Spotted Lantern Flytrap

Team: Batties **Clients:** Cornell CALS Extension, E&J Gallo Winery, and National Grape

Problem statement

Up to 400 SLF can feed on each vine in a vineyard (Cornell CALS, n.d.) Over time, the repetitive feeding can cause up to 90% yield loss (Pfeiffer et al, 2022).

Impact

As long as SLF continue to feed on grape vines, the grapes will be less likely to survive to harvest. Narrowing our focus to defending vineyards allows us to create an industry-specific solution.

Proposed direction

Concept: Spotted Lantern Flytrap

What it is: Attract with bait and capture: We are exploring sticky surface capture (insects stick to an adhesive), low-power fan containment (a fan pulls insects into a collection chamber), or soap-water capture (use of a liquid reservoir).

How it would be used:

- Hang traps on trees
- Check and clear out traps periodically

Why it's better than the status quo:

- There are too many SLF to try and kill by hand.
- There will be less chances of contamination later on.

End-of-semester proof-of-concept: A single one-way entrance chamber with bait inside will test whether SLF can be reliably attracted and captured using passive bait plus mechanical containment.

Key risks / unknowns

- Capturing pollinators: Many are already endangered. We will test our bait outside to see what is attracted to it.
- SLF ignoring the bait: If they prefer the grapes, our traps will not work. We will place various baits (including grape vines) in front of SLF and seeing which they choose.
- SLF escaping the trap: This will negate our goal. We will add SLF and SLF-sized objects to the prototype to test this possibility.

Questions for the client

1. **Are there substances found to be more attractive to SLF than grape vines, and are they attracted to the scent, the sight, or something else?**
   Decision affected: We need to know what the best attraction mechanism is for our flytrap.
2. **Which other insects are attracted to the same items as SLF?**
   Decision affected: This will also inform bait used.
3. **What is the size/weight of the SLF when they enter the vineyards?**
   Decision affected: We would like to ensure that our nets are the right size.

References

- Pfeiffer, D.G. et al. (2022) Spotted lanternfly in virginia vineyards: Lycorma Delicatula (white) (Hemiptera: Fulgoridae). doi:10.21061/ento-323np.
- Spotted lanternfly damage. Cornell CALS. (n.d.). https://cals.cornell.edu/integrated-pest-management/outreach-education/whats-bugging-you/spott ed-lanternfly/spotted-lanternfly-damage