Home, Yard, and Garden Pest Newsletter

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Welcome

Welcome to the 2022 edition of the Home, Yard, and Garden Pest Newsletter. This newsletter is written to keep professional landscapers, arborists, golf course superintendents, lawn care personnel, and garden center operators up-to-date on the commercial management of diseases, weeds, insects, and other pests. We will report on the pests we are seeing and anticipating throughout Illinois. To assist us in these efforts, we ask for your help in reporting pest situations as you see them throughout the year. Your assistance will help us to provide relevant and timely content for all of Illinois. Most of the newsletter's authors are only able to scout a small portion of east-central Illinois. Please send pest reports to Travis Cleveland at tclevela@illinois.edu.

Our primary authors are plant pathologists Travis Cleveland (tclevela@illinois.edu), Diane Plewa (dplewa@illinois.edu), weed scientist Michelle Wiesbrook (buesinge@illinois.edu), IPM specialist Maria Turner (mrestrep@illinois.edu), and entomologists Sarah Hughson (hughson2@illinois.edu) and Kelly Estes. We also plan to include content and observations from extension educators from around the state.

This year's newsletter will be published every two weeks throughout the growing season.

Travis Cleveland

Modified Growing Degree Days

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection
Base 50^0 F – March 1 through April 24			
Freeport	87	63	98
St. Charles	114	68	125
DeKalb	97	65	109
Monmouth	145	110	172
Peoria	171	126	200
Champaign	190	141	218
Springfield	199	179	237
Perry	213	173	252
Brownstown	279	169	323
Belleville	282	233	334
Rend Lake	309	259	358
Carbondale	328	253	384
Dixon Springs	338	278	398

Insect development is temperature dependent. We can use degree days to help predict insect emergence and activity. Home, Yard, and Garden readers can use the links below with the degree day accumulations above to determine what insect pests could be active in their area.

GDD of Landscape Pests

GDD of Conifer Pests

Degree day accumulations calculated using the Pest Degree-Day Calculator (a project by the Department of Crop Sciences at the University of Illinois and the Illinois Water Survey).

Kelly Estes

Spring Tips for Pollinator Protection

Pollinators can be some of the first spring insects we notice in the landscape. Honey bees and native bees may begin to forage on grape hyacinth or snowdrops. You may even notice butterflies like, my favorite, the mourning cloak, as they emerge from their overwintering sites. This makes spring a great time to brush up on tips for pollinator protection.

A closeup of a flying bee between grape hyacinths in jena (462073878),Marrow83, AdobeStock

Choosing a pesticide:

Choose a pesticide with lower bee toxicity.

Some products, like neonicotinoid insecticides, are highly toxic to bees. While our target insects are killed by the application rates on the specific use section of the product label, some nontarget insects may be sensitive to smaller quantities of the material.

- Products that are more problematic to bees will have a Bee Advisory Box on the label. The Bee Advisory Box will give additional information about the use of the product regarding pollinator safety. For example, it may say the product cannot be applied when bees are present, can only be used after petal fall or it may give additional information about avoiding particle drift.
- To view a list of pesticides that are highly toxic, moderately toxic and relatively nontoxic to honey bees, visit Purdue University's publication, Protecting Honey Bees From Pesticides.

Avoid microencapsulated formulations.

Microencapsulated pesticides are droplets of pesticide surrounded by plastic or starchy materials. This coating allows the pesticide to be applied safely and breakdown to release the pesticide after application. Unfortunately, the particles are similar in size to pollen grains, so bees may collect them and carry them back to the hive where they breakdown and harm the bees.

Conditions for application:

Apply when temperatures are below 55°F, when bees are not active.

Honey bees begin to forage when the temperature is 55°F or greater. The minimum temperature honey bees require for flight is 54°F, if bees' flight muscles are cooler than that, they are unable to fly and forage.

Timing the application:

Apply treatments before dawn or after dusk, when bees are not active.

Honey bees forage during the day after temperatures reach 55°F and return to their hives as the sun sets. Applying treatments when bees are not active is a good way to avoid honey bee exposure.

Avoid applying systemic treatments to plants prior to or during bloom.

Systemic pesticides are taken up and transported throughout the plant and persist for longer periods of time. If a systemic treatment is applied on or near a flowering plant, that treatment may later become present in the pollen. If a flowering plant must be treated with a systemic insecticide, it is best to do so after the plant is done flowering to avoid pollinator exposure.

Location of the application:

Try not to make spray applications close to blooming flowers.

This can help prevent particle drift onto the flowers and prevent pollinator exposure when they visit the flowers. Alternatively, granular pesticides can be applied to prevent particle drift onto flowers.

Keep in mind that clover and weeds in turfgrass are also visited by pollinators.

Often flowering weeds are used as early season food sources for pollinators coming out of dormancy. If an early season treatment with a contact insecticide is necessary, mowing the flowers off of clover or weeds prior to the application is an option to avoid pollinator contact with an insecticide.

Determine whether there are sensitive areas near your application site.

Check the IDNR Awareness Tool for Applicators, an interactive map that allows applicators to determine if there are sensitive areas near their application site. Sensitive areas may include preserves or areas that are habitat to threatened or endangered species, like the rusty patched bumble bee. Certain pesticides may be prohibited in those areas.

Notify beekeepers:

Notify beekeepers within 3 miles of the applications site 48 hours prior to applying a product toxic to bees.

Visit Illinois DriftWatch or FieldWatch to identify beekeepers near your application site and notify them that you plan to apply pesticides. This gives beekeepers the chance to cover hives, move hives or otherwise accommodate the bees so they can avoid bee exposure by preventing the bees from foraging during the application.

- While 3 miles may seem like a large distance, research has shown that the foraging range around beehives is about 2 miles and some individuals may travel up to 5 or 6 miles to find pollen and nectar.

Sarah Hughson

Controlling Star-of-Bethlehem

Star-of-Bethlehem, *Ornithogalum umbellatum,* can be a pretty flower in the right place. Unfortunately, it can be a prolific spreader and a few plants can turn into several plants within a few years. Plants can appear at random as tall clumps in a lawn or landscape bed. They can even form a dense groundcover that will out-compete native or other vegetation. Once you have determined that they must be controlled, how do you do that? We'll cover the basics here.

Star-of-Bethlehem clump growing in a lawn, Michelle Wiesbrook, University of Illinois.

This native of Europe can be found statewide in Illinois as it escaped cultivation long ago. It often finds itself in situations where it's not wanted, thus making this pretty, little, flowered plant a weed (sometimes and in certain states it's referred to as "invasive" which is the worst type of weed to be). Personally, I have let a few plants grow in a patch of iris behind the garage as the flowers are attractive, but I also now recognize that was perhaps a mistake as its spread has been much greater than anticipated. Perhaps you have been in a similar situation.

The flowers on this cool-season perennial herb last only about 2 weeks; they are often open for only part of the day giving this plant the interesting nicknames of "nap-at-noon" and "sleepy dick". Flowers are typically bright, waxy, and white yet occasionally bluish. They are present April through June on branched, open clusters that can reach to about 12 inches high. They consist of 6 petals with a characteristic green stripe on the underside. The flower-stalks are leafless. The leaves look very similar to that of crocus but typically, the growth will be much denser with Star-of-Bethlehem. The leaves are grass-like, very narrow, smooth, succulent, and pale to dark green with a whitish grooved midrib. Newer leaves may not have developed the white midrib yet. Seed pods are produced in mid to late spring. Following this, plants die back to the ground. Reproduction is primarily by numerous bulblets that develop surrounding the parent bulb.

Star-of-Bethlehem flowers, Sarah Hughson, University of Illinois.

To its detriment, Star-of-Bethlehem grows as dense tufts or clumps in lawns and landscapes which can be undesirable by some. Its early growing season has aided in its ability to escape cultivation. It's there and then it's gone once the summer heat arrives. All parts of the plant are poisonous if ingested. Unfortunately, it is commonly confused with *Allium* species such as wild garlic and wild onion, both of which produce an oniony smell when crushed which is not present with Star-of-Bethlehem. Control tactics are similar for these species. For lawns, herbicide applications should be made in early spring when temperatures are at least 50 degrees. In the fall, make another application. In fact, complete control will likely require spring and fall applications for at least 2 consecutive years. If the population is small and you'd rather not use herbicides, you could try to cut plants back early to deplete the energy reserves.

Digging up the bulbs may prove to be effective but tillage should be avoided if possible. While tillage can control top growth it will also help to spread bulbs throughout the site.

A few turfgrass herbicide options include sulfentrazone, carfentrazone, or 2,4-D (either alone or in a 3-way product). These postemergent herbicides must be applied to the leaves and these leaves can die back in early summer so proper timing is important. Ester formulations of 2,4-D will likely be more effective than amine formulations. Follow label directions carefully to prevent vapor drift onto off-target, sensitive plants nearby as their new spring growth will be quite susceptible to herbicide injury. Again, sequential applications may be necessary for complete control. Mowing should be delayed following application to give the herbicide time to work. The label should specify the number of days as well as provide guidance on turfgrass tolerance. Read, follow, and *understand* all label directions. Also, be aware that certain formulations are best left for use by trained professionals so that applications are as safe and effective as possible. Certain product labels may be more complicated and call for specific, required equipment.

Star-of-Bethlehem growing in with iris, Michelle Wiesbrook, University of Illinois.

The herbicides previously listed are not labeled for use in landscape beds. Spot treatments of the non-selective herbicide, glyphosate, could be tried but only marginal control may result. Physical removal of the bulbs may be the best option in these locations. Do not compost the bulbs. Finally, be vigilant in your efforts as Star-of-Bethlehem can be difficult to completely eradicate from a site.

Michelle Wiesbrook

Biological Control in Home Landscapes

I love just about every part of the summer except for the bugs. Flies and mosquitos are my least favorite. However, in the garden, there are several critters I could do without, such as tomato hornworm, aphids, and squash bugs, to name a few. Nevertheless, these insects have their place in an ecosystem and are someone else's food! How do we get the good predatory insects to control those pesky problematic pests? It takes going back to essential integrated pest management.

Integrated pest management utilizes cultural, biological, mechanical, or chemical controls against pests. Cultural controls include fertilization, plant variety and selection, soil pH, and watering. Mechanical controls are hand-pulling weeds or insects, pruning, or even mowing. Biological is using other insects, fungi, or bacteria to control pests. Chemical is the use of pesticides.

The definition of biological control is the control of a pest by the introduction of a natural enemy or predator. An advantage of this control measure is that it requires no chemicals. Introducing the predator will allow nature to take care of itself, and it also does not require much of our effort or time. There are also some disadvantages to consider. Introducing predators to an infested site is easy, but having them stick around to keep the pest population in check can be an issue. The predatory insects often move on after the food source is gone, so if a pest resurgence were to occur, the predators might not be there to take care of the pest. The other concern is that this is not a fast control option, and it will also not eliminate the pest.

Many predatory insects are also pollinators, which is lovely in that they survive on pests and pollen or nectar. There is a great need to protect and encour-

age pollinators into the landscape. A major preparatory step in landscapes is to have a diverse planting that accommodates predator populations. This will allow them to live in your landscape awaiting prey and encourage them to "stick around" since a food source is continually available. We can not say that creating this habitat for one will not eliminate the other since both prey and predator can exist within the same habitat. However, it does allow for a nice circle of life situation to occur.

Within IPM, scouting is critical to correctly identifying the problem pest. It will also allow us to identify if the predatory insect is already available or if we need to introduce a predator.

Natural Predator	Favored Prey
Green lacewings	Aphids
Lady beetles	Aphids
Minute pirate bugs	Aphids, scales, spider mites, thrips, small caterpillars and insect eggs
Chinese mantid	Generalist feeder tend to eat larger insects like grasshoppers opposed to aphids
Assassin bugs	Generalist feeders
Predatory mites	Feed on eggs, nematodes and fly larvae
Spiders	Generalist feeders
Velvet ants (mostly southern IL)	Beetles, caterpillars, flies, bees and wasps, cockroaches
Parasitoid wasps	lay eggs on caterpillars, armyworms, cabbage loppers, hornworms

Another way to attract natural enemies is to incorporate garden features to protect your predators. This includes cracks and crevices for them to hide. Mulch is a great way to provide a habitat for ground-dwelling predators, like spiders and soil-dwelling mites. Consider creating areas within the lawn/turf with these diverse plantings and structures. This will help create a balance of habitat for both the predator and prey.

Knowing that biological control will never eliminate the pest population, remember that IPM has other control options. If considered, chemical control is best to wait until May or June to make applications

Examples of pollinator-friendly plants	
Coneflower	Liatris
Spiderwort	Lobelia
Aster	Clover
Iron weed	Sweet alyssum
Bee Balm	Thyme
Lupine	Daises

to avoid exposure to early season pollinators. Utilize granular formulations to fall to the ground and are not on flowering portions of plants. A cultural control practice should be selecting and planting species that are resistant to pests. The mechanical and cultural practice maintains a high mowing height for grass to promote deeper root systems that enhance the plants' ability to tolerate stress and injury from pests. Using an integrative approach can increase your success, reduce cost, and create an aesthetically pleasing landscape. Your yard will become a haven for pollinators and predatory insects, allowing you to enjoy the space in harmony.

Maria Turner

University of Illinois Operations Plant Clinic 2022

Plant Clinic services include plant and insect identification, diagnosis of disease, insect, weed, and chemical injury problems (chemical injury on field crops only), nematode assays, and help with nutrient related problems, as well as recommendations involving these diagnoses. Microscopic examinations, laboratory culturing, virus assays, and nematode assays are some of the techniques used at the Plant Clinic. Sample turnaround times vary depending on the type and condition of the sample, service(s) requested, and time of year submitted. We are currently operating with reduced staff but we are doing our best to continue to diagnose samples in a timely manner. Should culturing be necessary, isolates may not be ready to make a final identification for 10-14 days. Nematode processing may also require a few days to a few weeks depending on the procedure. Final

reports include identification and diagnoses, along with management recommendations for treatment of the pest or pathogen problem.

Please refer to our website at go.illinois.edu/plant-clinic for additional details on samples, sample forms, fees, and services offered. If you have questions about what, where, when, or how to sample, call us at 217-333-0519. When submitting a sample, please provide as much information as possible on the pattern of injury in the planting, the pattern on individual affected plants, and details describing how symptoms have changed over time to cause you concern. Pictures of the affected plants or areas can also be sent with the sample to give us a better idea of what is occurring in the environment. Physical samples take priority. We do try to respond quickly to email and phone messages but due to the reduced staff this summer they may take longer than usual.

Our fees vary depending on the procedure necessary. General diagnosis including culturing is $18, ELISA and other serological testing is $25, nematode analysis for SCN or PWN is $25, specialty nematode testing (such as corn) is $45, and SCN resistance screens are $60-120 depending on size. Please contact us if you are uncertain of which test is needed. Checks can be made to the University of Illinois Plant Clinic, and credit card payments are now accepted online after a sample is completed.

Submitting samples

Samples can be submitted by mail or dropped off at the Plant Clinic:

Mail Samples:

- Samples can be mailed via USPS, UPS, and FedEx as usual. We recommend shipping early in the week (Monday and Tuesday) to avoid weekend layovers, and always ship samples in a padded mailer or box.

Drop-off Samples:

- Samples can be left in a large, green, drop-off box located at the south doors of Turner Hall (opposite the greenhouse). A map of the drop-off location is pictured below. Sample submission forms and pens are available in the box. The box is checked daily.

Due to retirements and continuing to follow social distancing guidelines, fewer staff are in the lab and we have a reduced ability to return phone calls. We ask that clients please send emails to plantclinic@illinois.edu which can be replied to by staff members even when we are not present in the lab. However, if you do not have access to email, you may call and leave a voicemail with your question and contact information, and a staff member will call you back when we are able.

University of Illinois Plant Clinic Contact Information

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