Timely Viticulture

- Dormant - Pre-Bloom - Bloom - Post Bloom - Mid Season - Pre-Harvest - Harvest - Post Harvest - Dormant

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Spotted Lanternfly (SLF) I—Background

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The Spotted Lanternfly (SLF) is not currently a problem in Maryland but has been verified in Pennsylvania, New Jersey, Delaware and Virginia; so it is just a matter of time. The full impact on vineyards and wine quality potential of this newly introduced pest is unclear. What is clear at this early junction is that (1) grapevines are a favorite host of this pest and, (2) its feeding damage coupled with winter cold stress can cause vine death. At ground zero in Pennsylvania, feeding from this pest, combined with the moderately cold winter of 2017-18, destroyed at least 2 significant commercial vineyards (6 acres and 30 acres).

This *Timely Viticulture* was created to give growers some background on the SLF. The subsequent TimelyVit will address some potential management options. Regretfully, it must be stressed from the beginning that because this is a "newly introduced" pest, very little is currently known of its biology, but it has the potential to be a very significant challenge.

Monitoring for Spotted Lanternfly in Maryland

Although SLF has not been detected in Maryland, early detection will aid in quarantine and management efforts. Be diligent in scouting for this pest, especially along tree lines.

If you believe you have identified a SLF (please see details below) in Maryland:

- Contact your local University of Maryland Extension Office or the Maryland Department of Agriculture with the location and host ASAP. (MDA (410) 841-5920; DontBug.MD@maryland.gov)
- For confirmation, carefully collect a specimen of all life stages found in a clear rigid container. Freeze to kill or place in an alcohol or vinegar solution (hand sanitizer or white vinegar works well) and submit specimens to your local extension office or MDA.
- If you cannot collect a specimen, submit a high-quality photograph to your local extension office.

Background and Hosts

- The Spotted Lanternfly, *Lycorma delicatula*, is an invasive plant hopper that was introduced from Asia.
- It was first discovered in Berks County, PA, in 2014 and despite major quarantine efforts, it has spread rapidly to the surrounding 13 counties, as well as New Jersey, Delaware, and Virginia.
- This pest is native to China, India, Japan, and Vietnam. It was introduced into Korea where it has been recorded to be a pest on 65 different plant species (25 of these are known in Pennsylvania).
- SLF has a very wide host range and attacks many fruit crops including grapes, apples, and stone fruits; it has the potential for great impact on these crops, as well as ornamentals and hedgerow plants.

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Spotted Lanternfly (SLF) Part I

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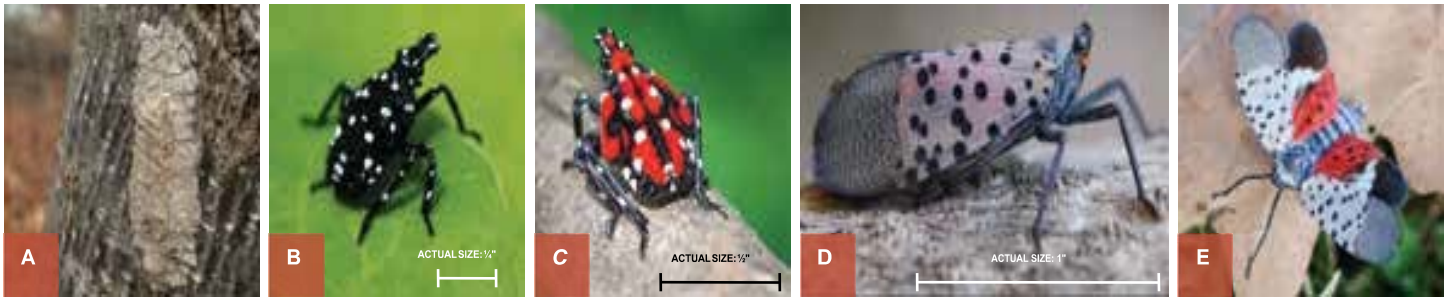
Mid-Season Thru Harvest

- The Tree of Heaven (TOH—an invasive tree), *Ailanthus altissima,* is preferred by adults.
- Eggs have been found on vehicles and other objects, so it is very easy for this pest to be moved to another area (**a "hitchhiker"**).



Identification

- Newly laid egg masses are about 1" long with a grey "mud-like" covering over the eggs which, cracks over time (figure A).
- Older egg masses appear as 4-7 columns of 30-50 brownish seed-like deposits on the trunk, in a mass that is roughly 1" long (figure F).
- Eggs are commonly laid on the Tree of Heaven, but can be laid on inanimate objects such as rocks, vehicles, etc.
- Young immature stages (1-3 instars) are smaller than a dime and black with white spots (figure B)
- The last immature stage (4th instar) develops bright red patches and are over 1/2" long (figure C).
- The adult SLF is approximately 1.5" long and 1/2" wide and has four wings which fold across their back while resting (figure D).
    - ◊ The forewings are grey with black spots; the wing tips are outlined in grey (figure E).
    - ◊ The hind wings have contrasting patches of red and black separated by a white band (figure E).
    - ◊ The legs and head are black; the abdomen is yellow with broad black bands (figure E).

Life cycle

- Adult females lay eggs in the fall; they cover their newly laid egg masses with a grey pitch like substance (figure A) that protects them.
- Eggs are commonly laid on the Tree of Heaven, but can be laid on grapevines, other hosts, and objects such as rock, furniture, vehicles, etc.
- SLF overwinters as eggs; adults are not known to overwinter.
- After hatching in late April or early May, the nymphs will move off the Tree of Heaven and search for other hosts in the spring.
- Life stages include eggs, 5 instar nymphal stages (do not fly), and adults.

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- ◊ Early nymphal stages move to the vineyard in late spring; later stages have been noted in vineyards in mid summer.
- ◊ All stages have been noted in vineyards at the same time.

- Adults typically appear in late August through September, are mobile (can fly), and can be active through early winter.
- Currently only 1 generation per season have been documented in the region.

SLF as a vineyard pest

- All nymphal stages can feed and therefore cause damage to grapes and susceptible crops.
- Nymphs and adults are **vascular feeders** (phloem, xylem), feeding primarily on trunks, cordons and canes.
- SLF typically do not feed on the foliage or the fruit; they may be found on/in the clusters seeking warmth.
- At night they migrate to ground level and then crawl back up the next morning.
- Early in the fall the adults will congregate mainly on stems. (figure G)
- Honeydew secreted by the insects can stick to leaves and fruit and can lead to patches of sooty mold, which can cause secondary problems and reduce fruit quality (figure H).
- Feeding damage and mold will attract ants, yellow jackets, and hornets (so caution is advised).
- It is not know whether the presence of insects in the must can taint the wine.
- As was stated previously, feeding from this pest, combined with cold winter temperatures, can cause major damage or death to grapevines.

Resources:

- https://extension.psu.edu/spotted-lanternfly
- https://extension.umd.edu/sites/extension.umd.edu/files/_docs/programs/hgic/MDA-SLF-Pest-Alert-web.pdf
- http://mda.maryland.gov/plants-pests/Pages/spotted-lantern-fly.aspx
  - ◊ MDA (410) 841-5920; DontBug.MD@maryland.gov

To watch a video of SLF on grapevines: https://www.youtube.com/watch?v=zWC-ETMVNkY&feature=youtu.be

Sources:

- Penn State University Faculty: Julie Urban, Erica Smyers, Emelie Swackhamer, Heather Leach, Michela Centinari, Dave Biddinger, Greg Krawchek, Michael Saunders.
- Penn State University Website https://extension.psu.edu/spotted-lanternfly

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