United States Department of Agriculture
Animal and Plant Health Inspection Service

Fiscal Year 2013 Overview of Section 10201 Goals, Strategies, and Categories

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Introduction

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) is charged with implementing Section 10201 of the 2008 Farm Bill to prevent the introduction or spread of plant pests and diseases that threaten U.S. agriculture and the environment. Under the Farm Bill, APHIS provides funding to strengthen the nation's infrastructure for pest detection and surveillance, identification, and threat mitigation, while working to safeguard the nursery production system.

Since the program began in 2009, APHIS has funded more than 1,000 projects in 50 states and two territories. These projects have strengthened our ability to protect American agriculture and natural resources by allowing us to enhance plant pest/disease analysis and survey activities, target domestic inspection activities at vulnerable points in the safeguarding continuum, augment and strengthen pest identification and technology, safeguard nursery production, increase public awareness and understanding of pest threats through education and outreach, and expand mitigation capabilities.

Projects have been organized around six Section 10201 goal areas: enhancing plant pest/disease analysis and survey; targeting domestic inspection activities at vulnerable points in the safeguarding continuum; enhancing and strengthening pest identification and technology; safeguarding nursery production; enhancing mitigation capabilities; and conducting outreach and education about these issues. Details are available on APHIS' Farm Bill Section 10201 Web site at: http://www.aphis.usda.gov/section10201.

After reviewing the body of work either completed or initiated in the last 4 years and evaluating it against the goals and strategies originally put forth both in Section 10201 of the Farm Bill and the Implementation Plan for Section 10201, APHIS revised the Implementation Plan strategies and developed categories under each goal area to help stakeholders identify and develop suggestions that address a critical need or an unexplored opportunity in terms of strengthening prevention, detection, and/or mitigation efforts. The current version of the Implementation Plan can be found at the link below.

2008 FARM BILL Implementation Plan for Section 10201 *Plant Pest and Disease Management and Disaster Prevention*

In the following pages, you will find an overview of the revised goal area strategies and the developed categories.

Goal Area Strategies

Below is a list of the strategies for each goal area. The changes from the 2009 Implementation Plan include edits that more accurately reflect the intent of the goal area and that remove out-dated strategies or strategies that were not linked to any funded projects.

Goal Area	Revised Strategies
Goal 1: Enhance plant pest/disease analysis and survey	Identify risk factors and high-risk pathways by analysis of available data Target high priority pests for survey along national and local high-risk pathways Fully fund high priority nationally-directed pest surveys in support of specialty crops, trade, and regulatory activities Fully fund state-specific pest surveys in support of state pest risk and priorities
Goal 2: Target domestic inspection activities at vulnerable points in the safeguarding continuum	Promote and expand inland inspections of containers and mail facilities, where possible Expand the use of canine teams for domestic survey activities Promote increased levels of inspection for regulated articles for interstate movement
Goal 3: Enhance and strengthen pest identification and technology	Improve all aspects of early detection resources Enhance pest screening expertise and taxonomic capacity Increase the deployment of molecular diagnostic tools Develop and implement a comprehensive traps and lures management program
Goal 4: Safeguard nursery production	Develop science-based best management practices and risk mitigation practices to exclude, contain, and control regulated pests from the nursery production chain Develop and harmonize audit-based Nursery Certification Programs

Goal 5: Conduct outreach and education to increase understanding, acceptance, and support of plant pest and disease eradication and control efforts	Prevent the introduction or spread of high-consequence pests into and around the United States, particularly in high-risk areas Develop people to strengthen the safeguarding system Increase the number of people actively looking for and reporting high-consequence pests at vulnerable points along high-risk pathways
Goal 6: Enhance mitigation capabilities	Improve the mechanism to assess and decide an appropriate short term course of action to a new pest Utilize initial response protocols for the overarching goals of containment, control, or eradication at the onset of plant health emergencies Prepare the agency and collaborative programs in the use of the Incident Command System (ICS) Provide technical assistance prior to, during, and immediately following the development of a plant health emergency through the development of New Pest Response Guidelines (Action Plans)

Categories

As mentioned in the introduction, APHIS has developed categories under each goal area to help stakeholders identify and develop suggestions that address a critical need or an unexplored opportunity in terms of strengthening prevention, detection, and/or mitigation efforts. The categories are described below.

Goal Area	Categories	Category Definitions
Goal 1	Analysis	Efforts that focus on compiling, synthesizing, and evaluating quantitative and qualitative data to inform risk analysis, survey methodology, predictive modeling, and pathway analysis. Analysis should improve survey efforts for invasive species by better defining biotic and a-biotic variables, detecting patterns, testing hypotheses, and validating results while highlighting useful information and supporting decision making.
	National Surveys	Surveys which are national in scope with broad participation by the states, and target high priority exotic pests, commodities, and high risk pathways for entry of exotic pests into the United States. The supported National Surveys may be determined and communicated by the Farm Bill Survey Team in consultation with PPQ program managers and state cooperators.
	State-Specific Surveys	Surveys which are more local or regional in scope, and target high priority pests, commodities, and high risk pathways into a state or within a region. Proposed State-specific Surveys should be based on the priorities of a state or region, and be important for that state or region for biological, agricultural, environmental, and/or economic reasons.
Goal 2	Destination Inspections	Follow-up inspections conducted by cooperating regulatory agencies in states receiving international and interstate regulated cargos that present a risk of moving plant pests. This also includes the development of inspection techniques.
	Detector Dogs	New capacities of agriculture detection dog teams, designing and delivering agriculture detection dog training, and developing and supporting agriculture detection dog programs for cooperators.

Goal 3	Detection Technologies	Includes developing, testing, comparing and transferring plant pest detection technologies for program implementation; development of novel and improvement of existing survey tools such as traps, lures, and field recognition aids.
	Diagnostic Capacity Building	Includes training, equipment, specimens, diagnostic tools and methods (morphological and molecular), certification, personnel, and enhancements to infrastructure that improve diagnostic capability/throughput (i.e. an increase in the number of taxa that a lab may identify as well as sheer volume of samples it may process of a given taxon).
	Taxonomic Support	Includes internal and external resources brought to bear on the operational screening and identification of given plant pest taxa.
	Traps and Lures	Includes developing inventories, standardizing, managing distribution and developing quality assurance and control programs for survey traps and lures.
Goal 4	Systems Approaches for Nursery Production	Initiatives that explore *Phytophthora ramorum* in nursery production systems as well as other pests.
	Nursery Certification Programs	Initiatives that directly address and inform the process of nursery certification programs; studies on potential improvements on nursery certification programs.
	Specialty Crop Pilot Studies	Initiatives supporting specialty crop pilot studies and harmonization.
Goal 5	Traveler Outreach	Initiatives designed to inform travelers about pests and diseases and the steps they can take to prevent their introduction or spread.
	Consumer Outreach	Initiatives designed to inform consumers about pests and diseases and the steps they can take to prevent their introduction or spread.

	Youth Outreach	Initiatives designed to inform youth about invasive pests and the steps we all can take to protect agriculture and natural resources.
	Producer/First Detector Training	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).
	University/College-Level Education	Efforts to develop expertise in areas of plant resource protection and regulatory science to meet future State and Federal resource needs.
	Distribution Center Employee Outreach	Efforts to 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.
Goal 6	Applied Mitigation R&D	Efforts that develop or adapt new control technologies, tools, and treatments for use in plant health emergencies, e.g., Lepidoptera and *Coleoptera* attractants, quarantine treatments, BMSB biological control.
	Preparation	Efforts that improve the knowledge base, response options and capabilities prior to the onset of a plant health emergency, e.g., development/training of rapid response teams, NPRG, etc..
	Rapid Response	Efforts that use existing tools and initial response protocols for the overarching goals of containment, control, or eradication at the onset of plant health emergencies.

Appendix 1: Additional Guidance Goal 1 (Survey)

The Implementation Plan for Section 10201 outlines key strategies - organized into six major areas - to integrate and coordinate plant pest and disease management and disaster prevention activities that will be funded by Section 10201 of the 2008 Farm Bill. Under the first major goal area, "Goal 1: Enhance plant pest/disease analysis and surveys," APHIS' survey strategies include: 1.2) target high priority pests for survey along national and local high-risk pathways; 1.3) fully fund high priority nationally-directed pest surveys in support of specialty crops, trade, and regulatory activities; and 1.4) fully fund state-specific pest surveys in support of state pest risk and priorities. For FY12, surveys under Goal 1 will be divided into three groups or categories; 1) National Surveys, 2) State-Specific Surveys, and 3) Program-Directed Surveys. This distinction will facilitate the review process and reporting.

National Surveys

National surveys are those surveys that are national in scope with broad participation by the states, and target high priority exotic pests, commodities, and high risk pathways for entry of exotic pests into the United States. The supported National Surveys may be determined and communicated by the Farm Bill Survey Team in consultation with PPQ program managers (see link provided at the end of this document) and state cooperators.

As in FY12, several surveys are deemed to be of national importance because of pathway, risk, or trade considerations. Participation by multiple states in these surveys is desirable, and states are encouraged to consider these surveys when developing proposed work for FY13 funding. States will indicate their willingness to participate in these surveys via the FY13 suggestion process. The following have been designated as National Surveys (survey expectations appear at the end of the document):

- **Enhanced Port Environs** – surveys focused on the pathway continuum from the immediate port environment and surrounding areas to inland high risk sites; Strategy 1.2
    - Asian defoliating moths
    - Exotic woodborers and bark beetles
    - Mollusks
    - And other demonstrated high risk pests along a particular pathway.
- **Commodity-Based Surveys**; Strategy 1.3
    - Grape – commodity-based survey for multiple pests, and must include *Lobesia botrana* (European grapevine moth)
    - Solanaceous - commodity-based (tomato and pepper) survey for multiple pests, and must include *Tuta absoluta* (Tomato leaf miner)
    - Stone Fruit – commodity-based survey for multiple pests, and must include Plum Pox Virus (PPV)
    - Orchard - commodity-based (apple and pear) survey for multiple pests
- **Honey Bee**; Strategy 1.3

State-Specific Surveys

State-specific surveys are those surveys that are more local or regional in scope, and target high priority pests, commodities, and high risk pathways into a state or within a region. Proposed State-specific Surveys should be based on the priorities of a state or region, and be important for that state or region for biological, agricultural, environmental, and/or economic reasons.

Surveys not listed above or are more specific to a particular state or region also will be considered for funding in FY13 if that survey falls under the general guidelines and language of the Farm Bill, and a strategy for Goal 1 (e.g., Strategy 1.4). Surveys that target 'emerging' pest threats or recently detected pests whose regulatory status has yet to be determined will be rated higher than pests that have been established for many years and/or pests that are not regulated. Justification for this type of survey must be clear. Surveys for management of established pests that are not of quarantine significance to APHIS will not be considered. States should submit suggestions for State-Specific surveys in addition to Nationally-Directed Surveys, but not both for the same suggestion. Regional surveys are encouraged. Contact your National or Operations Program Managers, or your State Plant Health Director for clarification if you have questions about these types of surveys.

Survey suggestions should be focused on the above strategies and be directed to either the National or State-Specific Survey category.

Program-Directed Surveys

Program-directed surveys are those surveys that may be funded through the Farm Bill, but will not be open for suggestions. These surveys will be strategic, and aimed at filling gaps in our knowledge about the distribution of a pest, according to the objectives of the specific program. These surveys focus on specific states based upon pest biology, risk, pathways of dissemination, and objectives of the specific program. Program managers will contact the states that are proposed to participate and they will explain the structure and requirements of the survey. States may decline, but will have an understanding of the potential impacts of doing so. These surveys support Strategy 1.2.

For FY13, the Khapra Beetle and *Phytophthora ramorum* Programs will conduct Program-Directed Surveys. Program managers who oversee these programs will communicate the structure and requirements of the surveys.

Pathway Approach

When planning surveys, the States are encouraged to use a pathway approach when deciding on pests and locations to survey. States should plan to survey where the risk is highest. 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, and to successfully provide early detection of these pests. This concept can be combined with any survey using sound analytical tools, known risk sites, past history of pest detections in a State, and other avenues of information. It is understood that risk factors can be examined along a "risk continuum" beginning at

offshore sites (points of origin) to points of potential establishment (commodity production areas, natural lands), and numerous risk points in between (wholesale distribution centers, nurseries, intermodal sites, rail yards, etc.). The identification of risk points and development of targeted surveys will maintain the focus of the survey program on our top commodities at risk and the high priority pests.

Surveys for multiple, high priority pests along known pathways will be rated higher than single pest surveys or surveys where no high priority pests are targeted or no pathway approach is indicated.

Data Management

Data from all Farm Bill surveys under Goal 1 will be entered into the National Agricultural Pest Information System (NAPIS) unless otherwise directed by National and Operation Program Managers.

Survey Supplies

Survey supplies (traps, lures, and accessories) for most surveys funded under the Farm Bill will be provided by PPQ through separate Farm Bill funding. The timeframe for ordering these supplies will be communicated at a later date. Questions should be directed towards the Survey Supplies Program Manager.

Accomplishment Report

APHIS encourages cooperators to use the CAPS Survey Accomplishment Report Template when reporting survey accomplishments. This is a requirement for CAPS surveys; therefore, APHIS believes the template is familiar to many cooperators and will provide consistent reports nationwide. The Farm Bill version of the reporting template can be found here.

Enhanced Port Environs Surveys

The Enhanced Port Environs surveys are targeted pathway surveys to be conducted primarily along the pathway continuum from the immediate port environment and surrounding areas to inland locations. The focus should be on high risk areas, such as container yards, rail yards, and warehouses, and be based on known risk factors. Of particular importance are those yards receiving containers from high-risk countries or from areas that are currently under treatment in the U.S. The primary objective of this effort is to monitor high-risk seaports, mills, rail yards, and other hot zones for exotic wood boring insects, Asian defoliators, and other pests that may be introduced into the United States through commerce, particularly in and near port areas receiving cargo shipments from Asia and other inland locations with demonstrated risk factors.

The emphasis is on multi-pest surveys and will follow the general survey guidelines for bundled surveys as specified in the Cooperative Agricultural Pest Survey (CAPS) 2013 National Survey Guidelines. The intent of the bundled survey is to give the States the flexibility to design their own surveys, within certain parameters. The survey must concentrate on multiple, high priority pests and efficiency of survey within the taxa listed. Asian defoliator surveys should concentrate on species of *Lymantria* and *Dendrolimus*, and follow the guidance given for the Asian Defoliator Pathway-based National Survey

Reference. Exotic wood boring & bark beetle surveys should follow the guidelines and pest list in the revised Exotic Wood Borer/Bark Beetle National Survey Guidelines. For all surveys, the CAPS-Approved Methods will be the required survey methodology, if available.

Commodity-Based Surveys

The Grape, Solanaceous (tomato/pepper), Stone Fruit, and Orchard (apple/pear) surveys will follow the general survey guidelines for bundled surveys as specified in the Cooperative Agricultural Pest Survey (CAPS) 2013 National Survey Guidelines. The intent of the bundled survey is to give the States the flexibility to design their own surveys, within certain parameters. The survey must concentrate on multiple, high priority pests and efficiency of survey within the commodities listed. The survey must include pests from the CAPS Priority Pest List (Commodity Pests [Appendix G-1] and/or Pests of Economic and Environmental Importance [Appendix G-2]). Pests of importance to a State not on the Priority Pest List, but in common with the other pests, may be included in the bundled survey**. For Farm Bill-funded surveys, *Lobesia botrana, Tuta absoluta*, and Plum Pox Virus must be included in the Grape, Solanaceous, and Stone Fruit surveys, respectively**. Multiple-pest surveys will be rated higher than single-pest surveys. The CAPS-Approved Methods will be the required survey methodology. The Pest Detection team will use the information from the Farm Bill Solanaceous and Orchard surveys to aid in the development of CAPS Commodity-based surveys with accompanying approved methods.

Honey Bee Pests and Diseases

Samples for the USDA survey of honey bee pests and disease will be collected by local Apiary Specialists (e.g., state or university representatives). Samples will be collected from 24 Apiaries per state (48 Apiaries in California). The Apiary Specialist will identify local beekeepers willing to volunteer their apiary for sampling. Where possible, 10 queen producers should be sampled unless there are fewer than 10 willing queen producers in the state. Of the remaining Apiaries sampled, when possible 1/2 of the Apiaries sampled should be from migratory operations (move out of state and return prior to sampling) and 1/2 should be from stationary operations (do not move out of the state but move within the state). Apiaries should be chosen in order to give as close to an equal representation of the entire state as possible. Ideally, a state will be sectioned into 4 quadrants with Apiaries randomly chosen within a quadrant. Additional Apiaries that may occur near ports or other areas that could be considered high risk should also be considered for sampling. If there are a limited number of beekeepers in the state, it is acceptable to sample some of those sampled in previous years.

To accomplish the objectives of the survey, cooperators will distribute sampling kits, identify commercial and migratory beekeepers that will volunteer their honey bee colonies for sampling, collect and preserve samples, and forward samples to the USDA Agricultural Research Service (ARS). Two composite samples of adult bees will be collected from 8 colonies in each of 24 apiaries. One sample will be put in alcohol for microscopic analysis and a second sample will be sent to ARS with live bees for molecular analysis. A third sample will be collected for analysis for the presence/absence of Tropilaelaps. In addition, a sample of pollen will be collected from each hive in 10 of the 24 Apiaries sampled for analysis of pesticide residues. All sampling protocols and training videos can be accessed on

the APHIS website at
http://www.aphis.usda.gov/plant_health/plant_pest_info/honey_bees/survey.shtml.

The University of Maryland (UMD) and ARS will provide sampling equipment to states that have not received equipment in previous years, as well as sampling kits, and analyze collected samples. Data from all states participating in the survey will be compiled by the USDA APHIS and ARS in collaboration with UMD. USDA APHIS, ARS and UMD will communicate the compiled results. The results of the analysis will be forwarded by UMD to the participating beekeepers and the respective state apiary contacts. All data collected will be maintained at APHIS, ARS and UMD. This data will entered into the NAPIS database as well as the Bee Informed Partnership (BIP) database funded by USDA NIFA and maintained by UMD. Results from these samples will be provided to the State Apiary Specialist and Beekeeper within 4 months.

Appendix 2: Additional Guidance Goal 2

The Implementation Plan for Section 10201 outlines key strategies - organized into six major areas - to integrate and coordinate plant pest and disease management and disaster prevention activities that will be funded by Section 10201 of the 2008 Farm Bill. Under the second major goal area, "Goal 2: Target domestic inspection activities at vulnerable points in the safeguarding continuum," APHIS' strategies include: 2.1) Promote and expand inland inspections of containers and mail facilities; 2.2) Expand the use of canine teams for domestic survey activities; and 2.3) Promote increased levels of inspection for regulated articles for interstate movement. As in previous years, for FY13, suggestions to be considered under Goal 2 should also align with one of these three Strategies.

1. Promote and expand inland inspections of containers and mail facilities. The goal is to develop cooperative efforts with State agriculture regulatory agencies, promoting inspection activities of regulated articles in international commerce at point after they have been cleared at Ports of Entry. These may be independent activities or conducted in cooperation with PPQ programs, such as Smuggling Interdiction and Trade Support.
2. Expand the use of canine teams for domestic survey activities. The goal is to promote the use of canine teams for inspection of international and interstate commerce by State agriculture regulatory agencies as well as offices within PPQ. Another activity is to promote the use of canine teams in the detection of particular pests on detection and pest management programs. These programs are supported by the PPQ National Detector Dog Training Center in Newnan, GA
3. Promote increased levels of inspection for regulated articles for interstate movement. The goal is to develop cooperative efforts with State agriculture regulatory agencies, promoting inspection activities of regulated articles in interstate commerce to support both Federal and State regulations. These may be independent activities or conducted in cooperation with PPQ programs in the states.

Appendix 3: Additional Guidance Goal 3

Under the Implementation Plan for the 2012 Farm Bill under Section 10201, Goal 3, "Pest Identification and Technology Enhancement" has four goal-specific categories under the various strategies outlined. Suggestions will be considered under Goal 3 when they address the following priority needs for PPQ. Examples of areas of emphasis are listed below each strategy.

Category Definitions

Detection Technologies – developing, testing, comparing and transferring plant pest detection technologies for program implementation; development of novel and improvement of existing survey tools such as traps, lures, and field recognition aids. High priority pests for consideration include those found on the OPIS A list and/or the CAPS National Survey Target lists.

Examples include but are not limited to:

- *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. Efficacy comparisons of new hot-melt sticky traps of various manufacturers against traditional sticky traps for various Cooperative Agriculture Pest Survey (CAPS) national survey target lists (the priority pests lists are found at http://caps.ceris.purdue.edu/pest_lists) of insect species, i.e., trap design experiments which verify efficacy of diagnostic-friendly traps for CAPS targets in the pests' native range (e.g., *Helicoverpa armigera* and *Tuta absoluta*).

- Research toward the development of automated traps that can record the time and date of capture, report captures remotely, and screening of captures to determine target species. Also, traps that can effectively accommodate multiple lures for multiple CAPS target pests, and the use of portable USB remote imaging technology for specimen screening from surveys..

- *Develop/ optimize attractants and traps for CAPS targets:* The following CAPS national survey targets (and potential targets) 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 and then
    - Testing the potential attractants and traps in the target pests' native range.

  Targets are listed by family.

    - Buprestidae*: Agrilus biguttatus* and *Agrilus coxalis* or other potential *Agrilus* pest species
    - *Cerambycidae: Aeolesthes sarta, Anoplophora chinensis, Chlorophorus annularis, Chlorophorus strobilicola, Massicus raddei, Monochamus saltuarius, Monochamus sutor, Monochamus urussovi, Trichoferus campestris, Xylotrechus altaicus, Xylotrechus*

antilope, Xylotrechus arvicola, Xylotrechus namanganensis, Xylotrechus rusticus, and other cerambycids of quarantine importance.

- Chrysomelidae: *Diabrotica speciosa.*
- Curculionidae: *Dendroctonus micans, Scolytus intricatus,* and *Tomicus minor*
- Lasiocampidae : *Dendrolimus superans, D. sibericus, D. punctatus,* and *D. pini.*
- Scolytinae: *Euwallacia fornicatus*.
- Siricidae: *Tremex fuscicornis*

- *Detection assays:* Affordable biochemical or molecular assays for detecting CAPS insect targets in trap samples comprised of numerous, similar but native pests (e.g., *Helicoverpa armigera* or *Autographa gamma* in pheromone trap samples) where large numbers of U.S. native non-target moths fill up traps, all of which must be dissected for morphological identification. Molecular tool must be valid for the target species against related species detectable from large composite samples and high through-put with demonstrated sensitivity and practical implementation for survey programs.

- Refine pheromone specificity to eliminate or drastically reduce non-target moths attracted: *Heliocoverpa armigera* (not attract *Heliocoverpa zea,* etc*.); Autographa gamma* (not attract other native or established *Autographa* spp*., Rhachiplusia ou, Chrysodeixis includes*, and *Trichoplusia ni*).

- *Field-level diagnostic methods:* Field-level or intermediate screener diagnostic methods for CAPS national survey target pathogens at group or genus level (e.g., ELISA/immunostrip for phytoplasma or virus/viroid detection), and for *Rathayibacter* sp. to screen suspect galls from rye grass imports at ports of entry.

Diagnostic Capacity Building – training, equipment, specimens, diagnostic tools and methods (morphological and molecular), certification, personnel, and enhancements to infrastructure that improve diagnostic capability and throughput.

Examples include but are not limited to:

- *Recorded training sessions:* Thorough species level taxonomic training given by recognized experts is needed for taxonomists/identifiers for exotic pests to distinguish from established and native species. Recorded webinars and/or video-taped training that can be posted and web-accessed is desired for including but not limited to pests in the following groups: Acarina, , Coleoptera woodborer adults, , Lepidoptera adults and larvae, and Thysanoptera. Also for nematodes and fungal pathogens of quarantine importance.

- *Molecular tools development/validation for CAPS national survey target pests:* These could include, but are not limited to *Chalara fraxinea, Harpophora maydis, Monilia polystroma/Monilinia* spp., bacteria (*Pseudomonas/Xanthomonas*) at the pathovar level,

phytoplasmas at species/strain level, viruses (specifically torradoviruses) at the genus and species level, viroids, and nematodes.

- *Molecular tools to support the exclusion of invasive species: Develop molecul*ar tools that are needed for invasive species *such as tephritid fruit flies. This would include but is not l*imited to informat*ion that can help targe*t and restrict pathways of introduction and characterize unresolved species complexes, in support of diagnostic needs for surveys and effective pest management*/eradication strategies.*

- *Sequencing data for insect targets:* Develop appropriate and quality sequencing data for insects (and closely related species) on CAPS target list or other federally actionable pests including samples from various known geographic localities for specimens that are expertly identified and confirmed. The taxa in question would be focused on a pest genus or family for a particular study.

- *Interactive taxonomic keys:* Develop interactive taxonomic keys, using well-illustrated morphological and/or molecular characters (if morphology is inadequate), that are capable of providing credible confirmations of suspect CAPS national survey targets, particularly plant pathogens and insect groups of quarantine importance which will provide tools useful to identifiers.

Taxonomic Support – internal and external resources brought to bear on the operational screening and identification of given plant pest taxa.

Examples include but are not limited to:

- The development of screening aids for pest groups on the CAPS target lists. These should be image based documents that can be posted for screeners to distinguish target genera from similar native or widely distributed look-a-like species typically found in survey samples. These aids should include external morphological characteristics of the pest clearly depicted. . See examples at: http://caps.ceris.purdue.edu/screening_aids. Those insect screening aids most needed which will be given a high level of consideration are: for Lepidoptera adults (i.e*., Adoxophyes orana, Archips xylosteanus, Cameraria ohridella, Chilo suppresalis, Dendrolemus pini, D. punctatus, D. sibiricus, D. superans, Eudocima fullonia, Leucoptera malifoliella, Panolis flammea, Thaumetopoea processionnea*), and Coleoptera woodborer adults (i.e*., Massicus raddei, Monochamus sutor, M. sutor*) and others on the CAPS target list not already covered.

- For plant pathogens this could include biochemical screening methods and confirmatory diagnostics for plant pathogenic nematodes including *Bursaphelenenchus cocophilus*, other pathogens from the CAPS national target list including *Chalara fraxinea, Harpophora maydis, Monilia polystroma/Monilinia* spp., *Peronosclerospora* spp., *Phytophthora* spp., *Pseudomonas*

syringae pvs. *actinidiae* and *aesculi*, *Xanthomonas oryzae* pathovars, as well as phytoplasmas and viruses/viroids on the list.

- Laboratory diagnostic services for universal detection/screening of phytoplasmas to support CAPS surveys for plant pathogenic phytoplasmas.

Traps and Lures Management – developing inventories, standardizing, managing distribution and developing quality assurance and control programs for survey traps and lures.

- Cost effective quality assurance or control program for regularly procured products.
- Innovative improvements and/or complimentary enhancements to existing trap and lures management system such as:
    - Developing ISO-like standards or detailed direction developed for a Quality Assurance Surveillance Program for a variety lures, to include, but not limited to: solid methyl eugenol and solid cuelure, and rosy gypsy moth lure.

Appendix 4: Additional Guidance Goal 4

The Implementation Plan for Section 10201 outlines key strategies - organized into six major areas - to integrate and coordinate plant pest and disease management and disaster prevention activities that will be funded by Section 10201 of the 2008 Farm Bill. Under the fourth major goal area, "Goal 4: Safeguard Nursery Production," APHIS' strategies include: 4.1) Develop science-based best management practices and risk mitigation practices to exclude, contain, and control regulated pests from the nursery production chain; and 4.2) Develop and harmonize audit-based Nursery Certification Programs. As we analyzed the projects funded over the past three years, funded projects fell into three broad categories. Therefore, for FY13, suggestions under Goal 4 should fall into one of these three categories which are; 1) System Approaches for Nursery Production; 2) Specialty Crop Pilot Studies; and 3) Nursery Certification Programs. This distinction will facilitate the review process and subsequent reporting. Suggestions should be focused on the above strategies and be directed to one of the three categories.

- **System Approaches for Nursery Production** are those initiatives that specifically explore the role of certain pests within nursery production systems. The goal 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. Some of the Farm Bill suggestions funded in FY12 include;
    - National Ornamentals Research Site at Dominican University of California
    - Developing an Epidemiological Framework for Management of *Phytophthora ramorum* in Nursery Systems
    - Development of Biofiltration Systems to Reduce the Spread of *Phytophthora ramorum* in Water
    - Use of Trichoderma to Remediate *Phytophthora ramorum*-Infested Soil

- **Nursery Certification Programs** are those initiatives that 'directly' address and 'inform' the process of inspecting, auditing and certifying the production of nursery stock. Enhanced harmonization and integration of nursery certification programs will enhance 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 of exotic pests. Some of the Farm Bill suggestions funded in FY12 include;
    - National Harmonized Systems Approach to Nursery Certification Programs
    - National Voluntary Nursery Audit-based Certification System
    - Development of a Domestic Market Focused Nursery Certification Program
    - Comparing the Efficacy of Three Certification Schemes for Pest Risk Mitigation in Nursery Stock
    - Adaption of Advanced Tracking Technologies for Monitoring Movement of Plant Materials
    - Initiating or Reinstating Select State Nursery Certification programs
    - Training Auditors in Methods for Nursery Certification and Nurseries and Growers in the Importance and Value of Using Certified Nursery Stock

- **Specialty Crop Pilot Studies** are 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. Some of the Farm Bill suggestions funded in FY12 include;
    - Harmonizing Model Regulatory Standards among Certain Specialty Crops
    - Development of Harmonized Standards for Fruit Trees, Berries, Grapes, and Citrus Certification Programs
    - National Nursery Virus Certification Program Pilots for Fruit Trees and Grapes
    - Analyzing Nursery Source Material to Improve Virus Testing in Nursery Certification Programs
    - Safeguarding Citrus Nurseries

Appendix 5: Additional Guidance Goal 5

Goal area 5 is Outreach and Education. The primary goal of outreach and education activities under Section 10201 is to increase understanding, acceptance, and support of plant pest and disease exclusion, eradication, and control efforts. Ideally, outreach and education projects would support and enhance efforts to prevent the introduction or spread of high-consequence pests into and around the United States, particularly in susceptible high-risk areas. They would increase the number of people actively looking for and reporting high-consequence pests at vulnerable points along high-risk pathways. In addition, these projects could help develop people to strengthen the safeguarding system by teaching them what they can do to help. To the extent that mobile apps are part of a suggestion, APHIS will consider how that suggestion aligns with its overall IT goals and strategies that support plant safeguarding operations.

To support these broad goals, suggestions should focus on:

- Traveler Outreach: Initiatives designed to inform travelers about pests and diseases and the steps they can take to prevent their introduction or spread.

- Consumer Outreach: Initiatives designed to inform consumers about pests and diseases and the steps they can take to prevent their introduction or spread.

- Youth Outreach: Initiatives designed to inform youth about invasive pests and the steps we can all take to protect agriculture and natural resources.

- Producer/First Detector Training: 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 threats (especially tribal, underserved, minority, and specialty crops producers).

- University/College-Level Education: Efforts to develop expertise in areas of plant resource protection and regulatory science to meet future State and Federal resource needs.

- Distribution Center Employee Outreach: Efforts to encourage people who work in or around warehouse and storage facilities, nursery and garden centers, and other vulnerable points to look for and report signs of a pest or disease.

Appendix 6: Additional Guidance Goal 6

The Implementation Plan for Section 10201 outlines key strategies - organized into six major areas - to integrate and coordinate plant pest and disease management and disaster prevention activities that will be funded by Section 10201 of the 2008 Farm Bill. Under the sixth major goal area, "Goal 6: Enhance mitigation capabilities", APHIS' strategies include: 6.1) Develop, promote, and implement applied mitigation research and development; 6.2) Enhance preparation for a plant pest emergency; and 6.3) Enhance rapid response to plant pest emergency

As in previous years, for FY13, suggestions to be considered under Goal 6 should also align with one of these three Strategies.

1. *Develop, promote, and implement applied mitigation research and mitigation capabilities*
   The goal is to 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 attractants for Lepidoptera and Coleoptera, quarantine treatments, and biological control for brown marmorated stinkbug.

2. *Enhance preparation for a plant pest emergency*
   The goal is to improve the knowledge base, response options, and capabilities prior to the onset of a plant pest emergency. Examples for this Goal 6 strategy include development and training of rapid response teams, development of New Pest Response Guidelines.

3. *Enhance rapid response to plant pest emergency*
   The goal is to provide funding to employ the existing tools and initial response protocols for the overarching goals of containment, control, or eradication at the onset of plant pest emergencies. Examples for this Goal 6 strategy include giant African snail and Mediterranean fruit fly programs.