How to Build a New Style Spotted Lanternfly Circle Trap

It is almost time to use traps or sticky bands to protect your trees from spotted lanternflies. Get ready now so you can trap lots of spotted lanternflies safely.

Circle trap secured to a tree. Photo: Emelie Swackhamer, Penn State

The spotted lanternfly (SLF) is an invasive insect that feeds on grapevines and trees. There are a variety of options for SLF management, but one way to kill a lot of SLF without using insecticides is to trap them. The immature lanternflies (called nymphs) are often blown out of the canopy of the trees where they are feeding. Nymphs then walk to the trunk of trees and climb back up to start feeding again. We can take advantage of this predictable behavior of the nymphs by using traps to catch them as they climb up trees.

Many people in SLF infested areas have been using sticky bands wrapped around trees to capture nymphs. While this method can successfully capture many SLF nymphs it can also unfortunately occasionally capture birds and other creatures. If you are planning to use sticky bands this year, you should build a raised guard of wire or screening around the band to prevent other creatures from getting stuck on them. Penn State Extension has a short video that shows how to properly use sticky bands.

Recent research has shown that an entirely different kind of type of trap is also very effective and can dramatically reduce the chances of capturing other creatures. This new style trap is made of plastic-coated insect screening and does not use any sticky material at all. It is basically a tunnel that SLFs walk into. When they move upward in the trap, they end up in a dead-end collection container where they die. Currently, you can purchase this type of trap made specifically for SLF from one commercial source. Some people have been modifying similar commercially available traps designed for other insects to catch SLF. Other people have been making their own SLF traps from scratch.

This type of trap was originally designed to collect pecan weevils that also climb up the trunks of trees. They can be purchased commercially (search for circle weevil traps.) Pecan weevils are quite small, and the design of the pecan weevil trap can be modified to include a larger collection container to allow capture of high numbers of SLF. The collection container can be a repurposed item such as a clean peanut butter jar or even a sturdy plastic bag. A sturdy plastic bag that can be removed and replaced with a fresh one is a good way to go because you do not have to empty a container of rotting, stinky, dead insects. It also allows you to replace the old, dirty bag with a clean bag that will transmit daylight. SLF tend to move upward towards the light. Additionally, bags will begin to tip over as they get full, moving captured insects away from the entry port, which keeps the area free so more SLF can crawl in.

Some creative people have built similar traps and have devised a range of methods that work. Building these traps is a good project for anyone who wants to destroy SLF, save money by using materials they might already have on hand and practice their engineering skills. It could be a good project for families who are at home this spring due to the COVID19 pandemic.

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You can use the trap on any infested tree. Nymphs of SLF are often found on *Ailanthus altissima*, commonly known as tree of heaven. Other trees to consider are walnut and willow. However, keep in mind that the traps will work best on trees with smooth bark. Bark with deep grooves may allow the SLF to crawl underneath the trap. The traps will probably work best to catch nymphs in spring and early summer.

To preserve the health of the tree that you are trying to protect, avoid using nails or wounding the green, living tissue underneath the bark. Only set up traps on trees on your property or where you have permission to do so. Also, remember to remove all parts of the trap at the end of the season.

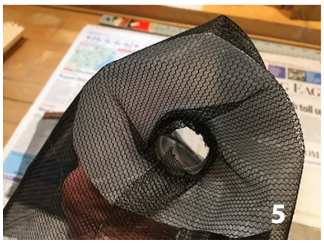
I built a SLF circle trap and want to share my method with you:

Materials

- 1 rectangle of window screen approximately 30" x 23" (plastic-coated screen works better than wire screen). For this demonstration, we used screening left over from a pop-up canopy. Adjust the screen size to fit your tree. The idea is to have the opening of the skirt go around the trunk as far as possible to get the SLF to enter the trap.
- 1 piece of wood approximately 11" x 1' x 0.5" (cut from wooden lath, a yardstick or even two paint stirrers duct-taped together can work)
- 1 piece of wood approximately 18" x 1" x 0.5"
- 32" of sturdy but bendable wire (you can cut this from a thin coat hanger)
- 2 tops of plastic milk jugs
- 1 one-gallon zip-type bag (with more for replacement as the bags fill up)
- Weather-proof, strong duct tape
- Staple gun with short staples (to attach the screening to the wooden strips)
- Office stapler (to tack the screening together)
- Hot glue gun
- 1 zip tie (to attach the zip type bag to the top of the trap)
- 1 piece of twine (to tie the top of the trap to the tree)
- A couple of push pins or a staple gun (to attach the bottom of the screening to the tree)

1. Cut the tops from two plastic milk jugs. 2. Attach them together with hot glue and/or duct tape.

3. Fold insect screening and cut a small half-circle out at the top. 4. Attach top of the cut half-circle of the insect netting with hot glue. This is the hardest part—you have to tack it and wait until the glue dries and then tack it again, working slowly all the way around.



5. A section of the screening should overlap to keep the insects from escaping. 6. If you are using flexible screening that can't support itself, use hot glue to attach the screening to the plastic top.

7. Staple the longer piece of wood to the netting and to the plastic top. 8. Fold the plastic top piece to direct the top of the tunnel more horizontal. Crease the plastic of the other top to make the top of the tunnel sturdy.

9. Staple the shorter piece of wood to the netting. Tack the top part of the seam with an office stapler so the SLF can't escape through the seam.

10. Use an office stapler to attach the wire to the side of the netting that has the shorter piece of wood. This will hold the outer part of the skirt away from the tree trunk and keep the entrance to the trap open. You will have to adjust the wire to make it fit the tree. 11. Tie the top of the trap to the tree trunk. Use push pins or a staple gun to secure the bottom edge of the netting securely against the tree.

12. Cut along the edges of the zip-type bag just enough to slip it over the plastic top. Secure it with a zip-tie. 13. The finished trap on a tree. Make sure the back of the screening is tight against the bark of the tree and the tunnel you've built is not blocked anywhere.

Additional information

How USDA researchers modified pecan weevil traps to catch SLF

How to make a pecan weevil trap

Using Traps for Spotted Lanternfly Management

More information about Spotted Lanternfly

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