USDA Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Plant Protection Act Section 7721

FY 2022 Implementation Plan

Plant Pest and Disease Management and Disaster Prevention Programs and the National Clean Plant Network

Introduction

Under the Plant Protection Act Section 7721 (PPA 7721), APHIS annually makes funds available to cooperators – ranging from state governments, universities, non-profit institutions, industry, and tribal nations – to support projects that protect specialty crops, other agricultural production, nursery systems, forestry, and other natural resources from harmful and exotic plant pests and pathogens. It authorizes permanent funding for the National Clean Plant Network (NCPN) and the Plant Pest and Disease Management and Disaster Prevention Program (PPDMDPP), $75 million per year in FY 2018 and beyond, with at least $5 million of the funding to support NCPN annually. This funding authority is now codified in PPA 7721.

This document describes goals, objectives, and strategies to focus suggestions for funding projects through the implementation of the PPDMDPP section of PPA 7721. Projects are organized around six goal areas: enhancing plant pest/disease analysis and survey; targeting domestic inspection activities at vulnerable points in the safeguarding continuum; increasing identification capacity and enhancing and strengthening pest detection technology; safeguarding nursery production; conducting outreach and education; and enhancing mitigation and rapid response capabilities.

Project suggestions for the PPDMDPP must clearly align with one of the six goal areas. Projects submitted to the wrong goal area will not be considered for funding. Suggestions must also provide detailed information on project methodology, activities, and milestones, as well as, a detailed budget that includes information on all cooperators and justification for funding.

The NCPN, also authorized under PPA 7721, focuses on establishing clean plant center networking, diagnostics, therapeutics, and foundation plantings. This document describes the NCPN goals, objectives, and strategies; however, the NCPN provides an independent request for proposal process for handling applications seeking NCPN support.

As required by PPA 7721, the Animal Plant Health Inspection Service (APHIS) sought input from the National Plant Board and state departments of agriculture. APHIS also consulted its Cooperative Agricultural Pest Survey (CAPS) cooperators, the Specialty Crop Farm Bill Alliance, industry organizations, and other governmental and non-governmental stakeholders.

Dedicating resources to strengthen pest management and eradication programs supports the APHIS Plant Protection and Quarantine (PPQ) strategic plan. To achieve the mission, PPQ has established three strategic goals that include:

- Strengthen PPQ's pest exclusion system;
- Optimize PPQ's domestic pest management and eradication programs; and
- Increase the safety of agricultural trade to expand economic opportunities in the global marketplace.

Six Goal Areas

Enhance Plant Pest/Disease Survey (Goal 1S) and Analysis (Goal 1A) – APHIS will fund surveys for multiple, high-risk, exotic pests in port environs, across pathways of introduction, and in specialty crop commodities, and other environments nationally. These surveys will provide

protection for small growers and nurseries and help owners avoid control costs through rapid and thorough detection of exotic pests that may threaten their operations. Also, under the analysis section of this goal, APHIS will fund projects that compile, synthesize, or evaluate data to inform or enhance risk and pathway analysis, surveillance methodology, or resource prioritization.

Target Domestic Inspection Activities at Vulnerable Points in the Safeguarding Continuum (Goal 2) - APHIS will support domestic inspection activities at high-risk sites like warehouses and parcel facilities, increased inspections for regulated articles moving interstate, and utilizing trained canine detection teams to improve detection capabilities. Developing these cooperative efforts with state agriculture regulatory agencies will help minimize impacts to producers and distributors of agricultural commodities.

Pest Identification and Detection Technology Enhancement (Goal 3) – APHIS will support the ongoing development of improvements in pest identification and detection. This includes improved identification capacity and taxonomic understanding of broadly impactful groups of organisms, taxonomic support for surveys targeting high consequence pests, and the development of pest detection technology. *This goal shares the cross-goal objective of the survey goal to detect and accurately identify new pest threats faster, allowing for more timely response thus minimizing impacts to small producers*.

Safeguard Nursery Production (Goal 4) – APHIS will support activities that help producers and distributors mitigate pest risks, reduce operational costs, and enhance the value of nursery stock they produce. Activities include developing science-based best management practices and risk mitigation practices to exclude, contain, and control regulated pests from the nursery production chain and developing and harmonizing audit-based nursery certification programs.

Outreach and Education (Goal 5) –APHIS will work to engage the public in early detection efforts by strengthening existing volunteer networks. APHIS will also support efforts that can lead to changes in behavior among the public and the regulated community, enhancing efforts to prevent the introduction or spread of high-consequence pests into and throughout the United States. Interested producers and distributors could benefit from training on recognizing and reporting exotic pests, managing the supply chain to safeguard against pests, employing best practices for safeguarding, as well as other activities.

Enhance Mitigation Capabilities (Goal 6) –APHIS will provide technical and emergency assistance prior to, during, and immediately following the development of a plant health emergency. This will be done by supporting the development of New Pest Response Guidelines (Action Plans), the implementation of these guidelines for new pest incursions, as well as strengthening rapid response capabilities. Larger growers can sometimes “absorb” the cost of quarantine actions and loss of business. Smaller growers are often challenged to stay in business after being under quarantine for a season. PPA 7721 funds will provide for and help develop small, quick, and effective mitigation options to reduce disproportional impacts to small growers, releasing them from quarantine more quickly and allowing them to get back into production.

National Clean Plant Network
The NCPN is included in PPA 7721 as a procedurally distinct initiative. Healthy, clean planting stock is a critical component to the cost-effective production of horticultural crops and is necessary for U.S. agriculture to remain internationally competitive and economically viable. The process of creating disease-free planting stock takes many years and can be cost-prohibitive for individual growers. Through NCPN support, clean stock plants will be both readily available and provided at low cost to recipients, including small to mid-sized, local agricultural industries, such as family-owned plant nurseries and growers.

Partnership and Collaboration
Many organizations play a crucial role in protecting our Nation's agriculture, environment, and natural resources from plant pests and disease. APHIS works closely with numerous Federal and, State Governments, Tribal Nations, industries, academia, and foreign collaborators to develop and implement scientifically-sound approaches to pest detection, surveillance, and eradication. APHIS is responsible for coordinating the identification and prioritization of plant pest threats of national interest, identifying survey protocols, prescribing pest diagnostic procedures, confirming the taxonomic identity of plant pests, administering cooperative agreements to cooperators to carry out pest and disease detection surveys, ensuring the timely recording and reporting of survey results, and coordinating regulatory responses to pest and disease outbreaks.

Other agencies within USDA that also have a role include:

- National Institute of Food and Agriculture (NIFA) - provides outreach to and training for first detectors, oversees the National Plant Diagnostic Network, and conducts diagnostic response exercises for pests of regulatory significance. When a pest cannot be eradicated, NIFA, through its Land Grant University system, may provide research to support long-term control efforts.
- Agricultural Research Service (ARS) - conducts research, searches for biological control agents in foreign countries, and coordinates the development of certain high-priority National Plant Disease Recovery preparedness documents in response to Homeland Security Presidential Directive 9 (HSPD9) – Defense of United States Agriculture and Food. ARS also serves as a technical liaison to the Environmental Protection Agency (EPA) on pesticide issues via their Office of Pest Management Policy.
- U.S. Forest Service (FS) - manages pests (including survey activity) in national forests and coordinates similar efforts with state and private foresters.
- Risk Management Agency (RMA) - provides guidance for documenting good farming practices and crop insurance programs.

State departments of agriculture play a critical role by carrying out pest and disease detection surveys as part of the CAPS program. States also carry out specific pest and disease detection and delimiting surveys to support control and eradication programs. States often lead specific regulatory responses to new pests in accordance with APHIS national policy, typically as a joint command with PPQ under the Incident Command System.

Expanded and enhanced partnerships with plant industries and academia has created new opportunities for information sharing, coordinated pest and disease detection, and reporting activities. Collaboration and cooperation, based on well-established partnerships between plant

industries, state officials, academia, and PPQ, remains the catalyst for continued success. PPQ's partnerships are essential to the success of actions identified in this implementation plan, as well as future strategies.

Conclusion

By capitalizing on APHIS' existing pest detection and response programs and national surveillance system, the Agency will work to establish new levels of communication and coordination with the States, industry, and the public. APHIS' state plant health regulatory counterparts, departments of agriculture, Tribal representatives, industry, and other cooperators fully appreciate what it takes to eradicate, suppress, or manage a pest and disease outbreak, as they are our partners in carrying out emergency response programs. APHIS will continue to adjust to evolving plant pest and disease concerns; however, projects addressing pest of specialty crops will remain a high priority.

For FY 2021, the PPA 7721 program received submissions for nearly 900 projects, requesting over $110 million. Given the extremely competitive nature of the program, not all previously funded projects will continue to receive funding. Therefore, it is critical to provide detailed information on the project methodology, activities, milestones, and budget as well as how it closely aligns with an appropriate goal area.

Goal Area Guidance

PPA 7721 is organized into six goal areas. Each goal is described with specific objectives. In addition, there are specific implementation strategies, defined each year, that represent current thinking on specific activities aimed at meeting the objectives for each goal. Suggestions that include new and innovative strategies to meeting the objectives are encouraged.

Goal 1A – Analysis
This goal strives to enhance the gathering and analysis of all available existing data to make informed decisions efficiently and effectively. This includes the development of new and innovative data analytic approaches or algorithms to improve predictive modeling and surveillance efforts for exotic species. Goal 1A is not intended to fund experimental work, surveys/monitoring, or observational studies to generate data.

Goal 1A Objectives

Objective 1	Identify risk factors and high-risk pathways through analysis of available existing data.
Objective 2	Develop risk-based models and decision-support algorithms, approaches, or tools to reduce the arrival and establishment of exotic plant pest species.

Goal 1A Strategies
Strategy 1: Better define biotic and abiotic variables, detect patterns, and test hypotheses that improve the understanding of where an exotic pest may arrive or be able to establish and spread.

Strategy 2: Development or application of decision support algorithms, approaches or tools integrating data from various sources, for targeting high-risk areas for surveillance.

Strategy 3: Develop and implement data-sharing protocols to incorporate PPQ, multi-agency, and commercial data for risk analysis.

Strategy 4: Conduct evaluation of analytical and resource allocation techniques to find more efficient ways to optimize decision making, and to improve our ability to make optimal choices.

Strategy 5: Identify and use offshore and domestic data sources based upon applicability, utility, data quantity, quality, and spatial and temporal resolution to efficiently inform decision support tools that will identify and analyze risk pathways.

Goal 1A Rationale
There is a continual need to identify plant pest threats with the increase in trade and domestic commodity flow. The use of robust advanced analytical algorithms, approaches, or tools will help APHIS and our cooperators better utilize resources to meet the APHIS mission. They will help to target high-risk pathways to prevent pest entry and, prepare for the potential establishment of high-risk pests. They will also help to allocate survey resources more strategically to discover small infestations so that rapid response can effectively eliminate those incursions.

Goal 1S – Survey
This goal provides funding to enhance APHIS' pest surveillance mission and ensure the early detection of exotic plant pests. The value of early pest detection is in reducing losses from widespread pest damage and/or the cost of mitigation. APHIS' plant pest surveillance mission offers an essential safeguard that complements offshore preclearance and port of entry activities. The CAPS Program provides the infrastructure for Tribal and State partners in conducting plant pest surveys. APHIS' pest surveillance mission helps ensure U.S. trading partners that specific agricultural production areas and Tribal Nations and States are free of plant pests, thereby preserving export markets for many commercial commodities.

The purpose of this section is to provide pest surveillance direction for the PPA 7721-suggested surveys. This is necessary as the pest surveillance strategy continues to stress surveys that target multiple pests based on commodities, taxa, environments and habitats, industries and businesses, and the continuum along pest introduction pathways.

Exotic pests can affect agriculture and natural resources across the nation. The commodity/ecosystem approach will provide a holistic framework for prevention, preparedness, response, and recovery from invasive pests of regulatory and environmental significance. Goal 1S seeks an open dialogue, through the suggestion process with all stakeholders to improve APHIS' plant pest surveillance mission.

Goal 1S Objectives

Objective 1	Conduct national priority pest surveys in support of specialty crops, trade, and identified program surveys.
Objective 2	Target multiple high-risk pathways for exotic pest introduction across the United States.

Goal 1S Strategies
Strategy 1: Conduct National Priority Surveys, with broad participation by states, universities, and tribes, that target multiple pathways for exotic pest introductions across the United States.

Strategy 2: Support PPQ's Pest Program Surveys to increase knowledge about the distribution of pests.

Goal 1S Rationale
High-risk locations require adequate funding to cover survey activity expenses. PPA 7721 will provide funds to help meet the increasing demands to survey for exotic pests that are of national concern. This goal will address the most significant pests for which a robust national detection program is necessary to protect agricultural, environmental, and natural resources. Early pest detection is critical to avert economic and environmental damage. Once a pest becomes established or spreads significantly, the mitigation costs can reach millions of dollars, in addition to lost farm revenues and damage to ecosystems. Survey results can support export certification and retain or expand U.S. export markets.

Survey Strategy

For FY 2022, surveys under Goal 1S will be divided into three overarching strategies:

I. National Priority Surveys
II. Pest Program Surveys
III. Cooperator Surveys

I. National Priority Surveys

National Priority Surveys are surveys that primarily target pests on the National Priority Pest List. The 2022 National Priority Pest List is available on the CAPS Resource and Collaboration website. Each survey name must identify the Pathway or Crop/Host from the acceptable list in Table G1S-1. The suggested pests listed in Table G1S-1 will receive additional consideration during the review process. The host matrix presents National Priority Pests and their associated hosts. Suggestions must align the survey name and where the survey will happen if it's listed in the host matrix. Suggestions seeking funding as a National Priority survey must:

- Align with one of the approved survey names in Table G1S – 1.
- Ensure over 60% of project funding target National Priority Pests.
- Align with the Host Matrix.

For example, if a suggestion proposes to survey for hemlock wooly adelgid in combination with Siberian silk moth and black fir sawyer, under a Forest Trees & Shrubs, Agroforestry Pest Survey, this would be allowed because:

- One pest of state concern (hemlock wooly adelgid);
- Two National Priority Pests (Siberian silk moth and black fir sawyer);
- 60% of the pests are from the national priority pest list; and
- They are inter-related on the host matrix (fir).

The survey for all pest should be approximately equal in scope. For example, a suggestion that seeks most of the work to complete hemlock wooly adelgid and only token surveys for national priority pests would not be supported. Work for all pests should be equal in scope.

If a state is interested in only surveying for pests of State concern, like pecan weevils, then they should not submit as a National Priority Pest survey because this insect is not listed as a National Priority Pest. They can submit as a Cooperator Survey.

Table G1S-1

Survey Name	Suggested Pests
Asian Defoliator Survey	
Cyst Nematode Survey	
EWB/BB - Forest Pests	
Field Crops, Corn Commodity Survey	
Field Crops, Cotton Commodity Survey	
Field Crops, Cyst Nematode Survey	

Survey Name	Suggested Pests
Field Crops, Field Crops Pest Survey	
Field Crops, General Nematode Survey	
Field Crops, Rice Pest Survey	
Field Crops, Small Grains Commodity Survey	
Field Crops, Soybean Commodity Survey	
Forest Trees & Shrubs, Agroforestry Pest Survey	
Forest Trees & Shrubs, Exotic Buprestid (Cerceris) Survey	
Forest Trees & Shrubs, Exotic Wood Borer/Bark Beetle Survey	
Forest Trees & Shrubs, Forest Pest Survey	
Forest Trees & Shrubs, Oak Commodity Survey	
Forest Trees & Shrubs, Pine Commodity Survey	
Forest Trees & Shrubs, Tree Nursery Pest Survey	
Grape Commodity Survey	*Losbesia botrana* – European Grapevine Moth
Nursery & Retail, Greenhouse Crops Pest Survey	
Nursery & Retail, Nursery and Retail Plants Pest Survey	
Nursery and Ornamental Survey	
Orchard / Apple / Tree Fruit Survey	
Other Specialty Crop	
Palm Commodity	
Pathway Survey for Pests of Multiple Agricultural Systems	
Pathway, Asian Defoliator Survey	
Pathway, Cyst Nematode Survey	
Pathway, Exotic Wood Borer/Bark Beetle Survey	
Pathway, Mollusk Survey	
Small Fruit / Mixed Berry Commodity Survey	
Small Fruits & Berries, Berry Pest Survey	
Small Fruits & Berries, Fruit Crops Pest Survey	
Small Fruits & Berries, Grape Commodity Survey	
Small Fruits & Berries, Small Fruit Pest Survey	

Survey Name	Suggested Pests
Solanaceous/Tomato Commodity Survey	*Tuta absoluta* – Tomato Leafminer, Tomato Brown Rugose Fruit Virus (ToBRFV)
Stone Fruit Commodity Survey	Plum Pox Virus
Taxon, Asian Defoliator Survey	
Taxon, Cyst Nematode Survey	
Taxon, Exotic Wood Borer/Bark Beetle Survey	
Taxon, Mollusk Survey	
Terrestrial Mollusk Survey	
Tree Fruits, Citrus Commodity Survey	
Tree Fruits, Nut Pest Survey	
Tree Fruits, Orchard Commodity Survey	
Tree Fruits, Stone Fruit Commodity Survey	
Tree Fruits, Tree Fruit Pest Survey	
Tropical Crops	
Tropical Hosts, Palm Commodity Survey	
Tropical Hosts, Tropical Hosts Pests Survey	
Vegetable Crops, Corn Commodity Survey	
Vegetable Crops, Greenhouse Vegetable Pest Survey	
Vegetable Crops, Legume Pest Survey	
Vegetable Crops, Pulse Crops Pest Survey	
Vegetable Crops, Root Crop Pest Survey	
Vegetable Crops, Solanaceous Commodity Survey	
Vegetable Crops, Vegetable Crops Pest Survey	

II. Pest Program Surveys

Pest Program Surveys are surveys that are associated with identified PPQ programs and primarily support detection surveys for the program. The table below provides the pest programs and estimated total available funding level for each program. Survey methods for Pest Program Surveys must follow the program guidance for survey.

For example, fruit flies traditionally received about $5.5 million in funding. Suggestions in Goal 1 survey must clearly be associated with survey and not treatment or post treatment activities. The PPQ Cross Functional Working Group for each program will make recommendations on how best to allocate the total funding across suggestions for that program.

Program Name	Estimated Available Funding
Fruit Flies	$5,500,000
Phytophthora ramorum	$315,000
National Honeybee Survey	$1,235,000
Cucumber Green Mottle Mosaic Virus	$90,000
Golden and Pale Cyst Nematode	$281,000

III. Cooperator Surveys

Cooperator Surveys are for pests that are not widely regulated, either nationally or on a state-by-state basis. Surveys for pests in a local commodity for export or trade purposes may fit in this category; however, these surveys are usually rated lower than the other surveys, as the focus of Goal 1 Survey funding is on National Priority Surveys and Pest Program Surveys. Some examples of Cooperator Surveys include multi-pest Nut Pest Survey, Coffee Pest Survey, and Weed Surveys on Tribal Lands.

Additional Goal 1S and 1A Guidance

Pathway Approach to Survey

Pathways attempt to identify areas that are at the highest risk for pest introductions. For example, moths in the Asian defoliator survey lay eggs on shipping containers. Locations that store shipping containers from Asia are potential high-risk areas for new pest introductions. The pathway approach would attempt to identify critical survey points along the pathway. This type of targeted detection survey or risk-based survey enhances the ability to identify and target high-risk areas, zones, locations, and sites that have the highest potential for exotic pest introductions. This concept can be combined with any survey using sound analytical tools, known risk sites, history of pest detections in an area, and other avenues of information.

By contrast, a survey that seeks to monitor a pest population after a control treatment would not fall into this goal area. Suggestions that have treatment involved must consider other goal areas when submitting suggestions.

Randomized surveys that inundate or blanket an area with trapping is also not recommended for this goal area. Suggestions are expected to have some level of consideration for targeting of likely introductions.

Survey Methods

For the most up-to-date methods for survey and identification, see the Approved Methods for Pest Surveillance. All surveys conducted for National Priority Pests must use the survey methods defined in the Approved Methods page for the specific pest. The information in the Approved Methods site will always supersede any survey and identification/diagnostic information found in any other CAPS document (i.e., Commodity-based Survey References and Guidelines, CAPS Pest Datasheets, etc.).

Past Performance

Goal 1 Survey uses past performance as an evaluation criterion; therefore, suggestions should include a narrative discussing past performance. Submitters should include narratives describing accomplishments and outcomes of previous suggestions or related work. While not required in the template or required to submit a suggestion, this information should be attached in Metastorm.

Pest Management Programs

Goal 1S supports surveillance and early detection in the areas described above. States with active management of pests such as Spotted Lanternfly, Fruit Flies, or European Cherry Fruit Fly should look to other goal areas to support treatment work. States who have not yet detected these pests can combine one of these pests into a multi-pest survey (as part of a Grape or Orchard Survey, for example). Additionally, if a suggester chooses to submit a single-pest survey for an ongoing emergency program to Goal 1 Survey, per the PPA 7721 Cross Functional Working Group (CFWG), the suggestion will not be moved to another Goal for review, and the suggestion will not be reviewed or funded.

Asian Giant Hornet (Vespa madarinia)

Survey suggestions for Asian giant hornet submitted to this goal area should be part of a National Priority Survey. Examples of surveys that would complement the hosts, biology, and survey method of Asian giant hornet include: Exotic Wood Borer/Bark Beetle, Forest Pests, Oak, etc. PPQ is currently evaluating the biology, potential pathway of introduction, and survey methodology for this pest. Since these funded surveys would take place in FY2022 and guidance may look different at that time, survey suggestions should be flexible enough to allow for changes in approach.

Federally Recognized State Managed Programs (FRSMP)

Cooperators seeking support for FRSMP should consider submitting a suggestion through the Priority Pest Surveys. FRSMP pests are not National Priority Pests. For example, if allium leaf miner is desired to be surveyed, two additional pests from the National Priority Pest List would need to be included to qualify for a National Priority Survey. This would provide the suggestion with the most optimal level of consideration. It's important that the narrative regarding trade is completed and clearly relates support for FRSMP survey. Items like border station and regulatory control are not appropriate for this goal area, only surveys will be considered.

Submitting Goal 1 Survey Suggestions

Suggestions must be submitted to Goal 1 Survey using the Goal 1 Survey Suggestion Template. The template is an Excel file, and can be found on the PPA Goal Website. The template provides a single form for all suggestions to use and includes financial information for review. All information submitted to a suggestion will be considered by the review team. There are narrative questions in the goal 1 survey template. These sections are required and failure to complete the response will negatively impact your overall suggestion rating. Contractual costs must be shown on the financial forms. Additional worksheets can be added to accommodate multiple contractors being added.

Accomplishment Report

The opportunity for any future PPA 7721 funding for survey projects is contingent upon the completion of prior year's Survey Accomplishment Reports. The Survey Accomplishment Report Template (found on the current National Pest Surveillance Guidelines page) should be use when reporting survey accomplishments.

Funded Suggestions

When the FY2022 Spending Plan is announced, specific instructions will be provided for using the Online Work Plan Interface.

PPA 7721 Survey Summary Form

All funded Goal 1 Survey projects must complete the 2022 PPA 7721 Survey Summary Form online on the CAPS Resource & Collaboration site. All funded projects need to be captured in the Survey Summary Form, even those excused from using the Online Work Plan Interface.

Data Management

National Priority Surveys will use the National Agricultural Pest Information System (NAPIS) and other survey types will follow program guidance if available. The NAPIS database includes data validation rules ensuring the Approved Methods for Pest Surveillance are adhered to. Additional information on approved survey methods can be found on the CAPS Resource and Collaboration website. Suggestions seeking funding from Strategy 2, Pest Program Surveys should seek data requirement from the respective program contacts.

Survey Supplies

Survey supplies (traps, lures, and accessories) for National Priority Pests funded by PPA 7721 will be provided by PPQ through separate PPA 7721 funding. The timeframe for ordering these supplies will be communicated later. Questions should be directed to the Survey Supply Procurement Program (SSPP) National Policy Manager. For non-priority pests, states should include funding for traps, lures, or survey kits.

Goal 2 – Domestic Inspection
This goal strives to target domestic inspection activities at vulnerable points in the safeguarding continuum that result from the movement of products and commodities potentially carrying pests of regulatory significance.

Goal 2 Objectives

Objective 1	Promote and expand inland inspections of containers and mail facilities, where possible.
Objective 2	Expand the use of canine teams for domestic inspection activities emphasizing regulatory activities.
Objective 3	Promote increased levels of inspection for regulated articles for interstate movement.

Goal 2 Strategies
Strategy 1: Follow-up inspections conducted by cooperating regulatory agencies in states receiving international and interstate regulated cargos that present a risk of moving plant pests to include the development of inspection techniques.

Strategy 2: Emphasize new capacities of agriculture detection canine teams in support of destination inspections. Inspections would include parcel facilities and containers and support Destination Inspection for cooperators. *
**Canine activities related to domestic survey/pest detection activities are found under Goal 1 Survey.*

Strategy 3: Emphasize inspection activities for regulated articles moving internationally or interstate.

Strategy 4: Develop the analytical capacity to identify/design workable programs and the operational mechanisms to effectively implement them, including processes for inspection.

Goal 2 Rationale
To mitigate pests more effectively, it is necessary to detect pests and prohibited items that may have escaped undetected through ports-of-entry at a second line of defense. Additionally, mail facilities, along with express carrier hubs, could potentially be the most active pathway for internet commerce. These activities can be applied to the illegal movement of domestic quarantine products.

Canine teams have demonstrated their effectiveness at ports-of-entry and in California and Florida in domestic applications. This tactic provides States with an additional line of defense to prevent the introduction and interstate movement of harmful plant pests. The information gained from the interception of agriculture items and pests in domestic activities can improve States' risk assessment efforts. Interceptions at the domestic level can also provide valuable information to first port-of-entry operations managers.

Several pests of limited distribution within the United States are regulated by the Code of Federal Regulations and Federal Orders. Many of these allow the movement of regulated articles

under Compliance Agreements and Limited Permits. Increasing the number of inspections and audits of facilities at origin and at destination will increase the level of protection against introduced pests and increase the effectiveness in completing inspections and audits.

Accomplishment Report

The opportunity for any future PPA 7721 funding for projects is contingent upon the completion of prior year's accomplishment reports.

Goal 3 – Increase Identification Capacity and Strengthen Pest Detection Technology
This goal strives to develop and provide technology training as well as develop survey procedures and tools that will improve our ability to rapidly detect and accurately identify pests of regulatory significance to enhance the protection of U.S. agriculture, and/or facilitate trade. The goal seeks to support finite, short to medium-term projects, rather than provide a funding stream supporting their ongoing use. In addition, this goal seeks to provide coordination of existing and future regional centers housed at other institutions, universities, and state departments of agriculture performing similar functions.

Goal 3 Objectives

Objective 1	Improve all aspects of early detection technologies and resources.
Objective 2	Develop or improve diagnostic tests and identification tools and methods for species in a wide range of taxonomic groups containing high priority pests.

Goal 3 Strategies
Strategy 1: Develop and improve traps and lures by:

- Increasing efficiency of catching target species (e.g. more specific traps or lures to reduce bycatch (I.e. non-target species) and reduce trap screening efforts).
- Improving ease of removing target species for identification (e.g. alternative for sticky traps for Lepidoptera).
- Developing novel traps, lures, and survey strategies to detect target species more efficiently.
- Developing effective quality control standards for traps and lures used at the field level.

Strategy 2: Identify the taxonomic expertise and capacity to augment preliminary identification needs for plant pest surveys, and function as cost-efficient identification centers that accept and process survey samples from other states.

- Develop cooperative agreements and fund institutions with expertise in systematics and taxonomy to provide an identification service to process and identify samples from PPA 7721 Goal 1 Survey, PPQ Pest Detection, and CAPS surveys.
- Provide a cost-efficient service expected to identify CAPS Priority Pests and other targeted pests in a timely and accurate manner. The provided service will enhance and expand the national capacity for authoritative identification of pests from survey samples.
- Expand taxonomic expertise to facilitate early recognition of target pests and unanticipated exotic species.
- Focus on processing and identification of survey samples only. No screening aids, job aids, training materials, and/or workshops should be included in the proposed suggestion. (*These should be addressed in separate suggestions*).

Strategy 3: Develop, validate, transfer, and increase the deployment of appropriate diagnostic tools, including DNA-based tools or other technologies, to detect or identify specific plant pests and diseases:

- Develop novel tools or validate existing tools for screening and/or confirming pests on the CAPS Priority Pest List and those listed in Additional Goal 3 Guidance.
- Develop diagnostic tools to support the exclusion of invasive species by restricting

pathways of introduction.
- Develop tools, such as smart keys and image collections, based on systematic research, that enable PPQ staff and collaborators to resolve relationships accurately and efficiently among taxa in poorly characterized groups.
- Characterize unresolved species complexes of targeted plant pests to support identification needs for surveys and effective pest management/eradication strategies.
- Collect sequence data for plant pests (pathogens and invertebrates) with representatives in groups that represent potential high impact pests. Develop appropriate and high-quality sequence data for national targets from various known geographic localities using specimens that are expertly identified and confirmed and maintained in collections. PPQ makes sequence data publicly available within 6 months after the end of the one-year PPA 7721 project funding cycle.

Strategy 4: Enhance the expertise and capacity to identify a greater variety of plant pests by:
- Developing new recorded or in-person training sessions led by recognized experts to provide best methods for distinguishing exotic pests from established and native species. Training should specifically address pests from the CAPS Priority Pest List and be intended for persons identifying material from domestic surveys.
- Developing new recorded or in-person regional or multi-state training for survey personnel/focused on target pest screening.

Goal 3 Rationale
Developing survey tools in anticipation of future threats allows for rapid response when new exotic pests are detected. Applying quality control standards to traps and lures ensures that 1) PPQ obtains effective products for the detection of exotic pests; and 2) PPQ can be assured that data collected from surveys are of high quality. Distributing the most effective survey tools available in a timely manner increases the likelihood of detecting exotic pests before they become established and cause significant economic or environmental damage.

Efficient and timely collection, routing, submission, and analysis of samples are all critical elements of an early detection survey. The improvement of a survey infrastructure to enable quick execution of every step in the process from collection to identification will increase the probability of early detection.

The PPQ National Identification Service's (NIS) network of national taxonomists forms a virtual laboratory to support National pest identification needs. However, there may still be a gap in the States' and PPQ's ability to efficiently process large numbers of survey samples resulting in a need to increase the level of taxonomic and identification capabilities.

Additional Goal 3 Guidance

Detection Technologies and Resources
Detection tools and methods should be designed for economy, efficiency, ease of use, and deployment at scale. High priority pests for consideration include those found on the CAPS Pest List

Examples include:

- Survey tool improvements: Screening and diagnostic-friendly traps and collection methods that facilitate handling and processing of survey samples, prevent specimen damage, and/or preserve condition of specimens.
- Trap design experiments that verify efficacy of diagnostic-friendly traps for CAPS targets in the pests' native range (e.g. *Helicoverpa armigera*).
- Novel trap technologies: Research toward the development of insect traps that can increase the rate of detection or increase efficiency of surveys or identification of targets. Areas of need include:
  - Automated traps that can record the time and date of capture, report captures remotely, and screen captures to determine target species.
  - Traps that can effectively accommodate multiple lures for multiple high priority target pests,
  - Traps that exclude or segregate non-targets based on behavior, size, etc.
- Develop/ optimize attractants and traps for CAPS targets: The CAPS national survey targets (and potential targets) listed below currently have only visual survey methods or existing available pheromones need refinement. The goal is to identify the most effective attractant or trap for each target species; therefore, efficacy trials in the target's native range are essential. Research would include:
  - Developing potential attractants and traps,
  - Testing the potential attractants and traps in the target pests' native range.

  Targets species are listed by family.
  - Buprestidae: *Agrilus biguttatus*, *Agrilus mali*
  - Cerambycidae: *Aeolesthes sarta, Anoplophora chinensis, Anoplophora glabripennis, Batocera horsfieldi, Chlorophorus* genus, *Euwallacea fornicatus, Monochamus galloprovincialis, Psacothea hilaris, Semanotus sinoauster*, *Xylotrechus* genus, *Xylotrechus altaicus, Xylotrechus antilope, Xylotrechus arvicola, Xylotrechus namanganensis, Xylotrechus rusticus,* and other cerambycids of quarantine importance
  - Curculionidae: *Acanthotomicus suncei*, *Dendroctonus micans, Pissodes castaneus,*
  - Delphacidae: *Nilaparvata lugens*
  - Lasiocampidae: *Dendrolimus superans, D. sibericus, D. punctatus*, and *D. pini*
  - Erebidae: *Eudocima phalonia*
  - Siricidae: *Tremex fuscicornis*
  - Scutelleridae: *Eurygaster integriceps.*
- Detection assays: Affordable, user-friendly biochemical or molecular assays for detecting CAPS priority pests:
  - in trap samples comprised of numerous, similar but native pests (e.g., *Chrysodeixis chalcites* or *Autographa gamma* in pheromone trap samples). Currently, for some targets, large numbers of U.S. native non-target moths fill up traps, and moth genitalia dissection is necessary for morphological identification.
  - in symptomatic host material at survey locations where pathogens on the CAPS priority pest list or closely related endemic pathogens (such as Peach X disease phytoplasma) may be present. Field-level or intermediate screener tests for group or genus-level detection (for example, ELISA or immunostrip tests for phytoplasma or virus detection) is an invaluable tool for efficiently identifying pathogens and ruling

out abiotic stress as a source of symptoms.

- The proposed diagnostic tool must effectively discriminate the target species from related species and be effective for large composite samples and high throughput, with demonstrated sensitivity and practical implementation for survey programs. *Pheromone improvements:* Refine pheromone specificity to eliminate or drastically reduce non-target moths attracted: *Autographa gamma* (not attract other native or established *Autographa* spp*., Rhachiplusia ou, Chrysodeixis includens*, and *Trichoplusia ni*); *Helicoverpa armigera* (not attract *Helicoverpa zea),* etc.
- Identify pest risks to U.S. germplasm: Develop an expatriate plant inspection program to monitor pests that attack U.S. plant germplasm abroad.

Capacity building for identification and improvements to diagnostic technologies
Capacity building includes enhancements to training, equipment, specimen collections, diagnostic tools, and methods (morphological and molecular), as well as enhancements to infrastructure that improve diagnostic capability for screening, identification, and throughput of survey samples.

Examples include but are not limited to:

- Develop the expertise and capacity to identify a greater variety of plant pests.
    - Recorded training sessions: Thorough family and species level taxonomic training given by recognized experts is needed for taxonomists/identifiers for exotic quarantine pests to distinguish from established and native species. Encouragement for submissions that include production of recorded webinars and/or video-taped training that can be posted and web-accessed. The needs include, but are not limited to, pests in the following groups: adult wooding Coleoptera, adult and immature Lepidoptera, mollusks, nematodes, and fungal pathogens of quarantine importance.
    - Interactive taxonomic keys: Develop interactive taxonomic keys, using well-illustrated morphological characters from specimens whose identities have been verified by molecular analysis, when possible, and that can provide credible information for confirmations of suspect CAPS national survey targets.
    - Taxonomic support to other states for pest survey sample processing where large numbers of mixed non-target pests or native insects populate samples and taxonomic expertise or capacity in the state of origin is limited.
- Develop, validate, transfer, and increase the deployment of molecular diagnostic tools where logistically and economically practical, for the detection of specific plant pathogens and invertebrate pests by increasing resources for:
- Molecular tool development/validation for national survey targets and other priority pests for PPQ: Many pest organisms currently lack diagnostic methods, or existing methods need refinement. Research would include developing and validating:
    - field-level or intermediate screener tests for group or genus-level detection (for example, ELISA or immunostrip tests for phytoplasma or virus detection),
    - screening tests for genus and species-level detection, and
    - confirmatory tests for species, strain, or pathovar identification.

  These could include, but are not limited to, arthropods, nematodes, bacteria, fungi, phytoplasmas, viroids, and viruses. Arthropods, phytoplasmas, viroids, and viruses should be identifiable at the genus and species levels. Plant pathogen targets with

diagnostic needs include:
  - Bacteria: *Xanthomonas oryzae* pv. *oryzae* and *X. o.* pv. *oryzicola*
  - Fungi: *Ceratocystis manginecans, Coniothyrium glycines*, *Cronartium flaccidum*, *Puccinia graminis* f. sp. *tritici* Ug99, *Raffaelea quercivora*, and other fungi in groups that contain species of quarantine importance
  - Nematodes: *Bursaphelenchus cocophilus* and *Ditylenchus gigas*
  - Mollicutes: Phytoplasmas of quarantine importance
  - Oomycetes: *Peronosclerospora maydis* and *Phytophthora* species of quarantine importance
  - Viruses and viroids: *Orthotospovirus Groundnut bud necrosis virus, Pospiviroid Potato spindle tuber viroid*, and torradoviruses

  Invertebrate targets with diagnostic needs include:
  - Pseudococcidae: *Rastrococcus iceryoides* and *R. invadens*
  - Pyralidae: *Ostrinia furnacalis*
- Systematic clarification to support the exclusion of invasive species: Develop clarification of the systematics of taxa that include invasive insect and mite species This should provide practical data to help target and restrict potential pathways of introduction. Clarification of the systematics of these taxa can characterize unresolved species complexes in support of diagnostic needs for surveys and effective pest management/eradication strategies.
- Sequencing DNA for quarantine-important groups of pests and pathogens: Produce and obtain high-quality sequence data for pests and closely related species on the national survey targets pests and other priority pests for PPQ, that are expertly identified and confirmed, and will be vouchered in curated collections. This work could focus on a pest genus or family, especially for pest groups where existing molecular data are lacking or scant.

Accomplishment Report

The opportunity for any future PPA 7721 funding for projects is contingent upon the completion of prior year's accomplishment reports.

Goal 4 – Safeguard Nursery Production

This goal strives to develop management strategies for the mitigation of pests and pathogens in nursery settings and encourages the development and harmonization of standards to support audit-based nursery certification initiatives.

Goal 4 Objectives

Objective 1	Develop science-based best management practices and risk mitigation practices to exclude, contain, and control regulated pests from the nursery production chain.
Objective 2	To develop and nationally harmonize audit-based nursery certification programs, including the harmonization of different certification programs (both inter- and intra-state), audit and inspection training for cooperators, and program launching.

Goal 4 Strategies

Strategy 1: System Approaches for Nursery Production: Those initiatives that specifically explore the role of certain pests within nursery production systems. The strategy is to develop science-based best management practices (BMPs) and risk mitigation practices to exclude, contain, and control regulated plant pests from the nursery production system.

Strategy 2: Systems Approaches to Nursery Certification Programs and Specialty Crop Pilot Studies: Nursery Certification Programs. initiatives that directly address and inform the process of inspecting, auditing, and certifying the production of nursery stock. Initiatives for enhanced harmonization and integration of nursery certification programs will improve the cleanliness and health of domestically produced nursery stock, facilitate domestic and international movement of nursery stock, and safeguard the nursery industry from the introduction and spread of exotic pests. This strategy also includes efforts directed towards the development and harmonization of certification programs for asexually propagated plant material. The certification programs provide high-quality asexually propagated plant materials free of targeted plant pathogens and pests that cause economic loss and ensure the global competitiveness of specialty crop producers.

Goal 4 Rationale

The establishment and operation of functional experimental nurseries and research studies to develop BMPs to exclude, contain, and eradicate pests/pathogens in the nursery environment is critical. The ability to regulate nurseries, the movement of nursery stock, and implement effective protocols to eradicate certain pests and pathogens of concern in nursery settings such as *P. ramorum* and other pests/pathogens of concern is a major challenge. The lack of large-scale research on such pests and pathogens in a nursery environment compromises the program's degree of success in nursery certification and pest/pathogen eradication in nurseries. Fully functioning experimental nurseries within pest/pathogen infested areas will allow research to be conducted in a controlled environment as a means of obtaining more complete knowledge and understanding of the pests/pathogens and evaluation of potential pathways for the movement of these organisms within and among nurseries and inform end users. The increased understanding of pests/pathogens and host materials would help regulatory and nursery staff to refine program policies, protocols, procedures, and regulations to more effectively manage or eradicate the pests/pathogens in the nursery setting.

Expanding experimental nurseries for conducting research on pests and pathogens of quarantine significance that are present in select States and threaten other States as well is important to expanding the nursery safeguarding continuum. Established nurseries can be efficiently adapted in part to support research to better understand organisms, hosts, and controls and thereby support the refinement of program policies, procedures, and regulations. Given its infrastructure and focus, such experimental nurseries provide an ideal location to conduct experiments on targeted and other nursery plant pests and pathogens.

Additional Goal 4 Guidance

Developing an audit-based, harmonized, and integrated nursery certification program to facilitate exports and the domestic movement of nursery stock in partnership with State regulatory officials is crucial for comprehensive pest/pathogen management strategies and program and production efficiencies. This includes the greenhouse and nursery certification programs. The nursery certification program has several components that include providing the cleanest possible environment; isolating the clean materials; and following systems approaches and BMPs to keep the plants healthy, documentation, recordkeeping, audit, and compliance. APHIS will partner with States and industry to adopt and implement standards for certification of greenhouses and registered nursery blocks producing nursery stock. Ultimately, the certification programs will be harmonized with North American Plant Protection Organization (NAPPO) and International Plant Protection Convention guidelines. Such certification programs will meet the mutual needs of industry, the States, and PPQ to ensure nursery production systems adequately safeguard the nursery industry from the introduction of exotic pests. An effective nursery certification system will facilitate the safe domestic movement of planting material and increase exports. Establishment of a standardized or harmonized certification program would facilitate the domestic movement of certified planting material and reduce the costs. This would allow for certain States with no nursery industry to participate without any financial burden, while still ensuring the growers in the State(s) are provided with clean material.

Developing and delivering training to the cooperators and providing material and technical assistance in developing the quality operational manual for small-scale nurseries is instrumental in advancing safeguarding nursery programs. APHIS has developed and delivers a training module through the Agency's Professional Development Center (PDC) for audit-based certification programs for Federal and other cooperators. This training will be provided at regular intervals and measures will be in place to ensure the accreditation and certification of the trainees. The development of staff with adequate audit training would partially offset the cost of inspections in audit-based certification programs. It would provide incentives for the smaller nurseries to participate.

Working with all stakeholders and cooperators to launch and support the certification program for the nursery industry provides vital linkages between this goal area and allied initiatives. This initiative includes launching audit-based certification program pilots in select states, developing the training module for audit-based certification programs, and integrating with planned initiatives of National Clean Plant Network (NCPN). The specialty crop based clean plant networks for select crops such as fruit trees, grapes, and berries are currently formed or are forming to provide certified planting materials to the nurseries and growers under State certification programs. The ultimate objective is to develop a "value added certified identity" to

the planting material for acceptance by the trading partners. Procedures will be in place for audit, non-compliance, and mitigation. The certification programs provide high-quality asexually propagated plant materials free of targeted plant pathogens and pests that cause economic loss and ensure the global competitiveness of specialty crop producers. Development of a certified tag would facilitate safe domestic movement of planting material, increase grower's confidence in the program, and promote exports.

Accomplishment Report

The opportunity for any future PPA 7721 funding for projects is contingent upon the completion of prior year's accomplishment reports.

Goal 5 – Outreach and Education
This goal seeks to increase awareness and knowledge to prevent the introduction or spread of high consequence* pests into and throughout the United States, through high-risk pathways, particularly in high-risk** areas.

Goal 5 Objectives

Objective 1	Provide education and encourage behaviors that enhance safeguarding
Objective 2	Increase the number of people actively looking for and reporting high-consequence pests at vulnerable points along high-risk pathways.
Objective 3	Increase public acceptance and support of APHIS high priority plant pest and disease eradication and control efforts.

Goal 5 Strategies
Strategy 1: Provide education and information to key groups, including:

- Producers/First Detectors – Conduct workshops, seminars, or training programs for farmers, growers, researchers, field workers, and others who are in a position to detect, identify and/or respond to pest threats (especially tribal, underserved, minority, and specialty crop producers).
- Distribution Center Employees - Encourage people who work in/around warehouse and storage facilities, nursery and garden centers, and other vulnerable points to look for and report signs of a pest or disease, employ best practices, and manage supply chains to enhance safeguarding.
- Travelers - Inform travelers about pests and diseases and the steps they can take to prevent their introduction or spread.
- Consumers - Inform consumers about pests and diseases and the steps they can take to prevent their introduction or spread.
- Youth - Inform youth about invasive pests and the steps to protect agriculture and natural resources.

Strategy 2: Apply best practices and approaches that have proven successful, or incorporate promising innovation in thinking or approach, to increase public acceptance and support of APHIS high priority plant pest and disease eradication and control efforts.

Strategy 3: Develop and implement volunteer programs to support pest detection.

Goal 5 Rationale
Outreach and education projects should support and enhance efforts to prevent the introduction or spread of high consequence pests into and throughout the United States, particularly in susceptible high-risk areas. Projects will increase the number of people looking for and reporting high consequence pests at vulnerable points along high-risk pathways. The projects should also educate people to strengthen the safeguarding system.
* https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/The-Threat

**https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/How-They-Spread

Accomplishment Report

The opportunity for any future PPA 7721 funding for projects is contingent upon the completion of prior year's accomplishment reports.

Goal 6 – Enhance Mitigation and Rapid Response

This goal strives to develop pest mitigation tools and technologies to be used during pest response activities to reduce potential adverse impacts and further spread of detected pests of regulatory significance and/or of economic or environmental concern. Goal 6 supports key areas of mitigation; however, this is not a goal for long-term basic research and development projects. Also, projects including survey activities should be submitted to goal area 1 Survey.

Goal 6 Objectives

Objective 1	Develop or adapt new control technologies, tools, and treatments for use in plant health emergencies.
Objective 2	Improve the knowledge base, response options and capabilities prior to the onset of a plant health emergency.
Objective 3	Support the use of existing tools and initial response protocols for the overarching goals of containment, control, and/or eradication of plant pests.

Goal 6 Strategies

Strategy 1: Develop, promote, and implement new control technologies, tools, and treatments for use in plant health emergencies and/or established pest programs. Examples for this Goal 6 strategy include quarantine treatments, enhanced mitigation, and certain stages of biological control.

Strategy 2: Enhance preparation for a plant pest emergency by improving the knowledge base, response options, and capabilities prior to the onset of a plant pest emergency. Examples include the development and training of rapid response teams (ICS), development of New Pest Response Guidelines, and offshore approaches to developing management options for key invasive pests before they arrive.

Strategy 3: Provide initial or short-term funding to quickly implement programs that employ existing tools and initial responses protocols for the overarching goals of containment, control, or eradication immediately following the development of a plant health emergency.

Strategy 4: Provide technical assistance prior to, during, and immediately following the development of a plant health emergency through the development of New Pest Response Guidelines (NPRG) for the potential introduction of exotic plant pests.

Goal 6 Rationale

When a new pest is reported, APHIS and the States establish survey, control, and regulatory activities to manage and/or eradicate the pest outbreak. In preparation for these plant pest introductions before they reach the United States, APHIS and States identify high-risk pest threats utilizing several current programs within PPQ, including the New Pest Advisory Group (NPAG), NAPPO Pest Alerts, scientific journals, and communications. Technical plant pest information is gathered to develop mitigation activities in the form of an NPRG, balanced between operational feasibility, scientific objectivity, and environmental consideration.

Emergency Response

The time between the detection of an exotic pest and corresponding unified response activities is

a critical window in which to limit international trade impacts, environmental damage, and economic costs. APHIS will provide funds for the initial response protocols of survey, regulatory, and control activities, including: travel costs associated with personnel mobilization; technical working group and subject matter expert activities; resource purchasing for incident activities; vehicle use and maintenance; communications and outreach activities, including news and media events to alert stakeholders and public of pest threat; program command post startup and overhead; identification and diagnostic equipment and personnel; rapid survey and detection tools and equipment; information technology equipment and support; development of action plans; safety equipment and personnel protective devices; and mitigation and containment costs.

Accomplishment Report

The opportunity for any future PPA 7721 funding for projects is contingent upon the completion of prior year's accomplishment reports.

National Clean Plant Network (NCPN)
This special focus area within PPA 7721 strives to establish and support a network of clean plant centers and associated programs for a specific mission: provide high quality asexually propagated plant material free of targeted plant pathogens that cause economic loss to protect the environment and ensure the global competitiveness of specialty crop producers. The resulting plant material is then made available to States in support of nursery certification programs and to nurseries, growers, and other users of clean nuclear stock.

NCPN Objectives

Objective 1	Network Operations: Optimize the productions, maintenance, and distribution of clean plants.
Objective 2	Advancing Special Initiatives: Optimize the adaptation and implementation of novel technologies and new ideas while increasing the awareness of the importance of using clean plants.
Objective 3	Governance and Networking: Optimize Network resources.

NCPN Strategies
Strategy 1: The NCPN will seek, maintain, and enhance a network of facilities and expertise for testing and providing therapy for selections of specialty crops based on climatic suitability, current infrastructure and expertise, regional needs and disease and insect pest safety standards. The NCPN will also establish foundations of plant material that test negative for pathogens in accordance with accepted standards.

- The NCPN will implement existing research to advance rapid, accurate testing techniques to meet the needs of regulators and the industry.
- The NCPN will use the best available methods to release pathogen tested planting material in a safe and timely fashion.
- The NCPN will use reasonable methods to obtain desired accessions from reliable sources both within and outside the network.
- The NCPN will maintain foundations in accordance with accepted standards
- The NCPN will establish and facilitate working relationships with and among appropriate entities that certify plants for planting

Strategy 2: The NCPN will establish special initiatives that serve is support of the governance, networking, and operations of the program.

- The NCPN will maintain foundations in accordance with accepted standards. The NCPN will establish and facilitate working relationships with and among appropriate entities that certify plants for planting. The NCPN will establish programs supporting Network strategic and other planning, organizational advancement, education/outreach/extension initiatives, quality management, and information exchanges.

Strategy 3: The NCPN will develop and implement a management governance structure.

- The governance system will insure the continual, unimpeded flow of information among the network members to facilitate the accomplishment of the NCPN mission.

NCPN Rationale

NCPN is established out a sense that there is a crucial need to support clean plant centers engaged in some of the classical and advanced clean plant operations and service work needed by industry and being led by those centers. These activities, as supported by PPA 7721, have become 'core' to the purpose and priorities of NCPN, including:

- Supporting importation or **introduction** of plant material into quarantine or otherwise into the program with the express and immediate purpose of establishing clean nuclear stock.
- Conducting **diagnostics** of program plant material for purposes of ascertaining pathogen status and possible needs for further action.
- Engaging in **therapeutics** to clean up plant materials as requested by industry
- Supporting clean plant **foundations** to house nuclear stock**.**

Additionally, as the network took shape and advanced, stakeholders further discussed the needs, interests, and boundaries of NCPN. It became evident that other components were crucial for good program management and to ensure for the success, viability, and advancement of this initiative. These included:

- Governance: Networking, Communications, Consultations, and Meetings, Planning, and Policies
- Strategic and Other Planning: Developing short- and long-term program and clean plant center plans
- Operations and Service Activities: Establishment and of Advancement Advancing Means, Methods, and Technologies
- Education: Outreach, Extension, and Communications with industry and other interested parties
- Economics: Studies serving NCPN communications with industry regarding the importance and value of using clean plant material
- Foundations and Germplasm Collections: Support for Clean-Up of Valuable Collections as Requested by Industry and advancing such collections to foundation standards; including novel approaches to securing and maintaining nuclear stock.
- Staffing and Facilities Support: Personnel, Facilities Refurbishment, Equipment, and Supplies
- Process Improvements: Quality Management and Quality Controls, and Quality Training
- Resources Management: Grantsmanship, Program Reviews, and Critical and Emerging Issues Management, and Strategic and Business Planning External Linkages: Connecting NCPN to Related Initiatives or Programs Impacting NCPN such as other Plant Protection Act, Section 7721 Farm Bill 2014 Section 10007 initiatives, including the Safeguarding Nursery Production program and the Enhancing and Strengthening Pest Detection and Identification program

To accomplish its mission, NCPN engages in a series of activities, including the following:

- Creating National and Commodity-Based Clean Plant Network Governing Bodies and Working Groups.
- Developing Consultative and Communications Procedures with stakeholders.
- Pursuing Strategic and Business Plans and other guidance and opinions.

- Needs driven Priority Setting with commodity-based specialty crop partners.
- Supporting a network of Facilities and Expertise for pathogen testing, therapy, and associated research, methods development, risk management, quality management, education, and outreach.
- Establishing Foundation Clean Stock plantings and provide material to nurseries and growers within prescribed nursery certification programs and otherwise as requested.
- Improving the National Plant Germplasm System by testing and for the purpose of cleaning plant material for industry
- Setting Diagnostic and other Guidelines and National Standards for use within the Network and in support of the NCPN Quality Management initiative.
- Conducting Research and Methods Development to support the diagnostics and therapeutics aspects clean plant programs.
- Advocating for industry-driven Best Management Practices in support of clean plant networks.
- Pursuing Special Initiatives in support of the Governance, Networking, and Operational needs of the program
- Organizing and delivering Education, Extension, and Outreach programs as well as Economic Studies.
- Coordinating and sharing the use of scarce Resources to support commodity-based clean plant networks.