



## Animal and Plant Health Inspection Service (APHIS)

### Spotted Lanternfly (SLF) Research Priorities List

The [Spotted Lanternfly \(SLF\) 5-Year Strategy \(Strategic Plan\) for Fiscal Years 2024-2028](#) outlines the national strategy for the future direction of the SLF program. Over the next 5 years, Federal and State partners will work to limit the advancement of the pest and further scientific research toward the development of tools and pest management options.

**Goal 1:** Effectively limit the advancement of SLF and efficiently respond to its introduction within Federal and State authority and resource availability.

**Goal 2:** Support continued scientific research towards practical management and risk mitigation.

**Goal 3:** Establish a consistent National- and State-level outreach message and educational campaign aimed at the public and industries at risk for SLF dispersal.

### Purpose

The SLF Program developed the Research Facilitation Process (RFP) to support Goal 2 of the SLF Strategic Plan. Employees from PPQ and State SLF operations, along with members of the National Plant Board, met as participants of the RFP Needs Identification Group to identify areas where SLF research is needed to support the SLF national strategy. The Needs Identification Group developed the SLF Research Priorities List to convey research priorities and enhance focus on deliverables that will meet operational needs.

APHIS will prioritize SLF projects that align with the SLF 5-Year Strategic Plan and SLF Research Priorities List. Research groups participating in the RFP Research Coordination Group are encouraged to use the SLF Research Priorities List when considering funding SLF research or requesting research proposals. The SLF Research Priorities List will be updated as needed.

Coordinated effort between Federal and State partners, universities, and research institutes will enhance transparency and communication, eliminate duplicative research efforts, and improve the timely delivery of tools, methods, and practical pest management critical to the program.

For more details on the SLF Research Facilitation Process, please refer to the official document provided by APHIS: [Spotted Lanternfly \(SLF\) Research Facilitation Process \(RFP\)](#).

### Category Ranking

Research categories are ranked from highest to lowest priority. Research needs within each category are listed in order of priority.

## SLF Research Priorities List

Identified SLF research needs are listed below in order of priority. Examples provided are not all-inclusive.

<b>I. Control and Management Research</b>	
1	<b>Biological control</b> (e.g. parasitoids, <i>Beauveria bassiana</i> , etc.)
2	<b>Identifying alternative treatment options for sensitive sites</b> (e.g. near water or protected wildlife, reduced rates, etc.)
3	<b>Improve chemical treatments for heavy populations of SLF</b>
4	<b>Impact of tree of heaven (<i>Ailanthus altissima</i>) removal</b>
5	<b>Non-chemical treatments</b> (e.g. insecticide-treated netting in nurseries and ports to keep shipments free of SLF, etc.)
6	<b>Safer treatment options and/or tools</b> (e.g. heat treatment, prescribed burns, etc.)
7	<b>Verticillium wilt applications for tree of heaven</b>
8	<b>Influence of late season dinotefuran treatments on SLF populations</b>
9	<b>Management strategies from China and Korea</b>

<b>II. Survey, Monitoring, and Detection Research</b>	
1	<b>Improving trap and lure/attraction technology</b> (e.g. sticky bands, circle traps with mesh bags, host attractiveness, traps with insecticide-treated netting, modifications to lampshade traps, etc.)
2	<b>Optimizing survey protocols</b> (e.g. investigating lampshade traps as a survey method, etc.)
3	<b>Developing eDNA protocol and uses</b> (e.g. point detection, verification, accuracy, outcomes, other applications, etc.)
4	<b>Spectral changes in tree foliage with SLF feeding</b>
5	<b>Artificial Intelligence (AI) technology and/or cameras for detection</b>
6	<b>Predictive models to drive survey and monitoring operations in the field</b>
7	<b>Determine best tool(s) for detection and delimitation</b>
8	<b>Potential of lampshade traps to be used for SLF detection</b>
9	<b>Effect of lampshade traps on SLF</b> (e.g. effect of lampshade traps on number of SLF egg masses laid in tree canopy, correlating number of egg masses in traps with management and/or control, etc.)
10	<b>Compare traps without lures to traps with methyl-salicylate in vineyard populations</b>

### III. Behavior Research

1	<b>Dispersal and movement</b> (e.g. host preference, alternate hosts, western host species, aggregation, etc.)
2	<b>Behavior predictors</b> (e.g. stimuli causing population dispersal, attraction to non-plant structures and machinery, etc.)
3	<b>Population factors and dynamics</b> (e.g. cause of population decline, predators, pathogens, anticipating population cycling, etc.)
4	<b>SLF development and Degree Days</b> (e.g. day length, reproduction and maturation timeline, mating and oviposition timing, geographical differences, etc.)
5	<b>Modeling phenology and SLF life cycle</b>
6	<b>Tracking SLF populations using fluorescence, Forward Looking Infrared (FLIR) optics, and/or nocturnal monitoring technology</b>

### IV. Impact Research

1	<b>Impacts on growth of grapes</b>
2	<b>Impacts on quality of products of grape industry</b> (e.g. flavor impacts, taint and/or toxicity for wine and/or juice, trade impacts with Canada and/or the European Union, mechanical harvesting, etc.)
3	<b>Implications of SLF presence on corn and soybean harvest</b>
4	<b>SLF impacts on other crops</b> (e.g. hops, basil, citrus, avocado, kiwifruit, almond, etc.)