

EASTERN REGION CORE CAPS WORK PLAN
Cover Page

Name of State: Connecticut

Federal Fiscal Year: 2006 (Note: Cooperative Agreement will be for Calendar Year 2006)

Name of State Survey Coordinator (SSC): Donna R. Ellis, Extension Educator, University of Connecticut

Name of Contact Person, if different from SSC: Victoria Smith, Deputy State Entomologist, The Connecticut Agricultural Experiment Station

SSC Telephone Number: (860) 486-6448

Lead Agency: The Connecticut Agricultural Experiment Station

State Survey Committee Members:

<u>Name</u>	<u>Organization</u>	<u>Discipline</u>
Tim Abbey	The CT Agricultural Experiment Station	Entomology
Kate Aitkenhead	USDA APHIS PPQ	SITC Officer
Sandra Anagnostakis	The CT Agricultural Experiment Station	Plant Pathology
Jude Boucher	University of Connecticut	Entomology
Nichole Campbell	USDA APHIS PPQ	Pest Survey Specialist
Chris Donnelly	CT DEP, CT Tree Protector's Association	Urban Forestry, Arboriculture
Sharon Douglas	The CT Agricultural Experiment Station	Plant Pathology
Patricia Douglass	USDA APHIS PPQ	State Plant Health Director
Bill Duessing	CT NOFA	Organic farming
Robert Durgy	University of Connecticut	Horticulture
Donna Ellis	University of Connecticut	Plant Science
Kevin Grady	CT Department of Environmental Protection	Forestry
John Haanstad	USDA APHIS PPQ	Domestic Program Coordinator
Jim LaMondia	The CT Agricultural Experiment Station	Plant Pathology, Nematology
Lorraine Los	University of Connecticut	Entomology
Chris Maier	The CT Agricultural Experiment Station	Entomology
Les Mehrhoff	University of Connecticut	Botany
Jane O'Donnell	University of Connecticut	Entomology
Ron Olsen	Department of Agriculture	Economics, Marketing
Steve Rackliffe	University of Connecticut	Turf Grass Science
Tom Rathier	The CT Agricultural Experiment Station	Soil Science, Diagnostics
Brad Robinson	CT Department of Environmental Protection	Biology
Claire Rutledge	The CT Agricultural Experiment Station	Entomology
Ralph Scarpino	CT Department of Environmental Protection	Forestry
David Schroeder	University of Connecticut	Plant Pathology
Victoria Smith	The CT Agricultural Experiment Station	Plant Pathology
Kirby Stafford	The CT Agricultural Experiment Station	Entomology
Kimberly Stoner	The CT Agricultural Experiment Station	Entomology

Table of Surveys:

CAPS Category	Target Survey
Part I – Core PEST DETECTION	<ul style="list-style-type: none"> a. Survey for Exotic Beetles in Warehouses b. Brown Marmorated Stink Bug a. Winter Moth b. Swede Midge
Part II – Exotic Pests PEST DETECTION	<ul style="list-style-type: none"> c. Giant African Snail d. Summer Fruit Tortrix Moth, Fruit Tree Tortrix Moth
Part III – Other Line Item Pests EMERGING PLANT PESTS	<ul style="list-style-type: none"> a. Chrysanthemum White Rust b. Small Hive Beetle c. Pine Shoot Beetle

CAPS Work Plan for Calendar Year 2006

Cooperator: The Connecticut Agricultural Experiment Station and the University of Connecticut

State: Connecticut

Project: Part I: Core Work Plan

Project Coordinator: Victoria Smith, Deputy State Entomologist, The Connecticut Agricultural Experiment Station, New Haven, CT, telephone number: (203) 974-8474

I) OBJECTIVES AND NEED FOR ASSISTANCE

Part I) Core CAPS Work Plan:

A primary objective of the CAPS program is to safeguard our nation's food and environmental security from exotic pests that threaten our production and ecological systems. The purpose of the project is to build up The Connecticut Agricultural Experiment Station's and the University of Connecticut's intellectual infrastructure for performing Homeland Security CAPS coordination work. With this infrastructure and continued funding from USDA/APHIS, Donna Ellis will continue to take on the role of Connecticut HS/CAPS Coordinator in federal fiscal year 2006. The ultimate goal is to further the Homeland Security Initiative by protecting our nation's food production and natural resources from exotic pests and bioterrorism. The Connecticut Agricultural Experiment Station will provide personnel to take on the role of a Connecticut CAPS State Survey Coordinator in 2005 through a Personal Service Agreement with the University of Connecticut.

Part I Core work plans are attached for the following exotic pests: Giant African Snail, Wood Boring/Bark Beetle Warehouse Survey, Summer Fruit Tortrix Moth/Fruit Tree Tortrix Moth, and Swede Midge. These pests have been ranked as high priority on a national or regional level by the Eastern Region CAPS Pest Survey Committee and are of concern in Connecticut based on their potential to cause economic and/or environmental damage to agricultural and natural areas if they are introduced and become established.

II) RESULTS OR BENEFITS EXPECTED

The Cooperator seeks to conduct a cooperative agricultural pest survey program that is expected to provide the following results or benefits:

- assist APHIS in decision-making processes about Winter Moth, Wood Boring/Bark Beetles, Brown Marmorated Stink Bug, and Swede Midge
- enable people to be able to identify these pests if they move into Connecticut
- provide information on the potential regulation of these exotic pests
- provide useful data on the pests' distribution, biology and damage
- learn about control options
- provide educational outreach information to the public, the green industry, orchard producers, homeowners, Integrated Pest Management personnel, Cooperative Extension Specialists, researchers, and other educators to increase their level of knowledge about these insect pests
- obtain distribution data from the proposed survey to provide APHIS and agricultural producers in the state with relevant information about the range of these potential new exotic pests in Connecticut, with a goal of preventing or limiting their movement and establishment.

III) APPROACH

B) The Cooperator and APHIS mutually agree to:

- a. Maintain a State Cooperative Agricultural Pest Survey Committee that will meet at least once a year to discuss fostering the goals of CAPS.
- b. Work together in carrying out surveys and educational outreach and data collection, setting emphasis on pest/diseases particularly identified, that may pose an immediate risk to the agriculture of this state and the United States.
- c. Have representation at National and/or Regional annual planning meetings.
- d. 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.

C) The Cooperator will:

Survey for Exotic Beetles in Warehouses: Conduct surveys for Exotic Beetles in Warehouses (Wood Boring/Bark Beetles; WBBB). In cooperation with PPQ, warehouses have been identified, based on the origin and type of stored commodities, and those most likely to have commodities shipped and packed in SWP have received highest priority. Connecticut Agricultural Experiment Station personnel have conducted surveys, collected and compiled results, forwarded the data to the NAPIS database, and have submitted summary results. This work is planned to continue in the future, since the volume of overseas commerce and the corresponding SWP, continues to increase. Threats from introduced wood boring insects increase at a proportional rate.

Brown Marmorated Stink Bug Survey: Internet research will be conducted and other references examined between January and May 2005 to compile the latest educational materials on *H. halys*. These materials will be made available to orchardists, homeowners, Integrated Pest Management (IPM) personnel, Extension Educators, and researchers during the survey period. Surveys will be conducted using a limb jarring technique (200 jarrings per site) in unsprayed apple trees in abandoned or low-spray orchards, along roadsides, or other sites in late summer. Unsprayed crabapples may also be sampled. A minimum of 24 sites in eight counties (Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, and Windham Counties) with host fruit trees will be surveyed. Visual surveys to inspect fruit for the presence of stink bugs may also occur if funding is available. Sites in the coastal counties of Fairfield, New Haven, Middlesex, and New London will be surveyed by CAES staff. Chris Maier at CAES, who has extensive knowledge of orchard locations, is the Station liaison to the Connecticut Pomological Society. The northern counties of Hartford, Litchfield, Tolland, and Windham will be surveyed by Donna Ellis and UConn staff.

Suspect insects (adults or nymphs) will be collected and stored in ethanol-filled vials or on insect pins (adults only). A rapid response plan for new state and new county records for *H. halys* will be implemented by CAES staff, with assistance by UConn staff.

Winter Moth Survey: 1 year project. The project will consist of a pheromone trapping survey and educational outreach for winter moth. The pheromone trapping survey will be conducted by UConn and CAES staff.

In preparation for the fall 2006 trapping survey, Internet research will be conducted and other references investigated between January and March to compile the latest educational materials on winter moth. These materials will be made available to fruit growers, nursery growers, garden center owners, foresters, homeowners, Integrated Pest Management (IPM) personnel, Extension Educators, and other scientists alert them to this potentially new exotic pest in Connecticut. Traps, pheromones, and other supplies will be procured during this time frame, and plans will be made to identify the sites where traps will be placed.

For the trapping survey, wing traps containing a sex pheromone for the winter moth will be placed in or near host plants at 76 sites in Connecticut, following a 10-mile grid system developed by Otis Pest Survey, Detection and Exclusion Laboratory. GPS methodology will be utilized, as each trapping site will be identified by latitude and longitude coordinates. Traps will be placed in late October through early November 2006 and picked up four to six weeks later, approximately the first or second week of December. The wing traps may be inspected once during the six week trapping period, but the pheromone lures will not need to be replaced. A few sites will be monitored more frequently to ascertain the flight period. The survey will occur in all counties in Connecticut which are adjacent to the Rhode Island and Massachusetts areas where winter moth has recently been found. UConn and CAES staff will screen traps for adult male winter moths in December. Suspect moths will be forwarded to a USDA APHIS specialist for identification confirmation.

A rapid response plan for new state and new county records for winter moth will be implemented by UConn and CAES staff.

Swede Midge Survey: Conduct surveys for Swede midge. On eight organic farms in the western and central parts of Connecticut, with a priority on those farms growing hosts attractive to the Swede midge (such as Asian Cruciferous vegetables) we will put out two pheromone traps per farm for nine weeks. In addition, we will make regular visual inspections for plant damage on the most susceptible hosts in areas with the most risk factors for microclimate (field perimeters sheltered by tree lines and hedgerows and near cruciferous weeds). Sticky cards will be collected as appropriate from the 16 pheromone traps (2 traps per farm on 8 farms), whenever flies resembling Swede midge (similar in size, shape, with appropriate antenna and halteres) are present, or cards are dirty or damaged. If plants with apparent growth deformations are found during visual surveys, those plants will be dissected to determine if possible Swede midges are present.

i. Provide the following resources

1. **Personnel and their roles:**

Four surveys and/or educational outreach projects comprise the Part I Core section. The brown marmorated stink bug and winter moth surveys are collaborations between the University of Connecticut (Donna Ellis, Lorraine Los, and research technician at UConn) and The Connecticut Agricultural Experiment Station (Victoria Smith, Chris Maier, and summer assistants at CAES). The exotic beetle warehouse survey will be conducted by CAES (Victoria Smith and staff) and the Swede midge survey will be conducted by CAES (Kimberly Stoner and summer assistant).

State Survey Coordinator (SSC). The principle cooperater (Victoria Smith, SPRO) will develop infrastructure, including a State Survey Coordinator (Donna Ellis),

responsible for coordination of the state's CAPS Program and the State CAPS Committee and act as liaison with State PPQ Office. The Core CAPS Program in Connecticut will develop a network to use existing state and national resources in the evaluation of risks of specific exotic and invasive plant pest species and set state survey priorities accordingly.

- a. Determine state training needs to further develop CAPS programs. Provide and assist in training.
- b. Coordinate actions of agencies involved in surveys through oversight of survey work-plans.
- c. Facilitate the cooperating agency's mechanism of distributing funds to other cooperating parties conducting surveys.
- d. The SSC, in conjunction with the SPRO, SPHD and the State CAPS Committee, will work with other state, county, and federal and public entities to create new and reinforce existing networks to evaluate risks, conduct surveys and manage cooperative pest programs.
- e. Rapid response – Initial survey activities and contingency plans should be coordinated so that if an exotic pest or an invasive species is detected, it can be appropriately addressed in a timely manner with minimal disruption to our nation's food supply and plant resources.
- f. Networking includes regular attendance by designated state representatives at state, regional, and national CAPS committees.

2. **Equipment provided by the Cooperator for personnel:**

Departmental vehicles from UConn may be available to make site visits during each survey, although operational costs are requested. Additionally, rental of state vehicles on a per diem (UConn) or monthly (CAES) basis is requested [see (C4) APHIS Funds]. Use of laboratory equipment, laboratories, and offices will be provided by UConn and CAES. No funds are requested for equipment.

3. **Provide office space** at the University of Connecticut and The Connecticut Agricultural Experiment Station, 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 surveys and collecting data.. In-state travel funds are requested from APHIS for rental of state vehicles or use of departmental vehicles from the University to make site visits during the survey period.

1. **Supplies.** APHIS funds are requested by UConn and CAES for survey supplies, including trapping supplies, laboratory and field supplies, and other miscellaneous items. Computers, printers, and digital cameras will be provided by UConn and CAES. APHIS funds are also requested to provide operational costs for these items (paper, toner cartridges, digital storage disks, software, etc.) to prepare educational materials for the outreach component of the projects. Supplies will be procured at UConn and CAES via purchase orders or transfer vouchers to the appropriate vendors.

- i. **Contracts:** The University of Connecticut will be involved in the brown marmorated stink bug and winter moth surveys and overall coordination of the CAPS Program via a contractual agreement with CAES to compile and disseminate educational outreach

materials for this exotic pest, conduct surveys, collect survey data, enter summarized data into NAPIS, and submit required reports.

Personal Service Agreement for the State Survey Coordinator for the calendar year 2006 to coordinate interagency cooperation, conduct State Survey Committee meetings, submit NAPIS data, attend regional and/or national CAPS meetings, prepare and submit work plans, budgets/financial plans, administrative forms and summary reports, and conduct surveys and educational outreach.

- ii. Reports – submit all reports to the APHIS Authorized Department Officer’s Designated Representative (ADODR). Reports include:
 1. 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. Project accomplishments will be described in semi-annual narrative progress reports submitted in accordance with dates set forth in the APHIS Cooperative Agreement. Project results will also be disseminated via educational outreach to target groups described above [please see Section IV) **Quantitative Projection of Accomplishments To Be Achieved**]. Project results will therefore be archived in the narrative progress reports and the submitted NAPIS data.
 2. Financial Status Reports, SF-269, in the frequency and time frame specified in the Notice of Award, Article 4.
- iii. **Adhere to APHIS ADP security guidelines as referenced in the Notice of Award when entering pest survey data and transmitting it to NAPIS.**

D) APHIS will:

- i. Provide any new information that becomes available on each exotic pest included in the Part I Core work plans, provide appropriate forms, and review the data
- ii. Provide the following resources: funds to the Cooperator (UConn) and CAES (Victoria Smith) to cover additional costs for supplies, travel, educational outreach materials, and indirect costs outlined in the Financial Plan.
- iii. Make arrangements for Taxonomic support in identification of the specified exotic pests should these pests be found.
- iv. 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.

E) OTHER PARTIES TO WHO WILL WORK ON THE PROJECT

None.

IV) QUANTITATIVE PROJECTION OF ACCOMPLISHMENTS TO BE ACHIEVED

Survey results will provide needed information on the potential introduction and spread of wood boring/bark beetles, winter moth, brown marmorated stink bug, and Swede midge. Educational outreach provided to stakeholders and clientele, including the green industry, commodity growers, pet shops and other aquarium trade businesses, teachers and superintendents, and the general public will increase their level of knowledge about these pests and alert them to these potential new problems in the state. Presence/absence data from the proposed surveys will provide relevant information to stakeholders in

learning about the range of the exotic pests in Connecticut. Management options will be provided in the event that the target organisms are found. A communication network will be established to exchange timely information on the occurrence of these exotic pests.

Survey for Exotic Beetles in Warehouses: Warehouses that receive goods from abroad with SWP have been identified in CT. Goods imported include tile, marble items, lawn and garden merchandise, and ceramics and pottery. In some cases the SWP is disposed of immediately, but it may stay on premises for some time before disposal. In that interval, pupating insects in the SWP may emerge; this survey is intended to trap and therefore detect these emerging insects. Lindgren funnel traps containing alpha pinene lures with ethanol and the 3-Ips lures will be placed outside of warehouses and in storage areas to attract and trap insects. The alpha pinene lures with ethanol and the 3-Ips lures will be used to increase the number of target bark beetles and to increase the effectiveness of the traps. In general, both wood boring and bark beetles will be trapped. Target Dates for Accomplishments: The survey will take place from February 1, 2006 through April 30 2006. Due to limited Experiment Station staff available for this project, the survey cannot be extended beyond this time frame.

Brown Marmorated Stink Bug Survey: Educational outreach materials provided to orchardists, nursery growers, garden center owners, educators, and researchers will increase their level of knowledge about the brown marmorated stink bug, will enable them to identify this exotic pest if it is found in Connecticut, and will provide options for management if control is warranted. Presence/absence data and distribution information obtained from the proposed survey will be critical in learning about the range of this fruit pest in Connecticut and perhaps the speed of its spread. A communication network will be established to exchange pertinent and timely information on brown marmorated stink bug occurrences.

Target Dates for Accomplishments: Educational materials on the brown marmorated stink bug will be procured and compiled between January and May 2006 and disseminated throughout the project period. Both the UConn and CAES survey teams will select sampling sites in May and June. Surveys will be conducted in late summer 2006. Suspect adults will be collected by Ms. Ellis and an undergraduate student at UConn, and by Dr. Maier and survey assistants at CAES. Suspect specimens collected during the single-visit sampling of 24 or more locations between August and September 2006 will be screened by Ms. Ellis at UConn and Dr. Maier at CAES. Potential positive specimens will be forwarded to a USDA-APHIS specialist for confirmation.

Winter Moth Survey: Educational outreach materials provided to fruit growers, members of the green industry (nursery growers, garden center owners), foresters, educators, and researchers will increase their level of knowledge about winter moth, will enable them to identify this exotic pest if it is found in Connecticut, and will provide options for management if control is warranted. Presence/absence data and distribution information obtained from the proposed survey will be critical in learning about the range of winter moth in Connecticut and perhaps the speed of its spread. A communication network will be established to exchange pertinent and timely information on winter moth occurrences.

Target Dates for Accomplishments: Internet research will be conducted and other references investigated between January and March 2006 to compile the latest educational materials on winter moth. These materials will be distributed throughout the project period. Both the UConn and CAES survey teams will select sampling sites by summer 2006. Trapping surveys will be conducted from late October through mid December 2006. The pheromone wing traps will be placed and monitored by Ms. Ellis, Ms. Los, and a technician at UConn, and by Dr. Smith, Dr. Ridge O'Connor, and additional staff at CAES. These individuals will also screen the traps for adult winter moths. Potential positive specimens will be forwarded to a USDA APHIS specialist for confirmation.

Swede Midge Survey (including Target Dates for Accomplishments):

- a. Surveys will be conducted 3 times during the season, corresponding to the 3 generations per year identified from field work in New York state: June, July-August, and August –September.
- b. All surveying will be completed by late September.
- c. Data to be collected for each survey at each farm: Date of inspection, location of farm, name of owner, area of plants examined, number of plants observed with deformed growth habits (digital photographs taken), results of microscopic examination (whether potential midge larvae were found, or where other possible causes of deformation were found), and number and location of origin of any identified Swede midges.

The Cooperator will also communicate with USDA APHIS PPQ staff during the project period to identify potential pathways and other possible sources of exotic pests that may enter Connecticut prior to conducting the survey. If any potential suspects are found, they will be collected and screened at by staff at CAES and/or UConn and subsequently forwarded to a USDA APHIS identifier for confirmation.

Victoria Smith, the State Plant Regulatory Official and principal point of contact for the CAPS program in Connecticut, will manage the Cooperative Agreement, supervise the State Survey Coordinator, ensure that the State Survey Coordinator carries out her assigned duties, conduct educational outreach, and work with the Business Office of The Connecticut Agricultural Experiment Station and the State Survey Coordinator to develop a Personal Service Agreement with the University of Connecticut for the State Survey Coordinator.

Donna Ellis, the State Survey Coordinator will coordinate interagency cooperation for CAPS activities in Connecticut. She will develop and coordinate all survey work plans and budget/financial plans and conduct surveys. The State Survey Coordinator will compile and enter NAPIS data and conduct educational outreach. She will interact and communicate with state and federal cooperators, University Cooperative Extension System personnel, The Connecticut Agricultural Experiment Station staff, agricultural and other commodity industry representatives, and non-governmental organizations.

The State Survey Coordinator will conduct CAPS State Survey Committee meetings in Connecticut. The State Survey Committee will hold at least one meeting per year in Connecticut to discuss exotic pest survey priorities, which pests are of concern in the state, and assess pest specific risks within Connecticut based on existing pathways and other pest-specific assessments from the CAPS guide. Exotic plant pests to be surveyed will be selected from the National, Regional and Homeland Security pest lists.

The State Survey Coordinator will work with the Office for Sponsored Programs at the University of Connecticut to develop a Personal Service Agreement with The Connecticut Agricultural Experiment Station and to work with their Business Office to ensure that all required administrative forms and reports are submitted in a timely manner, including the two semi-annual narrative progress reports and the Plant Board Annual Report. The State Survey Coordinator will research CAPS organization at the federal and state level and make contacts, and familiarize and network with appropriate personnel. The State Survey Coordinator will assess pest surveys already prioritized by APHIS for 2006 and will assess what pest detection work inspectors and other staff from The Connecticut Agricultural Experiment Station and Cooperative Extension personnel from the University of Connecticut are already performing that could be utilized as part of CAPS surveys.

A rapid response plan for new exotic pest invasions and dissemination of new exotic pest information will be implemented by The Connecticut Agricultural Experiment Station, with assistance by the State Survey Coordinator at the University of Connecticut.

Overall accomplishment will be the elevation of The Connecticut Agricultural Experiment Station's experience with CAPS, in cooperation with the University of Connecticut so that the USDA/APHIS goal of Connecticut CAPS coordination might be feasible. This work will help provide a guide for an eventual full-time Connecticut CAPS coordinator. The above goals are to be met by December 31, 2006. These seem more like Results or Benefits expected. You need to quantify your accomplishments here and add a general timeline for completing them.

(List of Contributing Parties Who Will Work on the Project)

1. Victoria Smith, Deputy State Entomologist and State Plant Regulatory Official, The Connecticut Agricultural Experiment Station will serve as the principal point of contact for Connecticut. Dr. Smith and other Connecticut Agricultural Experiment Station staff will also conduct CAPS surveys.
2. Donna R. Ellis, Extension Educator, University of Connecticut, will serve as CAPS State Survey Coordinator for the University of Connecticut's and The Connecticut Agricultural Experiment Station's efforts. Ms. Ellis will also conduct CAPS surveys and educational outreach programs. Other University of Connecticut personnel, including a part-time technician to be hired, will assist with surveys.
3. Patricia M. Douglass, State Plant Health Director, USDA APHIS will provide informational support and federal guidance.
4. Nichole K. Campbell, Pest Survey Specialist, USDA APHIS will assist in developing CAPS pest survey protocols, pest risk analyses, and other related activities regarding exotic pests.

V) DATA MANAGEMENT

State coordination of survey data collection and NAPIS database.

A) The State Survey Coordinator, Donna Ellis, will summarize presence/absence survey data for each exotic pest included in Part I Core work plans and enter the information into the NAPIS database according to NAPIS reporting requirements.

1. All survey data from cooperative agreements involving pest surveys will be entered into the NAPIS database.
 - a. First record for the State and/or County will be entered within **48 hours** of confirmation of identification by a qualified identifier
 - b. All other required records, both positive and negative survey data, must be entered **within two weeks** of confirmation.
 - c. 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.
- All data created from PPQ surveys will be entered into NAPIS.
- All appropriate data obtained by the CSREES network will be entered into NAPIS.
- 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.
 - a. NAPIS data entry and quality assurance of survey generated data.
 - b. Enter new state records and new county records into the NAPIS database within 48 hours of confirmation of identification by a qualified identifier. Non-critical, redundant records must be entered in NAPIS within two weeks of confirmation of data quality.
 - c. Survey maps and data collection will be conducted with GIS and GPS technology.
 - d. Query NAPIS database for information.
 - e. Encourage the use of Personal Data Assistants or hand-held data entry devices for gathering survey data relevant to each state and to NAPIS.

f. Support other PPQ programs with NAPIS data entry and GIS products upon request.

A) Data to be collected during the brown marmorated stink bug, and winter moth surveys included in Part I will include: presence/absence occurrences, date of site visit, county where survey occurred, number of sites visited and number of positive sites, type of site visited, survey method used, duration of survey, source of data, and diagnostic lab location. For positive occurrences, survey delimiting information, such as estimates of population size and locality data will also be collected and submitted to NAPIS.

Exotic Beetles in Warehouse Survey: Data to be collected for each survey location include date of inspection, location, name and address of the owner, and insects collected detected. For samples from the public, similar information will be collected. Records of exotic beetle finds will be submitted to the NAPIS database. From the traps, data will be recorded on the number of individuals trapped, identity, and location and time of trapping.

Swede Midge: Date to be collected include date of inspection, location of farm, name of owner, area of plants examined, number of plants observed with deformed growth habits (digital photographs taken), results on microscopic examination (whether potential midge larvae were found or whether other possible causes of deformation were found), and number and location of origin of any identified Swede midges.

C) Raw data will be summarized into Excel spreadsheets prior to submitting to NAPIS, which will be the permanent archive of the survey results.

Project results and successes will be evaluated via information dissemination outlined in Section IV)

Quantitative Projection of Accomplishments to Be Achieved.

E) Methodology used to determine if:

- d. Identified needs are met: surveys are conducted to determine if Wood Boring/Bark Beetles, Brown Marmorated Stink Bugs, Winter Moths and Swede Midges are present.
- e. Results and benefits are achieved: surveys and educational outreach for each exotic pest will provide useful information to citizens on the pests' identification, biology, damage, management, and possible threat to human health.

1. **Priority Pest List.** SCC, in conjunction with SPHD, and the State CAPS committee (SCC) will work with other state, county and federal and public entities to create an invasive species list that is of concern to that state. States will select from the National, Regional, and Historic pest lists the exotic plant pests that are most appropriate to their agricultural landscape and their environmental conditions. The list will help focus each state's survey priorities in coordination with other neighboring states in the region and across the nation. States will be expected to survey for pests with the highest risk in their state. States will also be responsible for developing survey plans that will best survey for these pests into the future. Survey plans should be prepared in conjunction with item # 4, below.

State Pest List – Pests of State Concern

Common Name	Scientific Name
<i>Insects</i>	
Apple Tortrix	<i>Archips fuscocupreanus</i>

Emerald Ash Borer	<i>Agrilus planipennis</i>
Fruit Tree Tortrix	<i>Archips podana</i>
Pine Shoot Beetle	<i>Tomicus piniperda</i>
Sirex Woodwasp	<i>Sirex noctilio</i>
Small Hive Beetle	<i>Aethina tumida</i>
Summer Fruit Tortrix	<i>Adoxophyes orana</i>
Viburnum Leaf Beetle	<i>Pyrrhalta viburnii</i>
<i>Mollusks</i>	
Giant African Snail	<i>Achatina fulica</i>
<i>Noxious Weeds/Invasive Plants</i>	
Giant Hogweed	<i>Heracleum mantegazzianum</i>
Giant Salvinia	<i>Salvinia molesta</i>
Hydrilla	<i>Hydrilla verticillata</i>
Mile-a-minute Vine	<i>Polygonum perfoliatum</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
<i>Pathogens</i>	
Chrysanthemum White Rust	<i>Puccinia horiana</i>

4. **Pest Risk and Pathway Analysis.** Using the Priority pest list developed in #3 above, the State CAPS Committee will assess pest specific risk within Connecticut by examining existing pathways and reviewing available information such as the AQI and other databases and pest specific Pest Survey Assessments (PSA). Pest analyses at the state level should be conducted by first determining high risk sites identified in each PSA and then by preparing Work Plans to address these areas. New information regarding the identification of pathways and areas at risk that warrant additional monitoring / survey should be fed back to the Regional Committees for further evaluation and incorporation into PSAs.

5. **Public Outreach and Risk Communication.** Education and communication must be an integral part of each State Survey Program. The SSC will be responsible for public outreach and risk communication with entities such as state and federal cooperators, university Cooperative Extension Services, FEMA, and agricultural industry representatives. Fact sheets, educational material, and pest distribution maps for each identified pest on the State Plant Pest list should be developed for distribution as appropriate.

1. **State Surveys.** Each State will be expected to conduct pest detection surveys as part of core level funding. Survey work plans will be reviewed and approved based on overall quality of infrastructure and number of surveys covered.
 - a. Define state survey needs, such as supplies, equipment, and personnel, and the appropriate survey methods or protocols that best accomplish pest detection and Homeland Security.
 - b. Using Core Funds, prepare detection and delimiting surveys, as appropriate, for pests that are of local concern within individual states.
 - c. Pests designated by Homeland Security and exotic pests will be given first priority for survey.

VI) GEOGRAPHIC LOCATION IN WHICH PROJECT IS TO TAKE PLACE

1. **Survey for Exotic Beetles in Warehouses:** Surveys will be conducted throughout the state of Connecticut. Data will be provided to the Cooperator's State Regulatory Official (SPRO) and to the State Survey Coordinator for entry into the database. Type of terrain: Warehouses and surrounding areas where SWP is used or stored.
2. **Brown Marmorated Stink Bug Survey:** Surveys will be conducted in all eight Connecticut counties: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, and Windham. Data will be provided to the Cooperator's State Regulatory Official (SPRO) and to the State Survey Coordinator for entry into the database. Type of terrain: The survey will be conducted targeting low-spray or no-spray apple orchards, abandoned apple trees, apple or crabapples at roadsides, and host trees in other locations.
3. **Winter Moth Survey:** Surveys will be conducted in all counties of Connecticut. Data will be provided to the Cooperator's State Regulatory Official (SPRO) and to the State Survey Coordinator for entry into the database. Type of terrain: The survey will be conducted targeting orchards and other fruit growing areas, nurseries, forests, roadsides, and other sites where host plants are found.
4. **Swede Midge Survey:** Surveys will be conducted in New Haven, Hartford, Litchfield, and Middlesex Counties in Connecticut. Data will be provided to the Cooperator's State Regulatory Official (SPRO) and to the State Survey Coordinator for entry into the database. Type of terrain: Cropland growing vegetables. Trees and borders, which are the most likely locations in which to find Swede midge damage.

) TAXONOMIC SUPPORT-

Survey for Exotic Beetles in Warehouses:

- A. Person/institution that will screen samples and request taxonomic support if suspicious pests are found: Gale Ridge of the CT Agricultural Experiment Station Insect Information Office.
- B. List of target pests by scientific name: potentially-invasive Bostrichid and Heterobostrichid, including but not exclusively *Anoplophora glabripennis*, *Momochamus alternatus*, *Ips tyopgraphus*, *Tetropium fuscum*, *Xylotrechus* spp., *Hesperophanes campestris*, and *Chlorophorus annularis*.
- C. Survey dates: Traps will be monitored every two weeks from February 1, 2006 through April 30, 2006.
- D. Number of survey sites: Station personnel will place 25 Lindgren funnel traps and commercially available alpha pinene lures with ethanol outside of warehouses or in dunnage storage and disposal areas
- E. Number of traps, visual surveys, etc. Insects will be collected from the traps every 2 weeks and examined by a trained entomologist and identified to species by comparison with voucher specimens in the collection of the Experiment Station.
- F. Number of collections Insects will be collected from the traps 5 times on a two-week calendar schedule.

Brown Marmorated Stink Bug Survey:

- A. Person/institution that will screen samples for target pests: UConn or CAES staff. Positive identification of brown marmorated stink bugs will be confirmed initially by UConn or CAES staff, and finally by Richard Hoebeke (Cornell University) or other USDA APHIS national specialists. .
- B. List of target pests by scientific name: *Halyomorpha halys*
- C. Survey dates: August-September 2006

- D. Number of survey sites: 24
- E. Number of visual surveys: 24
- F. Number of collections: 24 minimum collections will be made, one per site visited. Insects will be screened and potential suspects forwarded to a USDA APHIS specialist.

Winter Moth Survey:

- A. Person/institution that will screen samples for target pests: UConn or CAES staff. Positive identification of adult or immature winter moths will be confirmed initially by UConn or CAES staff, and finally by a USDA APHIS national specialist.
- B. List of target pests by scientific name: *Operophtera brumata*
- C. Survey dates: Visual survey March-June 2006; trapping survey October-December 2006
- D. Number of pheromone wing trap survey sites: 76
- E. Number of visual survey sites: 12
- F. Number of collections: 76 minimum collections will be made for the 10-mile grid trapping survey, one per site visited. 12 minimum collections will be made during the visual survey. Insects will be screened and potential suspects forwarded to a USDA APHIS specialist.

Swede Midge Survey:

- A. Person/institution that will screen samples and request taxonomic support if suspicious pests are found: Dr. Kimberly Stoner
- B. List of target pests by scientific name: *Contarinia nasturtii* (Keiffer)
- C. Survey dates: mid- June, Late July, Late August
- D. Number of survey sites: 8
- E. There will be 3 visual surveys annually at 8 sites for a total of 24 visual surveys.
- F. Sticky cards will be collected as appropriate from the 16 pheromone traps (2 traps per farm on 8 farms), whenever flies resembling Swede midge (similar in size, shape, with appropriate antenna and halteres) are present, or cards are dirty or damaged. If plants with apparent growth deformations are found during visual surveys, those plants will be dissected to determine if possible Swede midges are present.

) **PEST LIST**

Core Pest List – Pests Surveyed for Using Core Funding

Common Name	Scientific Name
<i>Insects</i>	
Asian Longhorned Beetle	<i>Anoplophora glabripennis</i>
Bamboo Borer Longhorned Beetle	<i>Chlorophorus annularis</i>
Brown Marmorated Stink Bug	<i>Halyomorpha halys</i>
Brown Spruce Longhorned Beetle	<i>Tetropium fuscum</i>
European Spruce Bark Beetle	<i>Ips typographus</i>
Japanese Pine Sawyer	<i>Monochamus alternatus</i>
Longhorned Beetle	<i>Hesperophanes campestris</i>
Longhorned Beetle	<i>Tetropium castaneum</i>
Longhorned Beetle	<i>Xylotrechus hircus</i>
Swede Midge	<i>Contarinia nasturtii</i>
Winter Moth	<i>Operophtera brumata</i>

CAPS Work Plan for Calendar Year 2006

Cooperator: The Connecticut Agricultural Experiment Station and the University of Connecticut

State: Connecticut

Project: (Part II) Giant African Snail Survey and Educational Outreach

Project Coordinator: Donna Ellis, State Survey Coordinator, University of Connecticut, Department of Plant Science Unit 4163, Storrs, CT 06269

II) OBJECTIVES AND NEED FOR ASSISTANCE

The giant African snail (*Achatina fulica*) is recommended as a national CAPS target and high priority survey pest for calendar year 2006. A combined pest detection survey and educational outreach project is proposed for giant African snail. Giant African snails, although illegal in the U.S., are being increasingly used for science lessons by school teachers and subsequently released into the environment. The snails not only cause severe damage to many agricultural crops but pose human health risks. They may also be spreading to new locations via the aquarium trade. A visual detection survey and educational outreach project is proposed to determine the presence or absence of and disseminate information to increase awareness of this non-native mollusk in Connecticut. The project is proposed as a collaboration between the University of Connecticut (UConn) and The Connecticut Agricultural Experiment Station (CAES).

III) RESULTS OR BENEFITS EXPECTED

The Cooperator seeks to conduct a cooperative agricultural pest survey and educational outreach program for giant African snails that is expected to provide the following results or benefits:

- assist APHIS in decision-making processes about giant African snails
- enable people to be able to identify this pest if it moves into Connecticut
- provide information on the potential regulation of this exotic pest
- provide useful data on the pest's distribution, biology, damage, and threat to human health
- learn about control options
- disseminate educational outreach information to teachers and other educators, pet shop owners and others involved in the aquarium trade, homeowners, Integrated Pest Management personnel, Cooperative Extension Specialists, and the public to increase their level of knowledge about this pest and alert the targeted groups and the public to the consequences of releasing this organism into the wild
- obtain distribution data from the proposed survey to provide APHIS and agricultural producers in the state with relevant information about the range of this potential new exotic pest in Connecticut, with a goal of preventing or limiting its movement and establishment.

IV) APPROACH

Narrative: Plan of Action and Work to Be Accomplished.

January through May 2006. Internet research on giant African snails will be conducted and other references examined in order to compile the latest educational materials on this exotic mollusk. Project activities will also include an investigation of sources of snails and potential pathways into Connecticut. In addition, communication will continue with USDA APHIS PPQ staff regarding U.S. interceptions of giant

African snails and the pathways by which the snails were obtained. Listings of pet shops and other businesses involved in the aquarium trade will be researched and gathered in preparation for an informational mailing. During 2005 activities for giant African snail, a mailing was prepared and disseminated as part of educational outreach efforts. The 2005 mailing was disseminated to teachers at approximately 500 Connecticut public, private, and parochial schools. For 2006, educational materials (Pest Alerts, handouts, pamphlets) will be compiled and distributed by University of Connecticut and Connecticut Agricultural Experiment Station staff to pet shops, other businesses involved in the aquarium trade, and the general public during the survey period. This information will be further disseminated to public libraries, made available at other events during the survey period, and posted on the CAPS website.

June through September 2006. A visual survey for giant African snails is also proposed for 2006, continuing the efforts that began the previous year. The Cooperator and/or a research technician will visit and inspect a minimum of 24 pet shops in the 4 southern Connecticut counties (Fairfield, Middlesex, New Haven, and New London counties; approximately 6 sites per county).

October-November 2006. If any potential suspects are found from the visual survey, they will be collected and screened by Ms. Ellis at UConn and forwarded to a USDA APHIS identifier for confirmation.

F) The Cooperator and APHIS mutually agree to:

- a. Maintain a State Cooperative Agricultural Pest Survey Committee that will meet at least once a year to discuss fostering the goals of CAPS.
- b. Work together in carrying out surveys and educational outreach and data collection, setting emphasis on pest/diseases particularly identified, that may pose an immediate risk to the agriculture of this state and the United States.
- c. Have representation at National and/or Regional annual planning meetings.
- d. 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.

G) The Cooperator will:

- i. Provide the following resources

5. Personnel and their roles:

This project is proposed as a collaboration between Donna Ellis at the University of Connecticut and Victoria Smith at The Connecticut Agricultural Experiment Station. An inspector from CAES will be funded by APHIS on a part-time basis to assist with the survey. Target suspect specimens collected from the four southern Connecticut counties will be screened by Ms. Ellis at UConn and Dr. Smith at CAES. Specimens potentially identified as giant African snails will be forwarded to a USDA APHIS identification specialist for confirmation before submitting data into NAPIS. Ms. Ellis and Dr. Smith will collaborate to compile materials to be mailed to pet shops and other businesses involved in the aquarium trade.

6. Equipment provided by the Cooperator for personnel:

Departmental vehicles from UConn may be available to make site visits during the survey period, although operational costs are requested. Additionally, rental of state vehicles on a per diem basis is requested from UConn [see (C4) APHIS Funds]. Use of laboratory equipment, laboratories, and offices will be provided by Ms. Ellis at UConn and by Dr. Smith at CAES. No funds are requested for equipment.

7. **Provide office space** at the University of Connecticut and The Connecticut Agricultural Experiment Station, 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.
8. **Vehicles for Cooperator personnel** in conducting surveys and collecting data.. In-state travel funds are requested from APHIS for rental of state vehicles or use of departmental vehicles from the University to make site visits during the survey period. During the survey period, twelve site visits will occur within Connecticut at a cost of approximately \$60 per trip.
2. **Supplies.** APHIS funds are requested by UConn and CAES for survey supplies, including collection containers, gloves, references, and other miscellaneous items. Computers, printers, and digital cameras will be provided by Ms. Ellis at UConn and by Dr. Smith at CAES. APHIS funds are also requested to provide operational costs for these items (paper, toner cartridges, digital storage disks, software, etc.) to prepare educational materials for the outreach component of the project. Supplies will be procured at UConn and CAES via purchase orders or transfer vouchers to the appropriate vendors.
- iv. **Contracts:** The University of Connecticut will be involved in this project via a contractual agreement with CAES to compile and disseminate educational outreach materials for giant African snail, conduct surveys, collect survey data, enter summarized data into NAPIS, and submit required reports.
- v. **Reports –** submit all reports to the APHIS Authorized Department Officer’s Designated Representative (ADODR). Reports include:
 1. 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. Project accomplishments will be described in semi-annual narrative progress reports submitted in accordance with dates set forth in the APHIS Cooperative Agreement. Project results will also be disseminated via educational outreach to target groups described above [please see Section IV) **Quantitative Projection of Accomplishments to Be Achieved**]. Project results will therefore be archived in the narrative progress reports and the submitted NAPIS data.
 2. Financial Status Reports, SF-269, in the frequency and time frame specified in the Notice of Award, Article 4.
- vi. **Adhere to APHIS ADP security guidelines as referenced in the Notice of Award when entering pest survey data and transmitting it to NAPIS.**

H) APHIS will:

- i. Provide any new information that becomes available on giant African snails, provide appropriate forms, and review the data
- ii. Provide the following resources: funds to the Cooperator (UConn) and CAES (Victoria Smith) to cover additional costs for supplies, travel, educational outreach materials, and indirect costs outlined in the Financial Plan.
- iii. Make arrangements for Taxonomic support in identification of giant African snails should this pest be found.
- iv. 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.

I) OTHER PARTIES TO WHO WILL WORK ON THE PROJECT

None.

IV) QUANTITATIVE PROJECTION OF ACCOMPLISHMENTS TO BE ACHIEVED

Survey results will provide needed information on the potential introduction and spread of giant African snails in Connecticut. Educational outreach provided to pet shops and other aquarium trade businesses, teachers and superintendents, and the general public will increase their level of knowledge about the giant African snail and alert them to this potential new problem in the state, emphasizing the health risks associated with the mollusks. Presence/absence data from the proposed survey will provide relevant information to stakeholders in learning about the range of this exotic pest in Connecticut. Management options will be provided in the event that the target organism is found. A communication network will be established to exchange timely information on the occurrence of giant African snails.

Target Dates for Accomplishments. Internet research on giant African snails will be conducted and other references examined between January and May 2006 to compile the latest educational materials on this exotic mollusk. Information on giant African snails will be mailed to pet shops and other businesses involved in the aquarium trade. Cooperative Extension Educators, Connecticut Agricultural Experiment Station staff and other contacts that are involved with pet shops, the aquarium trade, and mollusks will also be contacted throughout the project period.

The Cooperator will also communicate with USDA APHIS PPQ staff during the project period to identify potential pathways and other possible sources of snails that may enter Connecticut prior to conducting the survey. Surveys will be conducted between June and September 2006. If any potential suspects are found, they will be collected and screened by Ms. Ellis at UConn in October and November and subsequently forwarded to a USDA APHIS identifier for confirmation.

V) DATA COLLECTION AND MAINTENANCE

The Project Coordinator, Donna Ellis (State Survey Coordinator) will summarize presence/absence survey data for giant African snail and enter the information into the NAPIS database according to NAPIS reporting requirements.

A)

- All survey data from each survey will be entered into the NAPIS database.
 - a. First record for the State and/or County will be entered within **48 hours** of confirmation of identification by a qualified identifier.
 - b. All other required records, both positive and negative, must be entered **within two weeks** of confirmation.

- c. All records are to be entered into the NAPIS database by **December 1** of the year of survey, so these data are included in the yearly Plant Board Report.
- All data created from PPQ surveys will be entered into NAPIS.
- All appropriate data obtained by the CSREES network will be entered into NAPIS.
- 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) Data to be collected during the giant African snail survey will include: presence/absence occurrences, date of site visit, county where survey occurred, number of sites visited and number of positive sites, type of business establishment visited, survey method used, duration of survey, source of data, and diagnostic lab location. For positive occurrences, survey delimiting information, such as estimates of population size and locality data will also be collected and submitted to NAPIS.

C) Raw data will be summarized into spreadsheets prior to submitting to NAPIS, which will be the permanent archive of the survey results.

D) Project results and successes will be evaluated via information dissemination outlined in Section IV)

Quantitative Projection of Accomplishments To Be Achieved.

E) Methodology used to determine if:

- f. Identified needs are met: surveys of pet shops and other businesses involved in the aquarium trade are conducted to determine if giant African snails are present
- g. Results and benefits are achieved: surveys and educational outreach for giant African snail will provide useful information to citizens on this exotic pests identification, biology, damage, management, and threat to human health.

VI) GEOGRAPHIC LOCATION OF PROJECT

Surveys will be conducted in the four southern Connecticut counties: Fairfield, Middlesex, New Haven, and New London Counties. Data will be provided to the Cooperator's State Regulatory Official (SPRO) and to the State Survey Coordinator for entry into the database.

Type of terrain: The survey will be conducted targeting pet shops and other establishments involved in the aquarium trade.

VII) TAXONOMIC SUPPORT

-) Person/institution that will screen samples for target pests: UConn or CAES staff. Positive identification of giant African snails will be confirmed initially by UConn or CAES staff, and finally by a USDA APHIS national specialists.
-) List of target pests by scientific name: *Achatina fulica*
-) Survey dates: June-September 2006
-) Number of survey sites: 24
-) Number of visual surveys: 24
-) Number of collections: 24 minimum collections will be made, one per site visited. The mollusks will be screened and potential suspects forwarded to a USDA APHIS specialist.

CAPS Work Plan for Calendar Year 2006

Cooperator: The Connecticut Agricultural Experiment Station

State: Connecticut

Project: (Part II) Survey for the Fruit Tree Tortrix and the Summer Fruit Tree Tortrix, Two Potential Pests of Fruiting Species Grown in the United States

Project Coordinator: Chris T. Maier, Department of Entomology, Connecticut Agricultural Experiment Station, P.O. Box 1106, New Haven, CT 06504; Phone: (203) 974-8476; Fax: (203) 974-8502; e-mail: Chris.Maier@po.state.ct.us.

I) OBJECTIVES AND NEED FOR ASSISTANCE

The fruit tree tortrix (*Archips podana*) and the summer fruit tortrix (*Adoxophyes orana*) are high priority insects in the Eastern Region and on the National Pest Target List, respectively. These two exotic moths could severely impact the fruit industry and forest health in Connecticut and elsewhere in North America. The herbivorous larvae of the Eurasian fruit tree tortrix could be particularly harmful to apple, pear, plum, cane-berries, and blueberry. The larvae also eat the foliage of many forest and ornamental trees. In North America, the fruit tree tortrix is known to be established in British Columbia and in Washington State. The European summer fruit tortrix is a larval pest of leaves and flowers of its hosts, such as apple, pear, and other plants. This usually bivoltine tortrix has caused up to 20% loss of the fruit crop in France and Germany. This fruit pest could cause major damage were it to become established in North American fruit-growing regions. Survey by capturing adults in pheromone traps and/or larval rearing of these two pests are proposed to assist with protecting Homeland Security.

Without federal assistance from APHIS, this survey could not be conducted to detect these potentially devastating pests in the Eastern Region, specifically in Connecticut, where the establishment of additional exotic pests that require control might make fruit-growing unprofitable.

II) RESULTS OR BENEFITS EXPECTED

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

- Outreach information for fruit-growers, homeowners, Integrated Pest Management personnel, cooperative extension specialists, researchers, and others that will increase their level of knowledge about these two exotic tortrix moths.
- Distributional data obtained from the proposed survey will provide APHIS and agricultural producers in the state with relevant information about the range of these potential new exotic pests in Connecticut (if discovered, a major goal would be to limit their movement and establishment).
- Survey results may help APHIS in decision-making processes about regulation of these exotic pests.

III) APPROACH

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

- Maintain a State Cooperative Agricultural Pest Survey Committee that will meet at least once a year to discuss fostering the goals of CAPS.
- Work together in carrying out field surveys, trapping, and data collection, setting emphasis on identified pest insects (Fruit Tree Tortrix and the Summer Fruit Tree Tortrix) that may pose an immediate risk to the agriculture of Connecticut and the United States.
- Have representation at National and/or Regional annual planning meetings.
- 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 at the level authorized by the PPQ Eastern Region will be dedicated to the delivery of CAPS objectives listed above.

A) The Cooperator will:

i)

- Conduct library and internet research mainly between January and May 2006 to compile the latest educational materials on the two exotic tortrix species. These materials will be made available to orchardists and other interested parties during meetings, site visits, and open houses at the Experiment Station.
- Select all sampling sites in April and May.

ii) Provide the following resources:

0. Direct personnel, part-time Research Aide III (already hired and paid by state funds; intermittent work for total of 6 weeks) and two summer assistants (temporary employees to be hired by state and paid with APHIS funds; work schedule [35 hours/week for total of 805 hours] in detailed financial plan) to rear immature leafrollers to adults and to deploy/monitor pheromone traps (summer fruit tortrix only). Personnel will sample larval leafrollers on wild (unsprayed) apple, crabapple, or pear trees from late May to late August during late spring and summer in the four coastal counties of Connecticut. They will transport the collected tortrix larvae to a temperature-controlled room at the Connecticut Agricultural Experiment Station to be reared to adults on foliage of the host on which they were collected. (The rearing procedure has been tested and perfected during a previous rearing project for the apple tortrix). Three sites per county will be sampled about twice each month (total samples = 72). Rearing may extend into September. Five wing traps with pheromone lures will be checked weekly at each major sampling site for adult males of *Adoxophyes orana* from late May to September.
0. No specialized equipment will be provided except as noted in 3.
- 3) Provide office space at the Connecticut Agricultural Experiment Station in New Haven, with associated services and utilities, computers, and other office equipment for the use of Cooperator personnel in processing samples.
- 4) Provide state vehicles (rented and operated with APHIS funds) for Cooperator personnel to conduct field surveys and collect data.

5) Purchase pheromone traps and rearing containers with APHIS funds for field survey. Purchases will be made from companies with which the State has established accounts. Dr. Victor Mastro, Otis Methods and Development Center, APHIS, has agreed to supply free pheromone lures for the wing traps that will be deployed to detect *Adoxophyes orana*.

Purchase paper, printer cartridges, storage disks, etc. with APHIS funds to prepare educational materials for distribution to growers, extension agents, and others. Purchases will be made from companies with which the State has established accounts.

h. Contracts: None

iv) Submit required reports to 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; and

(2) 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

B) APHIS will:

- Provide funds to pay the salary and fringe benefits of two summer assistants to conduct most of the survey work (activities already stated in section III-B; financial details and duration of employment in section VIII).
- Provide funds to the Cooperator to cover costs outlined in the Financial Plan. In addition, specific appropriated funding, in the level authorized by APHIS Eastern Region, will be dedicated to the delivery of CAPS objectives listed above.
- Provide free pheromone lures (Dr. Victor Mastro, Otis Methods and Development Center, APHIS) for the wing traps that will be deployed to detect *Adoxophyes orana*.

IV) QUANTITATIVE PROJECTION OF ACCOMPLISHMENTS TO BE ACHIEVED

An outline of timetable for major accomplishments is:

- January-May 2006—Library and internet research will be completed.
- January-December 2006—Educational materials on the two exotic tortrix moths will be distributed to interested parties.
- April-May 2006—Cooperator will select sampling sites.
- May-early June 2006—Five pheromone traps for *Adoxophyes orana* will be deployed at each of the 12 major sampling sites. Late May-August—Biweekly larval samples will be collected at every major

site (n = 12), and larvae will be reared to adults (rearing may extend into September or longer if insects enter diapause).

- Late May-September—Weekly examination of all pheromone traps and identification of captured target insects (if any).
- June 2006—Mid-season narrative progress report will be prepared and submitted to State Survey Coordinator.
- November 2006—All data will be submitted to the State Survey Coordinator, and the final report on survey will be prepared and submitted to appropriate federal and state officers.

V) DATA COLLECTION

The Cooperator will provide data to Donna Ellis, CAPS State Survey Coordinator, who will enter presence/absence data for the two exotic tortrix species into the NAPIS database. All survey data will be entered as follows:

- A) All survey data from cooperative agreements involving pest surveys will be entered into the NAPIS database.
 - a. First record for the State and/or County will be entered within **48 hours** of confirmation of identification by a qualified identifier
 - b. All other required records, both positive and negative survey data, must be entered **within two weeks** of confirmation.
 - c. 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.
Note: If December 1 is not possible (e.g., Agreement is not Jan. 1-Dec. 31), then an alternate deadline for final data entry must be stated in the work plan.
- All data created from PPQ surveys will be entered into NAPIS.
- All appropriate data obtained by the CSREES network will be entered into NAPIS.
- 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.
- i. Data to be collected during the tortrix surveys will include: presence/absence occurrences, number of target insects per site, date of site visits, counties where survey occurred, number of sites visited and number of positive sites, host crops surveyed, survey method used, duration of study, crop situation, diagnostic lab location. For positive occurrences, survey delimiting information, such as estimates of population size and locality data will also be collected and submitted to NAPIS.
- j. Raw data will be summarized into Excel spreadsheets before submission to NAPIS, which will be the permanent archive of the survey results.
- k. Project results and successes will be evaluated via information dissemination outlined in Section IV) **Quantitative Projection of Accomplishments to Be Achieved.**
- l. Methodology used to determine if:
 - i) Identified needs are met: surveys of sites with apples and pears that are not sprayed or lightly sprayed will be conducted to determine if the two target tortrix species are present.
 - ii) Results and benefits are achieved: surveys and educational outreach for two target species will provide useful information to citizens, particularly fruit-growers, on the identification, the biology, the damage, and the management of these exotic pests.

VI) GEOGRAPHIC LOCATION OF PROJECT

The survey will be conducted in the counties of Fairfield, New Haven, Middlesex, and New London, where many of the largest fruit-growing farms in Connecticut are situated. Wild stands or neglected orchards of apple or pear will be sampled from late May to September. Data will be provided to Donna Ellis, CAPS State Survey Coordinator, for entry into the database.

VII) TAXONOMIC SUPPORT

- A. Dr. Chris Maier, the Cooperator, will screen all samples and initially identify the two target tortrix species at the Connecticut Agricultural Experiment Station. Excellent internet resources and books exist to facilitate identification of adults.
- B. The target species are *Archips podana* and *Adoxophyes orana*. Dr. John Brown, USDA, Smithsonian Institution, or other personnel dictated by APHIS will make the final confirmations.
- C. Larval collections will be made between late May and late August, and pheromone traps will be monitored weekly between late May and early September.
- D. Twelve major survey sites (3 per county in each of 4 coastal counties) will be sampled.
- E. Five pheromone traps/major site (total = 60 traps) for *Adoxophyes orana* will be checked weekly for adult males.
- F. Adults of both target species will be reared from 72 larval collections (6 collections per site; 12 sites).