

Orchard Commodity Survey

Farm Bill Survey Work Plan – May 1, 2015 – April 30, 2016

Cooperator:	Kansas Department of Agriculture		
State:	Kansas		
Project:	Orchard Commodity Survey		
Project funding source:	Farmbill Survey <input checked="" type="checkbox"/>		
Project Coordinator:	Laurinda Ramonda		
Agreement Number	15-8420-____-CA		
Contact Information:	Address:	Plant Protection and Weed Control 6531 SE Forbes Avenue, Suite B, Topeka, Kansas 66619	
	Phone:	785-564-6698	Fax: 785-564-6779
	Email Address:	laurinda.ramonda@kda.ks.gov	

This Work Plan reflects a cooperative relationship between the Kansas Department of Agriculture (KDA) (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 an Orchard Commodity survey and control program and the related roles and responsibilities of the Kansas Department of Agriculture and USDA-APHIS-PPQ as negotiated.

I) OBJECTIVES AND NEED FOR ASSISTANCE

Kansas orchards have become a big agritourism industry. The industry is growing and very little pest surveys have ever been done so early detection of these pests will facilitate eradication or other appropriate control measures. Increased grower education and familiarization with these pests will occur and the chances of prompt reporting of future infestations will be facilitated. Most of the survey targets are included on the USDA-APHIS-PPQ Priority List for Stone Fruit Commodity (also hosts of apples) but apples will be the main focus of the survey. Also the climate in Kansas is suitable for these pests to become established.

Most of the orchards in Kansas are apple orchards. There are not many statistics available on Kansas orchards so conducting a pest survey will benefit Kansas in determining orchard locations and if detrimental pests are present.

The objective of this survey is to determine if summer fruit tortrix (*Adoxophyes orana*), cherry bark tortrix (*Enarmonia formosana*), old world bollworm (*Helicoverpa armigera*), brown marmorated stinkbug (*Halyomorpha halys*), Asiatic brown rot (*Monilinia polystroma*), apple brown rot (*Monilinia fructigena*) and apple proliferation (*Candidatus*

Phytoplasma mali) is present. The presence of these harmful pests could disrupt the growth of the state's commercial apple and fruit industry and lead to yield loss or increased pesticide use.

II) RESULTS OR BENEFITS EXPECTED

The Cooperator seeks to conduct a program which is expected to result in:

A. What results or benefits will be derived from the cooperative effort?

1. Geographic assessment will occur from data gathered on locations of orchards.
2. Identification of pathways so action can be taken to stop further spread of pests.
3. Survey and identification of the summer fruit tortrix (*Adoxophyes orana*), cherry bark tortrix (*Enarmonia formosana*), old world bollworm (*Helicoverpa armigera*), brown marmorated stinkbug (*Halyomorpha halys*) and the diseases Asiatic brown rot (*Monilinia polystroma*), apple brown rot (*Monilinia fructigena*) and apple proliferation (*Candidatus Phytoplasma mali*), if present.
4. Early detection of orchard commodity pests if found.

III) APPROACH

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

The survey will entail surveying 45 orchards producing apples. Possible counties to survey in: Brown, Butler, Chase, Dickinson, Doniphan, Douglas, Franklin, Geary, Harvey, Jackson, Jefferson, Johnson, Leavenworth, Lyon, Miami, Osage, Reno, Republic, Sedgwick, Shawnee, Sumner, Wabaunsee and Wyandotte counties with one seasonal staff.

The trapping will follow the stone fruit commodity guidelines. Traps will be checked twice a month during the duration of the survey, beginning in July and ending in November. Trapping will occur with one trap per pest at each location for summer fruit tortrix (*Adoxophyes orana*), cherry bark tortrix (*Enarmonia formosana*), old world bollworm (*Helicoverpa armigera*), and brown marmorated stinkbug (*Halyomorpha halys*). When checking traps visuals will occur for symptomatic material for Asiatic brown rot (*Monilinia polystroma*), apple brown rot (*Monilinia fructigena*) and apple proliferation (*Candidatus Phytoplasma mali*) to be sent to APHIS for identification. The traps and lures will be supplied by APHIS except for brown marmorated stinkbug.

Trapping: (July - November)

1. Summer fruit tortrix (*Adoxophyes orana*) – Delta trap – 84 day lure – 1 trap at each location – July through November - *Adoxophyes orana* Lure - separate traps for different moth species by at least 20 meters (65 feet).
2. Cherry bark tortrix (*Enarmonia formosana*) – Delta trap – 28 day (4 weeks) lure – 1 trap at each location – July through November - *Enarmonia formosana* Lure - separate traps for different moth species by at least 20 meters (65 feet).

3. Old world bollworm (*Helicoverpa armigera*) – Plastic Bucket Trap (unitrap) use with 2 dry kill strip monthly and a sponge in the bottom – 28 day (4 weeks) lure – 1 trap at each location – July through November - *Helicoverpa armigera* Lure – separate traps for different moth species by at least 20 meters (65 feet). Traps should be hung at a range from 1.5 to 1.8 m (5 to 6 feet) in height.
4. Brown marmorated stinkbug (*Halyomorpha halys*) – “Dead-Inn Stink Bug” trap – 30 day lure – 1 trap at each location – July through November – *Halyomorpha halys* lure – separate traps by at least 20 meters (65 feet), will attract up to a distance of feet.

Visual and Plant Sampling:

1. Asiatic brown rot (*Monilia polystroma*) – Visual survey and plant sampling (if symptomatic) – July through October
2. Symptoms:
 - twig and leaf blights
 - stem cankers
 - brown fruit rots
 - brownish dieback on the leaf petioles, laminae and on small fruits and fruit pedicels
 - yellowish stromata on apple

Initial fruit lesions are brown, circular, and firm. Eventually, the whole fruit decays and turns brown. Tufts of mycelium and conidia (cream-white to buff colored) sprout from the skin of the infected fruit. Infection of fruit can take place at any time during fruit development, but the disease is only severe in ripe or ripening fruit.

3. Apple brown rot (*Monilinia fructigena*) – Visual survey and plant sampling (if symptomatic) – July through October
- Symptoms:
 - twig and leaf blights
 - stem cankers
 - brown fruit rots

Initial fruit lesions are brown, circular, and firm. Eventually, the whole fruit decays and turns brown. Tufts of mycelium and conidia (cream-white to buff colored) sprout from the skin of the infected fruit. Infection of fruit can take place at any time during fruit development, but the disease is only severe in ripe or ripening fruit.

4. Apple proliferation (*Candidatus Phytoplasma mali*) – Visual survey and plant sampling (if symptomatic) – July through October

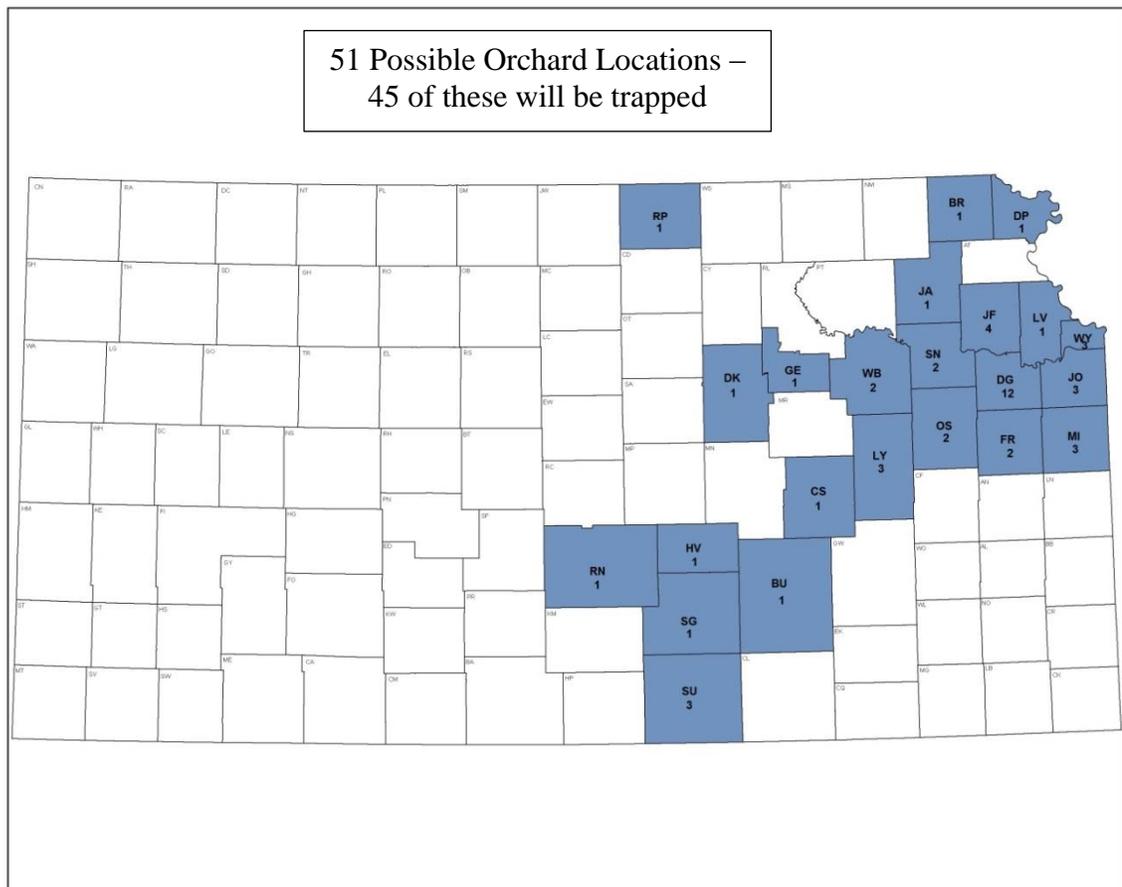
Trees infected by apple proliferation often occur in clusters, and these clusters grow (expand) year by year. Symptoms are unevenly distributed on the plants. Trees affected lack vigor and trunk circumference and crown diameter are reduced compared to healthy trees. Shoots are thin and the bark has a reddish-brown color. Necrotic areas appear on the bark and some branches may wither. Diseased trees may die, but often recover if adequately fertilized.

Late growth of terminal buds in the autumn is usually the first noticeable symptom. A rosette of terminal leaves, which often become infected with powdery mildew, sometimes develops late in the season in place of the normal dormant bud. A more reliable symptom is the premature development of axillary buds, which give rise to secondary shoots/shoot proliferation (witches' brooming). These abnormal secondary shoots are usually numerous near the apex of the main shoot. The witches' brooms do not develop repeatedly on the same branch. They may appear successively on various parts of the tree, or all at once over the whole tree, but usually develop only during the first two or three years following infection.

The best time to sample aboveground tissue is in late summer to early fall, because phytoplasma population is highest at this time. At least five samples per plant need to be collected due to the low titer and erratic distribution of the pathogen in the phloem of the plant. Phytoplasmas are present in the roots of infected plants year around.

Follow instructions in Phytoplasma sample submission for Cooperative Agricultural Pest Survey (CAPS) Program and Farm Bill Goal 1 surveys FY 2014.

Insect specimens will be screened by the state entomologist and diseases will be screened by the state plant pathologist. Suspects for insects will be sent to Washington State University for identification and suspect diseases will be sent to USDA-APHIS-PPQ lab at Kansas State University. Cost for this will be included in the financial plan.



A. The Cooperator and APHIS Mutually Agree to/that:

- Utilize Cooperator and APHIS program funding, as outlined in the Financial Plan, within the authorized parameters to support survey, detection and objectives.
- Maintain a State Cooperative Agriculture Pest Survey committee that will meet at least once a year.
- Work together in carrying out field surveys, trapping and data collections, emphasizing pest and diseases that may pose an immediate risk to the agriculture of the state and United States.
- Have representation at national and/or Regional annual meetings.

1. 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?

- Trapping will occur from July to November.
- Traps checked twice monthly and lure changed as needed.
- Fact sheets, webpage, resources, and pest reporting will be continually updated as new information becomes available.
- Data will be entered into the APHIS approved database when pest identification is confirmed and/or becomes available.
- GPS coordinates will be included with surveys.
- Deployment of traps will occur in July.
- Removal of traps will occur in November.
- Identification of the summer fruit tortrix (*Adoxophyes orana*), cherry bark tortrix (*Enarmonia formosana*), old world bollworm (*Helicoverpa armigera*), brown marmorated stinkbug (*Halyomorpha halys*), Asiatic brown rot (*Monilinia polystroma*), apple brown rot (*Monilinia fructigena*) and apple proliferation (*Candidatus Phytoplasma mali*), if present, by March.
- Sampling of symptomatic material will occur for Asiatic brown rot (*Monilinia polystroma*), apple brown rot (*Monilinia fructigena*) and apple proliferation (*Candidatus Phytoplasma mali*) and sent to APHIS for identification.
- Suspect specimens in traps and disease will be forwarded to a qualified identifier designated by APHIS.

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

- Pest detection survey activities completed.
- All data collected from the pest detection survey is entered into the APHIS approved database.
- SPHD, SPRO, PSS, SSC meetings to keep updated on issues, if needed.
- Presence or absence of the summer fruit tortrix (*Adoxophyes orana*), cherry bark tortrix (*Enarmonia formosana*), old world bollworm (*Helicoverpa armigera*), brown marmorated stinkbug (*Halyomorpha halys*), Asiatic brown

rot (*Monilinia polystroma*), apple brown rot (*Monilinia fructigena*) and apple proliferation (*Candidatus Phytoplasma mali*).

- Better knowledge of orchard industry with apple production.
- Better knowledge of high risk sites.

c. What methodology will be used to determine if:

1. Identified needs are met

- Survey completed within specified timeframe.

2. Results and benefits are achieved

- Review of the APHIS approved database to ensure that data from the pest detection activities have been entered.
- Review of the accomplishment reports, supporting outreach materials (if applicable), and maps.
- SPHD, SPRO, PSS, SSC meetings to keep updated on issues.

2. What type of data will be collected and how will it be maintained?

a. Address timelines for collection and recording of data.

All survey data from cooperative agreements involving pest surveys will be entered by the State Survey Coordinator or KDA staff into the APHIS approved database.

The data entry requirements are:

- Enter new national, state, and county records into the APHIS approved database within 48 hours of confirmation of a pest or pathogen identification by a recognized identifier.
- Non-time sensitive records, including negative data, must be entered into the APHIS approved database within 2 weeks of confirmation.
- Negative data will be entered within 2 weeks of decommissioning a trap, obtaining the results from an identifier, or performing a laboratory assay.
- Survey data will be collected with GPS technology for internal pathway analyses. Survey maps will be developed from approved GIS mapping software.

b. How will APHIS be provided access to the data?

- Complete, accurate, and timely pest survey data will be entered into the APHIS approved database using approved protocol and accessible.
- Semi-annual and annual survey accomplishment reports submitted to ADODR.

B. The Cooperator will:

- Document locations by GPS coordinate.
- Equipment used in this survey will be maintained by cooperator upon completion of project.
- Conduct survey in orchards producing apples.
- Conduct survey in orchards in Brown, Butler, Chase, Dickinson, Doniphan, Douglas, Franklin, Geary, Harvey, Jackson, Jefferson, Johnson, Leavenworth, Lyon, Miami, Osage, Reno, Republic, Sedgwick, Shawnee, Sumner, Wabaunsee and Wyandotte counties Employ one temporary/seasonal staff to set up and monitor traps.
- Supply GPS equipment.
- Provide KDA staff when needed.
- Provide vehicle and fuel for travel for conducting survey and collecting data.
- Provide lodging and per diem.

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

- Trapping for the Summer Fruit Tortrix (*Adoxophyes orana*) will occur from July through November with lure replacement every 12 weeks (84 days).
- Trapping for the cherry bark tortrix (*Enarmonia formosana*) will occur from July through November with lure replacement every 4 weeks (28 days).
- Trapping for the old world bollworm (*Helicoverpa armigera*) will occur from July through November with lure replacement every 4 weeks (28 days).
- Trapping for the Brown marmorated stinkbug (*Halyomorpha halys*) will occur from July through November with lure replacement every 4 weeks (30 days).
- Visual survey and plant sampling for Asiatic brown rot (*Monilinia polystroma*).
- Visual survey and plant sampling for apple brown rot (*Monilinia fructigena*).
- Visual survey and plant sampling for apple proliferation (*Candidatus Phytoplasma mali*).
- Traps will be checked and serviced twice monthly for the duration of the survey which is planned to begin in July and traps removed in November.
- Survey and trapping will be done with one temporary/seasonal help and KDA full time employees when needed. The seasonal employee will be trained and monitored by the State Entomologist and State Survey Coordinator.
- Data will be entered into the APHIS approved database when pest identification is confirmed and/or becomes available.
- GPS coordinates will be included with surveys.
- Suspect specimens in traps and disease will be forwarded to a qualified identifier designated by APHIS.

2. What resources are required to perform the work?

- Qualified identifier for suspect pest and disease identification.
- One temporary/seasonal employee to be employed through grape commodity survey to conduct survey.
- KDA permanent staff will help when needed for collection, training and screening.
- GPS unit and map for locations.

- Rental vehicle (shortage of state vehicles) and fuel are required to set up and monitor traps.
 - Lodging and per diem for longer trips to survey locations.
 - Provided by Cooperator, office space with associated services and utilities, computers and other office equipment for the use of Cooperator personnel. These include GPS unit and computer with internet service. Computers will be used for entering survey data into the state survey database and the APHIS approved database.
- 3. What numbers and types of personnel will be needed and what will they be doing?**
- One temporary/seasonal person will be setting and checking traps.
 - Data acquired will be entered into the APHIS approved database by the State Survey Coordinator or KDA staff.
 - KDA staff will help when needed for collection and/or sorting and training.
 - Qualified identifier designated by APHIS will be used for specimen and disease identification.
- 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?** N/A
 - b. **What equipment will be provided by APHIS?** N/A
 - c. **What equipment will be purchased in whole or in part with APHIS funds?**
N/A
 - d. **How will the equipment be used?** N/A
 - e. **What is the proposed method of disposition of the equipment upon termination of the agreement/project?** N/A
- 5. Identify information technology equipment, e.g., computers, and their ancillary components.**
- GPS units to document locations
 - KDA computers with internet to enter data
- 6. What supplies will be needed to perform the work?**
- Traps
 - Lure
 - Hand lenses
 - Twine
 - Shipping boxes

- Hand tools (pruners)
- Insect repellent
- Ziploc bags
- Insect pins
- Alcohol
- Alcohol proof pens
- Fuel for rental vehicle
- GPS units
- Comparison specimens for summer fruit tortrix (*Adoxophyes orana*), cherry bark tortrix (*Enarmonia formosana*), old world bollworm (*Helicoverpa armigera*), brown marmorated stinkbug (*Halyomorpha halys*), if available.

a. What supplies will be provided by the Cooperator?

- GPS units
- Hand lenses
- Hand tools (pruners)
- Twine
- Shipping boxes
- Brown marmorated stinkbug traps

b. What supplies will be provided by APHIS?

- Traps
- Lure

c. What supplies will be purchased in whole or in part with APHIS funds?

- Supplies for the collection of specimens (insect repellent, Ziploc bags, alcohol, alcohol proof pens, insect pins)
- Brown marmorated stink bug traps
- Brown marmorated stink bug lure
- Fuel for rental vehicle

d. How will the supplies be used?

- Planning, implementation, data collection and data submission of survey.
- Pest detection survey work.
- Shipping of specimens to identifiers or labs.

e. What is the proposed method of disposition of the supplies with a cumulative value over \$5,000 upon termination of the agreement/project?

- There should not be any.

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

- Supplies (brown marmorated stink bug traps and lure needed) used for survey work.
- The Fiscal Department at the Kansas Department of Agriculture will provide most contracts.
- One seasonal staff person will be employed by KDA through a staffing agency.
- Most procurements will be made by purchase order.
- Some procurements will be made reimbursable personal expense.

8. What are the travel needs for the project?

a. Is there any local travel to daily work sites? Who is the approving official? What are the methods of payment? Indicate rates and total costs in the Financial Plan.

- Travel will be required to survey sites by use of a KDA or rental vehicle (shortage of state vehicles).
- Most procurements will be made by purchase order.
- Some procurements will be made reimbursable personal expense.
- The KDA Plant Protection and Weed Control Plant Program Manager is the approving official.
- Costs are included in the financial plan.

b. What extended or overnight travel will be performed (number of trips, their purpose, and approximate dates). Who is the approving official?

- Travel will be required to survey sites by use of a KDA or rental vehicle (shortage of state vehicles).
- Lodging – 4 days a month for 5 months for travel to longer distant survey locations
- Per diem – 8 days of meals a month for 5 months for travel to longer distant survey locations
- The KDA Plant Protection and Weed Control Plant Program Manager is the approving official.
- Costs are included in the financial plan.

c. What is the method of payment? Indicate rates and total cost in the Financial Plan.

- Purchase order.
- Reimbursable personal expense.
- Costs are included in financial plan.

9. Reports:

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

1. Narrative accomplishment reports in the frequency and time frame specified in the Notice of Award, Article 4.
2. Federal Financial Reports, SF-425 (replaces SF-269 October 1, 2009) in the frequency and time frame specified in the Notice of Award, Article 4.

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

a. List Participating Agency/Institution:

- Kansas Department of Agriculture (KDA)
- USDA-APHIS-PPQ

b. List all who will work on the project:

- KDA - state entomologist, state survey coordinator and one temporary/seasonal employee
- USDA-APHIS-PPQ – domestic identifiers

c. Describe the nature of their effort:

- KDA - state entomologist, state survey coordinator and one temporary/seasonal employees
- USDA-APHIS-PPQ – funding, support and diagnostics

d. Contribution:

- KDA – survey work
- USDA-APHIS-PPQ – identification of pests and disease

C. APHIS Will:

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

a. Include any significant Agency collaboration and participation

- Provide any new information that becomes available on pests of concern and traps and lure.
- Provide outreach materials for the summer fruit tortrix (*Adoxophyes orana*), cherry bark tortrix (*Enarmonia formosana*), old world bollworm (*Helicoverpa armigera*), brown marmorated stinkbug (*Halyomorpha halys*), Asiatic brown rot (*Monilinia polystroma*), apple brown rot (*Monilinia fructigena*) and apple proliferation (*Candidatus Phytoplasma mali*), if available.
- Provide traps and lure.
- Provide replacement traps and replacement lure.
- Provide funds to the Cooperator to cover costs outlined in the Financial Plan.
- Make arrangements for Taxonomic support in identification and sorting.

b. Project oversight and performance management

- Review of data results submitted to USDA approved database.
- Review data and submit accomplishment reports to ADODR.
- Provide training, when necessary.

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

a. Will Equipment be loaned or provided by APHIS? Yes No (If Yes, please list:

b. How will the equipment be used? N/A

IV) GEOGRAPHIC LOCATION OF PROJECT

A. Is the project statewide or in specific counties, townships, and/or national or state parks? (List the names of ALL counties, townships, and/or national or state parks, and tribal areas that apply)

The possible counties to survey in: Brown, Butler, Chase, Dickinson, Doniphan, Douglas, Franklin, Geary, Harvey, Jackson, Jefferson, Johnson, Leavenworth, Lyon, Miami, Osage, Reno, Republic, Sedgwick, Shawnee, Sumner, Wabaunsee and Wyandotte counties.

B. What type of terrain (e.g., cropland, rangeland, woodland) will be involved in the project? Many types of terrain from forests, to rural, to urban areas

C. Are there any unusual features which may have an impact on the project or activity such as rivers, lakes, wild life sanctuaries, commercial beekeepers etc.? (list all that apply)

There could be unusual features such as hilly terrain and wildlife which may have an impact on the project or activity including disruption through human contact.

D. Identify the kind of data to be collected:

The kinds of data to be collected will include, but not limited to, observation number, observation date, data source, state/county, site code, EPA pest code, pest status and survey method.

E. Establish criteria to evaluate the results and successes of the project:

1. Results:

- Pest detection survey activities for the project completed.
- All data collected from the pest detection survey is entered into the APHIS approved database.

- Maps of the pest detection survey activities are produced to aid in planning of future pest detection surveys, pathway risk analysis, and outreach activities.
- State CAPS and KDA meetings to keep updated on issues.

2. Successes:

- No pests found that would require regulatory action.
- Identification of high risk areas for apple pests.
- Increased knowledge of resource locations.

F. Methodology used to determine if the results and benefits are achieved:

1. Identified needs are met:

- Survey completed in specified timeframe.

2. Results and benefits are achieved:

- Review of the NAPIS database to ensure that data from the pest detection activities have been entered.
- Review the accomplishment reports, supporting outreach materials (if applicable), and maps.
- State CAPS and KDA meetings to keep updated on issues.

V) DATA COLLECTION AND MAINTENANCE

All survey data from cooperative agreements involving pest surveys will be entered by the State Survey Coordinator or KDA staff into the APHIS approved database using approved protocol.

VI) TAXONOMIC SUPPORT

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

Insects:
 Greg Chrislip, State Entomologist
 Kansas Department of Agriculture
 Plant Protection and Weed Control
 6531 SE Forbes Avenue, Suite B
 Topeka, Kansas 66619
 785-564-6698

Diseases:
 Jon Appel, State Plant Pathologist
 Plant Protection and Weed Control
 6531 SE Forbes Avenue, Suite B
 Topeka, Kansas 66619
 785-537-3155

OR

B. Request for taxonomic support.

Insect suspects will be sent to:

Eric LaGassa
WA State Dept. of Agriculture
Plant Protection Division
1111 Washington St. SE
Olympia, WA 98504-2283
360-902-2063

Disease suspects will be sent to:

Craig Webb
USDA, APHIS, PPQ Field Operations
Dept of Plant Pathology, KSU
4024 Throckmorton Plant Sciences
Manhattan, Kansas 66506-5502
785-532-1349

VII) SIGNATURES

ROAR

Date

ADODR

Date

Detailed Farmbill Financial Plan

PROJECT: Orchard Commodity Survey

COOPERATOR NAME: Kansas Department of Agriculture

AGREEMENT NUMBER: 15-8420-____-CA

TIME PERIOD: May 1, 2015 – April 30, 2016

Financial Plan must match the SF-424A, Section B, Budget Categories

ITEM			APHIS FUNDS	COOPERATOR FUNDS (Show even if zero)	TOTAL
PERSONNEL:	Hours	Salary			
KDA staff - Paid by Cooperator funds	65	\$25		\$1,625	\$1,625
Subtotal			\$0	\$1,625	\$1,625
FRINGE BENEFITS:	Percent (enter as decimal not %)				
KDA staff - Paid by Cooperator funds - 25%	0.25			\$406	\$406
Subtotal			\$0	\$406	\$406
TRAVEL:	Cost	Length of time			
Lodging 4 nights @ \$85/night for 5 months	\$85	20 days	\$1,700		\$1,700
Meals for overnight travel @ \$46 x 40 days	\$46	40 days of meals	\$1,840		\$1,840
SUV rental for temporary staff for 5 months @ \$979/month**	\$979	5	\$4,895		\$4,895
Subtotal			\$8,435	\$0	\$8,435
EQUIPMENT:	Cost				
			\$0		\$0
Subtotal			\$0	\$0	\$0
SUPPLIES:	Cost	Length of time			
Alcohol, alcohol proof pens, Ziploc bags, insect repellent, insect pins, etc.	\$150		\$150		\$150
Traps (provided by USDA)	\$0		\$0		\$0
Lure and Kill Strips (provided by USDA)	\$0		\$0		\$0
Fuel - 5,000 miles/month x \$3.00 per gallon/20 mpg x 5	\$750	5	\$3,750		\$3,750

months- for rental vehicles**					
Lab testing (\$15.00 per sample/PCR, \$1.00 per sample for culture) – up to 45 samples for one or both tests	\$425		\$425		\$425
BMSB lure (lure \$5/2 pack)	\$5	225	\$1,125		\$1,125
BMSB traps (trap \$20/trap)	\$20	45	\$900		\$900
Subtotal			\$6,350	\$0	\$6,350
CONTRACTUAL:	Cost	Length of time			
Key Staffing (1 temporary staff) \$20.00 x 800 hours (extra hours needed for survey prep and cleanup at survey end)	\$20	800	\$16,000		\$16,000
Subtotal			\$16,000	\$0	\$16,000
OTHER:	Cost				
Shipping samples to identifier	\$75		\$75	\$0	\$75
Shipping supplies	\$75		\$75	\$0	\$75
Subtotal			\$150	\$0	\$150
TOTAL DIRECT COSTS			\$30,935	\$2,031	\$32,966
INDIRECT COSTS	Percent (enter as decimal not %)				
(20.9% on Total Direct Cost of salary and fringe benefits)*	0.209		\$0	\$425	\$425
TOTAL			\$30,935	\$2,456	\$33,391
COST SHARE INFORMATION (Percent)			93%	7%	

* Kansas' Negotiated Cost Rate (Salary + Fringe Benefits x %=Indirect Cost)

** There is a shortage of state vehicles. We give the option of renting a vehicle or using personally owned vehicles. If renting we pay for the fuel and if a personal vehicle is used we pay mileage.