

WHAT'S IN THIS REPORT		
TIPS	NEW PROBLEMS SEEN	SPOTLIGHTS
 Planting warm weather vegetables IPM Team members' favorite vegetable varieties 	 White grubs Flea beetles Leaf miner eggs and larvae Allium leaf miner feeding tracks Asparagus beetle adults and eggs Pill and/or Sow Bugs Four-lined plant bug nymph Spotted lantern fly nymph 	Hedge bindweed (weed)Ticks

GARDENS SCOUTED: The Morris County Rutgers Master Gardener IPM Team scouts one or more of five community gardens each week: 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

Planting Warm Weather Vegetables for Best Results

The month of May generally means warmer daytime and nighttime temperatures and there is a great temptation to plant out homegrown or nursery grown seedlings on those days when the thermometer soars to near 80°F. It is always wise to bear in mind the last frost date for your location.



First and last frost dates are a projection based on the average of several years of historical data in specific locales. The National Gardening Association posts a table showing low temperature prediction by date and calculates your relative risk that a series of specific low temperatures might occur. For instance, for Morristown, New Jersey, their 2025 prediction is a 10% chance the temperature will drop to 32°F on or after May 13. However, if you plant on May 2, your risk of a frost event is 40%. You can view their tables for first and last frost dates at different locations by zipcode using the link in the Reference section.

This, however, is not the only consideration you should keep in mind. Both air temperature and soil temperature can have tremendous effects on tender seedlings. While the air may be warm, the soil may still be colder than warm weather crops can tolerate well. Tomatoes prefer daytime air temperatures from 70°F to 80°F and nighttime temperatures above 60°. Soil temperatures of at least 60°F are tolerated by tomatoes but they

prefer it somewhat warmer for optimal root growth. At a soil temperature of 50°F, tomatoes may survive but root growth will not occur and may lead to death by desiccation if the soil dries out. Peppers, eggplants, summer squash and melons are even more sensitive to low air and soil temperatures than tomatoes.

For best results with your warm season transplants, take the time to learn what their preferences are. Waiting an extra week to plant may be the better option. Cool temperatures can cause cat facing in tomatoes. Also, a thorough hardening off before planting prepares your tender seedlings to withstand environmental challenges after planting in the garden. Remember, just because nurseries are selling warm season-loving plants doesn't mean it is safe to immediately plant them in your garden.

References

- The National Gardening Association: <u>https://garden.org/apps/frost-dates</u>
- PennState Extension: <u>https://extension.psu.edu/tomatoes-from-seedlings-to-fruit</u>
- Univ. of Delaware Cooperative Extension: <u>https://sites.udel.edu/weeklycropupdate/?p=20156</u>

Just for Fun – What Varieties Do Experienced Gardeners Swear By

Every year new varieties of many different types of vegetables come on the market and scrolling through seed companies' websites and catalogs can sometimes seem overwhelming. How do you choose the right varieties for *your* garden? Many gardeners like to try something new every year but sometimes you come across a particular variety that you want to plant again and again.

With this thought in mind, I reached out to my fellow IPM team members and asked them to share their thoughts about what vegetable varieties they always plant year after year. Here are the ones they like and why.

Tomatoes

- Fourth of July very early producing a few ripe fruits by July 4th under good conditions; modest size; nice tomato taste
- Supersteak Hybrid huge fruits and delicious with true beefsteak flavor
- Cherokee Purple heirloom variety with great flavor; produces well in summer heat; thin-skinned so may crack with uneven moisture
- Midnight Snack cherry abundant, tasty fruit produced throughout the season; fruit changes from green to deep indigo to red as they ripen; plants grow large and require strong staking

Peppers

- King Arthur sweet pepper good size; reliable; tasty eaten green or red
- Big Guy jalapeno pepper produces large fruits making processing easier; nice flavor
- Red Knight bell pepper can be eaten green or red; good resistance to Bacterial Leaf Spot disease
- Nassau Cubanelle pepper prolific; resistant to Bacterial Leaf Spot

Lettuce

- Pirat butterhead lettuce attractive, nice size heads, green leaves with hint of red; somewhat heat tolerant
- Red Oak leaf lettuce more heat and cold resistant than most varieties; beautiful color
- Black Seeded Simpson leaf lettuce only 40 days to maturity; nice light green color
- Marvel of Four Seasons loosehead lettuce wonderful buttery flavor
- Tom Thumb lettuce heirloom Bibb-type; produces small, bright green heads 3 to 4 inches across, perfect size for single serving; somewhat heat tolerant

Carrots

 Napoli carrot – produces ample yield of good tasting, nicely textured roots even if growing conditions aren't perfect

Beans

- Red Tail bush beans good tasting, tender, dark green pods; has good disease resistance
- Provider bush beans disease resistant; can be planted earlier than most other beans
- Desperado bush beans robust, high-yielding plants; produce plentiful harvest of tender pods with good flavor; good heat tolerance; resistant to common mosaic virus

Swiss chard

• Fordhook Giant – large plants; stems stay tender throughout entire season

Cucumbers

- Little Leaf cucumber prolific pickling variety; bacterial wilt tolerant (it will still get the disease but it will happen later than other varieties)
- Bush Pickle cucumber compact plant producing small-sized fruits; mild, fresh flavor; great for containers

Herbs

• Wild Arugula – perennial herb also known as Wild Rocket; prolific, fast growing, provides greens for eating raw or sauteing from spring through fall; tolerates some shade; edible yellow flowers which are a favorite food of beneficial Syrphid flies; spicier flavor than cultivated arugula

Hopefully, the above selections will give you some ideas of varieties you might like to try in your own garden. Interestingly, no two of the gardeners polled expressed a preference for the same variety. They all had different favorites.

REPORTS ON NEW PROBLEMS

Refer to Rutgers Fact Sheet 1123 and 1124 for all recommended controls for insects and disease pests <u>https://njaes.rutgers.edu/fs1123/</u> and <u>https://njaes.rutgers.edu/pubs/publication.php?pid=FS1124</u>. They are valuable resources to refer to throughout the growing season.



• As soil is prepared for planting, hand collect and destroy the grubs.

- Rutgers Fact Sheet FS293 White Grubs <u>https://njaes.rutgers.edu/pubs/publication.php?pid=FS293</u>
- University of Massachusetts Fact Sheet: <u>ag.umass.edu/vegetable/fact-sheets/scarab-beetle-japanese-oriental-asiatic-garden-beetles</u>

Problem: Flea Beetles (many species)

Where: Morris Twp Community Garden (5/1)

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.

There are many species of flea beetles and most feed on specific plants. Most flea beetle species are 1/20th to 1/8th inch long and are black, bronze, bluish, or brown to metallic gray in color.



Flea beetle feeding holes on radish plants Photo: M. Albright, NJAES



Flea beetles and their characteristic feeding holes on an eggplant leaf 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.

- Rutgers University: Flea Beetles (Rutgers NJAES)
- University of Minnesota fact sheet: <u>Flea beetles | UMN Extension</u>

Problem: Leaf Miners (Various species)

Where: Morris Twp Community Garden-eggs (4/27), larvae (5/3)

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

Leaf miner larvae tunnel damage on leaf Photo: M. Albright, NJAES

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.

- Rutgers University, <u>https://njaes.rutgers.edu/pubs/publication.php?pid=FS276</u>
- University of Maryland Extenson, <u>https://extension.umd.edu/resource/leafminers-vegetables/</u>

Problem: Allium Leaf Miner adults (Phytomyza gymnostoma)

Where: Morris Twp Community Garden – feeding tracks (4/23)

Description: Allium Leaf Miner (ALM) adults are small flies that are active in Morris County from late March/early April to late May/early June. A second generation occurs in September to October / November. The adults lay eggs on the leaves. The larvae mine the leaves and migrate into the bulb and pupate. The injury caused by the larvae often leads to a rot in the bulb or neck of the plant and distortion of leaves. Injury to leeks, onions and scallions can be severe. Large numbers of orange pupae may also be found in harvested alliums, particularly leeks.



Management:

- Row covers are effective at preventing egg laying during periods of adult activity. The spring row covers can be removed in early June after the adults quit flying. Row covers should be used again in the fall to prevent damage from the second generation of adults.
- Spinosad (for example, Captain Jack's Deadbug Brew) can be used for allium leaf miners. Please spray only allium foliage (not other plants) to protect beneficial insects and pollinators.
- Removal of all host debris prior to the end of the season can help prevent overwintering.

- USDA Pest Alert: <u>http://www.nj.gov/agriculture/divisions/pi/pdf/AlliumLeafMinerAlert.pdf</u>
- Cornell University: <u>https://cals.cornell.edu/integrated-pest-management/outreach-education/fact-sheets/allium-leafminer</u>

Problem: Common Asparagus Beetle	Where: Morris Twp Community Garden – adults
(Crioceris asparagi)	and eggs (5/5)

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).



Common Asparagus beetle adult (1/4 inch long) Photo: J. Basile, NJAES



Asparagus beetle eggs Photo: Univ. of Maryland



Close up of asparagus beetle eggs. The eggs will hatch in a week and feed for two. Photo: J. Basile, NJAES



Photo: Univ. of Minnesota

Asparagus beetle larvae (1/3 inch long when fully grown)



Photo: J. Basile, NJAES

Asparagus beetles can be found feeding within spears, disfiguring, and destroying crop. Fast removal of eggs will help prevent damage and additional generations.

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.

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

Problem: Sowbugs and Pillbugs (Porcellionidae family)

Where: Morris Twp Community Garden (5/5)

Description: Friend or foe? Usually considered beneficial due to its contributions breaking down dead matter, this tiny crustacean can also prove a nuisance, especially when present in great numbers. They will feed on seedlings, fruit that comes in contact with the ground, such as strawberries and melons, and root crops.

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 the Roly-Poly, as the end appendage prevents them from their namesake rolling response when disturbed. They thrive in moist soils, and do not bite. Their natural predators are small mammals, spiders, beetles, and toads.



Pillbugs and Sowbugs Photo: J. Kalish, University of Nebraska



Pill bugs feeding on lettuce plant Photo: M. Albright, NJAES



Lettuce plant devoured by pill bugs Photo: M. Albright, NJAES

Management:

- To prevent damage to tender plants, eliminate garden debris, leaf piles, fallen fruit and weeds from gardens and growing areas.
- Use coarse mulch which will allow water to drain easily. Improve air circulation by providing trellises for vines.
- If possible, raise fruits like strawberries and melons above the ground.
- Apply diatomaceous earth labelled for pest control as a barrier; it will act as a desiccant and may protect plants.
- Practice 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.

References:

- University of Nebraska: <u>https://digitalcommons.unl.edu/extensionhist/1172/</u>
- University of California: <u>https://ipm.ucanr.edu/PMG/GARDEN/FRUIT/PESTS/sowbugs.html#:~:text=Solutions,surfaces%20are%</u> <u>20drier%20by%20evening.</u>

Problem: Four-lined Plant Bug nymph (Poecilocapsus lineatus) Where: Pequannock Community Garden – nymph (5/4)

Description: The adult four-lined plant bug is a 1/2 inch long, yellowish to yellowish-green true bug with four longitudinal black lines down the wing covers and black antennae. This plant bug looks somewhat like a striped cucumber beetle. Nymphs of the insect are wingless and bright yellow to red with rows of black spots on the abdomen. Older nymphs are yellowish-green with a yellow stripe on each wing pad. Four-lined plant bugs overwinter as eggs in plant debris. There is only one generation per year.

These bugs feed on a variety of plants, including herbs (especially members of the mint family and basil), peppers, potatoes, currants and gooseberries, and many ornamentals. The damage inflicted by their sucking mouth parts can at first appear to be a fungus or other sooty disease, but close inspection reveals mechanical damage, with the injury going all the way through the leaf, not just resting on one surface. In great numbers, they can disfigure the plant and reduce its vitality. Their damage makes herbs appear unappetizing.



Feeding damage penetrates through oregano leaves Photos: D. DuBrule, NJAES





Adult four-lined plant bug Photo: L.

Terraneo, NJAES

lined plant bugs Photo: Ohio State University

Management:

- Begin monitoring in early May for signs of feeding (leaf damage).
- Hand-pick (although bugs are fast).
- Insecticidal soap can be used on edible plants and ornamentals.

References:

- University of Wisconsin-Madison: <u>https://hort.extension.wisc.edu/articles/four-lined-plant-bug/</u>
- Ohio State University: <u>https://bygl.osu.edu/node/1054</u>
- University of Minnesota: <u>https://extension.umn.edu/yard-and-garden-insects/four-lined-plant-bugs</u>

Description: Imported Cabbageworm butterflies lay their eggs on brassicas such as cabbage, broccoli, and cauliflower. The green color and small size of the larvae make it difficult to detect them on the leaves of your plants but you will know they are there if you begin to see holes in the leaves.

The butterfly lays single white eggs on the underside of leaves. Eggs hatch 3 to 5 days later and the green caterpillars begin feeding on the leaves. After 2 to 3 weeks of feeding, the caterpillars pupate and form a chrysalis on or near the affected plant. This matures in about 2 weeks and the cycle begins again. In our location, it is possible to have 2 to 3 overlapping generations in a season.

If you see this...

The larvae won't be far behind

Damage on cabbage plants



Adult Imported Cabbageworm Butterfly



Larva Photo: P. Nitzsche, NJAES



Larva Photo: P. Nitzsche, NJAES



Damage from cabbageworm feeding Photo: P. Nitzsche NJAES

Management:

- Handpick eggs and caterpillars and dispose of them by crushing or dumping in a jar of soapy water. The caterpillars are well camouflaged so your first inkling of a problem may be damage to leaves. Planting red cabbage varieties makes it easier to see the caterpillars.
- Row covers placed immediately after planting seedlings will keep the butterflies from laying eggs.
- Apply *Bacillus thuringiensis var. kurstaki* when caterpillars are small and actively feeding. The *BT* must be ingested to be effective.
- In the case of plants that form heads, harvest affected plants early to minimize tunneling by larger caterpillars into the head.

References:

• Rutgers University: <u>https://njaes.rutgers.edu/pubs/publication.php?pid=FS286</u>

Pest: Spotted lanternfly nymphs	Where: Morris Township Home Garden – early
(Lycorma delicatula)	stage nymph (5/8)

Description: The Spotted Lanternfly is a serious invasive pest introduced into Pennsylvania in 2014 that has spread into New Jersey. Although the adult resembles a moth in appearance, it is neither moth nor fly but, instead, is a type of planthopper related to other insects such as brown marmorated stink bugs, aphids and leafhoppers. Like these insects, the Spotted lanternfly has piercing/sucking mouthparts with which it drills into the soft tissues of new growth on a variety of plants. This pest has the potential to seriously damage crops and trees.

The Spotted Lanternfly produces one generation a year. Their life cycle begins with eggs laid by the adults the previous autumn. After overwintering, tiny nymphs hatch out in the spring and progress through 4 stages or instars. During the first three instars, the nymphs' coloration is black with white spots. For the fourth and final instar, their coloration is red with white spots, after which the adult emerges.

Research is underway to identify naturally occurring predators and parasitoids for the Spotted Lanternfly. Praying mantis, spiders and other predaceous bugs have been observed preying upon them. In addition, there is a parasitic wasp, *Ooencyrtus kuvanae*, known as the spongy moth parasitoid which lays its eggs in the eggs of the spongy moth but also in those of the Spotted Lanternfly.



Spotted Lanternfly nymphs (first instars) on sunflower plant Photo: M. Olin, NJAES



Spotted Lanternfly nymph, early stage (found late May – July) Photo: Penn State U.



Spotted Lanternfly nymph, late stage (found July – September) Photo: Penn State U.



Spotted Lanternfly adult, wings closed (found July – November) Photo: S. Brighouse, NJAES



Spotted Lanternfly adult, wings open Photo: Rutgers University

Management:

- Spotted Lanternfly is a harmful pest of grapes, but more research needs to be done to determine whether it is harmful to other fruits and vegetables. To date, the IPM Team has not seen significant damage to other vegetable garden plants.
- Gardeners can handpick the nymphs or knock them into a jar of soapy water (however, they scatter quickly).
- Painter's masking tape wrapped around the hand with sticky side out could be effective in capturing multiple nymphs at one time.
- Contact insecticides can be sprayed on the nymphs. Organic insecticides include horticultural oil, insecticidal soap and neem. As with any insecticide, be sure to follow label instructions.
- Further information on managing Spotted Lanternfly adults, nymphs and eggs, as well as their favorite host plants, can be found in the references.

References:

- Rutgers University: <u>https://njaes.rutgers.edu/spotted-lanternfly/</u>
- Penn State: <u>https://extension.psu.edu/spotted-lanternfly-management-guide</u>

WEED SPOTLIGHT

Hedge Bindweed

(Calystegia sepium)

Description: Hedge Bindweed, a perennial weed, is closely related to and sometimes confused with the annual morning-glory. Both are vines and have trumpet shaped flowers, but the bindweed's flowers are white or white tinged with lavender or pink. Its leaves are arranged alternately and are shaped like lobed arrowheads. This invasive vine will quickly entwine around any nearby plants for support or grow into a thick mat covering the ground.

The mature Hedge Bindweed has an extensive vertical and lateral root system. It has a deep taproot with many thick permanent lateral roots from which rhizomes and secondary taproots develop. The rhizomes will develop into new shoots and the lateral roots will continue the outward expansion of the plant.

Bindweed spreads by seeds, shoots from the spreading root system, and fragmentation of roots and rhizomes. Its hard coated seeds can remain viable in the soil for a decade or more. Root and rhizome fragments created by soil disturbance can regenerate new shoots.

Once established, it becomes difficult to eradicate. In the community garden, non-chemical control is possible by removing emerging shoots and diligent weeding to remove its deep and spreading roots. Removing new shoots is most effective if done within the first 10 days of emergence. Frequent weeding can bring roots to the surface and

expose them to the drying summer sun. Vigilance and dedication are key in successfully controlling this perennial weed.



Hedge Bindweed Leaf Photo: Dr. John Meade, Rutgers



Hedge Bindweed Flower Photo: Antonio DiTommaso, Cornell



Community garden plot in May with bindweed beginning to take hold Photo: J. Carlson, NJAES

References:

- Rutgers University: <u>https://njaes.rutgers.edu/pubs/publication.php?pid=fs676</u>
- Cornell University: <u>Bindweeds | CALS</u>

SPOTLIGHT - TICKS

Ticks

(Various sp.)

Description: Ticks are not insects, but arachnids like spiders, scorpions and mites. Adult ticks have 4 pairs of legs and no antennae. The life stages of ticks consist of egg, 6-legged larvae, 8-legged nymph and adult. Ticks feed by attaching firmly to their host and sucking blood, a slow process which may go unnoticed by their host for a considerable period. A complete feeding may take several days. This makes them an excellent vector for transmission of disease organisms to their host.

Ticks are generally active between April and November in New Jersey. They await their host by clinging to shrubs and grasses. When a potential host brushes past, the tick lets go of its perch and transfers itself to the animal. Ticks crawl. They cannot fly or jump. Ticks can often be found on a person's scalp after crawling up their clothing.

Common tick species in New Jersey are:

- American dog tick (Dermacentor variabilis)
- Lone Star tick (Amblyomma americanum)
- Black-legged tick, also known as deer tick (Ixodes scapularis)



American Dog tick (left), Lone Star tick (center), Black-legged (deer) tick (right) Photo: J. Occi, NJAES

To help prevent tick bites, avoid tick-infested areas, if possible. Wear protective clothing such as long sleeves and pants. Tuck pant legs into socks. Wear sturdy shoes or boots and a head covering. Ticks are more easily visible on light-colored clothing. Walk in the center of paths to avoid brushing against undergrowth where ticks may be lurking. You can apply an insect repellant but read and follow the label directions.

Check yourself, family members and pets for ticks. Ticks rarely transmit disease organisms until they have been attached for 4 or more hours. If you do suffer a tick bite and later develop an illness or fever, contact a physician and inform them of the fact, including the type of tick if you know. Your local RCE office can assist with tick ID. **References:**

- Rutgers University: https://njaes.rutgers.edu/tick/
- Illinois Dept. of Public Health: <u>https://dph.illinois.gov/topics-services/environmental-health-protection/structural-pest-control/common-ticks.html</u>

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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