CAPS ANNUAL ACCOMPLISHMENT REPORT 2006

Wisconsin Department of Agriculture, Trade and Consumer Protection
Krista L. Hamilton, State Survey Coordinator

State Wisconsin
Year 2006 Annual
Agency Wisconsin Department of Agriculture, Trade and Consumer Protection

I. CAPS SURVEY ACTIVITY: CORE LEVEL FUNDING ACTIVITIES

A. State Survey Coordinator

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B. Member name, if applicable, of National CAPS Committee:

Robert Dahl

C. Compare actual accomplishments to objectives established for the period. When the output of the project can be quantified, a computation of cost per unit of output is required when useful

State survey efforts were conducted as required to characterize populations of significant crop pests, detect new pests or new outbreaks of pests of limited distribution. The DATCP Plant Industry Laboratory technician position, funded with CAPS Core dollars, played a critical part in supporting the State's role in safeguarding agricultural and natural resources.

D. If appropriate, explain why objectives were not met

General objectives were met in the conduct of the program.

E. Where appropriate, explain any cost overruns

No significant cost overruns were incurred.

F. State CAPS Committee narrative – meeting dates, attendees, agenda, etc.

The annual meeting was held on March 14, 2006. Meeting minutes including a list of attendees are attached.

G. NAPIS database submissions

CAPS program target pest and date of submission:

Small hive beetle	04/09/07	Mollusks	04/09/07
Potato nematodes	04/09/07	Sirex noctilio	01/31/07
Soybean pests	04/09/07	Fruit tree tortrix	04/09/07
Exotic beetles	04/09/07		

II. CAPS SURVEY ACTIVITY: SIREX NOCTILIO WOODWASP

Project coordinator: Krista Hamilton

A. Survey methodology (trapping protocol)

Pest survey specialists placed 63 eight-unit Lindgren funnel traps baited with *Sirex noctilio* lure (70% alpha pinene and 30% beta pinene) at sites in ten eastern Wisconsin counties--Marinette, Oconto, Brown, Door, Kewaunee, Manitowoc, Sheboygan, Ozaukee, Milwaukee, and Racine. High priority sites targeted during the 2006 survey included the ports of Milwaukee and Green Bay (10 traps each), Scotch pine Christmas tree farms, county forests dominated by red pine, and stressed pine plantings. Lindgren funnel traps were checked every two to three weeks, for a total of five separate checks between mid-June and October. A total of 315 samples were screened for siricids, cerambycids and scolytine beetles.

B. Rationale underlying survey methodology

Protocols for the National Sirex Woodwasp Survey plan were followed.

C. Survey dates

June 15-October 30, 2006.

D. Taxonomic services

DATCP Entomologist, Krista Hamilton (primary screening)
USDA APHIS Chicago identifier, William Winnie (suspect samples)

E. Benefits and results of survey

Fourteen suspect woodwasps were collected and submitted to the Chicago USDA-APHIS identifier for determination; all suspects were identified as native species, either *Tremex columba* (Linnaeus) or *Urocerus cressoni* Norton. *Sirex noctilio* was not detected in Wisconsin in 2006 **(see Figure 4 on page 9).**

F. Compare actual accomplishments to objectives established for the period.

In 2006, 63 of the planned 120 Lindgren funnel traps were deployed.

G. If appropriate, explain why objectives were not met*

Fewer traps were set than planned because the project coordinator overestimated a practical number of traps that could be placed by a single LTE during the survey time frame. The survey still covered all of the easternmost Wisconsin counties and generated good results for the first year.

H. Where appropriate, explain any cost overruns*

None to date

III. CAPS SURVEY ACTIVITY: EXOTIC WOOD-BORING & BARK BEETLES

Project coordinator: Krista Hamilton

A. Survey methodology (trapping protocol)

Nine Lindgren funnel traps were monitored by DATCP and 24 funnel traps were maintained by USDA-APHIS-PPQ at 10 sites. Each funnel trap was baited with one of the three attractants or attractant combinations: ultra-high release (UHR) ethanol lure only, UHR alpha-pinene and UHR ethanol lures together, or a three-component exotic bark beetle lure (two bubble caps, one pouch; more specific for conifer-feeding exotic bark beetles e.g. *Ips typographus, Ips sexdentatus, Hylurgus ligniperda and Orthotomicus erosus*). Lindgren funnel traps were checked approximately every other week and contents collected for identification.

B. Rationale underlying survey methodology

Site selection for the 2006 exotic wood-boring/bark beetle survey was based on the PPQ Hot Zone Trapping Program concept. Primary Hot Zone sites included companies that were issued Emergency Action Notifications (EANs) for SWPM violations for the presence of wood borers or bark beetles, locations that receive frequent shipments accompanied dunnage or other SWPM, and importers that receive bulk cargoes such as steel, marble, cast iron products, heavy machinery, and wooden spools. Two waste disposal facilities were also surveyed.

A total of 36 Primary Hot-Zone sites were contacted and interviewed by telephone. Based on interview results, approximately 20 site visits and follow-up warehouse inspections were carried out, and a total of 33 Lindgren funnel traps (three per site, six at a major facility in east central Wisconsin) were deployed at ten high-risk sites in Kenosha, Milwaukee, Racine, Sauk, Sheboygan, Vernon, and Waukesha counties. Protocols for the National Exotic Wood-Boring/Bark Beetle Survey were followed.

C. Survey dates

May 01 through September 01, 2006.

D. Taxonomic services

DATCP Entomologist, Krista Hamilton (primary screening)
USDA APHIS Chicago identifier, William Winnie (suspect samples)

E. Benefits and results of survey

No target exotic wood-boring or bark beetles were captured at any of the Wisconsin trapping sites in 2006, though numerous native cerambycid and buprestid species were identified from the traps **(see Figure 5 on page 9).**

F. Compare actual accomplishments to objectives established for the period.

The survey work plan called for 34 assessment sites and four trapping/visual survey sites. A total of 36 assessment sites, 20 site visits, and trapping at 10 locations exceeded the objectives established for 2006.

G. If appropriate, explain why objectives were not met* NA

H. Where appropriate, explain any cost overruns*
None to date.

IV. CAPS SURVEY ACTIVITY: FRUIT TREE TORTRIX MOTH

Project coordinator: Krista Hamilton

A. Survey methodology

In 2006, a total of 34 Wisconsin orchards participated in the Fruit Tree Tortrix (FTT) moth survey**.** Pherocon VI delta traps and pheromone lures specific to *Archips podana* (Scopoli) were provided to cooperating orchards in 21 counties (see Figure 6 on page 8). Survey participants were established cooperators in DATCP's statewide network of apple insect trappers. Traps were checked weekly, lures were replaced every six weeks, and any suspect moths in the FTT traps were submitted to the DATCP entomologist for identification.

B. Rationale underlying survey methodology

The DATCP trapper network has been in existence for several years, and is comprised of apple growers distributed throughout the state. In addition to trapping for exotic pests, network cooperators trap endemic insects and report findings to the Wisconsin Pest Bulletin weekly.

Traps and pheromone lure were provided to the established DATCP network of apple insect trappers. Information on *Archips* identification and life cycle was also provided to survey participants, other cooperators and the apple industry in the state via brochures and a web site.

C. Survey dates

June 1 through September 1, 2006.

D. Taxonomic services

DATCP Entomologist, Krista Hamilton (primary screening)
UW-Madison Insect Collection curator, Steve Krauth (secondary screening)
Smithsonian Institution Research Entomologist, John Brown (final determination)

E. Benefits and results of survey

Three suspects were submitted in sticky traps to the DATCP entomologist in August, two from Rochester (Racine County) in southeastern in Wisconsin, and the third from Montello (Marquette County) in central Wisconsin. The Marquette County suspect was determined to be a stray redbanded leafroller (*Argyrotaenia velutinana* (Walker)). The Rochester orchard samples (two moths) were taken to UW-Madison insect research collection curator on August 8, 2006. The first specimen was identified as *Pyrausta orphisalis* Walker (Lepidoptera: Pyralidae), a native species. The second moth was determined to be *Archips infumatana* Zeller, a cosmopolitan species. *Archips podana* was not trapped in any Wisconsin apple orchard in 2006 **(see Figure 6 on page 9).**

F. Compare actual accomplishments to objectives established for the period.
The actual number of trapping sites, 34 orchards, matched the expected number of sites. All objectives for the 2006 survey were met.

G. If appropriate, explain why objectives were not met*
NA

H. Where appropriate, explain any cost overruns*
None to date.

Figure 1. ***Pyrausta orphisalis*** **Walker**

Figure 2. ***Archips infumatana*** **Zeller**

IV. CAPS SURVEY ACTIVITY: SOYBEAN PESTS

Project Coordinators: Anette Phibbs (lab support) and Krista Hamilton (field survey)

A. Survey methodology
A total of 188 soybean fields in the R2-R4 growth stages were surveyed for soybean rust other soybean pests including: various soybean viruses (soybean mosaic virus, soybean dwarf virus, bean pod mottle virus, alfalfa mosaic virus) and possible vectors; bacterial pustule and blight; frogeye leaf spot; new races of *Phytophthora sojae*; white mold (*Sclerotinia sclerotiorum*); soybean aphid (*Aphis glycines*); bean leaf beetle (*Certoma trifurcata*); Japanese beetle (*Popillia japonica*); soybean pod borer (*Maruca vitrata*). Leaf samples were collected for laboratory virus analysis. From four sets of ten plants in each field (40 plants total), the uppermost fully unfurled trifoliate was collected, bagged, labeled, and stored on ice. Leaf samples were tested by ELISA (AGDIA reagents) for a range of soybean viruses. Any putative soybean rust samples were screened by the DATCP Plant Industry Lab using PCR, prior to forwarding to appropriate USDA identifiers. In addition to sampling leaves, soybean aphid numbers were counted and bean leaf beetle defoliation estimated.

B. Rationale underlying survey methodology
Only early reproductive stage soybeans (R2-R4) were examined because soybean aphid populations are expected to reach peak levels at R2-R4. Sampling fields at

these stages of growth facilitates accurate comparison of survey results from year to year and indicates peak aphid levels during a given season. In addition, surveying for a broader range of soybean pests at each site (rust, viruses, soybean aphids, bean leaf beetle) increases the efficiency of the survey and allows for the collection of more field data.

C. Survey dates

Sampling and survey work was conducted from July 12 to August 09, 2006.
Laboratory analysis for viruses was completed by November 30, 2006.

D. Taxonomic services

DATCP Entomologist, Krista Hamilton (primary insect screening)
DATCP Plant Industry Lab, Anette Phibbs (primary disease screening)

E. Benefits and results of survey

No soybean rust was detected. All samples tested negative for BPMV, Tobacco Streak Virus (TSV) and viruses in the potyvirus group. Six fields tested positive for soybean dwarf virus (SbDV), which was found for the first time in soybeans in Wisconsin in 2003. The low incidence of SbDV is consistent with previous years' survey results. ELISA positive SBDV samples were confirmed by molecular method, Reverse Transcription Polymerase Chain Reaction (RT-PCR). Overwintered bean leaf beetles were tested for BPMV in April and May with beetles from three out of 81 alfalfa fields (the beetle habitat before soybean emergence) positive for BPMV **(see Figure 7 on page 9).**

F. Compare actual accomplishments to objectives established for the period.

Although the estimated number of soybean fields surveyed was 275, a total of 188 soybean fields were sampled.

G. If appropriate, explain why objectives were not met*

Because of the narrow window in which the survey could be conducted (R2-R4), the project coordinator reduced the total number of fields surveyed.

H. Where appropriate, explain any cost overruns*

None to date.

V. CAPS SURVEY ACTIVITY: POTATO NEMATODE SURVEY

Project Coordinator: Anette Phibbs

A. Survey methodology

This survey combined testing for Golden nematode (*Globodera rostochiensis* (Wollenweber)), Columbia root-knot nematode (*Meloidogyne chitwoodi*), British root-knot nematode (*Meloidogyne artiella*), false Columbia root-knot nematode (*Meloidogyne fallax* Karssen) and pale potato cyst nematode (*G. pallida* (Stone)). All four nematodes are of regulatory concern. False Columbia and British root knot nematode are on the CAPS national pest target list. During this survey, specialists

collected soil samples from 123 potato fields and screened them for potato cyst nematodes and vermiform juvenile root-knot nematodes.

Soil samples were collected from fields in potatoes or in a rotation with potatoes. For ease of sampling and to maintain favorable relations with growers, samples were collected in spring prior to planting and in fall after the potato harvest. Fields selected for sampling were located in the top potato growing regions of the state, including the Central Sands, the Northwest, and near Antigo (Langlade County). The Antigo region is weighted more heavily in the sampling than the acreage would warrant due to the prevalence of seed potato production in the area. Fields are sampled with a core sampler, with 20 soil cores taken from as wide a distribution in each field as possible. Core samples are combined to make a single sample for the field. At the Plant Industry Lab, cysts and vermiform root-knot nematodes were separated from soil by wet sieving method and Baerman funnel method, respectively. Vermiform nematode samples were screened under a microscope and tested with molecular methods (real time PCR) to determine the nematode to genus (*Meloidogyne*) and species (*M. fallax* or *M. chitwoodi*).

Laboratory test methods consisted of a combination of classic nematology methods and real time polymerase chain reaction (PCR). Cyst nematodes are separated from soil by washing and sieving. Microscopy is used to identify cysts by morphological characters. Molecular test methods using nematode DNA and real time polymerase chain reaction (PCR) are also available. Root-knot nematodes are separated from soil by Baerman funnel. Plant Industry lab adapted PCR techniques that allow for the detection and positive identification of a single nematode in a sample, which would be difficult (if not impossible) to achieve by using classic nematology techniques alone.

B. Rationale underlying survey methodology

Soil sampling methods used in 2006 followed USDA guidelines.

C. Survey dates

January 01 to November 15, 2006.

D. Taxonomic services

DATCP Plant Industry Laboratory, Anette Phibbs (primary screening)
University of Nebraska Nematology Lab, Dr. Tom Powers (confirmation)
USDA APHIS identifier (as needed)

E. Benefits and results of survey

Early detection of nematode infestations is critical to preventing further spread and limit restrictions on markets and cropping options. Neither the pale potato cyst nematode nor the golden nematode has ever been found in Wisconsin. Wisconsin potato fields have been sampled periodically for cyst nematodes since 1982. The 2006 survey showed no evidence of the target nematodes in the 123 fields tested.

F. Compare actual accomplishments to objectives established for the period.

In 2006, 123 of 115 planned soil samples were tested for PCN and exotic root knot nematodes. All samples tested negative for exotic root knot nematodes and potato cyst nematodes.

Figure 2. Number of fields sampled by county.

COUNTY	NO. SAMPLES
Adams	20
Barron	3
Brown	1
Dunn	6
Iowa	1
Langlade	27
Marathon	5
Marinette	1
Oneida	9
Outagamie	1
Portage	20
Sauk	1
Sauk	5
Waushara	22
Wood	1
Total fields tested	123

G. If appropriate, explain why objectives were not met*

NA

H. Where appropriate, explain any cost overruns*

None to date.

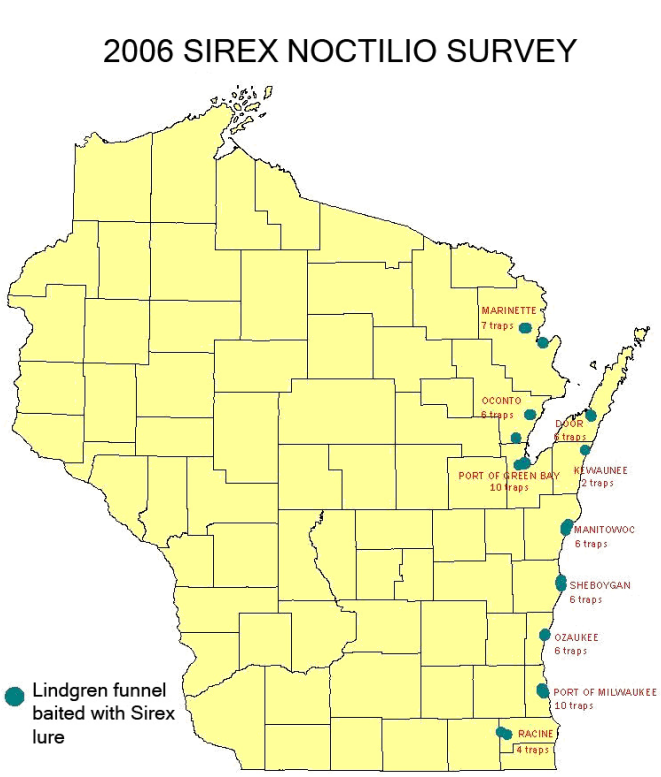

Figure 4. Sirex noctilio survey results.

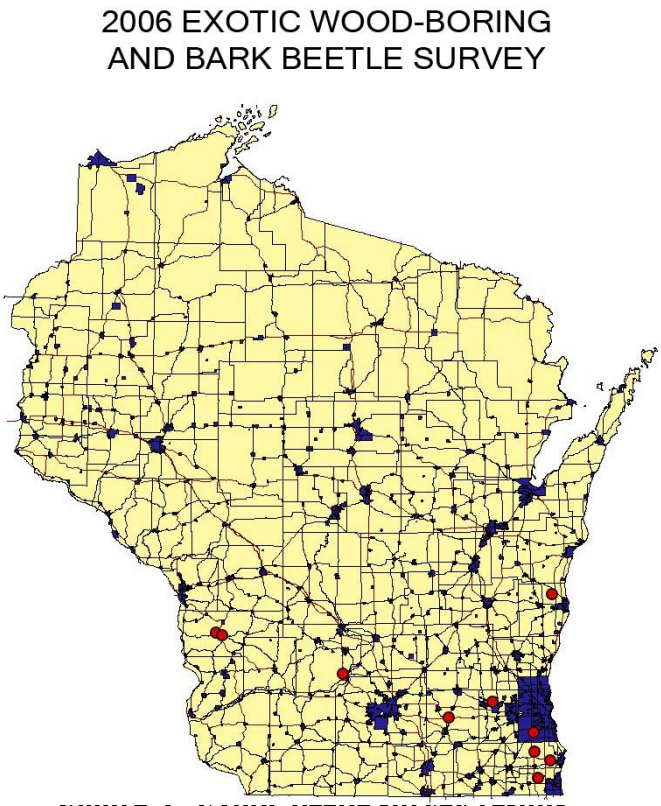

Figure 5. Exotic beetle survey results.

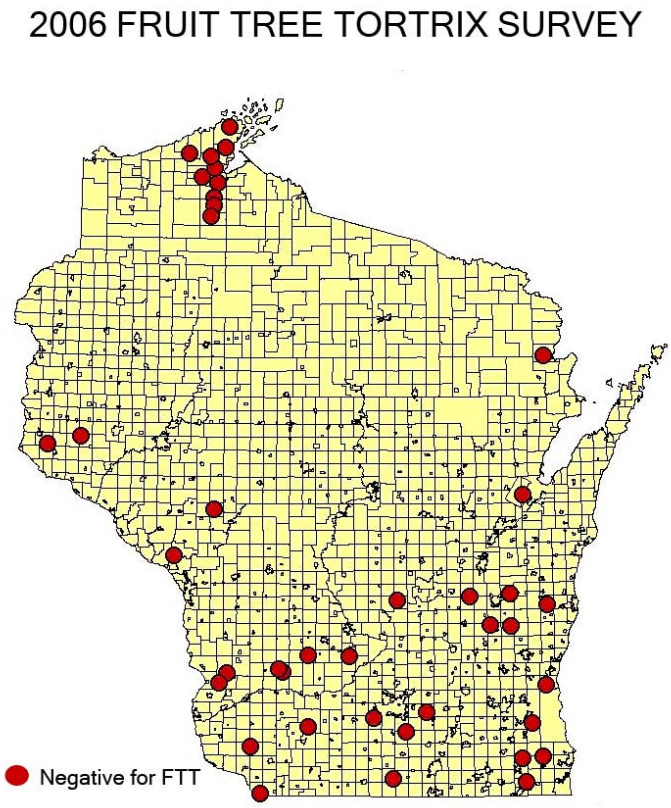

Figure 6. Fruit tree tortrix moth survey sites.

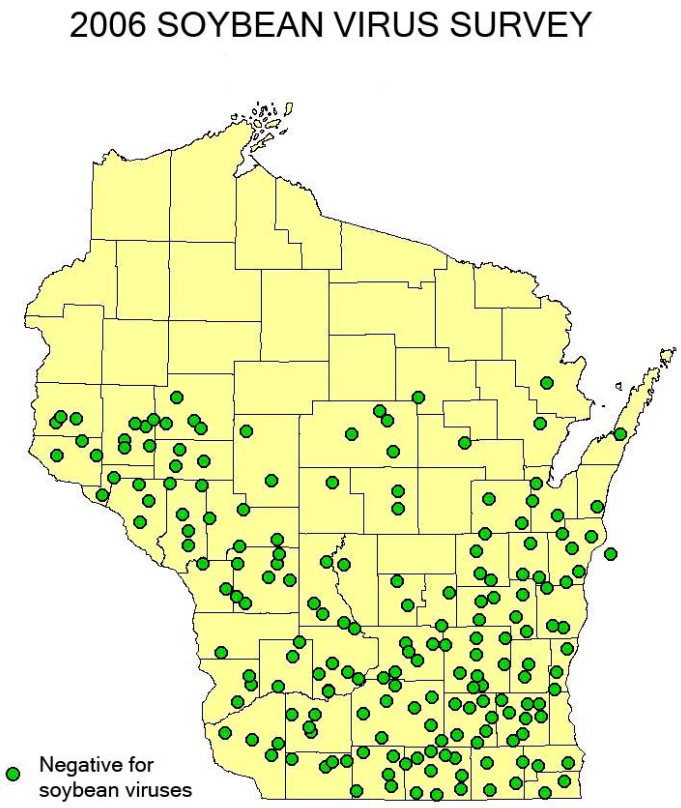

Figure 7. Soybean rust and virus survey sites.