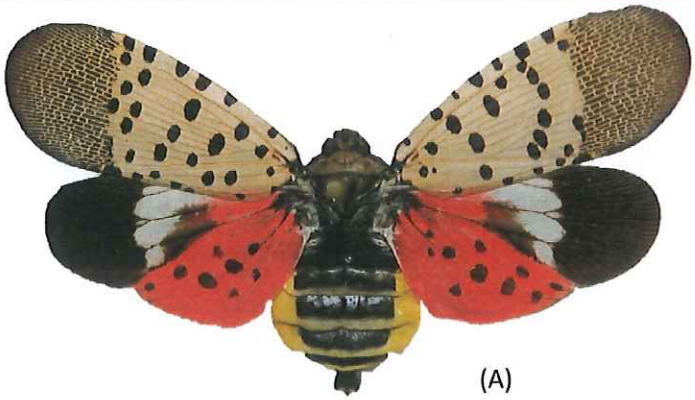
Pest Alert

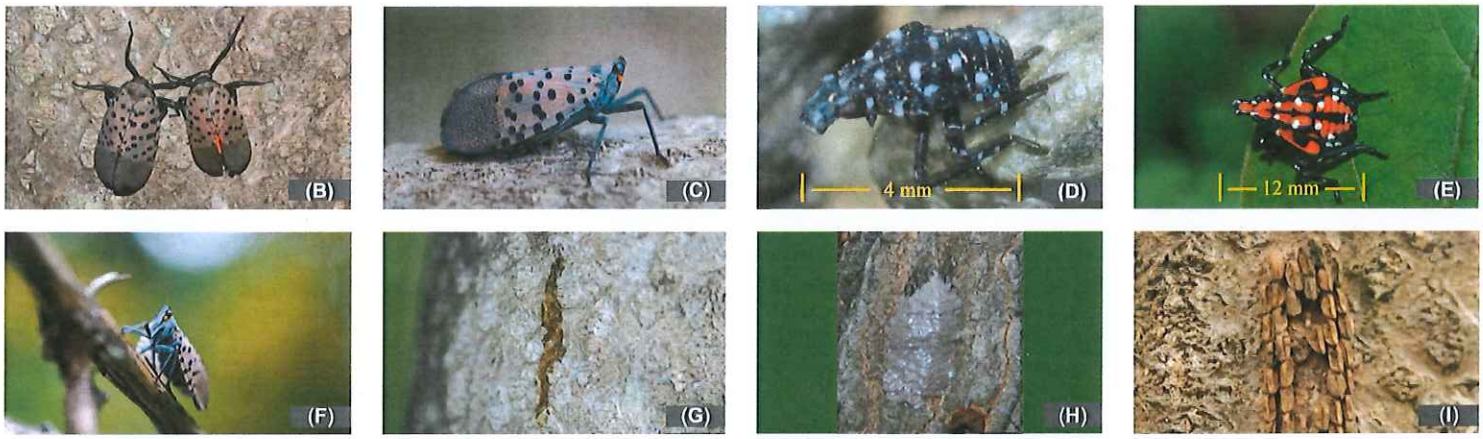


(A)

Spotted Lanternfly

***Lycorma delicatula* (WHITE)**
(Hemiptera: Fulgoridae)

The spotted lanternfly, *Lycorma delicatula* (White), an invasive planthopper, was first discovered on September 22, 2014 in eastern Berks County, Pennsylvania. It is native to China, India, Vietnam, and was unintentionally introduced to Korea where it has become a major pest. This insect prefers to attack tree of heaven, but it will feed on many other host plants including grapes, apples, stone fruits, and has the potential to greatly impact the grape, fruit tree, and forest products industries. Early detection is vital for the protection of Pennsylvania businesses and agriculture.



(A) Spotted lanternfly adult showing the forewings and hind wings (B) Adults at rest on bark (C) Lateral view of an adult (D) 1st instar nymph (E) 4th instar nymph (F) Adult feeding on wild grape, Vitis sp. (G) Weeping sap trail on bark (H) Egg mass (oothecum) covered in coating (I) Old hatched egg mass on tree trunk.

Identification:

The spotted lanternfly adult is approximately 1" long and 1/2" wide at rest. The forewing is gray with black spots and the wing tips are reticulated black blocks outlined in gray (A, B, C). The hind wings have contrasting patches of red and black with a white band (A). The legs and head are black; the abdomen is yellow with broad black bands. Young nymphs are black with white spots, and in the last (4^{th}) instar develop red patches (D, E).

Hosts:

In the fall, adults congregate on tree of heaven (*Ailanthus altissima*), willows (*Salix* spp.), and other trees in groups of up to 20. Egg masses are laid on the trunk and branches of medium to large trees. After hatching in the spring, nymphs will move off the tree and search out new hosts, including several kinds of agricultural crops. In Korea, it has been reported to attack 65 different tree species, 25+ of which are known to grow in Pennsylvania.

Symptoms and Signs:

Trees, such as tree of heaven and willow, will develop weeping wounds. These wounds will leave a grayish or black trail along the trunk (G). This sap will attract other insects to feed, notably wasps and ants. In late fall, adults will lay egg masses on host trees and nearby smooth surfaces like stone, outdoor furniture, vehicles, and other structures. Newly laid egg masses have a gray mud-like covering that can take on a dry cracked appearance over time (H). Old egg masses appear as rows of 30-50 brownish seed-like deposits in 4-7 columns on the trunk, roughly an inch long (I).

What to do:

If you see egg masses, scrape them off, double bag them and throw them away. You can also place the eggs into alcohol or hand sanitizer to kill them. Please report all destroyed egg masses on our website listed below.

Collect a specimen: Specimens of any life stage may be submitted to the Pennsylvania Department of Agriculture's Entomology Lab for verification. Directions for submission are on the reverse side of this alert.

Take a picture: A photograph of any life stage (including egg masses) can be submitted to Badbug@pa.gov.

Report a site: If you can't take a specimen or photograph, call the Automated Invasive Species Report Line 1-866-253-7189 and leave a message detailing your sighting and contact information.

By: Lawrence Barringer, Entomologist
Pennsylvania Department of Agriculture

For up to date information, visit:
www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly

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ENTOMOLOGY PROGRAM SAMPLE SUBMISSION FORM

The Entomology Program at the Pennsylvania Department of Agriculture can provide identification.
Please complete this form to be submitted with the specimen(s).

SPECIMEN COLLECTION REQUIREMENTS:

1. All specimens should be dead.
2. Most specimens should be placed in 70-80% ethyl or isopropyl alcohol in a leak proof vial.
   (Moths, butterflies, and mealybugs should be frozen and placed in a hard plastic container with dry paper toweling)
3. The leak proof vial should be placed in a zip-style plastic bag.
4. Specimens from different locations (if applicable) should be placed in different vials.
5. A completed sample submission form must accompany the vial/container.

REQUIRED INFORMATION:

Name of Submitter: _____

Contact Information: Telephone: _____ Email: _____

Address Where Specimen Was Collected: _____

_____

Date Collected: _____ Plant Host/Habitat: _____

Name of Person Who Collected Specimen: _____

Comments/Special Instruction: _____

_____

_____

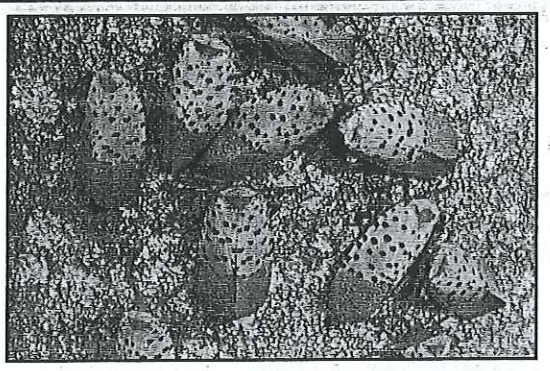
Mail the vial/container and completed form or deliver in person to:

Pennsylvania Department of Agriculture
Entomology - Room 111
2301 North Cameron Street
Harrisburg, PA 17110

Contact: Sven-Erik Spichiger at 717-772-5229 or Lawrence Barringer at 717-772-5228

PennState Extension

What to do if you Find the Spotted Lanternfly on your Property



The invasive spotted lanternfly has been found in southeastern counties in Pennsylvania. We are trying to eradicate this potential pest. **There is a quarantine order in place that prohibits movement of any living life stage of this insect to areas outside of the quarantine area. To find information about identifying the spotted lanternfly, current information about where it is known to exist, quarantine order, and compliance go to:**

www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly

If you find a spotted lanternfly or a suspicious looking egg mass in a municipality **where it is not known to exist,** you should try to collect it and put it into a vial filled with alcohol to kill and preserve it, or at least take a good picture of it. Report it to the Pennsylvania Department of Agriculture (PDA) by emailing badbug@pa.gov or call the Invasive Species Hotline at 1-866-253-7189. Your discovery could add additional municipalities to the quarantined area.

If you find any life stage of spotted lanternfly in a municipality **where it is known to exist,** you should try to destroy it. This insect is considered a threat to some crops and many people are working to try to prevent it from spreading. Each female will lay up to 100 or more eggs in fall, so by destroying even one female, you are reducing the potential population for the future. To see a demonstration of destroying egg masses go to: https://www.youtube.com/watch?v=WoFp_MbDiE8.

In the late summer and fall, the spotted lanternfly prefers feeding on *Ailanthus altissima*, commonly known as the "Tree of Heaven." They can be found feeding on other plants and trees, but if you have *Ailanthus altissima*, you should start searching for spotted lanternfly on those trees. For information on how to identify *Ailanthus altissima* and how to control it, see this fact sheet: http://plantscience.psu.edu/research/projects/vegetative-management/publications/roadside-vegetative-mangement-factsheets/3ailanthus-on-roadsides.

The spotted lanternfly is not known to bite humans. You can kill spotted lanternflies mechanically, by swatting or crushing them. However, when you threaten them, they are able to quickly jump far away from you, so mechanical control is not easy to achieve.

People have asked if there are any natural enemies of the spotted lanternfly. Birds don't seem to like to eat them, and researchers have not yet found predatory or parasitic insects that are having a great impact on reducing the population. Over time, natural enemies often do find invasive insect species, but for now we are uncertain if this is happening on a level that is making a difference.

Many residents are asking if they can kill spotted lanternflies on their ornamental landscape trees by using a pesticide. In Pennsylvania, regulations require that a pesticide may only be used according to the directions on the label. In Pennsylvania the label must list the site (or location) where a pesticide (in this case an insecticide) may be used. There are insecticides available with labels that list ornamental trees as an allowed site. It is legal to use them on ornamentals trees, including *Ailanthus altissima*, to try to kill insects, including the spotted lanternfly. You can check at your garden center to see what they offer. Some of these products may be more effective than others, so you should take note if the product you tried worked well or not.

(continued)

Before you purchase an insecticide, there are other things to consider.

In some infested properties there are thousands of spotted lanternflies and many of them are very high up in trees. It will be difficult to reach the insects with a small can of spray or even a backpack sprayer. In this case you might consider hiring a professional tree care service to do the application.

Also, when the canopy of a tree is sprayed, the insecticide may come into contact with beneficial insects, including pollinators. People are looking for more specific methods to manage pests that reduce potential exposure of non-target organisms. This type of strategy is known as Integrated Pest Management (IPM). The PDA has been using an IPM strategy for spotted lanternfly infestations, and landowners may consider using the same IPM strategy on their properties, or hiring a professional service to do it.

IPM Strategy for the Spotted Lanternfly:

1. Locate *Ailianthus altissima* trees on the site. For reasons not understood, spotted lanternfly seem to prefer some individual *Ailanthus altissima* trees over others. Try to identify the specific *Ailanthus* trees that are most attractive to the insects, based on how many are feeding on them.

2. Destroy approximately 90% of the *Ailanthus altissima* trees, leaving only a few that are most attractive to the insect. They will serve as "trap" trees. It is recommended that you try to kill all the female *Ailanthus altissima* trees, because they produce seed and contribute to the spread of this invasive tree.

Be careful handling *Ailanthus altissima* wood, leaves, and branches. Chemicals in the sap of this tree can cause headaches, nausea, and possible heart problems. Wear gloves and protect yourself from exposure.

When you cut down *Ailanthus altissima* trees, they will sprout profusely from the stumps and can grow back in a few years. Because they regenerate so easily, it is highly recommended that you treat the stumps with a herbicide to kill them and prevent them from sprouting new shoots.

Herbicides that are labelled for this use usually contain one of the following active ingredients: triclopyr, dicamba, imazapyr or glyphoshate. Use the herbicide carefully and according to the label directions. Alternative methods for using herbicides to kill *Ailanthus altissima* trees include foliar sprays, basal bark applications, and a method called frill application or "hack and squirt." For more information about these methods go to http://extension.psu.edu/publications/uh174. Whatever method you choose, remember that you will have dead *Ailanthus* trees which may eventually have to be removed.

3. Treat the remaining *Ailanthus altissima* trees with a systemic insecticide that will move throughout the tree. The insecticide must be applied according to the label and at the right time of year for the trees to absorb it. When spotted lanternflies feed on correctly treated trees, they will die. Systemic insecticides that are labelled to treat ornamental trees usually contain the active ingredients dinotefuran or imidacloprid. The PDA is using dinotefuran in their IPM strategy.

Treating only a few trap trees with a systemic product can reduce the amount of insecticide used in the environment and may help conserve beneficial insects.

It is important for landowners in the affected area to avoid spreading the spotted lanternfly. One good practice is to avoid parking your vehicle under trees when the adults are present. Spotted lanternflies that are living in the trees can lay eggs on the cars that are under the tree. Females will lay eggs on many objects including lawn furniture, rocks, fence posts, rusty metal, firewood, and other items. Inspect all items, including the wood from killed *Ailanthus* trees, and destroy any living spotted lanternflies or egg masses before you move them out of the area. If you must move items from inside the affected area, complete this checklist to be in compliance with the quarantine:
http://www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly/Documents/SLF%20Checklist%2011-12-2014.pdf

Many sites within the infested area have high populations of spotted lanternflies. Every resident who effectively uses control measures will help to reduce the potential for this insect to spread to new territory.

Prepared by: Emelie Swackhamer, Horticulture Extension Educator, Montgomery County, February, 2017.

extension.psu.edu

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

PennState Extension

Time to use management practices.

SPOTTED LANTERNFLY MANAGEMENT CALENDAR

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
Destroy egg masses	■	■	■	■	■					■	■	■
Destroy most *Ailanthus altissima* trees[1]	■	■	■	■	■	■	■	■	■	■	■	■
Treat most *Ailanthus trees* with herbicide[2,3]	■	■	■	■	■	■	■	■	■	■	■	■
Use sticky bands to destroy nymphs					■	■	■	■				
Treat *Ailanthus* trap trees with systemic insecticides[3]						■	■	■				
Registered contact insecticides may be effective[3]					■	■	■	■	■	■	■	
Avoid moving gravid (fertilized) females[4]							■	■	■	■	■	■
Avoid moving viable egg masses[4]	■	■	■	■	■					■	■	■
PEDOMINANT LIFE STAGE PRESENT- (one generation per year in Pennsylvania in 2015 and 2016)												
eggs	■	■	■	■	■					■	■	■
nymphs					■	■	■	■	■			
adults							■	■	■	■	■	■

[1] Destroying all *Ailanthus* trees (Tree of Heaven) may result in spotted lanternfly moving to surrounding plants and increase the pest pressure on them. It is recommended about 10% of *Ailanthus* trees are left alive to serve as trap trees to attract the spotted lanternflies. Leave only male trees if possible.

[2] *Ailanthus* trees will re-sprout vigorously from cut stumps and roots, unless they are treated with a systemic herbicide. Repeat applications of herbicide may be necessary.

[3] ALWAYS READ HERBICIDE AND INSECTICIDE LABELS AND FOLLOW THE DIRECTIONS

[4] Before you move outdoor items from the quarantine area, check for spotted lanternfly egg masses, adults, and nymphs and destroy them. Use the checklist at http://www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly/Documents/SLF%20Checklist%2011-12-2014.pdf

People are looking for specific approaches to pest management to minimize off-target exposure to pesticides. This type of strategy is known as Integrated Pest Management (IPM). The Pennsylvania Department of Agriculture (PDA) has been using an IPM strategy for spotted lanternfly infestations, and landowners may consider using the same IPM strategy on their properties, or hiring a professional service to do it.

IPM Strategy for the Spotted Lanternfly:

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2. Destroy approximately 90% of the *Ailanthus altissima* trees, leaving only a few that are most attractive to the insect. They will serve as "trap" trees. It is recommended that you try to kill all the female *Ailanthus altissima* trees, because they produce seed and contribute to the spread of this invasive tree.

Be careful handling *Ailanthus altissima* wood, leaves, and branches. Chemicals in the sap of this tree can cause headaches, nausea, and possible heart problems. Wear gloves and protect yourself from exposure.

When you cut down *Ailanthus altissima* trees, they will sprout profusely from the stumps and can grow back in a few years. Because they regenerate so easily, it is highly recommended that you treat the stumps with a herbicide to kill them and prevent them from sprouting new shoots.

Herbicides that are labelled for this use usually contain one of the following active ingredients: triclopyr, dicamba, imazapyr or glyphoshate. Use the herbicide carefully and according to the label directions. Alternative methods for using herbicides to kill *Ailanthus altissima* trees include foliar sprays, basal bark applications, and a method called frill application or "hack and squirt." For more information about these methods go to http://extension.psu.edu/publications/uh174. Whatever method you choose, remember that you will have dead *Ailanthus* trees which may eventually have to be removed.

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Treating only a few trap trees with a systemic product can reduce the amount of insecticide released into the environment and may help conserve beneficial insects.

Prepared by: Emelie Swackhamer, Horticulture Extension Educator, Montgomery County, February, 2017.

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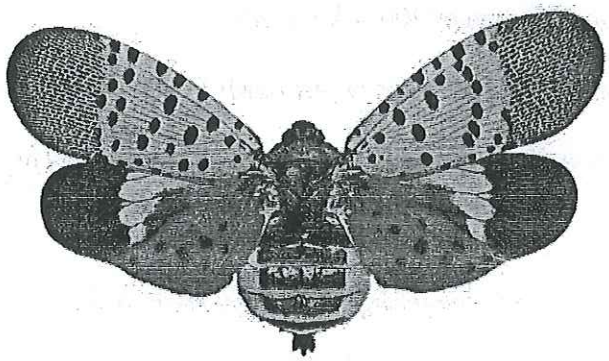
PennState Extension

The Spotted Lanternfly: Tips for Handling Yard Waste in Quarantined Areas



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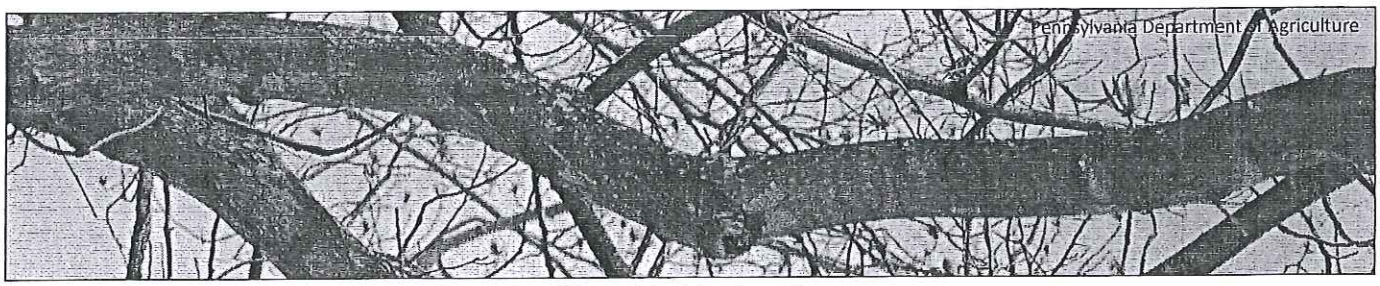
www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly

- **Learn about spotted lanternfly and its host plants. Report any capture, photos or sightings of this insect in areas outside of the current quarantine** to badbug@pa.gov or 1-866-253-7189.
- **Know which municipalities are included in the quarantine order.** Additional municipalities will be added if new discoveries occur.
- **Avoid moving this insect** on woody plant debris, such as fallen trees or branches and tree trimmings, and also any living plants, equipment, building materials, or other objects. Businesses may avoid possible fines by entering into a compliance agreement through the Pennsylvania Department of Agriculture (PDA). Plant nurseries, nursery stock dealers, and mulch producers should contact their plant inspector for compliance information. For information to contact your regional PDA office, go to www.agriculture.pa.gov/regional-offices/Pages/default.aspx.
- **Inspect yard waste and other items and destroy egg masses.**
- Non-commercial residents should use the **compliance checklist** when moving items from within the quarantined area to outside areas.
- **Movement of fallen leaves is not regulated under the spotted lanternfly quarantine.**

(continued)

- When working in the quarantined area, if possible, **chip all woody debris on-site to no larger than 1-inch pieces in each of two dimensions**. Even within the quarantined area, it is a better practice to move chips rather than move larger woody debris.
- If you can, **leave all chips or woody debris on-site**. The next best option is to take chips or debris to an organic materials recycler within the quarantine area.
- To kill viable insects or eggs in chipped material, the following **composting procedure must be followed before moving it** out of the quarantine area.

1. Compost piles must be a minimum of 200 cubic yards.
2. Internal temperature at a depth of 18 inches must reach 140° F (60° C) for four (4) continuous days.
3. After the interior of the pile is successfully treated, the exterior of the pile needs to be rotated to the center. Using a front-end loader or a bulldozer, remove the outer layer of the compost pile to a depth of three (3) feet.
4. Start a second compost pile using the recently-removed cover material as a core.
5. Cover this second compost pile by moving the core material from the first compost pile as a cover at least three (3) feet deep.
6. Allow the second compost pile to remain undisturbed until the temperature reaches 140° F (60° C) for at least four (4) continuous days.
7. After the chips have been successfully composted according to these directions, the resulting composted material meets compliance requirements.
8. Mulch being offered for sale and moving out of the quarantine area is required to be certified by PDA. Please contact your regional plant inspector for information.



Branch with spotted lanternfly egg masses

Prepared by:
Emelie Swackhamer, Horticulture Educator, Penn State Extension, Montgomery County
Kathy Salisbury, Horticulture Educator, Penn State Extension, Bucks County
February, 2017

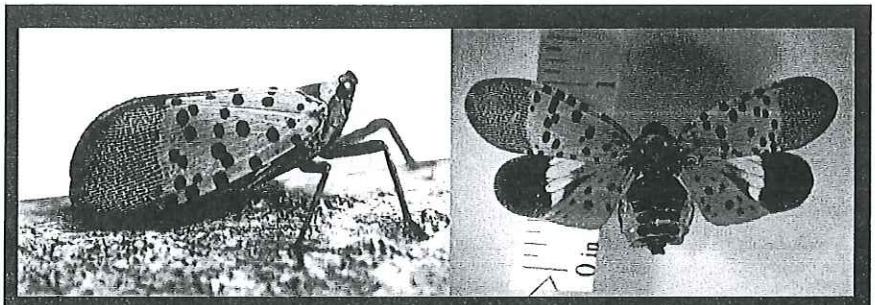
extension.psu.edu

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

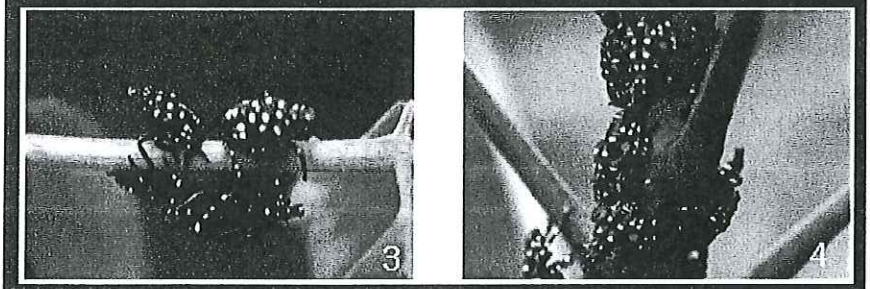
Checklist for Residents
Living in Spotted Lanternfly Quarantine Areas

IMPORTANT: Before you move outdoor items from the quarantine area, check for spotted lanternfly egg masses, adults, and nymphs. Make sure all items are pest free before you move them. Help keep this pest from spreading.

If you find any of these life stages of the Spotted Lanternfly, remove, devitalize, place in a sealed bag, and dispose of bag in the garbage.



Adult Spotted Lanternfly, present in autumn months.



Spotted Lanternfly nymphs, present in spring and summer months. (Images from Park et al. 2009)

Fresh Spotted Lanternfly egg mass (outlined in red). Egg masses are present in autumn and winter months, blending in with their surroundings.

By signing this checklist, I am confirming that I have inspected my vehicle and those items I am moving from the Spotted Lanternfly quarantine area, and do not see any egg masses or insects in or on anything I am moving.

Signature _____ Address _____ Date _____

Please sign, date, and keep this checklist in your vehicle with you – use it each time you need it.

For more information, visit the Pennsylvania Department of Agriculture website:
www.pda.state.pa.us/spottedlanternfly

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Checklist for Residents Living in Spotted Lanternfly Quarantine Areas

IMPORTANT: Before you move outdoor items from the quarantine area, check for spotted lanternfly egg masses, adults, and nymphs. Make sure all items are pest free before you move them. Help keep this pest from spreading.

Check before you move

Recreational or Camping Items

- ☐ Backpacks
- ☐ Basketball backboards
- ☐ Bicycles
- ☐ Boats/Boat trailers
- ☐ Campers
- ☐ Ice chests
- ☐ Motorcycles
- ☐ Motor homes
- ☐ Recreational vehicles
- ☐ Snowmobiles
- ☐ Tarps
- ☐ Tents
- ☐ Other

Outdoor Household Items

- ☐ Barrels
- ☐ Cardboard or wooden boxes
- ☐ Outdoor poles
- ☐ Plant containers
- ☐ Firewood
- ☐ Propane or oil tanks
- ☐ Trash cans
- ☐ Refrigerators/Freezers
- ☐ Storage sheds
- ☐ Shutters
- ☐ Storm/Screen doors and windows
- ☐ Window awnings
- ☐ Outdoor furniture
- ☐ Other

Building Materials

- ☐ Bricks/Cinder blocks
- ☐ Cement mixing tubs
- ☐ Lumber
- ☐ Roofing materials
- ☐ Tools and toolboxes
- ☐ Workbenches
- ☐ Skidsters/Forklifts
- ☐ Pipes
- ☐ Other

Yard and Garden Items

- ☐ Dog houses, rabbit sheds, chicken coops, etc
- ☐ Barbecue grills
- ☐ Carts
- ☐ Cold frames
- ☐ Fencing
- ☐ Garden tillers
- ☐ Yard decorations
- ☐ Garden tools
- ☐ Backhoes
- ☐ Lawnmowers
- ☐ Signs and posts
- ☐ Storage sheds
- ☐ Tractors and trailers
- ☐ Trees, shrubs and plants
- ☐ Other

Children's Playthings

- ☐ Play houses
- ☐ Kiddie pools
- ☐ Bicycles, scooters
- ☐ Sandboxes
- ☐ Other

Virginia Cooperative Extension

PUBLICATION 420-322

Invasive Exotic Plant Species:
Ailanthus (*Ailanthus altissima*)

Matthew Yancey, Extension Agent, Natural Resources, Northwest District

Background

Ailanthus, also known as tree-of-heaven and paradise-tree, is a major nuisance to foresters, farmers, and homeowners alike. Its prolific seeding and ability to sprout from roots and stumps and grow quite rapidly just about anywhere make it a serious competitor and threat to native species and cultivated crops. On top of that, ailanthus is allelopathic, producing substances that are toxic to and inhibit the growth of neighboring plants.

Leaf

Pith

Identification

Leaves – When present, the leaves are compound and typically measure 1 to 3 feet in total length with 11 to 25 individual leaflets.

Twig – Twig is smooth to fuzzy with large shield-shaped leaf scars after the leaves drop. Ailanthus's most convincing identification feature is the inside of a broken twig, which smells like rancid or burnt peanut butter and even resembles it in appearance.

Flower – Clusters of yellow-green flowers bloom in late spring to early summer. Male flowers have a disagreeable scent, similar to that of the broken twig.

Fruit – Fruit is a samara, similar to the fruit found on maple trees.

Bark – Bark is smooth and green when young, eventually turning gray and resembling a cantaloupe.

Form – Ailanthus first grows as a single, unbranched stem or multiple stems from the ground, particularly when cut back. An ailanthus mono-cultural thicket will eventually result. Individual stems can grow eight feet in one year and ultimately up to 100 feet in high.

Bark

Leaf scar

www.ext.vt.edu

Produced by Communications and Marketing, College of Agriculture and Life Sciences, Virginia Polytechnic Institute and State University, 2009

Look-alike species

Ailanthus is often confused with native sumacs (*Rhus* spp.), but can usually be distinguished by sumac's small, red, fuzzy drupe (fruit) that persists through the winter. Black walnut (Juglans nigra) is also sometimes mistaken for ailanthus when young, due to its compound leaves and large shield-shaped leaf scars. Both of these features are much larger on ailanthus, and the characteristics described above should help make ailanthus less mistakable.

Control

Ailanthus regeneration habits dictate that cutting alone will not kill the tree, but instead promote it to resprout vigorously. Cutting must be combined with chemical control unless excavating the entire root system is feasible, which usually is not. Triclopyr has been verified to provide effective control of ailanthus through basal, foliar, and cut-stump applications. The use of a surfactant for basal and foliar applications is also recommended. For a basal spray application, a 12 percent triclopyr-in-oil solution is recommended. The plant should be sprayed to the point of runoff. For foliar spray, a 2 percent triclopyr in either a water or oil solution is advised. Cut-stump treatments require a 44 percent triclopyr-in-water solution.

The following table displays many general-use chemical formulations labeled for control of ailanthus in forested setting.

References

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Disclaimer: Commercial products are named in this publication for informational purposes only. Virginia Cooperative Extension does not endorse these products and does not intend discrimination against other products which also may be suitable.

Reviewed by Bob Smith, associate dean and professor, College of Natural Resources.

Manufacturer	Product Name	Active Ingredient (ai)	Percent ai	Application Method*
Nufarm Turf and Specialty	Vanquish	Dicamba	56.8	F, C, B, S
DuPont	Krenite S	Fosamine	41.5	F, C
Dow AgroSciences	Accord Concentrate	Glyphosate	53.8	F, C
BASF	OneStep	Glyphosate + Imazapyr	69.51 + 8.36	F
BASF	Arsenal AC	Imazapyr	53.1	F, C
BASF	Chopper	Imazapyr	27.6	F, C, B
BASF	Stalker	Imazapyr	27.6	C, B
DuPont	Escort XP	Metsulfuron Methyl	60	F, S
Dow AgroSciences	Pathway	Picloram + 2,4-D	5.4 + 20.9	C
Dow AgroSciences	Pathfinder II	Triclopyr	13.6	B, C
Dow AgroSciences	Garlon 3A	Triclopyr	44.4	F, C
Dow AgroSciences	Garlon 4	Triclopyr	61.6	F, B, C
Nufarm Turf and Specialty	Tahoe 4E	Triclopyr	61.6	F, B, C

** F: Foliar, B: Basal bark, C: Cut stump, S: Basal soil*