and Mary Albright
Sightings Reported by: Jennifer Basile, Margot Sample, Mary Albright, Mary Olin