

SLF FUNDING TRAINING



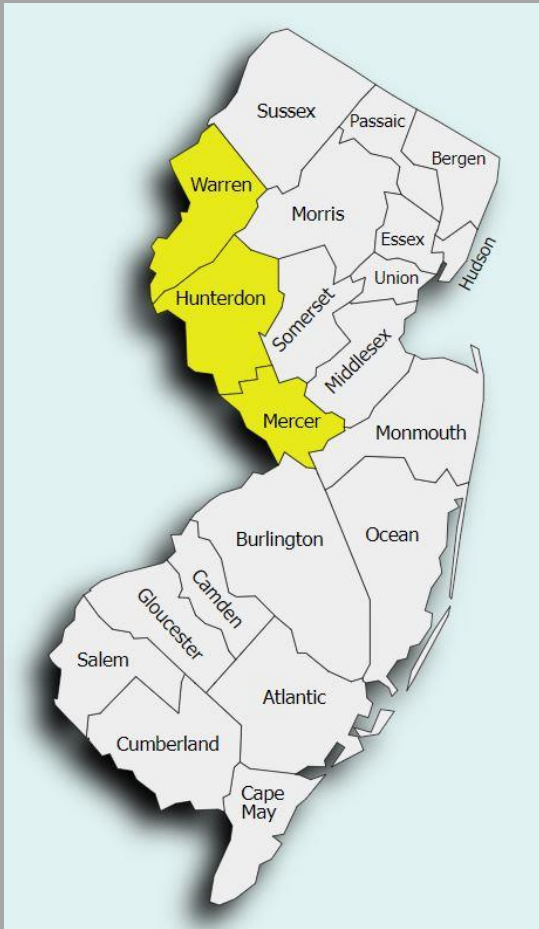
**Paul J Kurtz
Entomologist
New Jersey Department
of Agriculture**

Overview

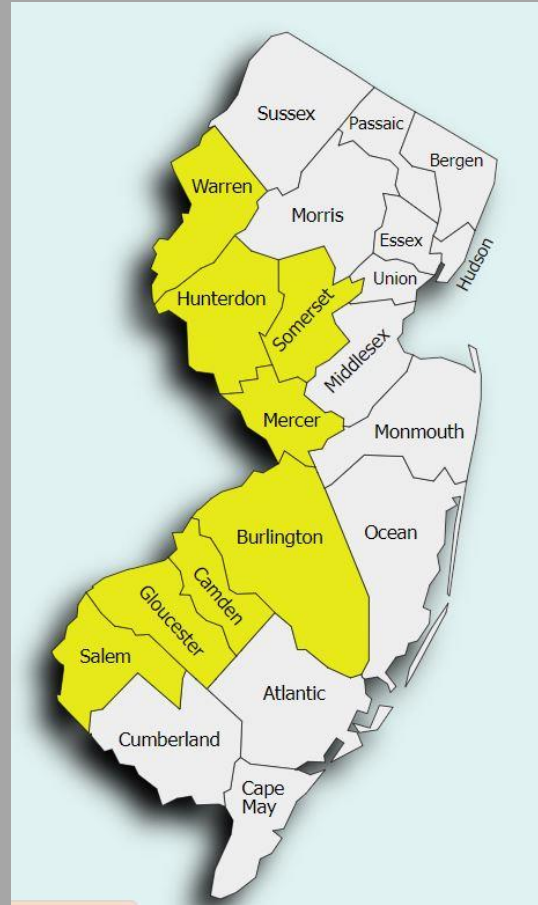


- Funding
- Requirements
- Safety
- Pesticides
- Timing
- Hosts
- Traps
- Scraping
- Resources

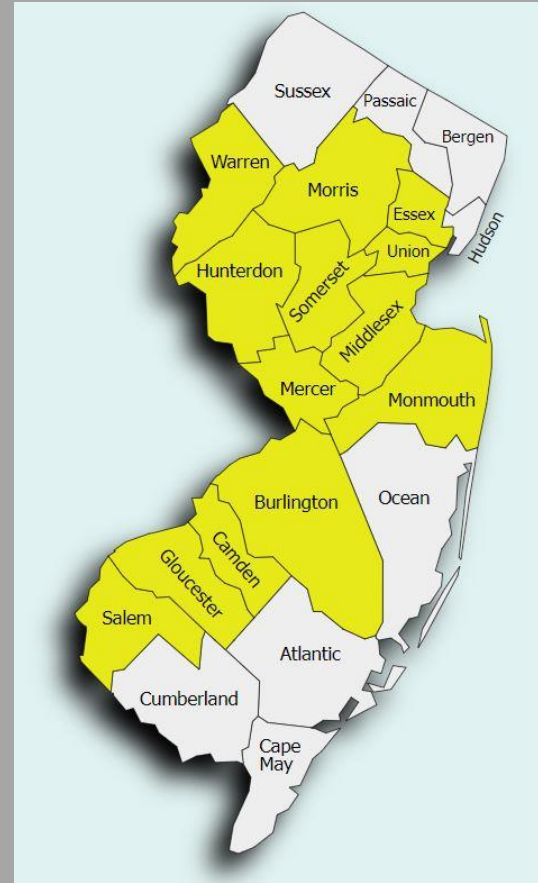
NJ SLF quarantine



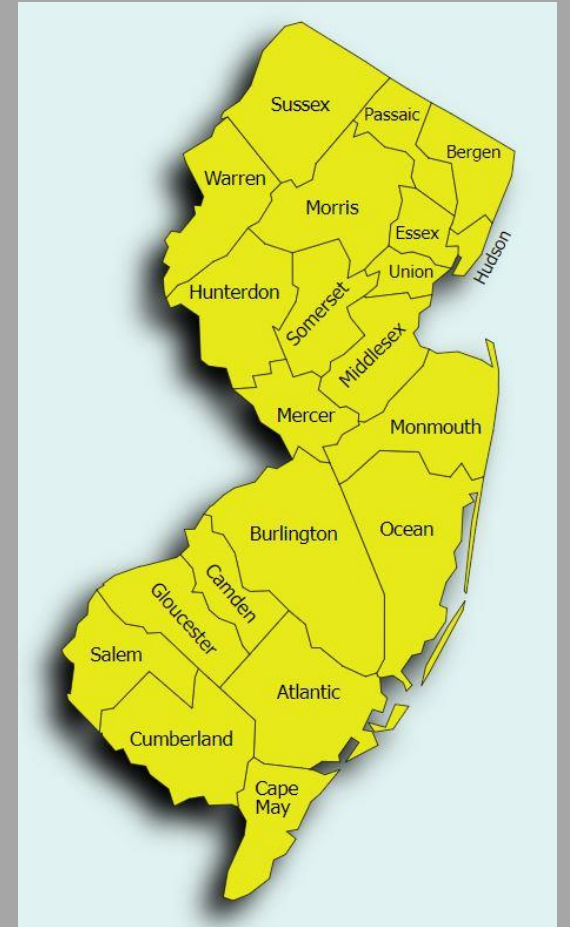
2018



2019



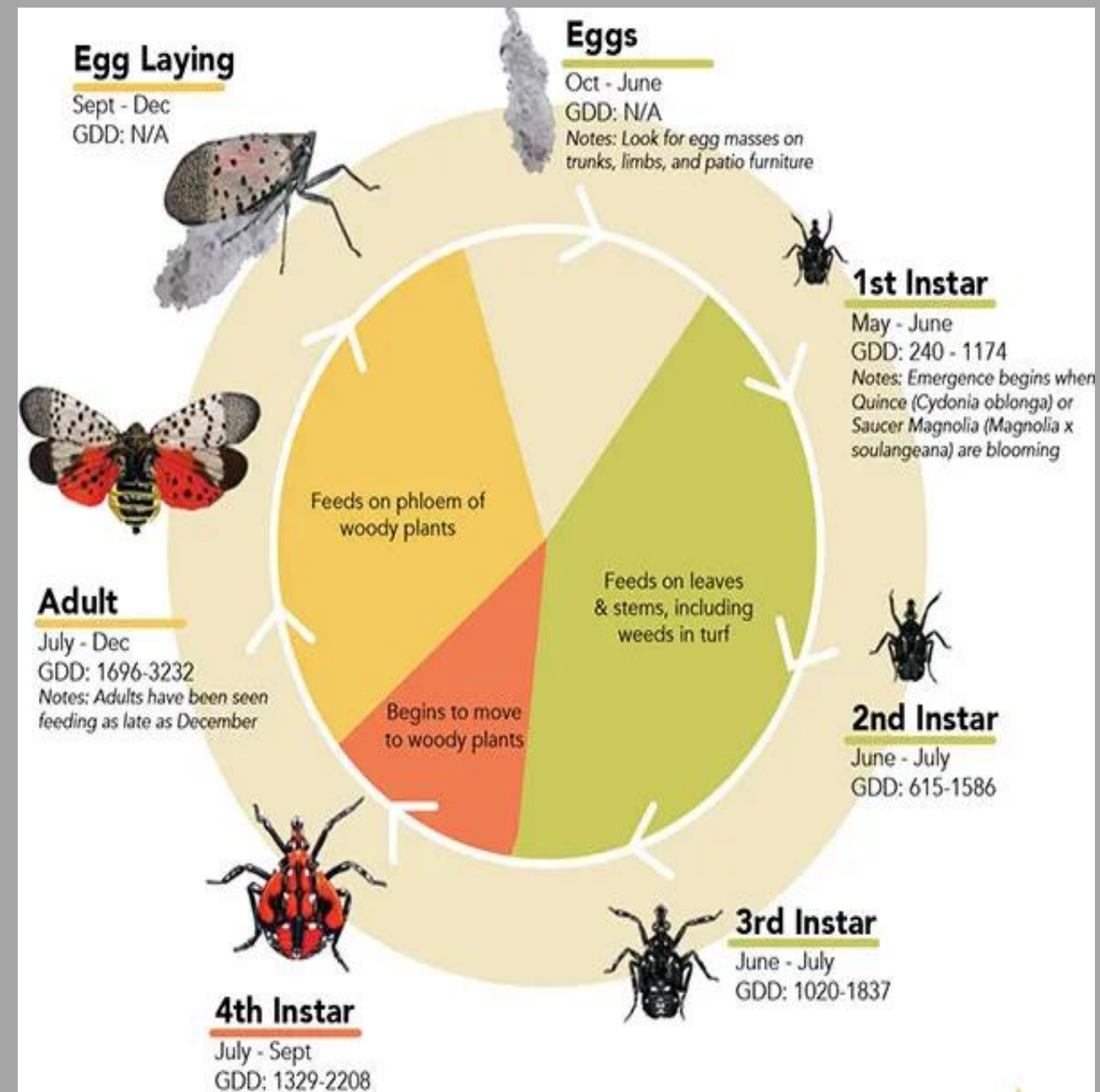
2021



2023

Funding can be used for:

- Pesticides
- Traps
- Backpack Sprayers/Foggers
- Backpack Vacuum/Batteries
- Low pressure Sprayers
- Contractors
- Salaries
- General spray equipment
- Other supplies & materials as needed for the program



Requirements

- Must use a NJ certified pesticide applicator either in-house or contracted
- Must follow all EPA safety requirements and guidelines for pesticide use
- Must submit lot/block or GPS location of treatment area weekly
- Must submit receipts and invoice for reimbursement monthly

Business name
 (this message will be sent to your customer)

Lot #	Customer Name	Address	City	State	Zip	Phone	Account #
1000001	Customer Name	1234 Main St	Anytown	NY	10000	555-555-5555	1000001
1000002	Customer Name	5678 Main St	Anytown	NY	10000	555-555-5555	1000002
1000003	Customer Name	9012 Main St	Anytown	NY	10000	555-555-5555	1000003
1000004	Customer Name	3456 Main St	Anytown	NY	10000	555-555-5555	1000004

Verify customer your invoice messages will have discounts and service charges with appropriate [log-in to access information](#)

Meanings of Advice & Warning Pictograms

- Wear eye protection
- Keep away from children
- Wash after use
- Wear protection over nose and mouth
- Wear boots
- Dangerous harmful to visible and birds
- Not for aerial application
- Wear respirator
- Dangerous harmful to fish, do not use on streams, lakes, rivers, ponds or streams
- Dangerous harmful to livestock and poultry

Meanings of Action Pictograms:

- Handling liquid concentrate
- Handling dry concentrate
- Application

Meanings of Color Codes: listed from the most (1) to the least (4) dangerous.

- 1** **Very Toxic:** Most toxic pesticide group, sold in GA. Protective equipment and clothing MUST be worn.
- 2** **Harmful:** 2nd most toxic pesticide group sold in GA. Use all precautions stated on label.
- 3** **Caution:** Use carefully and use protection.
- 4** **Keep Locked Away:** All pesticides are poisonous. Store away from children, food & animals.

Contact: ohppesticides@nj.gov



Safety

- Must use a NJ certified pesticide applicator
- Must follow all safety requirements and guidelines for pesticide use
- Must follow mixing labels on the pesticide
- Must wear proper safety PPE and clothing
- Follow the label as to chemical per acre
- NJDA **does not** endorse the use of tree banding with sticky glue traps
- Bee aware of pollinators when using insecticides



Pesticide Treatments

Insecticides must be labeled for spotted lanternfly or tree hoppers to be used for control purposes





CHEMICAL CONTROL

ACTIVE INGREDIENT	TOXIC TO BIRDS	TOXIC TO FISH	TOXIC TO BEES	APPLICATION METHOD	RECOMMENDED TIMING	ACTIVITY AGAINST SLF	RESIDUAL ACTIVITY
Dinotefuran	S	S	H	Soil drench, trunk spray, or trunk injection	July to September	Excellent	Excellent
Imidacloprid	M	M	H	Soil drench	After flowering to July	Variable	Variable
Imidacloprid	M	M	H	Trunk injection	July to September	Variable	Excellent



N = nontoxic; S = slightly toxic; M = moderately toxic; H = highly toxic; — = data not available.

CHEMICAL CONTROL

ACTIVE INGREDIENT	TOXIC TO BIRDS	TOXIC TO FISH	TOXIC TO BEES	ACTIVITY AGAINST SLF	RESIDUAL ACTIVITY
Beta-cyfluthrin	M 	H	H	Excellent	Excellent (up to two weeks of activity)
Bifenthrin	M 	H	H	Excellent	Excellent (up to two weeks of activity)
Carbaryl	S	N	H	Excellent	Poor
Zeta-cypermethrin	S	H	H	Excellent	Poor
Malathion	M	H	H	Excellent	Poor
Neem oil*	—	H	H	Good	Poor
Natural pyrethrins*	N	H	M	Excellent	Poor
Insecticidal soaps*	N	N	N	Good	Poor
Paraffinic oil or horticultural spray oil*	—	—	—	Good	Poor

N = nontoxic; S = slightly toxic; M = moderately toxic; H = highly toxic; — = data not available.

Pesticides

NJDA / USDA

Insecticides

- Dinotefuran – systemic
- Bifenthrin (7.9%) – contact
- Beta-cyfluthrin - structural
- Golden pest spray oil – contact
(egg masses and nymphs only)
*Can cause phytotoxicity at high rates
- Herbicides - Garlon 3A



Bark Spray: <https://youtu.be/SFEA2fUrg64>



Courtesy of Rainbow Tree Care Company

Pesticide Timing

- Nymphs:

- Contact insecticides
- Golden pest spray oil
- spring – late June



- Later Instar Nymphs/Adults:

- Systemic after the TOH block
- Late June - early Sept

- Adults:

- Contact insecticides
- Mid Sept– late Nov
- (*TOH senesces)



present

- Eggs:

- Scrape/Crush egg masses or treating with Golden Pest Spray Oil.
- Dec - April

Herbicides

NJDA / USDA

Herbicides - Garlon 3A

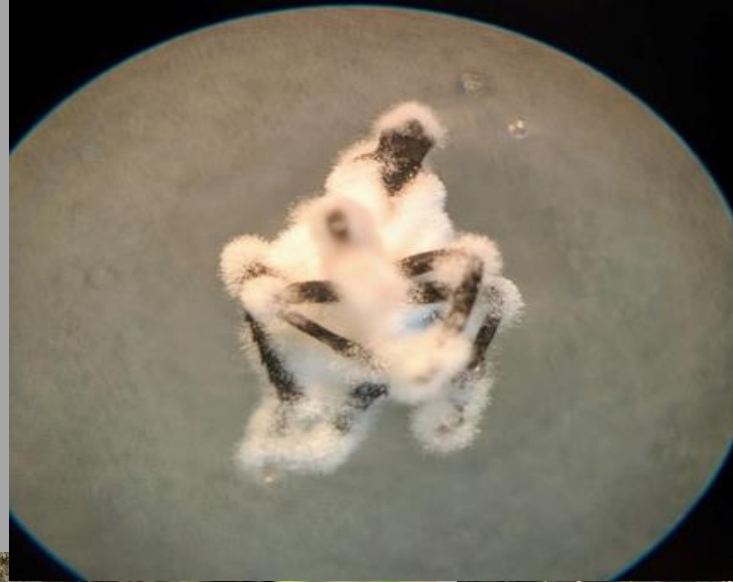
- Active ingredient-
Triclopyr
- Hack and squirt Method
- Girdling tree then apply
Garlon 3A
- 1:1 Spray with Garlon 3A
and water as foliar
herbicide for small
seedlings and saplings
- Tree of Heaven



Bio-Pesticides

Entomopathogenic Fungus

- *Beauveria bassiana*
(Aprehend, Botaniguard)
- *Batkoa major*
- Infects through the cuticle
- Needs wet/moist weather to work effectively



Hosts



- **172** species of woody and herbaceous plants.
- Tree of Heaven (ToH) : *Ailanthus altissima* (Coevolution)
- Spotted lanternfly feeds on a variety of host plants including fruit trees, ornamental trees, woody trees, vegetables, herbs, grains and vines.
- SLF **CAN** complete development and reproduce without tree of heaven.

Hosts

HOST	NYMPHS			ADULTS		
	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
Rose (cultivated, multiflora, etc.)						
Perennials						
Grape (wild and cultivated)						
Tree-of-heaven						
Black walnut, butternut						
River birch						
Willow						
Sumac						
Red/silver maple						

Thresholds and Treatment

		SEVERITY: how many SLF are present?			
		Low (occasional egg masses, nymphs, or adults)	Tolerable (few egg masses, nymphs, or adults)	Undesirable (many egg masses, nymphs, adults, and sooty mold present)	Intolerable (heavy levels of adult and nymph feeding, extensive amounts of sooty mold)
LIKELIHOOD OF IMPACT: what plants are present?	Few SLF favorite plants (maples, willow, birch, tree-of-heaven)	LOW RISK			
	Many SLF favorite plants (maples, willow, birch, tree-of-heaven)				
	Plants under stress (weather, diseases)				
	Proximity to vulnerable plants (young plants, vineyards, etc.)				HIGH RISK

Thresholds and Treatment

5

CHEMICAL CONTROL

Use EPA-registered chemicals as contact or systemic applications, including dinotefuran, bifenthrin, zeta-cypermethrin, and carbaryl. These may have longer residual efficacy.

4

REDUCED-TOXICITY CHEMICAL CONTROL

Start with the least-toxic options first, including insecticidal soaps, neem and botanical oils, and pyrethrum. These have very little residual activity.

3

BIOLOGICAL CONTROL

Support natural enemies by providing habitat for them. Releasing predators is not currently recommended for SLF.

2

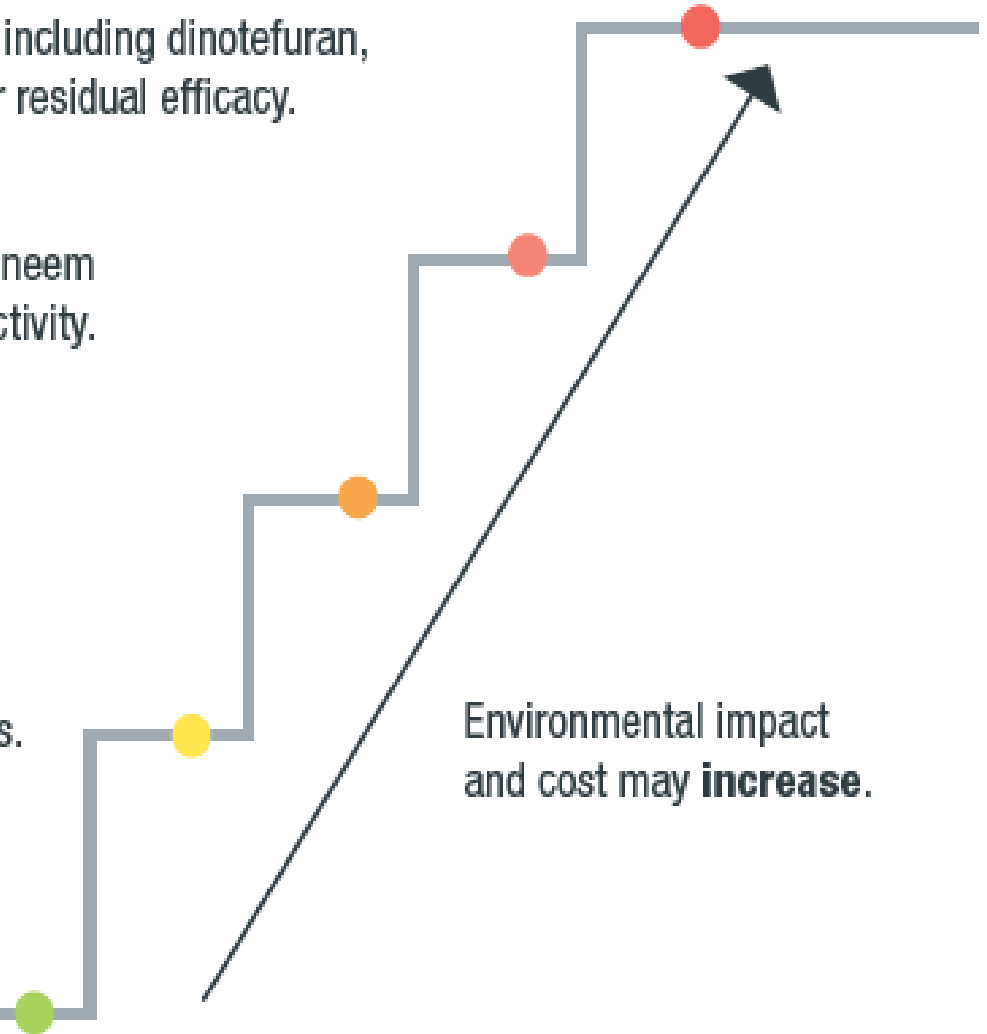
PHYSICAL/MECHANICAL CONTROL

Scrape/smash eggs, use tree traps, swat/stomp nymphs and adults.

1

CULTURAL CONTROL

Promote plant health and remove favored SLF hosts. Don't assume all damage is from SLF.



Circle Traps



photo/Emelie Swackhamer

Circle traps

- Effective for both nymphs & adults.
- NO lure or pesticide needed.
- Should be emptied every two to three weeks

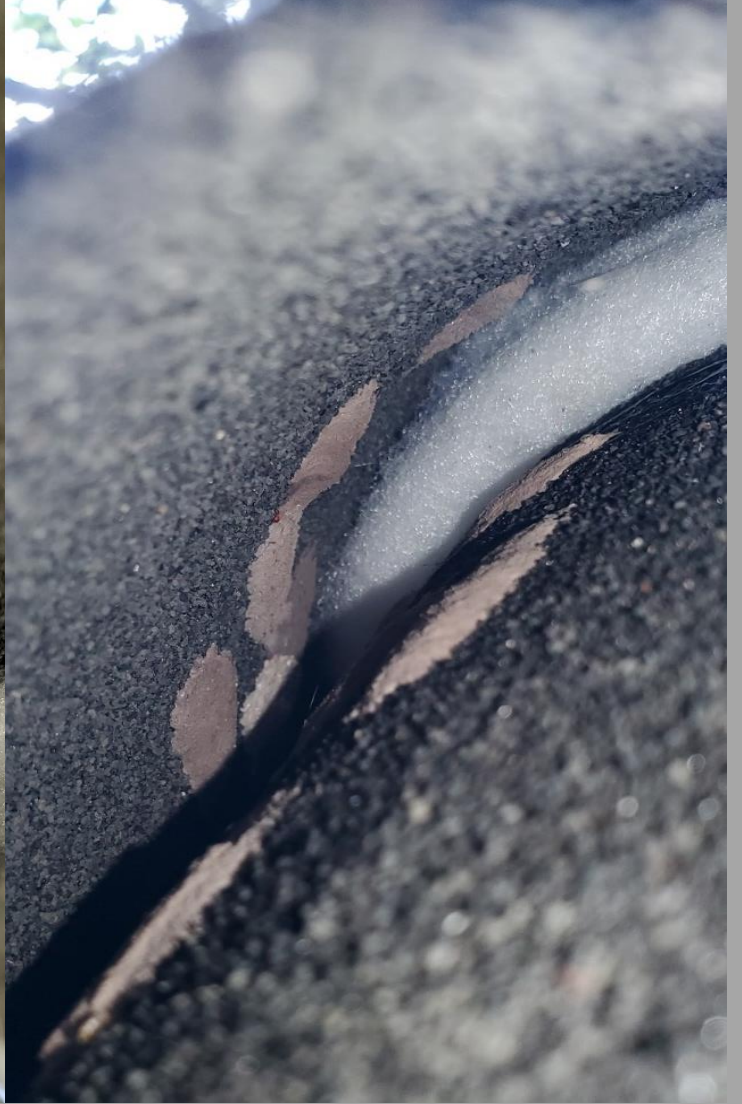
Lamp Shade Trap

- For egg mass trapping
- Deploy (late Sept/early Oct) and collected (December-April)
- Sites with the highest SLF populations yielded an average of 47 and 54 egg masses per trap
- A few traps tallied over 100 egg masses
- Vertical trap orientation
- 6-8" DBH best
 - ✓ good production per trap
 - ✓ less trapping material used



Phillip.A.Lewis@usda.gov for more info

Results & Proof of Concept



Egg Masses

Uncovered egg mass



Partially covered egg mass



Covered egg mass



Old hatched egg mass



Variations in spotted lanternfly egg masses including color (yellow, gray, brown) and covering. Photo Heat

**Have a winter Egg Mass Plan:
Scraping or Treating with Golden Oil**

Scraping Egg Masses

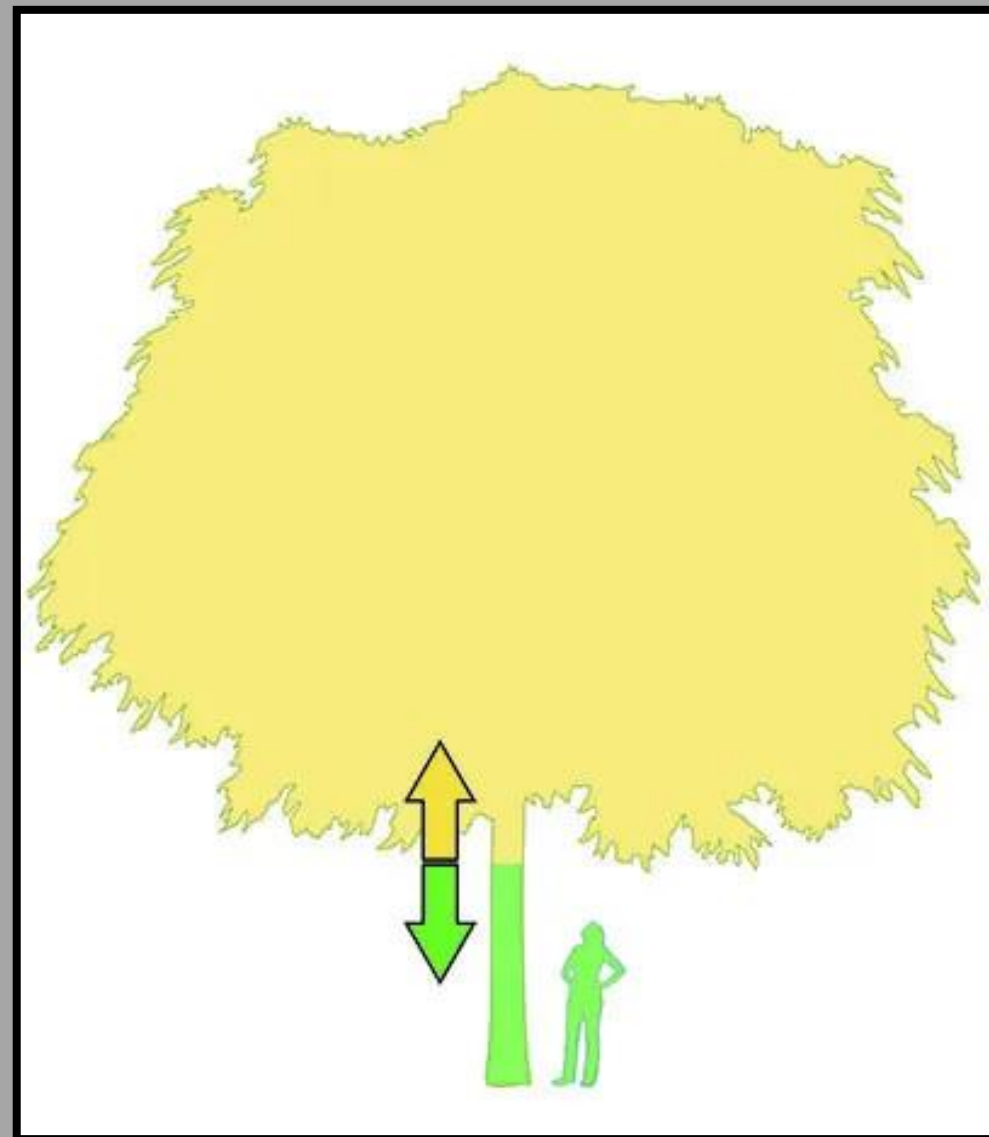


CRUSH
THE SPOTTED LANTERNFLY

SCRAPE
THESE PESTS AWAY

1. Search for eggs on trees, rocks, patio furniture, and other hard outside surfaces.
2. Using this card, scrape the egg mass from the top down into a bag or container.
3. Crush eggs and dispose of them in the trash!
4. Please record location or address of egg mass.

IF YOU SEE IT, SQUASH IT!
BADBUG.NJ.GOV



Less than 2 percent of egg masses laid on trees are at a reachable height. Illustration © Emily S. Damstra.

Scrape, Crush & Repeat

HIGH



LOW



Golden Pest Spray Oil

- Golden Oil Application: Spraying soybean oil to suffocate egg masses.
- Golden Pest Spray Oil can only be applied during the nymph and egg mass stages of SLF.
- 1:1 Ratio with water.
- Can be sprayed or painted onto egg masses.



Resources

- <https://www.nj.gov/agriculture/divisions/pi/prog/pests-diseases/spotted-lanternfly/>
- <https://extension.psu.edu/spotted-lanternfly-management-and-pesticide-safety>
- https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/ea/ct_slf
- <https://www.stopslf.org/index.cfm>
- <https://www.rainbowecoscience.com/education-and-training/spotted-lanternfly>
- <https://youtu.be/SFEA2fUrg64>

Equipment Resources

- Stihl SR 450 backpack sprayer
- Maruyama MM300 or MM181) backpack sprayer
- Pioneer Eco-Backpack Sprayer L
 - <https://azelisaes-us.com/product/pioneer-eco-backpack-sprayer/L>
- Milwaukee M18 FUEL 3-in-1 Backpack Vacuum Kit, get extra batteries and chargers
- www.greatlakesipm.com for circle traps
- Home Depot, Lowes, Gemplers, Grainger, Forestry Supply, etc



Summary

1. Spotted lanternfly is currently considered primarily a nuisance pest in residential landscapes.
2. Death of ornamental and shade trees has not been directly linked to SLF to date. SLF is considered a plant stressor. High infestation levels may reduce photosynthetic activity and energy storage. Don't attribute all plant health decline to SLF.
3. Always scout for spotted lanternfly first before deciding to make a treatment. Not every tree on any given property needs to be treated. Be aware that SLF populations may fluctuate from year to year; don't assume what happened last year will happen in the coming year.
4. The active ingredients, methods, timing, and other treatment suggestions presented here are guidelines. PSU are conducting research to refine these guidelines.
5. Always follow the label for any pesticide application you make.

Questions?



paul.kurtz@ag.nj.gov