

Preventing SLFs from landing on grapevines

Team: Grape Guardians.

Clients: Cornell CALS Extension / E&J Gallo Winery / National Grape

Proposed statement

The problem we are trying to address is that SLFs tend to land on grapes during their life cycle. This is backed by the fact that there's an average of 9.3 SLF per vine when looking at vineyards in areas infested with SLFs [1]. Additionally, a 2025 study estimates that in three years, there will be an 8% decrease in yield and a 10% decrease in price of grapes due to a drop in quality [2]. Both of these statistics are major issues, as there are no current ways to separate SLFs from harvested grapes, so we want to prevent the SLFs from getting to the vines in the first place.

Why it matters:

- Crucial to limit impacts of SLFs on the grape industry - SLFs harm profit and economic viability
- SLFs live longer when eating grapes - preventing access could help to inhibit the spread of SLFs.

Proposed Directions:

Concept A : Light trap

Description and Use : Place large lights at the edges of grape fields to attract SLFs. On the light, there would be a one way trap to prevent the SLFs from leaving.

Why it's better than the status quo:

- **Reduces chemical use:** Unlike insecticide spraying, the light trap doesn't use chemicals, protecting grape quality, beneficial insects, and the surrounding environment.
- **Draws SLF away from vines:** By Attracting SLF to perimeter lights, it protects grape plants directly.

End-of-semester proof-of-concept: A prototype showing the full function of the trapping mechanism.

Risks:

- SLFs may be able to leave the trap or avoid entering it. (could be tested in controlled conditions)
- Lights may not be effective during daylight. (test for SLF capture count during the day vs night)
- Enough SLFs don't go to the lights and the issue persists.

Questions:

1. **What kinds of lights attract SLFs the best (i.e. the most effective lumen or wavelength range)?**

Decision affected: Affects the kind of light we would use for the light trap.

2. **Do SLFs tend to only fly near light sources or land on them directly?**

Decision affected: Affects the range of our trap.

3. **Are there other insects (the kinds attracted to light) that need to access the grapevines for them to grow properly?**

Decision affected: Affects how much we focus on allowing insects that aren't SLFs to escape the trap.

References

- [Source 1](#)
- [Source 2](#)