

## CAPS Work Plan for Calendar Year 2008

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| <b>Cooperator:</b>          | <b>Illinois Natural History Survey</b>  |  |                          |
| <b>State:</b>               | <b>Illinois</b>                         |  |                          |
| <b>Project:</b>             | <b>Part II Workplan - Soybean Pests</b> |  |                          |
| <b>Project Coordinator:</b> | <b>Kelly Cook</b>                       |  |                          |
| <b>Contact Information:</b> | <b>Address:</b>                         | <b>1816 S. Oak St.<br/>Champaign, IL 61820</b> |                          |
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### I) OBJECTIVES AND NEED FOR ASSISTANCE

Ten million acres of soybeans are grown in Illinois, accounting for \$3 billion of the Illinois agricultural economy. Soybean rust was identified in Illinois in 2006 in seven counties. Fortunately, the disease did not appear until late in the season, not affecting the 2006 soybean crop. This pathogen has been known to drastically reduce soybean yield. Losses have been documented up to 80% in areas where the disease commonly occurs. Optimal conditions for good growth and canopy development of the soybean crop are also the most optimal for the infection and spread of the soybean rust pathogen. Monitoring for this pathogen is needed to provide timely detection of the disease in order to enable proper application of fungicides, the only effective management option at this time.

Though not known to occur in the United States, should the Old World Bollworm, *Helicoverpa armigera*, be introduced, this particular pest has the potential to be devastating to Illinois agriculture. *Helicoverpa armigera* has a host range of over 180 cultivated crops and wild species. Included in the host range are corn and soybeans, two major crops of Illinois agriculture. Nearly 12 billion and 10 billion acres of corn and soybeans are grown in Illinois, respectively. In addition to potential hosts alfalfa, sorghum, and wheat, Illinois also produces a considerable amount of specialty crops that would be affected by the introduction and establishment of *H. armigera*, including tomatoes, snap beans, green beans, onions, and potato.

The soybean rust sentinel plot system is part of a coordinated framework for the surveillance, prediction, reporting, and management of soybean rust. This program is a cooperative effort between USDA, State Universities and Extension Systems, State Departments of Agriculture, industry, local producers, and the National Plant Diagnostics Network. The purpose of this system is to detect and monitor the progression of Asian soybean rust in the United States through a standardized, intense scouting program. By utilizing the pre-existing framework of the soybean rust sentinel plot program the Illinois CAPS program proposes to include surveys for the following targeted pests during weekly monitoring: soybean rust, old

world bollworm, soybean pod borer, yellow witchweed, and summer fruit tortrix moth.

## II) RESULTS OR BENEFITS EXPECTED

**The Cooperator seeks to conduct a cooperative agricultural pest survey program which is expected to result in:**

The cooperator seeks to conduct a cooperative agricultural pest survey program aimed at the early detection of *Phakospora pachyrhizi*, Asian soybean rust. Sentinel plots will be set up with the purpose of detecting soybean rust to provide an early warning system to Illinois agricultural producers. During the soybean rust survey, additional surveys will be conducted utilizing the soybean rust sentinel plot system. These surveys include: old world bollworm, soybean pod borer, and yellow witchweed. All survey data generated from this effort will be entered into the NAPIS database according to NAPIS reporting requirements outlined in the 2008 National CAPS Guidelines.

## III) APPROACH

This survey will be conducted as part of the Illinois Soybean Sentinel Plot System. Soybean sentinel plots will be planted individually (separately) or as part of a commercially-grown field. Plots should be approximately 2500 square feet (50 ft x 50 ft). Except fungicide applications, plots should be maintained in the same manner as the commercially-grown soybean crop. Sentinel plots will be sampled weekly; leaves will be submitted to the University of Illinois Plant Clinic for diagnosis. Data will be recorded according to soybean rust sentinel plot protocol.

The old world bollworm survey will be conducted with the SBR survey. Pheromone traps will be placed at or near 10 plots of the Illinois SBR sentinel plot program. These locations will consist of production agriculture with corn, soybean, wheat, and alfalfa and meet the Old World Bollworm MRA criteria. Pheromone traps will be placed in late June in each of the locations. Traps will be serviced bi-weekly. SSC Cook will coordinate the OWBW survey; traps will be placed and monitored by SSC Cook and University of Illinois Extension personnel.

The surveys for yellow witchweed and soybean pod borer will be visual surveys. These surveys will be done at the time of the weekly SBR visual surveys.

The goal of this program is to combine multiple pest detection surveys to aid in the surveillance for invasive species. Funding is requested to provide trapping materials and pheromones as well as land rental for Illinois soybean producers. This survey will require travel; vehicle operation, mileage, and supplies associated with the travel are requested.

**A) The Cooperator and APHIS mutually agree to/that:**

- i) Maintain a State Cooperative Agricultural Pest Survey Committee that will meet at least once a year to discuss fostering the goals of CAPS.
- ii) Work together in carrying out field surveys, trapping, and data collection, setting emphasis on pest/diseases particularly identified (**see attached list**), that may pose an immediate risk to the agriculture of this state and the United States.
- iii) Have representation at National and/or Regional **annual** planning meetings.
- iv) Utilize Cooperator and APHIS program funding, as outlined in the Financial Plan, within the authorized parameters to support survey and detection activities. In addition, specific appropriated funding in the level authorized by the PPQ Eastern Region, will be dedicated to the delivery of CAPS objectives listed above.

**B) The Cooperator will:**

- i) 

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| <p>Provide a State Survey Coordinator responsible for coordinating and completing all activities outlined in this Part II CAPS Work Plan. The SSC will coordinate survey activities and ensure data entry, management, and quality. The SSC will act as liaison with the State PPQ Office (including the SPHD and PSS) and Illinois Department of Agriculture, the University of Illinois, and other cooperators in the development of exotic pest surveys and management plans. More specifically, the Cooperator will:</p> <ol style="list-style-type: none"> <li>1. Work with the University of Illinois Soybean Rust Sentinel Plot Coordinator for the duration of the survey, which is expected to begin in May and be completed in September.</li> <li>2. The University of Illinois Plant Clinic screens weekly samples from the sentinel plot system for Asian soybean rust as well as other plant diseases.</li> <li>3. Coordinate the placement of old world bollworm pheromone traps in 10 Illinois locations. Traps will be checked and serviced bi-weekly for the duration of the survey, which is expected to begin in late June and be completed by late September.</li> <li>4. Be responsible for pre-screening all trap collections for target species. Suspect specimens will be submitted along with PPQ Form 391 to the Chicago Area Identifier.</li> <li>5. Compile a reference collection of relevant non-target specimens collected in the course of this survey and maintain it in the collection of the Illinois Natural History Survey.</li> <li>6. Provide reference material for visual surveys of yellow witchweed and soybean pod borer.</li> <li>7. Be responsible for purchasing supplies related to pest survey.</li> <li>8. Ensure that all documents, forms, and reports are processed and filed according to schedule.</li> </ol> |
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- ii) Provide the following resources:
  - (1) **List types of personnel and what they will be doing.**

The Illinois SSC will provide assistance to the University of Illinois Soybean Rust Sentinel Plot program as needed. The State Survey Coordinator is responsible for coordinating and completing all activities outlined in this Part II CAPS Work Plan. The SSC will coordinate survey activities and ensure data entry, management, and quality. The SSC will act as liaison with the State PPQ Office (including the SPHD and PSS) and Illinois Department of Agriculture, the University of Illinois, and other cooperators in the development of exotic pest surveys and management plans.

**(2) Type of equipment provided by Cooperator for personnel**

(a) Identify major equipment needs:

Equipment provided by Cooperator for personnel: Microscopes for screening specimens.

(b) Use of the equipment purchased:

Equipment will be used for general survey practices, screening and preserving target specimen.

(c) Purchased with APHIS funds?

Not anticipating purchase of new equipment (over \$5,000)

(d) Method of procurement:

(e) Method of disposition:

**(3) Provide office space at the Illinois Natural History Survey, 1816 S. Oak St. Champaign, IL , with associated services and utilities, computers and other office equipment to for the use of Cooperator personnel in entering survey data into the NAPIS database**

**(4) Vehicles for Cooperator personnel in conducting field surveys and collecting data. The Cooperator will provide for all operational costs of the vehicles.**

**(5) Supplies**

(a) **Trapping supplies for field surveys:**

Consumable office supplies include copying costs, diskettes, printer and copier paper, ink cartridges, batteries, and other miscellaneous renewable materials and supplies (including shipping containers) will be provided by cooperator. Trapping supplies include: lures, vapona killing agents, replacement traps and trap stands, specimen collecting containers, alcohol, pins, and storage boxes.

(b) Special Supplies:

(c) Method of procurement

**iii) Contracts:**

(a) Who will handle contractual needs:

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(b) Cooperator Procurement activities shall be in accordance with A-102 and A-110.

(c) Special requirements – rate of spray, kill rate, special features etc.

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**iv) Reports:**

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

(a) Narrative accomplishment reports (**Accomplishment Report – Appendix H of the ER CAPS Guide**) in the frequency and time frame specified in the Notice of Award, Article 4.

(b) Financial Status Reports, SF-269, in the frequency and time frame specified in the Notice of Award, Article 4.

**v) Adhere to APHIS ADP security guidelines as referenced in the Notice of Award when entering pest survey data and transmitting it to NAPIS.**

**C) APHIS will:**

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| <ol style="list-style-type: none"><li>1. The ADODR will track the Cooperative Agreement to ensure that all survey data are entered into NAPIS by the completion date of the Cooperative Agreement, or date agreed upon in the work plan.</li><li>2. Provide the following resources:<ol style="list-style-type: none"><li>i. A SPHD and PSS who will provide guidance and assist in the determination and prioritization of survey site. PPQ Regional identifiers will assist with confirmation of suspected target pest identifications.</li><li>ii. Federal equipment for its personnel.</li><li>iii. Funds to the Cooperator to cover costs outlined in the Financial Plan. In addition, specific appropriated funding, in the level authorized by the APHIS Eastern Region, will be dedicated to the delivery of CAPS objectives listed above.</li></ol></li></ol> |
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**D) OTHER PARTIES WHO WILL WORK ON THE PROJECT:**

**i) List Participating Agency/Institution:**

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| USDA-APHIS-PPQ (including AQI)<br>Illinois Natural History Survey<br>Illinois Department of Agriculture<br>Illinois Department of Natural Resources<br>University of Illinois Department of Natural Resources<br>University of Illinois Department of Natural Resources and<br>Environmental Sciences<br>Southern Illinois University |
|---|

**ii) List all who will work on the project:**

Kelly Cook, INHS  
Greg Rentschler, USDA-APHIS-PPQ  
Carl Bradley, UI  
Steve Knight, USDA-APHIS-PPQ  
Mark Cinnamon, IDA  
Warren Goetch, IDA  
Nancy Pataky, University of Illinois

**iii) Describe the nature of their effort:**

The above mentioned individuals will provide guidance and assistance with site selection. The nature of their efforts will range from providing information to completing visual surveys.

**iv) Contribution:**

Kelly Cook - coordinate survey efforts (insects & weeds); assist with survey  
Greg Rentschler - provide information and guidance  
Carl Bradley - coordinate survey efforts (pathogens), assist with survey  
Steve Knight - provide information and guidance  
Mark Cinnamon - provide information and guidance  
Warren Goetch - provide information and guidance  
Nancy Pataky - screen soybean rust samples

**IV) Quantitative Projection of Accomplishments to be Achieved:**

- A. The Illinois SSC and PSS will identify potential survey sites during January 2008.
- B. Planting of plots beginning in May 2008.
- C. Pheromone trap placement beginning May 2008.
- D. Institute weekly collection of leaves for screening.
- E. Institute bi-weekly trap collection circuit upon placement of traps.
- F. Continue scouting of plots and trap collection and replacement according to survey protocols.
- G. Forward suspect specimens with PPQ Form 391 to area identifier as needed.
- H. Complete survey, October 2008.
- I. Summarize results for report to cooperator October 15 - November 1, 2008.
- J. Illinois SSC will compile negative summary records for submission to NAPIS database at completion of survey. Data entry for positive record of target pest within 48 hours of confirmation.
- K. Final report to National Plant Board, December 2008.
- L. Final written report to Eastern Region, April 2009.

**V) DATA COLLECTION AND MAINTENANCE**

**A) SSC Cook will coordinate NAPIS data entry for the state of Illinois. Individuals completing surveys within the state of Illinois will submit data for entry to SSC Cook. All guidelines below will be followed.**

- i) All survey data from cooperative agreements involving pest surveys will be entered into the NAPIS database.
  - (1) First record for the State and/or County will be entered within **48 hours** of confirmation of identification by a qualified identifier.
  - (2) All other required records, both positive and negative survey data, must be entered **within two weeks** of confirmation.
  - (3) All records are to be entered into the NAPIS database by **December 1** of the year of survey, so these data can be included in the yearly Plant Board Report.
- ii) All appropriate PPQ data will be entered into NAPIS.
- iii) All appropriate data obtained by the CSREES network will be entered into NAPIS.
- iv) Exotic pest survey data from other sources (such as U.S. Forest Service, State Departments of Agriculture, and other qualified survey programs) will be entered into NAPIS as part of the Core project.

**B) The kind of data to be collected:**

Data collected will be used to complete all NAPIS entry requirements including, but not limited to date, location, pest, positive or negative pest status, trap type, and duration of trap.

**C) The data be maintained in:**

SSC Cook will maintain written records as well as electronic records.

**D) Criteria to evaluate the results and successes of the project:**

- i) Pest detection surveys, outreach, and other Core project activities, are completed in the manner and time frame outlined in Section III.
- ii) All data collected from the pest detection surveys is entered into the NAPIS database in the timeframes outlined in Section V.
- iii) Maps of the pest detection survey activities are produced to aid in planning of future pest detection surveys, pathway risk analysis, and outreach activities.

**E) Methodology used to determine if the results and benefits are achieved:**

- i) Review the NAPIS database to ensure that data from the pest detection activities has been entered.
- ii) Review the accomplishment reports, supporting outreach materials (if applicable), and maps.

## **VI) GEOGRAPHIC LOCATION OF PROJECT**

**Surveys will be conducted in the counties of (to be determined). Data will be provided to the Cooperator's State Regulatory Official (SPRO) for entry into the database.**

**A) Type of terrain:**

cropland

B) Features which may have an impact on the project or activity:

Fungicide application

## VII) TAXONOMIC SUPPORT

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

Request taxonomic support for old world bollworm

Nancy Pataky, University of Illinois Plant Clinic

Carl Bradley, University of Illinois

Kelly Cook, Illinois Natural History Survey

B) CAPS Survey Collection Details: (Total Number of Trap Collections= Number of Sites X Number of Traps X Total Number of Visits)

| Target Species        | Survey Dates (Starting-Ending) | Number of Sites | Number of Traps/Visual surveys     | Total Number of Collections                                |
|-----------------------|--------------------------------|-----------------|------------------------------------|--|
| Phakospora pachyrhizi | May - September                | 10              | weekly surveys<br>2 traps per site | 200  |
| Helicoverpa armigera  | June – September               | 10              | Bi-weekly surveys                  | 120<br>collection dependent on suspect specimen collection |
| Alectra vogelii       | May – September                | 10              | Weekly surveys                     | collection dependent on suspect specimen                   |
| Soybean pod borer     | May – September                | 10              | Weekly surveys                     | collection dependent on suspect specimen                   |