

Guardians of the Grapevine Client Pitch

Team: Guardians of the Grapevine

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

Problem Statement: Commercial vineyards in the NY region are struggling with spotted lanternflies infestations that reduce fruit quality and weaken vines. Pesticide use risks contaminating grapes and fruit washing is impractical since around 50% of mechanically harvested grapes turn into “grape soup” which reduces harvest yield. Growers need a non-chemical control method that protects harvest efficiency and fruit quality.

Impact: There would be lesser grape contamination and reduced pesticide use. This leads to lower crop loss and increased marketability due to organic practices and better taste.

Concept A: Vibrating Zapper Column

What it is: A tall metal column vibrates at 60hz. This column has a retractable faraday cage that can drop to the floor and a passing electric current would zap all lanternflies inside.

How it would be used:

- Placed between vineyard rows
- Cage drops and zaps when flies enter
- SLFs are attracted to 60 Hz frequency

Why it's better than the status quo:

- No chemicals or manual labor
- No contamination or fruit bruising
- Can function during growing season

Proof of Concept: We can build a small-scale prototype and test it in controlled outdoor conditions using substitutes of live insects and creatures.

Concept B: Bat Box

What it is: A wooden box designed to attract the natural predators of spotted lanternflies using UV light cues and interior thermal insulation.

How it would be used:

- Installed at vineyard perimeters
- Increase bat population at vineyard
- Operates during peak infestation

Why it's better than the status quo:

- No chemicals used
- System requires low maintenance
- Builds ecological pest control

Proof of Concept: We can install a prototype in a local forest and safely monitor bat population.

Key Risks

- Electrical safety can be a problem in outdoor environments
- Possible harm to friendly and non-target insect species
- Unsure how reliably lanternflies respond to 60 Hz frequency

We will de-risk using field testing and asking experts about electrical regulations

Questions for Client

- 1) What percentage reduction in SLFs justifies the success of the new system?
 - Determines cost targets and amount of devices placed in vineyard
- 2) What regulation constraints exist for unmonitored electrical devices in vineyards?
 - Impacts electrical system design and safety requirements
- 3) What spacing constraints exist between vineyard rows and its perimeter?
 - Affects the size and placement of the zappers and the bat boxes