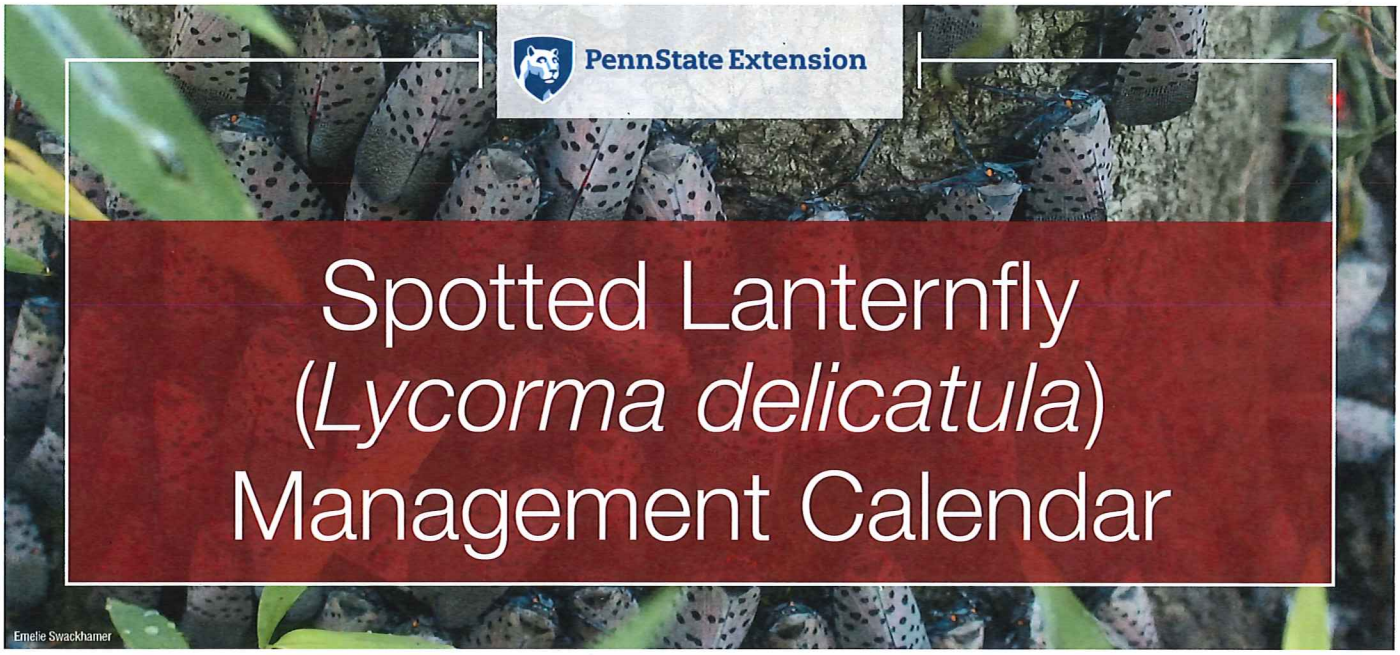

Spotted Lanternfly (*Lycorma delicatula*) Management Calendar

Best Time to Use Management Practices

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Destroy egg masses												
Use sticky bands to capture spotted lanternfly												
Registered insecticides can be effective[1]												
Avoid moving gravid (fertilized) females[2]												
Avoid moving viable egg masses[2]												
Treat most tree-of-heaven (*Ailanthus altissima*) trees with herbicide[1,3]												
Treat tree-of-heaven "trap" trees with systemic insecticides[1,4]												

1 **ALWAYS READ PESTICIDE LABELS AND FOLLOW THE DIRECTIONS.**

2 Before you move outdoor items from the quarantine area, check for spotted lanternfly egg masses, nymphs, and adults and destroy them. To be in compliance with the quarantine order, use the checklist at **www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/Documents/SLF%20Checklist%2011-12-2014.pdf** when you have to move items from inside the quarantine to outside.

3 Tree-of-heaven is an exotic invasive tree introduced from China. It is dioecious, meaning a tree is either male or female. It grows in colonies that consist of groups of stems all growing from one root system. All of the trees growing from one root system are the same sex. It is best to use male trees as "trap" trees because they do not produce seed. Tree-of-heaven trees will resprout vigorously from their roots after cutting, even if stumps are treated with an herbicide. To control tree-of-heaven trees, treat using foliar, basal bark, or hack-and-squirt herbicide applications from July through September. If tree-of-heaven stems need to be removed, wait 30 days after treatment to cut the trees down. Repeat herbicide applications may be necessary to completely control tree-of-heaven roots. Killing all tree-of-heaven trees may result in spotted lanternflies moving to surrounding plants, increasing pest damage on them.

4 About 15 percent of tree-of-heaven trees should be left alive to serve as trap trees to attract spotted lanternflies. Leave only male, non-seed-bearing trees if possible to limit seed production.

Life Stage Present (one generation per year in Pennsylvania)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Eggs												
Nymphs												
Adults												

There are several ways to reduce populations of the spotted lanternfly (SLF). Professional pest managers use an integrated approach called integrated pest management (IPM) to eliminate as many SLF as possible while minimizing potential risks to the environment. One IPM method for destroying SLF is using "trap" trees. Thousands of SLF can be killed by one trap tree. The Pennsylvania Department of Agriculture (PDA) is establishing many trap trees in the infested area to kill as many SLF as possible while minimizing pesticide use. Property owners can also establish trap trees on their land or hire a professional service to help them.

How do trap trees work?

Tree-of-heaven (*Ailanthus altissima*) is a preferred host for SLF. In the fall, many SLF adults relocate to feed on tree-of-heaven. To set up trap trees, most tree-of-heaven trees are killed. The remaining tree-of-heaven trees are treated with an insecticide that is moved throughout the entire tree. When the SLF adults feed on the treated trap trees, they ingest the systemic insecticide and die. As additional SLF relocate to feed on the trap trees, they also die.

Steps to establish a trap tree to kill SLF:

1. Identify all tree-of-heaven trees on the site. Spotted lanternflies seem to prefer certain tree-of-heaven trees over others. Locate specific trees that are most attractive to the spotted lanternfly based on the number of insects feeding on them. For information on how to identify tree-of-heaven, see these fact sheets at **extension.psu.edu/tree-of-heaven** or **extension.psu.edu/spotted-lanternfly-identifying-tree-of-heaven-and-some-native-look-a-like**.

2. Treat approximately 85 percent of the tree-of-heaven trees with a properly labeled herbicide. Kill all female tree-of-heaven trees if possible; they produce seed and contribute to the spread of this invasive tree. Leave only a few male tree-of-heaven trees that appear to be more attractive to the insect to serve as trap trees.

   Herbicides recommended to kill tree-of-heaven trees contain the active ingredient triclopyr, which comes in two formulations: water based (amine) and oil based (ester). Both formulations are effective for controlling tree-of-heaven. Other herbicides are effective; but to prevent herbicide injury to trap trees through common root systems, limit herbicide selection to triclopyr. Herbicide application methods effective for controlling tree-of-heaven include foliar sprays, basal bark, and spaced-cut hack-and-squirt applications. Treating cut stumps is ineffective at controlling the tree-of-heaven; it will *not* control the roots. For more information about herbicide application methods, go to **extension.psu.edu/publications/uh174**.

   Herbicide applications made to control tree-of-heaven are most effective when applied from July 1 to September 30, when the plant is exporting sugars to the roots. Applications made outside this window are not effective at controlling the roots and may only injure aboveground growth.

   Cutting tree-of-heaven is often necessary to remove potentially hazardous trees, but it is not useful as a stand-alone control measure. They will resprout vigorously from stumps and roots. In situations where tree-of-heaven stems need to be removed, it is best to treat them with herbicide first and then cut. Allow 30 days for the herbicide to take effect before cutting. For information on how to control tree-of-heaven, see **plantscience.psu.edu/research/labs/weed-ecology/research/wildland-weed-management/publications/invasive-species-quicksheets/ailanthus**.

3. Treat the remaining tree-of-heaven trap trees with an insecticide that will move throughout the tree. For best results, apply the insecticide according to the label in June through August. When spotted lanternflies feed on treated trees, they will die. Systemic insecticides known to be effective and labeled to treat ornamental trees, including tree-of-heaven, contain the active ingredients dinotefuran or imidacloprid. PDA is using dinotefuran to establish trap trees. Treating only trap trees reduces the total amount of insecticide used in comparison to large-scale contact insecticide applications.

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