Dr. Kirby C. Stafford III, State Entomologist
Department of Entomology
The Connecticut Agricultural Experiment Station
123 Huntington Street, New Haven, CT 06504
Phone: (203) 974-8485
Fax: (203) 974-8502
Email: Kirby.Stafford@ct.gov
Website: https://portal.ct.gov/CAES

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Spotted Lanternfly Management in Vineyards

Photo Credits: CAES

Spotted lanternfly (SLF), *Lycorma delicatula*, is an invasive planthopper, native to Asia, that was first detected in 2014 in southeastern Pennsylvania and established populations in Connecticut in 2020. As of April 2021, SLF is also found in New Jersey, Virginia, West Virginia, Maryland, Delaware, New York, and Ohio. Detections of SLF have been reported in Maine, Massachusetts, Michigan, North Carolina, California, and Oregon; however, populations are not yet known in these states. SLF feeds on many plants, including economically important crops like grapevines, cucumber, hardwoods, and ornamentals. Significant damage has been reported from SLF feeding on grapevines, including increased susceptibility to winter injury, reduced starch concentration in vine roots, reduced yield in the subsequent year, and potential death of vines. This guide will update you on our current knowledge and best management practices for this insect in vineyards.

Identification and Life Cycle

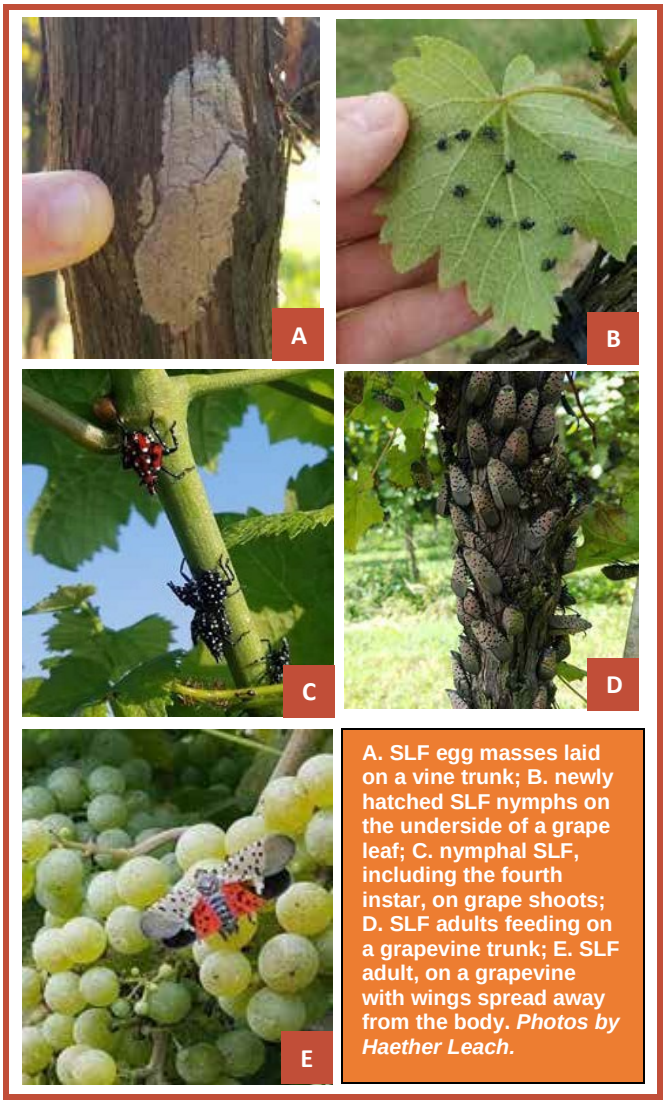
Spotted lanternfly is not actually a fly, but a planthopper. There is one generation of SLF per year. The eggs are laid in the fall (September to November) and hatch in the spring (late April to June). Egg masses are laid on smooth surfaces (trees, outdoor equipment, vines, posts, etc.) and protected with a mudlike covering. Egg masses usually contain around 35–40 eggs each (Figure 1A). Females can lay at least two egg masses. After hatching and before reaching adulthood, SLF goes through four immature (nymph) stages. Nymphs are small (⅛ to ½. inch) and can be hard to find (Figure 1B). The first three stages are all black with white spots, and the last is red with white dots and black stripes (Figure 1C). All nymphs are highly mobile and are strong jumpers.

*This fact sheet is largely based on the factsheet, text and pictures produced by Penn State Extension in collaboration with the Pennsylvania Department of Agriculture and the United States Department of Agriculture. Some portions edited and updated for Connecticut.

SLF adults emerge in July and are active until the first hard frost. This is the most obvious and easily detectable stage because they are large (~1 inch) and mobile. Adults have black bodies with brightly colored hindwings. Only the adults can fly, and this is most commonly observed in the afternoon on warm and sunny days. SLF forewings are gray with black spots; the tips of the wings are black with gray veins; and their hindwings are red, black, and white. Because SLF adults walk more than fly, their wings usually remain closed (Figure 1D). Splayed wings can often be a sign of pesticide poisoning (Figure 1E).

Feeding Damage

SLF feed on plant phloem tissue (sap) using a piercing-sucking mouthpart. Current research suggests that they prefer plants with significant turgor pressure, which could help explain why they favor grapevines. SLF utilize the nutrients provided by the plant and rely on bacteria in their guts to help digest sap. When SLF feed in high numbers on grapevines, photosynthesis and sap flow in the plant is reduced. Heavy SLF feeding can also decrease the amount of carbohydrates (i.e., starch) and nitrogen stored in root tissues in the fall, which might compromise vine health and growth in the following year. Reductions in macro and micronutrient concentrations in leaf tissues were also reported by the end of the season following heavy SLF feeding. Research is still in progress to establish action thresholds for SLF, though this will likely be dependent on age, variety, location, and baseline health of the vine. As SLF feed, they ingest large quantities of sap, filtering the needed nitrogen and proteins and excreting excess levels of sugars and water as waste products (much like aphids, scales, and other sucking insects). This excrement, called honeydew, accumulates around areas where SLF are feeding. On sunny days, you may be able to see honeydew falling from trees. Honeydew can be attractive to ants, wasps, bees, and other sugar-loving insects. As the honeydew builds up, it is often colonized by sooty mold fungi. Sooty mold doesn't directly harm plants or the surface it grows on, but it does act as a barrier on the leaf to block photosynthesis. Under high numbers of SLF, understory plants may die back because of sooty mold buildup. On grapevines, the trunk, cordons, and leaves may begin to turn black with sooty mold. Sooty mold can only persist with the honeydew to feed on and will not infect the grapevine itself. There are currently no recommendations for removing sooty mold from grapevine trunks or cordons. Sooty mold is seldom recorded on the clusters and has not been reported as a



A. SLF egg masses laid on a vine trunk; B. newly hatched SLF nymphs on the underside of a grape leaf; C. nymphal SLF, including the fourth instar, on grape shoots; D. SLF adults feeding on a grapevine trunk; E. SLF adult, on a grapevine with wings spread away from the body. *Photos by Haether Leach.*

problem for marketability or wine taint. We do not yet know if honeydew on clusters may increase rot infection. Based on Pennsylvania data from 2018 and 2019, increasing levels of SLF on *V. vinifera* vines has a significant correlation with reduced clusters per shoot the following spring. The PA data suggest that SLF feeding may reduce the hardiness of the vine and potentially increase bud or vascular tissue (i.e., phloem and xylem) susceptibility to winter injury. As such, evidence of SLF damage to vines may only be present in colder winter conditions where the vines experience a higher likelihood of freezing damage. **If you had high levels of SLF feeding in the summer or fall, you should evaluate bud injury before pruning the vines**; moderate to high levels of bud injury require differing pruning strategies, such as increasing the number of buds retained to compensate for bud mortality or renewing trunks.

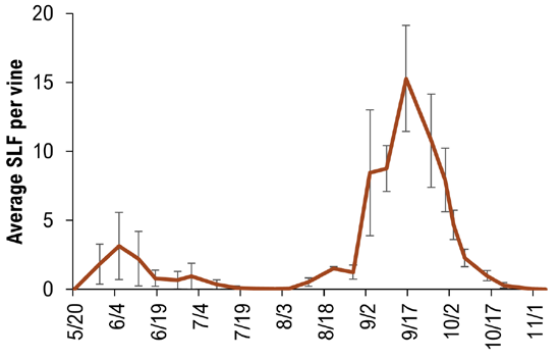


Figure 2. The average number of SLF per vine from 2018 to 2020 across eight different vineyards in Berks County, Pennsylvania.

Vineyard Phenology and Spatial Distribution

SLF are voracious feeders and can be extremely abundant as adults in vineyards. Adults start to appear in vineyards in August, but high populations are not typically observed until mid- to late September (Figure 2). For vineyards that are first experiencing SLF, this phenology is typically shifted later into the season—you may not see large numbers invade the vineyard until October. After one or two years, SLF typically invade vineyards earlier in the season (late August). More important, the majority of an SLF population within a vineyard is observed on the edge; on average, 54 percent of the SLF population is within the first 50 feet of the vineyard edge. Depending on the landscape surrounding the vineyard, the edge of the vineyard may account for even more SLF (upward of 80 percent of the population). Most SLF are observed feeding on the shoots, though later into the season more can be found on older wood (e.g., trunk and cordon). The majority of adult SLF observed in vineyards are female. Egg masses are often found on the edge of the vineyard, but this is much less extreme than adults. Research suggests that SLF prefer to lay next to an existing egg mass, which means that the eggs are often found in clumped distribution (data provided by Lauren Briggs, Penn State). Most commonly, eggs are observed on the undersides of vines (thick cordons, below graft union, etc.), angled posts, and within nongalvanized metal posts.

Seasonal Host Phenology

SLF has a broad host range and has been recorded feeding on over 70 different plant species. Despite this wide host range, some plants appear to be more favorable than others. Whether a plant is heavily fed on appears to be highly dependent on what is available in the nearby landscape, the health of the plant, the time of year, and how long SLF have been present in the area. Nymphs, in particular, seem to have an especially large host range, whereas adults seem to depend more on certain hosts. Table 1 provides the key plant hosts of SLF and the time at which they are most likely to be found on these hosts, and it may help you identify problem areas with SLF adjacent your vineyard. The plants shown do not represent a comprehensive list of all potential hosts of SLF, but rather the most likely transition of SLF through the season.

As plants begin to go dormant for winter, they are less likely to serve as a host for SLF. The patterns in host use may change with varying weather conditions, by region, and from other factors. Tree-of-heaven is a strongly preferred host; however, it is not required for SLF development.

Table 1. Key plant hosts of SLF throughout the growing season.

Host	Nymphs			Adults		
	May	June	July	August	September	October
Rose (cultivated, multiflora, etc.)						
Grape (wild and cultivated)						
Tree-of-heaven						
Black walnut, butternut						
River birch						
Willow						
Sumac						
Silver/red maple						

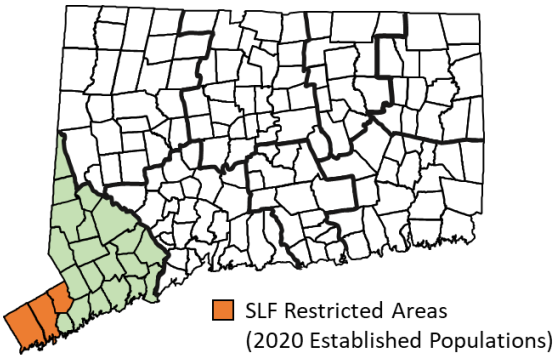
Monitoring

As mentioned above, SLF utilize a large range of plant hosts. We recommend you monitor your vineyard and the wood edge for SLF on a regular basis (at least weekly), especially when adults are found from August to November. In the early summer, SLF nymphs are small and can be difficult to see. Nymphs tend to feed on softer tissue (at the tops of trees and herbaceous plants) and are often found on the undersides of leaves. Adults will be present on the trunks of trees and can be seen flying and gliding around where they are feeding. If you have not yet detected SLF in your vineyard, scouting for and monitoring tree-of-heaven or other hosts listed in Table 1 is the best place to start. A comprehensive guide on identification and removal of tree-of-heaven can be found on the Penn State Extension website. If there are other highly desirable hosts nearby, we recommend you focus monitoring and potential treatment on those plants. Monitoring plants can be done using either visual checks or tree traps wrapped around the trees (see below for more information on trapping). Treating ornamental trees can be done with either systemic or contact insecticides, depending on the plant type, whether SLF is feeding on the plant (or just using it as a launch point), and how long SLF is likely to be there. The guide for landscape professionals can help you decide which approach is best.

Current Distribution and Reporting

An SLF state quarantine goes into effect for all Connecticut July 1, 2021 with regulated areas defined as established populations of SLF. This would include portions of Fairfield County detected in 2020 (Greenwich, Stamford, New Canaan). More towns will be added to the regulated areas when additional populations of SLF are confirmed. **If you suspect you have found a SLF, snap a picture of it and send it to ReportSLF@ct.gov** or fill out our SLF Reporting Form on our website**.** Please include in your email your contact information, any photos, and any other pertinent information. Permission by residents and businesses for state and federal plant inspectors to examine host trees on private property will be helpful in determining the extent of the infestation. All reports are confidential. Homeowners should

use the SLF checklist if moving out of a regulated area to ensure no insects accompany the move.



Don't Spread SLF

When you travel in and out of restricted areas, don't forget to check your truck and any equipment used (landscaping supplies, mowers, etc.). Check for SLF egg masses from September through June. Remember that egg masses may be underneath your truck or in your wheel wells. During all other times of the year, check for nymphs and adults, and keep your windows rolled up when you park. Don't store things or park under infested trees.

Figure 2. Late stage SLF nymphs.
Photo credit: Victoria Smith, CAES

Management

Biological Control

Currently, there are no known natural enemies of SLF that are thought to reduce populations in the United States. Some generalist predators (spiders, praying mantises, parasitoids, etc.) will attack and eat SLF. Additionally, two species of fungal pathogens have been identified attacking SLF in Pennsylvania. One species, *Beauveria bassiana*, has been the recent focus of research for SLF management. This pathogen is commercially available as a biopesticide and can be sprayed to kill insect pests. In 2020 Penn State evaluated the use of *B. bassiana* in woodlots adjacent vineyards to reduce SLF populations. So far, these applications did not suggest control of SLF and they do not currently recommend *B. bassiana* for use in or around vineyards. Research is continuing to further optimize the use and formulations of *B. bassiana*. Researchers have also been exploring the native region of SLF to search for natural enemies to release in the United States, and these are currently undergoing evaluations in USDA quarantine facilities.

Cultural Control

Removal of Attractive Host Plants

If tree-of-heaven is found on or near the vineyard, it could be a source of SLF populations. However, we currently have no data on whether insecticide treatment or removal of tree-of-heaven will reduce populations of SLF. Some growers have had good luck with treating the tree-of-heaven with the systemic insecticide dinotefuran, and others have felt this offered little control (H. Leach, Penn State, personal communication). Most likely, this is dependent on the size of the SLF population surrounding the vineyard and the presence of other attractive or suitable hosts. If removing tree-of-heaven, you must use herbicide.

Failure to use effective herbicide on this tree will result in more tree-of-heaven being quickly produced from the roots and stumps. Be mindful of herbicide applications on tree-of-heaven, as grapevines are highly sensitive to herbicide drift.

Exclusion Netting

Over-the-row exclusion netting can be used to protect vines from SLF. Our research suggests that this netting can reduce SLF by up to 99.8 percent on the vines. Note that unlike over-the-row bird netting, this netting will need to be secured tightly on the sides and bottom to exclude SLF (Figure 3). In addition, to prevent entry of adult SLF, exclusion netting needs to be of a finer mesh than what is commonly used for bird netting. SLF may attempt to feed through the netting when the shoots contact the netting on the top and sides, but this was seldom observed in our studies. While we did not observe difference in disease pressure from downy mildew or bunch rot, sugar content of the fruit was slightly lower (0.5° Brix on average), likely due to decreased light penetration to the canopy. We are also currently researching the use of large wall structures as a barrier to SLF flight into the vineyard. This research is still in progress, but early data suggest this is a promising method for managing hotspot areas around the vineyard.

Using Traps

Placing circle traps around trees or banding trees with sticky tape can be useful monitoring tools for vineyards that have not yet detected SLF. However, use of traps is not a recommended control tactic around vineyards, as it is very unlikely to reduce the population. If using sticky bands, bycatch of nontarget insects (bees, butterflies, natural enemies, etc.), birds, and mammals (squirrels, bats, etc.) is likely. A wildlife barrier (e.g., window screening) should be built over the trap to prevent this bycatch. More details on trapping can be found on the Penn State Extension website.

Figure 3. Exclusion netting (DrapeNet, Chazy, New York) used to protect vines from SLF. Note that this netting is tightly closed on the sides and bottom to prevent entry by SLF. County, Pennsylvania.

Mechanical Destruction of Eggs

Scraping SLF egg masses and placing them permanently in an alcohol solution (e.g., rubbing alcohol, hand sanitizer) and physical destruction of eggs (smashing) are other approaches to kill SLF. Destruction of eggs might help reduce nymph populations in the spring, but it may not reduce or prevent SLF from infesting a vineyard, especially during the adult stage. It is important to remember that SLF lay their egg masses on many surfaces, including posts, trees, outdoor equipment, and furniture. In vineyards, they are found most commonly underneath cordons, on the vines, and on metal and wooden posts (Figure 4). In addition, the majority of egg masses laid on trees are found above a reachable distance (8 feet). As a result, destruction of egg masses is unlikely to affect the bottom-line population in the vineyard. However, some vineyards have reported consistent large numbers of egg masses within their nongalvanized metal posts. Burning these posts with a propane torch, without damaging the grapevine, is a quick way to destroy many egg masses. If you are scraping the egg mass, we recommend you use a hard, flat tool (e.g.,

putty knife, plastic card) and scrape the egg mass downward into a container. Once finished, submerge all egg masses in alcohol. They can also be smashed, but you need to be sure you are applying pressure to the entire egg mass, or you may miss some eggs. Eggs burst open when they are smashed.

Chemical Control

Insecticides that are registered by the Environmental Protection Agency (EPA) and Connecticut may be used to treat SLF on your property. All EPA-registered insecticides have an EPA registration number and a label with instructions for safe, appropriate, and legal use at sites (vegetation) where SLF may be found. Some insecticides available in other states or over the internet may not be registered or legal for use in Connecticut.

Egg Masses

Based on studies done from 2018 to 2020 in Pennsylvania, some insecticides have ovicidal action. All studies were done on intact egg masses (with covering) in February to April. Of the nine insecticides evaluated, only Lorsban Advanced (chlorpyrifos) at the dormant rate offered 100 percent mortality to the egg mass. JMS Stylet Oil (paraffinic oil) at a 3–5 percent rate offered control ranging from 50 to 80 percent mortality, with the higher rates offering greater control (please consult the product label for rate guidance). Note that control mortality in these studies was up to 35 percent. For the same reasons described above, using ovicides in vineyards for control of SLF is often not recommended. First, egg masses can be found throughout the landscape, including the vineyard, the pole barn, the woodlot, and your neighbor's property. Second, the efficacy of ovicides is greatly dependent on coverage; good coverage on hidden egg masses (e.g., beneath peeling bark) may be difficult. Third, efficacy of available insecticides is better for nymphs than egg masses, making nymphs an easier and more successful target. Nevertheless, the use of ovicides could be appropriate in your situation. If using Lorsban, note that it has specific label restrictions and is not currently labeled for SLF control. Lorsban Advanced can be applied pre-bloom for control of brown marmorated stink bug, cutworm, mealybug, and scale. Only one application of chlorpyrifos is allowed per season. Chlorpyrifos can be phytotoxic, so avoid applications after budbreak. Agricultural use has been banned or in the process of being banned in several states.

Nymphs

Limited information is available on the threat that the immature stages of SLF (nymphs) pose to grapevines. In general, low populations of nymphs are observed in vineyards and often occur when high numbers of eggs were deposited on the vines and posts in the fall. The nymphs are susceptible to a broad range of insecticides, including those that might be used for Japanese beetle. It is still important to monitor for populations of nymphs in your vineyard and apply treatment as needed. In some cases, spot treatments may only be needed for dense populations of nymphs (i.e., more than 10–50 per vine). Nymphs have not been observed reinfesting vineyards like adults do, so typically only one application of insecticide is necessary (if at all). Residual activity is not needed for the nymphs, so short-acting compounds (e.g., zeta-cypermethrin, malathion, carbaryl) are suggested.

Table 5. Insecticides labeled use in grapes or vineyards in Connecticut.

Active Ingredient	Representative trade names	Chemical class	Stage	Comments/Notes
Acetamiprid	Anarchy 70 WP, Assail 30 SG, Arvida, Azomar, Omni brand	Neonicotinoid	N, A	Restricted; applied foliar spray, maximum applications 2/year, found less effective for SLF
Beta-cyfluthrin	Baythroid	Pyrethroid	N, A	Restricted. Excellent control and residual (up to 2 weeks) activity
Bifenthrin	Bifenture EC, Brigade 2 EC, Aceto Bifenthrin 2 EC	Pyrethroid	N, A	Restricted; excellent control. 2(EE) label for SLF in NY; *do not apply Brigade within 30 days harvest*
Carbaryl	Carbaryl 4L, Sevin 4F, Sevin XLR PLUS, etc.	Carbamate	N, A	Excellent control, good residual activity; these labels for commercial use only
Chlorpyrifos	Lorsban Advanced	Organophosphate	Eggs	Restricted; only apply prior to late budbreak, once per season, *do not apply within 35 days before harvest*.
Dinotefuran	Scorpion 35 SL, Venom Transtect 70 WSP (24c)	Neonicotinoid	A	Restricted; foliar spray, soil drench, Excellent control
Fenpropathrin	Danitol 2.4 EC, Tame 2.4 EC	Pyrethroid	N	Restricted
Imidacloprid	Admire Pro, Prey 1.6, Imidacloprid 2F	Neonicotinoid	N, A	Restricted, foliar broadcast or directed spray
Indoxacarb	Avaunt, Avaunt Evo	Oxadiazine	N, A	Do not apply more than 0.22 lb ai of indoxacarb products per acre per year or more than 2 applications per season, found less effective for SLF
Malathion	Malathion 8F Malathion 5 EC	Organophosphate	N, A	Injury may occur to grape berries when applications are made after bloom, excellent control, knockdown only
Paraffinic Oil	JMS Sylet Oil, Omni Supreme Spray	Mineral Oil	Eggs	Dormant application, good control, not meant for grapes for fresh market
Phosmet	Imidan 70-W	Organophosphate	N, A	Found less effective for SLF
Soybean Oil	Golden Pest Oil Spray	Oil	Eggs	Dormant application, good control
Spinosad	Entrust SC, Conserve SC	Spinosyn	Eggs	No control data
Thiamethoxam	Actara, Platinum, etc.	Neonicotinoid	N, A	Restricted (Do not exceed 0.109 lb ai of foliar applied product per acre per growing season)
Zeta-cypermethrin	Mustang Maxx 0.8 EC Hero (w/ bifenthrin)	Pyrethroid	N, A	Restricted, excellent control, knockdown only, Hero has 2(EE) labels for SLF in DE, MD, NJ, PA, VA, WV

In Connecticut, all neonicotinoid insecticides are restricted use. Product may be used if the product is registered for the site and purpose of use listed in the label (e.g., for grapes). For the stage: N = nymph, A = adult. Efficacy and residual activity based on available trials in Pennsylvania. Note: Except for oils, toxicity for listed insecticides to bee is high or extremely high. The listing of any products is not an endorsement or specific recommendation of the product or company. Other products with the same active ingredient should work the same way, but they may have different rates or formulations.

Adults

Adults will most likely appear in your vineyard beginning in late August, but they could arrive as early as late July. Many of the same insecticides that are effective at killing the nymphs are also good at controlling the adults: dinotefuran (Scorpion, Venom), imidacloprid (Admire Pro), beta-cyfluthrin (Baythroid), bifenthrin (Brigade, Bifenture), fenpropathrin (Danitol, Tame), thiamethoxam (Actara, Platinum), carbaryl (Carbaryl, Sevin), and zeta-cypermethrin (Mustang Maxx, Hero). In general, longer-residual products during the heaviest period of reinfestation work better, which tends to be in September. Be mindful of preharvest intervals (PHIs) on the labels and your harvest date. Pyrethroids have the longest residual activity evaluated to date. Closer to harvest, you may need to apply products with shorter PHIs, which generally don't have long residual activity for SLF. Therefore, these products may require repeated applications for adequate control (Table 2), but some products have restrictions on total active applied or number of applications per season. Remember that SLF is primarily a pest on the edge of the vineyard—only treating the edge of the vineyard (the first 50 feet) can be just as effective as treating the entire vineyard. A modified sprayer or cannon sprayer could be used to only treat the edge of the vineyard for SLF, which would save time and reduce insecticide input. In 2020 Pennyslvania studies, a cannon sprayer (CIMA Cannon Spray Head, BDI Machinery, Macungie, Pa.) to be equally effective at killing SLF with a border sprayer, compared to spraying the entire vineyard with an over-the-row sprayer. Before applying any insecticide, **you must read and follow the label** to be sure you are making a legal application with timings and rates, and have appropriate personal protection equipment (PPE), reentry intervals (REIs), preharvest intervals, and warnings for pollinator protection. Visit www.CDMS.net to check for the most up-to-date label information. While SLF have only one generation per year, you should rotate the use of different insecticide classes or modes of action for SLF throughout the season to reduce the likelihood of insecticide resistance. Be mindful that you are preventing insecticide resistance for not only SLF but also other common vineyard pests such as fruit flies. The use of pyrethroids and other broad-spectrum insecticides may flare up secondary pests such as mites, leafhoppers, or aphids. Additional products have been tested in PA against SLF and have not shown great efficacy. Some are listed in Table 2 and include the following active ingredients: indoxacarb (Avaunt), phosmet (Imidan), Assail (acetamiprid), and chlorantraniliprole (Altacor) (not listed).

Postharvest Management

After mating and laying eggs in the fall, SLF have been observed to become less active and eventually die. Typically, no more SLF are observed in vineyards after the first week of November. After harvest, it is likely that you will continue to have SLF populations in your vineyard, and we recommend postharvest insecticide applications. In this case, you can use products with a longer residual for longer control and reduce the number of applications you need. After egg masses have been laid (late November), scout your vineyard and surrounding wood edge for egg masses to identify potential hotspot areas for nymphs next year.

Building and Tasting Room Control

Many wineries that have outdoor tasting areas have reported nuisance problems from SLF and complaints from customers. Typically, this only occurs at problematic levels during the active flight period (mid-

September). If you can identify a main source of the SLF population (e.g., a nearby tree), treating this source with insecticide could alleviate the flight activity. Because this flight period is relatively short, a long-lasting pyrethroid (e.g.,
bifenthrin or beta-cyfluthrin) could be used on the plants or structures where SLF are found crawling or flying. Keep in mind that you must use insecticides labeled for this purpose. Some wineries have also utilized exclusion netting or shade cloth as a way to keep SLF out of the outdoor tasting areas with good success. In general, it is a good practice to encourage customers to be aware of SLF and check their vehicles and belongings before they travel so that they do not bring SLF elsewhere.

Summary

1. SLF may cause significant damage to grapevines, including increased susceptibility to winter injury, reduced carbohydrate and nitrogen levels in root tissues, and reduced yield. The degree of damage is likely dependent on the level of SLF infestation, overall health of the vine, winter conditions, and other stressors placed on the vine.
2. Adult SLF are the most problematic in vineyards and arrive from late August through November. Nymphs are typically not problematic and should only require one insecticide application, if any.
3. If you don't yet have SLF or only have low populations of SLF, monitor tree-of-heaven and other highly desirable hosts (e.g., wild grapevines, black walnut) surrounding your vineyard to find potential sources of SLF.
4. If SLF is present in large numbers (more than 10–20 per vine), consider applying insecticides or utilizing exclusion netting. Finding only a few SLF throughout the vineyard may not warrant a spray. Targeted insecticide sprays at the border of the vineyard (~50 feet into the vineyard) are effective at reducing SLF.
5. After applying insecticides, continue to monitor and spray as needed. SLF are susceptible to many insecticides, but they quickly reinvade your vineyard from the surrounding landscape, making them difficult to control.
6. If you had significant feeding from SLF in the summer or fall, check bud mortality and consider leaving more buds on the vine when pruning to avoid winter injury.

We encourage you to stay up to date by checking the CAES and Penn State Extension websites further information and updated versions of this fact sheet. Research on this important pest is ongoing, and information may change as we learn more about this insect.

Stay up to date by visiting:
https://portal.ct.gov/CAES/CAPS/CAPS/Spotted-Lanternfly---SLF

Spotted Lanternfly (psu.edu)

USDA APHIS | Spotted Lanternfly

This fact sheet is largely based on the SLF Management in Vineyards Factsheet produced by Penn State Extension in collaboration with the Pennsylvania Department of Agriculture and the United States Department of Agriculture. Some elements, especially Connecticut distribution, control, and table of insecticides, revised for Connecticut by Dr. Kirby Stafford and Gerda Magana, CAES.

Original prepared by Heather Leach, Michela Centinari, David Biddinger, and Greg Krawczyk and *last updated by Heather Leach and Michela Centinari, April 2021*. Produced by Ag Communications and Marketing.

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