

THE PURDUE LANDSCAPE REPORT

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Spotted lanternfly egg hatch is here

(Alicia Kelley, ajkelley@purdue.edu)

It's that time of year when we remind everyone to watch for spotted lanternfly (SLF) infestations. Spotted lanternfly is an invasive insect first detected in Pennsylvania in 2014, and has since spread throughout the eastern USA. Its preferred host is the invasive Tree-of-Heaven, but it also feeds on a wide range of important plant species, including grapes, walnuts, maples, and willows.

There are two known populations of SLF in Indiana. The first population was found in 2021 in Switzerland County, and the second population was found in Huntington County in 2022. The Indiana Department of Natural Resources (IDNR), Division of Entomology and Plant Pathology, has launched a delimiting survey throughout the two counties to delimit its range and monitor for activity.

Egg hatch was confirmed in Huntington County and Switzerland County in mid-May at the two known sites. A few adults have been caught about one mile south of the core infestation site in Huntington; however, there are not any new infestations reported as of July 2023. IDNR employees have completed several egg scraping events at the infestation sites, removing over 16,800 egg masses so far this year. That's over 672,000 eggs!



Early instar-Photo credit Richard Gardner, Bugwood.org



Late instar -Photo credit Richard Gardner, Bugwood.org



Adult-rest & late instar -Photo credit Richard Gardner, Bugwood.org



Adult Spotted Lanternfly Photo credit-Rebekah D. Wallace, University of Georgia, Bugwood.org

Finding this invasive insect early is crucial to preventing its spread as long as possible. Currently, SLF nymphs are in their 1st-3rd instar, so watch for small, black, white-spotted bugs on Tree-of-Heaven. Later instars are black and red with white spots. The adults are about 1 inch long, with very brightly colored wings. The forewings are light brown with black spots, and the underwings are a striking red and black, with white band in between the red and black. When at rest, the adult SLFs appear light pinkish-grey.

Report any suspect findings at
<https://ag.purdue.edu/reportinvasive/>

Fungicides, Homeowners, and the Garden Center

(Janna Beckerman, jbeckerm@purdue.edu)

All plants are susceptible to attack by pests and pathogens. Under certain conditions, a homeowner may require the use of a pesticide, but only after they've included, or exhausted the use of

cultural practices like removal of diseased tissue (sanitation and eradication); considered resistant varieties to replace continual problem plants; and making sure the plant is in the proper site and is receiving adequate sunlight and water (avoidance). Many homeowners, especially those that look for 'organic pesticides' (Table 1) haven't attempted simple cultural practices that effectively manage their problem. These same practices allow them to avoid or reduce pesticides. This combination of cultural practices coupled with chemical management is referred to as integrated pest management, or IPM.

Table 1. Fungicides that possess formulations that are considered acceptable for organic growers.

Copper	Bordeaux Mixture, Bonide Captain Jack's Copper Fungicide	Foliar / Protectant	Most readily available to gardeners, it controls fungal and bacterial disease. Can cause burn if applied too early or under cool conditions.
Lime Sulfur	Polysul, Liquid sulfur, Flower and Vegetable Dust,	Foliar / Protectant	Best used on dormant woody plants. Labeled for PM, scab, brown rot, and rusts on ornamentals. Can cause burns if applied to young leaves/ shoots or in hot weather. May cause mite flare ups.
Neem Oil	Bonide Captain Jack's Neem Oil; Southern Ag 08722 Triple Action Neem Oil	Foliar /Protectant	Excellent control for PM Never apply oil within 2 weeks of a sulfur spray to prevent plant injury. Do not apply oil when temperatures are above 90°F or to drought-stressed plants.
Salts of Bicarbonate	First Step, Kalgreen	Foliar / Protectant	More effective when used in combination with oil.
Sulfur	Safer's Garden Fungicide, Sulfur 90W	Foliar / Protectant	Elemental sulfur is effective against PM, leaf blights, rusts, and fruit rots. Can burn young tissue in hot weather. May cause mite flare ups. Do not use within 14 days of any oil.

A cornerstone of integrated pest management is the correct diagnosis of the problem. All too often, a frustrated homeowner first arrives at a garden center without knowing not only what the host is, but what the problem is! These homeowners should be directed to use a plant and pest diagnostic clinic, either through an extension office, or land grant university, to aid in the diagnosis or management of their problem.

Only upon successful diagnosis can effective management take place. A great example would be garden phlox. A frustrated homeowner who owns Phlox 'White Admiral' wants to know how to best manage the problem of powdery mildew. Purchasing fungicides are an option—but an expensive one in product and in time. First, there is the cost of the fungicides (between \$10-\$30), and then there is the time it takes spraying (every 7-14 days, and even more frequently with organic options!). Unless this is a highly valued ornamental, the homeowner might want to consider the many varieties of powdery mildew resistant phlox, like 'David,' 'Robert Poore,' or 'Natascha.' For the cost of a bottle of spray and a little patience, the homeowner may completely eliminate (at best) the need for fungicides and the problem of powdery mildew for many years to come. This scenario can be repeated with roses for diseases like black spot, powdery mildew, and anthracnose; bee balm for powdery mildew and rust; snapdragon for rust and powdery mildew; dogwoods for leaf spot, anthracnose, powdery mildew—the list is extensive! See: [Disease Resistant Annuals and Perennials](#) for more information.

Unfortunately, resistance isn't always available, and the best and most conscientiously- applied cultural techniques may fail to give adequate control. Gardeners that choose to use **fungicides** as part of their management practices have many chemicals to choose from, with brand names like Bonide, Green Light, Hi-Yield, K-Gro, Ortho, Pro Care, Safer, Security, and Spectracide, to name but a few (Table 2). Many of these chemicals are packaged together as '3-in-1.' It is important for the homeowner to know what it is they need, since they may not always need a fungicide with an insecticide and vice versa. For this reason, it is important to carry single active ingredient fungicides (and insecticides) to prevent unnecessary chemical applications and keeping with a

strategy of IPM.

Table 2. Fungicides available for home use.

Common Name	Trade Name(s)	Uses/Mechanism	Comments
Aluminum tris	Monterey Garden Phos	Foliar or Root/ Systemic	For specific control of downy mildews, Phytophthora and Pythium diseases.
Captan	Captan Garden Fungicide, Hi-Yield Captan 50W Fungicide	Foliar or Seed / Protectant	General-purpose fungicides for numerous plant diseases. Not effective against powdery mildew and rusts.
Chlorothalonil	Daconil Garden Fungicide, Multipurpose Fungicide, Bonide Fung-onil Multi-Purpose Fungicide, Hi-Yield Vegetable, Flower, Fruit, and Ornamental Fungicide	Foliar / Protectant	General-purpose fungicides for numerous plant diseases. Discoloration of blooms may occur on some flowers, especially roses.
Copper	Bordeaux Mixture, Fixed Copper Liqui-Cop, Southern Ag Liquid Copper Fungicide, Bonide Captain Jack's Copper Fungicide	Foliar / Protectant	Most readily available to gardeners, it controls fungal and bacterial disease. Can cause burn if applied too early or under cool conditions.
Horticultural Oil	Stylet Oil, Saf-T-Side Spray Oil, Sunspray Ultra-Fine Spray Oil	Foliar / Protectant	Good control for powdery mildew. Never apply oil within 2 weeks of a sulfur spray to prevent plant injury. Do not apply oil when temperatures are above 90°F or to drought-stressed plants.
Lime Sulfur	Polysul, Liquid sulfur, Flower and Vegetable Dust	Foliar / Protectant	Labeled for powdery mildew, scab, brown rot, and rusts on ornamentals. Can cause burns if applied to young leaves/ shoots or in hot weather.
Myclobutanil	Spectracide Immunox Multi-Purpose Fungicide	Foliar/Systemic	For control of powdery mildew, rusts, leaf spots.
Propiconazole	Ferti-Lome Liquid Systemic Fungicide II; Bonide Infuse Systemic Disease Control	Foliar/Systemic	For control of powdery mildew, rusts, leaf spots.
Salts of Bicarbonate	First Step, Kaligreen	Foliar / Protectant	More effective when used in combination with oil.
Sulfur	Safer's Garden Fungicide, Sulfur 90W	Foliar / Protectant	Elemental sulfur is effective against powdery mildew, leaf blights, rusts, and fruit rots. Can burn young tissue.
Tebuconazole	BioAdvanced Disease Control for Roses, Flowers, and Shrubs	Foliar/Systemic	For control of powdery mildew, rusts, leaf spots.
Thiophanate-methyl	Thiomyl	Foliar or Root/ Systemic	Effective control of powdery mildew, botrytis, leaf spots and blights, rust and scab.
Triadimefon	Bayleton, Fungi-Fighter	Foliar/ Systemic	For control of rose diseases, powdery mildew, rusts and tip blights.
Triticonazole	Ortho Rose and Flower Disease	Foliar/ Systemic	For control of powdery mildew, rusts, leaf spots.

Finally, for the garden professional and homeowner alike: We must all work together to prevent pests (insects and diseases) from becoming resistant to chemicals. Use of one sole chemical repeatedly allows pests to develop resistance. For this reason, use pesticides only when necessary and at labeled rates and frequency.

Pesticide Application and Safety

Pesticides are poisonous— period. Organic pesticides are natural products, and some are just as poisonous as their synthetic counterparts. Applicators should be aware of any hazards associated with pesticides they are applying. Take appropriate steps to protect yourself, your children, your pets, your neighbors, and the environment. Although chemicals listed in this guide are relatively low in toxicity to humans and warm-blooded animals, safety measures should be followed carefully. Remember: The label isn't just a suggestion—it's the law!

Plant Picks: Japanese Painted Fern (Athyrium niponicum var. pictum)

(Kyle Daniel, daniel38@purdue.edu)

This series will highlight unique and interesting landscape plants that are not as common in the landscape. Many of these plants aren't readily available at your local nursery or garden center. If you are interested in purchasing one of these plants, I recommend contacting your local nursery or garden center about availability.

Japanese Painted Fern (Athyrium niponicum var. pictum)



Figure 1. Fronds of Ursula's Red Japanese painted fern (Athyrium niponicum var. pictum 'Ursula's Red').



Figure 2. Japanese painted fern (Athyrium niponicum var. pictum) in a shade garden.

Zone: 3-8

Expected Mature Size: 1 ft. – 1.5 ft. tall x 1.5 ft. – 2 ft. tall

Japanese painted fern, a mainstay in Japanese gardens for many years, was introduced into the European garden in the 1800's. This graceful, but utilitarian and low maintenance, herbaceous perennial has been a staple in older shade gardens in the United States for generations. So, why is this plant included in this series? New installs almost always include hostas in shady areas, but it's important to consider diversifying the plant palate in the landscape to decrease the potential for disease and insect infestations (think emerald ash borer, Dutch elm disease, callery pear), increasing ecological services from the landscape, and improved aesthetics. It's easy to fall into the same plant selection habits, but remember to branch out (*pun intended*) with all of the selections that are available for each unique landscape

environment.



Figure 3. Ursula's Red Japanese painted fern (*Athyrium niponicum* var. *pictum* 'Ursula's Red').



Figure 4. Red veins in Ursula's Red Japanese painted fern (*Athyrium niponicum* var. *pictum* 'Ursula's Red').

This hardy fern does well in partial to full shade and requires adequate moisture in a well-drained soil.

There are generally no major pests that affect Japanese painted fern. If a problem arises, consult the Purdue Plant Doctor for diagnosing and treatment considerations:

<https://purdueplantdoctor.com/partproblems/flower-313>

Resources/Further Reading:

Missouri Botanical Garden:

<https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=b640>

University of Arkansas Cooperative Extension Service:

<https://www.uaex.uada.edu/yard-garden/resource-library/plant-week/japanese-painted-fern.aspx>

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