Combined Survey Work & Financial Plan for Fiscal Year 20xx

An Example from the Indiana Department of Natural Resources

Cooperator:	Indiana Department of Natural Resources (IDNR)			
State:	Indiana			
Project:	Combined Surveys			
Project funding source:	CAPS- Pest Detection Survey			
Project Coordinator:				
Agreement Number				
Contact Information:	**Address:**			
	Phone:		**Fax:**	
	Email Address:			

This Work Plan reflects a cooperative relationship between the Indiana Department of Natural Resources (IDNR), Division of Entomology and Plant Pathology (the Cooperator) and the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ). It outlines the mission-related goals, objectives, and anticipated accomplishments as well as the approach for conducting a Soybean Commodity Survey, a Corn Commodity Survey, a Nursery and Retail Plants Survey, and an Exotic Wood borers/Bark Beetles Survey. This plan also includes the related roles and responsibilities of the parties [e.g., mutual roles, APHIS role(s), Cooperator role(s)] as negotiated.

I. OBJECTIVES AND NEED FOR ASSISTANCE

Indiana harvested about 5.5 million acres of soybean worth about $3.2 billion and about 5.9 million acres of corn worth about $3.9 billion in 2014 (National Ag Statistics Service NASS). In 2012 the nursery, greenhouse, floriculture, and sod industries added $111 million value to local and state economies (NASS). The overall economic impact of Indiana's hardwood industry (crop value, milling, manufacturing, and transportation) was $17 billion in 2008 (IDNR).

The primary objective of these surveys is early detection of exotic invasive organisms that could threaten the agricultural and natural resources (listed above) in Indiana and the in United States. This general objective includes program development, coordination, execution, and archiving results of surveys intended to detect and/or monitor exotic pests that are of national and state concern and to facilitate export of American products.

II. RESULTS OR BENEFITS EXPECTED

The Cooperator seeks to conduct a program that is expected to result in: timely identification of high-risk, exotic invasive organisms that could threaten the agricultural and natural resources (listed above) of Indiana and the United States. Additionally, the intent of this program includes the facilitation of the exportation of Indiana and national agricultural products by providing reasonable assurance of pest absence.

III. APPROACH

What is the plan of action or approach to the work?

A **Soybean Survey** will be a combination of seasonal trap/lure monitoring at preselected sites for priority insects, and sweep net and visual sampling of high risk sites for pests of state concern that are determined in season. Traps for priority moths will be deployed at five locations with soybean interspersed with regional acreages of one or more of tomato, pepper, sweet/seed/pop corn and snap beans. Five plastic bucket traps (unitrap) with lure and kill strips per location will be deployed for adult silver Y-moth, *Autographa gamma,* old world bollworm, *Helicoverpa armigera,* Egyptian cotton leafworm, *Spodoptera littoralis,* and golden twin-spot moth, *Chrysodeixis chalcites.* Traps will be monitored weekly for three months. All traps with lures will deployed according to the Soybean Commodity Survey Guidelines (25 July 2007) and the CAPS Approved Methods. CAPS SSC will prescreen and PPQ identifiers will verify suspect moths. The bean plataspid (aka kudzu bug), *Megacopta cribraria,* a pest of state concern will be bundled with the survey. Soybean foliage will be swept (30 sweeps/set) with a 15cm diameter heavy beating net in multiple counties having kudzu infestations. One to four fields per county will be sampled with a minimum of 30 samples. The methodology will be adapted to the Purdue Cooperative Extension Service recommendations to evaluate stink bug in soybean. Observations (laboratory-confirmed) for Yellow witchweed, *Alectra vogelii*, (Soybean Commodity Survey Guidelines 25 July 2007 and CAPS approved methods) will be obtained monthly for 3 months at five locations and 5 sites per location. Results will be uploaded to NAPIS.

A **Corn Survey** will be a combination of seasonal trap/lure monitoring techniques at preselected sites for priority insects and visual/laboratory-confirmed observations chosen in-season. Traps for priority moths will be deployed at five locations with high concentration of field corn. Five plastic bucket traps (unitrap) with lure and kill strips per location will be deployed for adult silver Y-moth, *Autographa gamma,* old world bollworm, *Helicoverpa armigera,* Egyptian cotton leafworm, *Spodoptera littoralis,* and cotton cutworm, *Spodoptera litura.* Traps will be monitored weekly for three months. Traps/lures will be deployed according to the Corn Commodity Survey Guidelines (August 2010) and the CAPS Approved Methods. CAPS SSC will prescreen and PPQ identifiers will verify suspect moths. Five observations per five locations per month for 3 months will be made for Asiatic witchweed, *Striga asiatica*. Priority disease targets including brown stripe downy mildew, *Sclerophthora rayssiae* var. *zeae*, Philippine downy mildew, *Peronosclerospora philippinensis*, and downy mildew, *Peronosclerospora maydis* will be sampled in about 20 counties from about mid May through mid August. Selection of counties will be directed by seasonal weather conditions. Disease samples will be screened and confirmed by the Purdue Plant Pest Diagnostic Laboratory using molecular techniques. Results will be uploaded to NAPIS.

The Indiana CAPS program will cooperate with APHIS PPQ officers in Indiana by receiving and processing samples from about 60 statewide, risk-based sites for an **Exotic Wood Borer/Bark Beetle Survey**. APHIS PPQ will deploy and service up to two Lindgren funnel traps at each site. One to two traps per site will contain either Monachamol+UHR

ethanol+ UHR alpha-pinene, Chalcogran lure, IPS Tri-lure, Lineatin, or *Platypus quercivrous* lure. Combinations of specific insect pests will be sampled at five to 35 sites resulting in 60 total sites represented. Single unbaited purple panel traps will be placed at five sites. Traps will be placed approximately late-April and serviced every 14 to 21 days until early-October (approximately 7 sampling dates). SSC will be responsible for retrieving samples from a staging site, prescreening, reporting, and archiving samples. Suspect specimens will be confirmed by a PPQ area identifier. Priority insects that could respond to the lures used in this survey include *Trypodendron domesticum, Ips sexdentatus, Ips typographus, Monochamus alternatus, Monochamus urussovii, Orthotomicus erosus, Platypus quercivrous,* and *Pityogenes chalcographus*. *Agrilus biguttatus* and *A. auroguttatus* will be sampled with unbaited purple prism traps coupled with visual observations. Methodology will be according to the Exotic Wood Borer/Bark Beetle Survey Reference 2014 and CAPS Approved Methods. Results will be uploaded to NAPIS.

A bundled **Nursery and Retail Plants Survey** will be integrated with the annual plant nursery and retail outlet inspections conducted by Indiana Department of Natural Resources. A subset from approximately 363 plant nurseries and a large number retail outlets are inspected statewide on a rotating basis. State nursery inspectors will set and monitor traps for the priority pest, old world bollworm, *Helicoverpa. armigera,* observe and sample foliage of ornamental boxwood cultivars, *Cylindrocladium pseudonaviculata,* and observe and sample a wide range of susceptible perennial plant foliage for *Phytophthora ramorum*. Moth and foliar samples will be sent to the Purdue Department of Entomology and to the Purdue Plant Pest Disease Laboratory (PPDL), respectively. For moth survey, traps will be deployed and serviced at 45 nurseries and/or retail plant outlets state-wide. One plastic bucket (unitrap) trap with lure and kill strip per will be placed per site for old world bollworm, *H. armigera* in mid May and serviced biweekly for 3 months (six samples per site). CAPS SSC will prescreen and PPQ identifier(s) will verify suspect moths. Disease targets will be sampled in 20 to 40 counties (350 samples for *C. pseudonaviculata* and 350 samples for *P. ramorum)* from about mid May through mid August. Disease samples will be screened and confirmed by the PPDL using morphological and/or molecular techniques. Results will be uploaded to NAPIS.

III A. The Cooperator will:

III A 1. By function, what work is to be accomplished?

a. Soybean survey: cooperator will install and service traps for moth targets using Soybean Commodity Survey Guidelines (25 July 2007) and the CAPS Approved Methods, conduct sweep sampling for bean plataspid using stink bug survey guidelines developed by Purdue Department of Entomolgy, and visual observations for yellow witchweed, *Alectra vogellii,* (Soybean Commodity Survey Guidelines 25 July 2007) using CAPS Approved Methods. Results will be reported to NAPIS.

b. Corn survey: cooperator will install and service traps for moth targets using Corn Commodity Survey Guidelines (August 2010) and the CAPS Approved Methods, will observe for Asiatic witchweed, *Striga asiatica,* using

methodology for yellow witchweed, and will collaborate with Purdue Plant Pest Diagnostic Laboratory for the disease survey portion using Corn Commodity Survey Guidelines (August 2010) and the CAPS Approved Methods. Results will be reported to NAPIS.

c. Wood borer/bark beetle survey: cooperator will collaborate with Indiana PPQ in planning an exotic wood borer/bark beetle survey, and process/prescreen/archive samples. Methodology will be according to the Exotic Wood Borer/Bark Beetle Survey Reference 2014 and CAPS Approved Methods. Results will be reported NAPIS.

d. Nursery and retail plant survey: cooperator will install/service traps for priority moth target (old world bollworm), collaborate with Purdue Plant Pest Diagnostic Laboratory to survey for sudden oak death (*Phytophthora ramorum*), and make a visual survey for boxwood blight. Results will be uploaded to NAPIS.

III A 2. What is the quantitative projection of accomplishments to be achieved?

a. By activity or function, what are the anticipated accomplishments by month, quarter, or other specified intervals?

Corn and Soybean Commodity survey traps will be deployed at risk sites in early May and will be sampled weekly for selected pests. Processing will begin within a week of receiving the samples and will continue for several months following the end of the field season. Disease sampling occurs from mid to late summer and results are available one to two months following the field season.

Exotic wood borer/bark beetle survey field season ends in early October. Several months are required to screen and identify potential targets.

The Nursery and Retail Plants Survey ends approximately late August. Moth dissections require several months to complete. Sudden oak death evaluations will be completed by September. Boxwood blight observations will be complete by August. Moth data upload will occur as soon a possible after taxonomic evaluations.

b. What criteria will be used to evaluate the project? What are the anticipated results and successes?

Criteria used to evaluate project will be monthly communication with the survey coordinator, a semi-annual report submitted to APHIS by 31 July 2016 and consistent, efficient, and accurate data entry submitted to NAPIS by 31 March 2017. The anticipated result is the determination of target pest presence/absence and the facilitation of state and federal export trade.

III A 3. What numbers and types of personnel will be needed and what will they be doing?

a. State Survey Coordinator will plan and execute surveys, provide outreach, and perform data upload. One to two trap tenders/lab technicians, employed full time

from mid May to mid August and part time from mid August to December are needed to deploy, monitor, and retrieve traps and process samples.

III A 4. What equipment will be needed to perform the work? Include major items of equipment with a value of $5,000 or more.

a. What equipment will be provided by the cooperator? None
b. What equipment will be requested from APHIS on loan? None
c. What equipment will be purchased in whole or in part with APHIS funds? None.
d. How will the equipment be used? Not applicable
e. What is the proposed method of disposition of the equipment upon termination of the agreement/project? Not applicable

III A 5. Identify information technology equipment, e.g., computers, and their ancillary components.

All information technology supplies (e.g., small items of equipment, connectivity through air cards or high speed internet access, GPS units, radios for emergency operations etc.) should be specifically identified. No new IT/electronic is equipment needed.

III A 6. What supplies will be needed to perform the work? Identify individual supplies with a cumulative (e.g. 4 microscopes at $1500 each) value of $5,000 or more as a separate item.

a. What supplies will be provided by the Cooperator? None
b. What supplies will be requested from APHIS (list supplies)? None
c. What supplies will be purchased in whole or in part with APHIS funds? Field supplies: staples, twine, wire, etc: Lab supplies; bags, tags, preservatives, etc; Foliar disease test kits 3 kits.
d. How will the supplies be used? survey, sample preparation, diagnostics.
e. What is the proposed method of disposition of the supplies with a cumulative value over $5,000 upon termination of the agreement/project? Not applicable.

III A 7. What procurements will be made in support of the funded project and what is the method of procurement (e.g., lease, purchase)?

(Cooperator procurements shall be in accordance with OMB Circulars A-102 or A110, as applicable.)

III A 8. What are the travel needs for the project?

a. Is there any local travel to daily work sites? Indicate rates and total costs in the Financial Plan. Yes.
b. What extended or overnight travel will be performed (number of trips, their purpose, and approximate dates)? Indicate rates and total cost in the Financial Plan. Occasional overnight in-state travel is possible to address unanticipated need. Number of trips, purpose, and dates to address potential problems cannot be identified a year in advance.

III A 9. Reports:

Submit all reports to the APHIS Authorized Department Officer's Designated Representative (ADODR). Reports include:

a. Narrative accomplishment reports in the frequency and time frame specified in the Notice of Award, Article 4.

b. Federal Financial Reports, SF-425 in the frequency and time frame specified in the Notice of Award, Article 4.

III A 10. Are there any other contributing parties who will be working on the project?

a. If so, list other participating institutions/agencies who will work on the project:

1. Philip Marshall, Indiana Department of Natural Resources is the cooperator and Indiana State Plant Regulatory Official. He will oversee program planning and execution.
2. Larry Bledsoe will serve as Indiana State Survey Coordinator and plans and executes survey and outreach activities.
3. Gary Simon PPQ, Indiana State Plant Health Director, will assist in program development.
4. Bobby Brown (PPQ domestic identifier) will assist in taxonomic confirmations of Wood Borer/Bark Beetle Survey.
5. Tom Creswell (Director of Purdue Plant Pest Diagnostic Laboratory) will perform diagnoses of disease samples from the Corn Commodity and Nursery and Retail Plants surveys.
6. Gail Ruhl, (Senior Diagnostician) will perform diagnoses of disease samples from the Corn Commodity and Nursery and Retail Plants surveys.
7. Steve Yaninek, (Head, Purdue Department of Entomology) will provide general administrative assistance.
8. Tim Varwyk (PPQ) will co-coordinate the Indiana exotic woodborer and bark beetle risk based survey.
9. Charlotte Gallowitch (PPQ) will co-coordinate the Indiana exotic woodborer and bark beetle risk based survey.
10. Nick Johnson (PPQ) will co-coordinate the Indiana exotic woodborer and bark beetle risk based survey.
11. Indiana Department of Natural Resoures nursery inspectors, provide samples for nursery and retail plant pest survey.

b. Describe the nature of their effort: See above.

III B. APHIS will:

III B 1. Outline the Agency's (USDA APHIS PPQ) substantial involvement.

a. Include any significant Agency collaboration and participation

1. Tim Varwyk (Indiana PPQ) will co-coordinate the Indiana exotic woodborer and bark beetle risk based survey.
2. Charlotte Gallowitch (Indiana PPQ) will co-coordinate the Indiana exotic woodborer and bark beetle risk based survey.

3. Nick Johnson (Indiana PPQ) will co-coordinate the Indiana exotic woodborer and bark beetle risk based survey.

b. Project oversight and performance management
1. Gary Simon PPQ, Indiana State Plant Health Director, will assist in program development.
c. Provide the equipment requested by the cooperator in 4.b. & c.
d. Provide the supplies requested by the cooperator in 6.b. & c.

IV. GEOGRAPHIC LOCATION OF PROJECT

IV A. Is the project statewide or in specific counties, townships, and/or national or state parks? (List all that apply.)

Corn Commodity Survey in approximately 25 counties in primarily northern Indiana.
Soybean Commodity Survey in 12 counties statewide.
Exotic Wood Borer/Bark Beetle Survey in approximately 20 counties statewide.
Nursery and Retail Plants Survey in approximately 25 counties statewide.

IV B. What type of terrain will be involved in the project?

Corn and Soybean Commodity Survey: cropland-corn, soybean, small grains, and vegetables.
Nursery and Retail Plant Survey: urban/suburban.
Exotic Wood Borer/Bark Beetle Survey: forests/parkland, roadsides, high risk solid wood packing material sites, shipping port.

IV C. Are there any unusual features that may have an impact on the project or activity such as rivers, lakes, wild life sanctuaries, commercial beekeepers etc? (List all that apply.) none.

V. DATA COLLECTION AND MAINTENANCE

Each State is responsible for entering complete, accurate, and timely pest survey data using approved protocol and methodology. All survey data from Pest Detection funded CAPS surveys will be entered into the National Agricultural Pest Information System (NAPIS). NAPIS is the final repository for all Pest Detection survey data.

- First record for the State and/or County will be entered within **48 hours** of confirmation of identification by a qualified identifier.
- All other required records, both positive and negative survey data, must be entered **within two weeks** of confirmation.
- All records are to be entered into the NAPIS database by **December 31st** of the year of survey so these data can be included in the yearly Plant Board Report.

VI. TAXONOMIC SUPPORT

A. Person or Institution that will screen targets (Name & Contact Information)

OR

B. ☐ Request for taxonomic support.

If you request taxonomic support, the Program managers and PPQ's National Identification Services will use the information you provide in Survey Summary Form to assign your survey samples to the appropriate taxonomic personnel.

Corn and Soybean Commodity Survey

1. Larry Bledsoe, Department of Entomology, Purdue University,901 West State Street, West Lafayette, IN 47907, lbledsoe@purdue.edu ph765-494-8324
2. Tom Creswell, Purdue Plant Pest Diagnostic Laboratory Plant and Pest Diagnostic Laboratory, Purdue University, 915 West State Street, West Lafayette IN 47907-2054, ph765-494-7071
3. Gail Ruhl, Purdue Plant Pest Diagnostic Laboratory Purdue University, 915 West State Street, West Lafayette IN 47907-2054, ph765-494-7071

Exotic Wood Borer/Bark Beetle Survey

1. Larry Bledsoe, Department of Entomology, Purdue University,901 West State Street, West Lafayette, IN 47907, lbledsoe@purdue.edu ph765-494-8324

Nursery and Retail Plants Survey

1. Larry Bledsoe, Department of Entomology, Purdue University,901 West State Street, West Lafayette, IN 47907, lbledsoe@purdue.edu ph765-494-8324
2. Tom Creswell, Purdue Plant Pest Diagnostic Laboratory Plant and Pest Diagnostic Laboratory, Purdue University, 915 West State Street, West Lafayette IN 47907-2054, creswell@purdue.edu ph765-494-7071
3. Gail Ruhl, Purdue Plant Pest Diagnostic Laboratory Purdue University, 915 West State Street, West Lafayette IN 47907-2054, ruhlg@purdue.edu ph765-494-7071

I) SURVEY SUMMARY FORM

A Survey Summary Form must be completed online on the CAPS Resource & Collaboration site to summarize all CAPS surveys **funded by the Pest Detection line item.** Do not submit an electronic copy of the Summary Form with the work plans.

APPROVAL SIGNATURES:

Mike Smith (IDNR) **Date**
Recipient Organization's Authorized Representative

Gary Simon (USDA APHIS) **Date**
Authorized Departmental Officers Designated Representative

Philip T. Marshall (IDNR, Division of Entomology & Plant Pathology) **Date**
Recipient Organization's Cooperating Representative

Survey budget follows:

Detailed Financial Plan For Survey

COOPERATOR NAME: Indiana Department of Natural Resources
TIME PERIOD: 1 January 2016 – 31 December 2016
Financial Plan must match the SF-424A, Section B, Budget Categories

ITEM	APHIS FUNDS		COOPERATOR FUNDS (Show if zero)
PERSONNEL:			
Field/lab staff: 840 hours @ $9.00/hour	$7,560		$0
Lab staff: 250 @ $15.00/hr	$3,750		$0
Subtotal	$11,310		$0
FRINGE BENEFITS:			
Field/lab staff: 8.8% of $7,560	$665		$0
Lab staff: 8.8% of $3,750	$330		
Subtotal	$995		$0
Total Salary and Fringe Benefits	$12,305		$0
TRAVEL:			
Vehicle rental: 5500 miles @ 0.44 per mile	$2,420		$0
Project vehicle insurance	$528		$0
Project vehicle maintenance	$900		$0
Project vehicle fuel: 2500 miles/18mpg*$2.75/gal	$382		$0
Subtotal	$4,230		$0
EQUIPMENT			
Subtotal	$0		$0
SUPPLIES			
Field supplies: staples, twine, wire, etc.	$142		$0
Lab supplies: bags, tags, preservatives	$200		$0
Foliar disease test kits 3 kits @ $560	$1,680		$0
Subtotal	$2,022		$0
OTHER			
Shipping: incoming/outgoing samples (estimate)	$400		$0
PCR confirmation fee: 70 samples @ $30	$2,100		$0
PPDL lab fee: 500 samples @ $11	$5,500		$0
Nursery inspection assistance	$4,455		$0
Subtotal	$12,455		$0
TOTAL DIRECT COSTS	$31,012		$0
INDIRECT COSTS (0% on Total Direct Cost)	$0		$0
TOTAL	$31,012		$0
Cost Share Information	100%		0%