DATCP's 2004 Disease Survey Results

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WI Department of Agriculture, Trade and Consumer Protection

Highlights of 2004 Survey

- Soybean viruses scarce
- Soybean dwarf virus found again
- Powdery scab of potato found again
- Ralstonia entered WI again
- Brown root rot of alfalfa not in southern counties
- Soybean cyst nematode distribution map stays static

Soybean Virus Survey Method

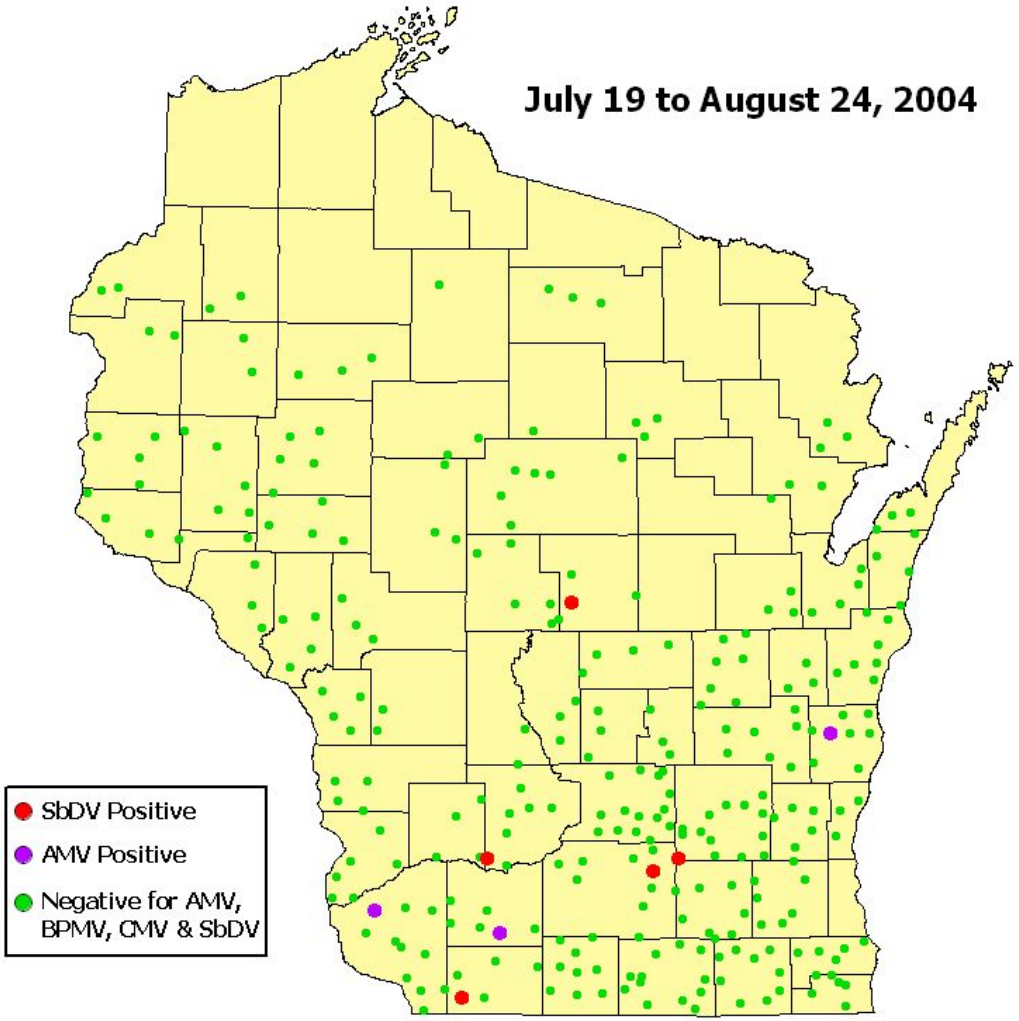
- 293 fields throughout Wisconsin
- Collect 10 leaves at four sites in field
- Uppermost fully-unfurled trifoliate
- Count aphid numbers
- Estimate defoliation
- Samples stored at -80 C

Laboratory Analysis

- ELISA testing for:
  - **Bean Pod Mottle Virus (BPMV)**
  - **Alfalfa Mosaic Virus (AMV)**
  - **Cucumber Mosaic Virus (CMV)**
  - **Soybean Dwarf Virus (SbDV)**

DAS ELISA kits from Agdia Inc., Elkhart, IN

2004 Soybean Virus Survey Summary



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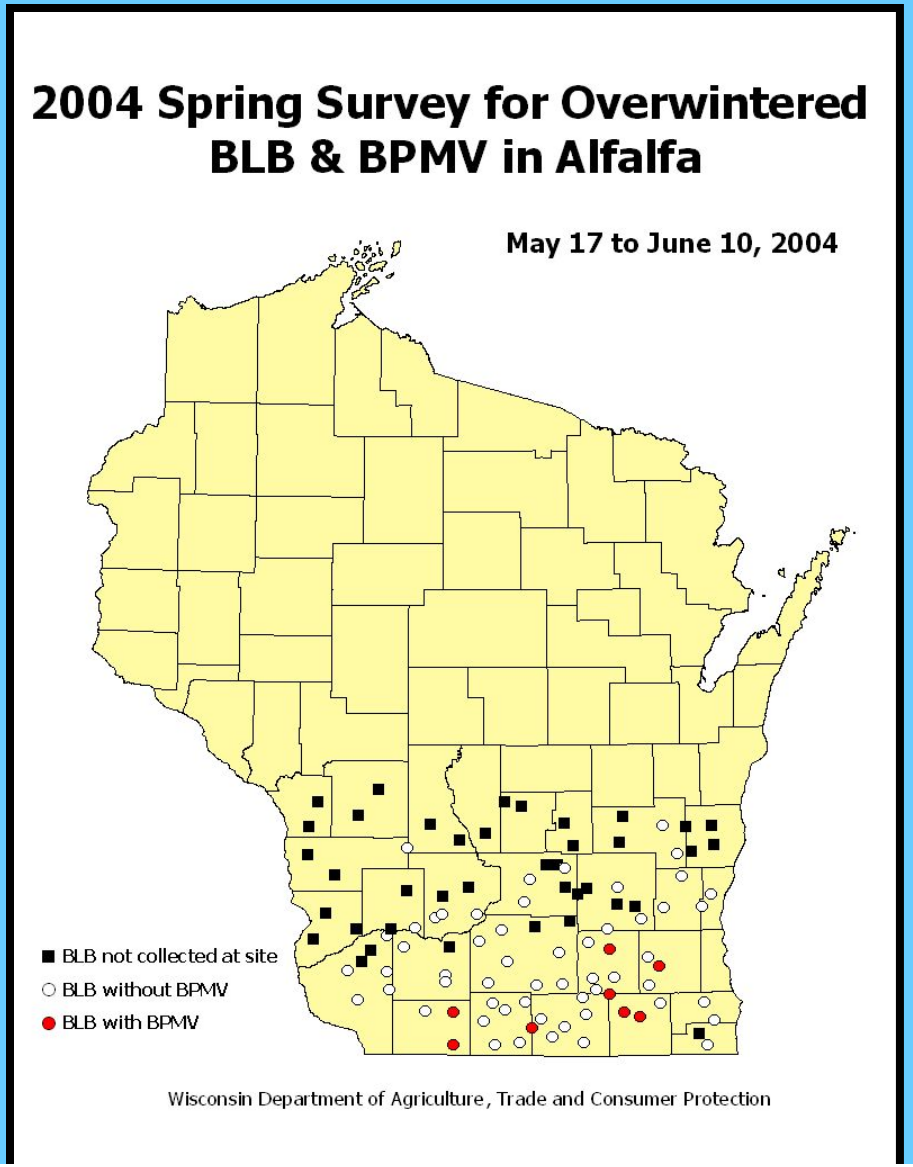
Results

- 293 fields sampled
  - 5 fields with SbDV
  - 3 fields with AMV
  - No CMV
  - No BPMV

The disappearing BPMV

- BPMV was not found, despite having been detected in bean leaf beetles in eight of 102 fields during a May-June BLB survey

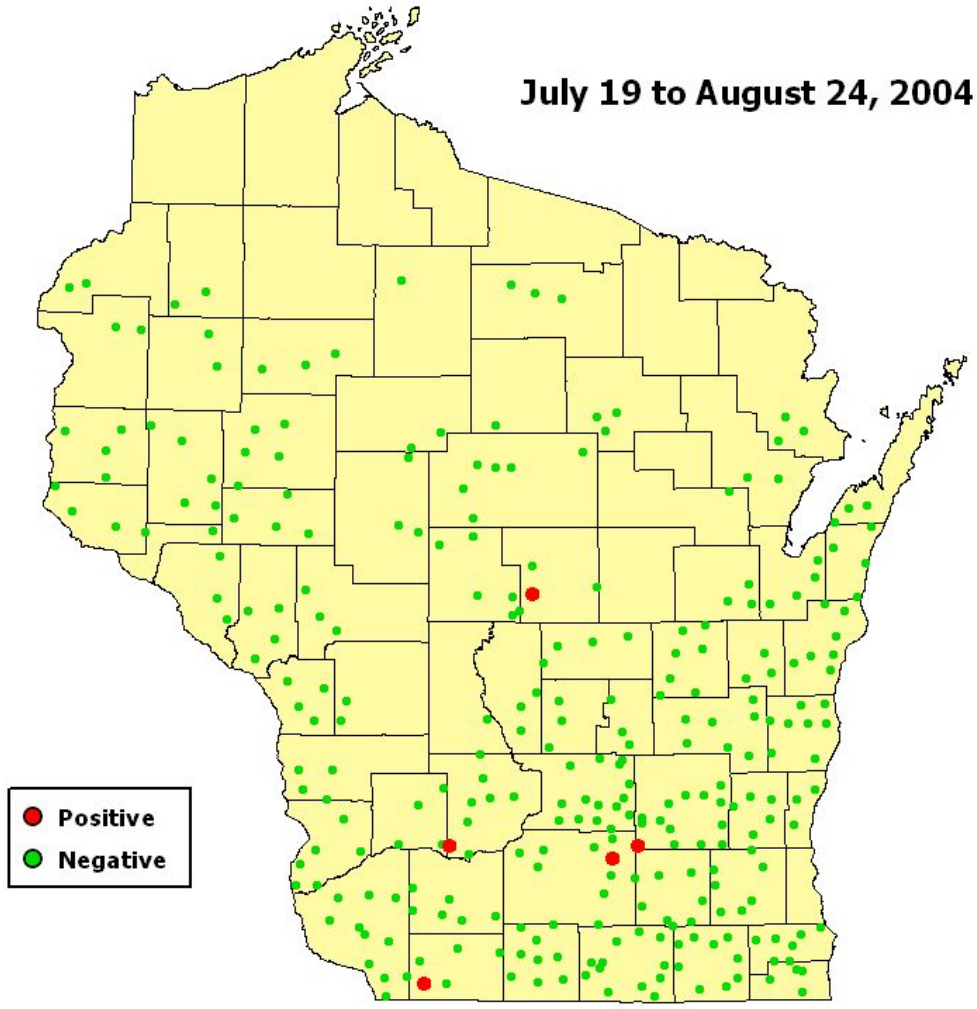


Soybean Dwarf Virus (SbDV)

- Soybean Dwarf Virus was first detected on Wisconsin soybeans in 2003.

- Present in Japan, Australia and New Zealand, Syria, California and SE U.S. (on clover)

2004 Survey for Soybean Dwarf Virus in Soybeans



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Counties:
Portage,
Dodge,
Dane, Sauk,
Lafayette

SbDV

- Aphid-vectored (persistent)
- Several strains are known– the WI strain is “dwarfing” (by RT-PCR, Les Domier, Univ. of IL)
- Host range: more than 50 plants, including peas, beans, lupines, various clovers, beets, spinach….

Implications of find:

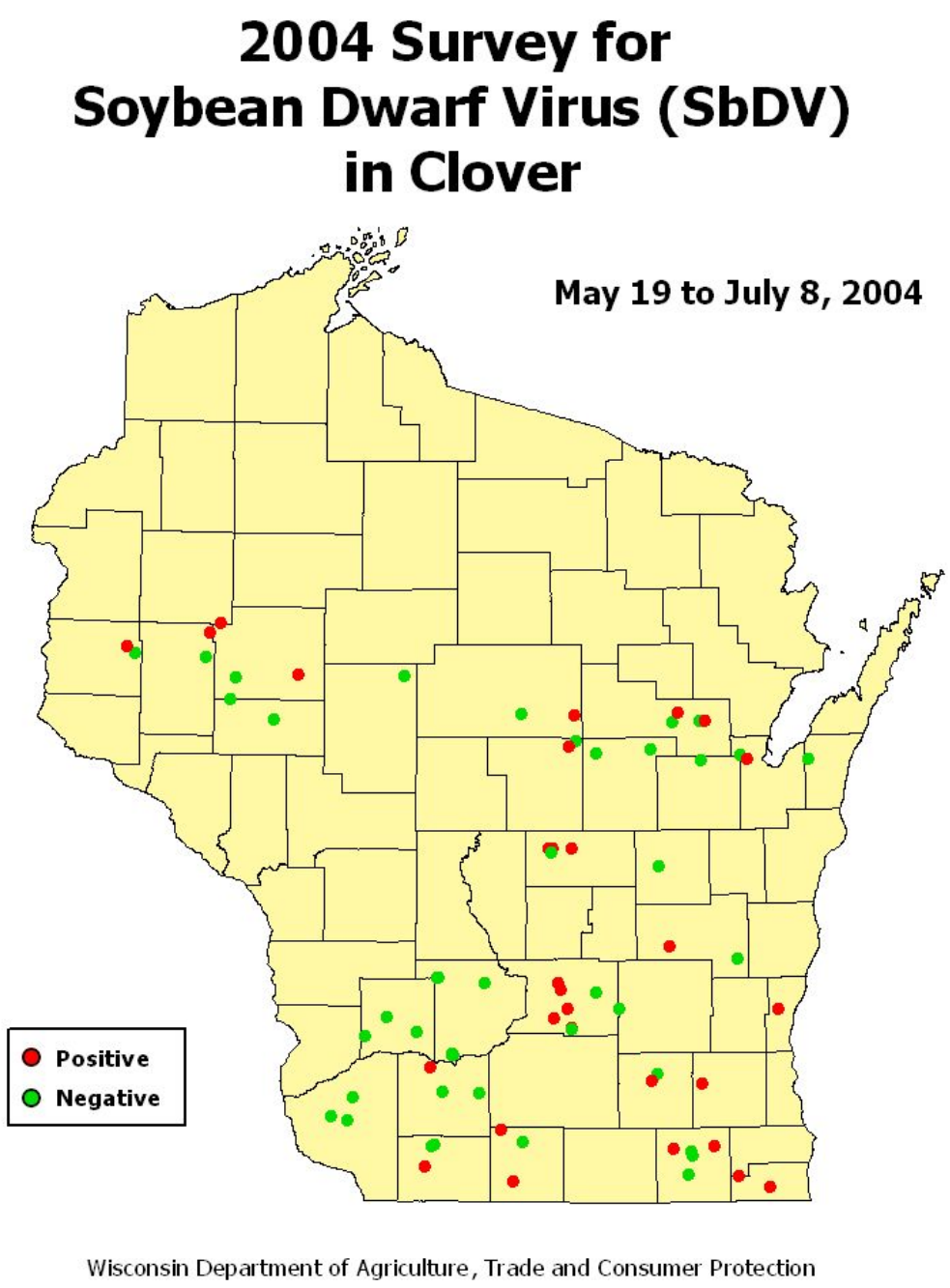
- SbDV has been shown to not be vectored efficiently by *Aphis glycines*
- No known regulatory impact
- Differences exist in host plant response, but response of WI varieties is unknown

SbDV on clover

- To determine overwintering ability of virus, DATCP conducted a survey of clovers from 5/24/04-7/8/04.
- Red clover (*Trifolium pratense*) is reported to be a host of SbDV-D.

SbDV on clover

- 31 of 53 red clover samples were positive for SbDV.
- 2 of 24 white clovers were positive.



Incidence of *Soybean dwarf virus* and Identification of Potential Vectors in Illinois

Barbara Harrison and Steinlage, T.A., Domier, L.L., and D'arcy, C.J. 2005. Plant Disease Vol. 89 No. 1

- No virus transmission from red clover to soybean by *Aphis glycine*, *Acyrthosiphon pisum* (pea aphid), *Aphis craccivora* (cowpea aphid) or *Therioaphis trifolii* (yellow clover aphid).
- Consistent transmission of SbDV by *Nearctaphis bakeri*, the clover aphid, both between red clover plants and between red clover and soybean.
- Transmission was at very low efficiency.

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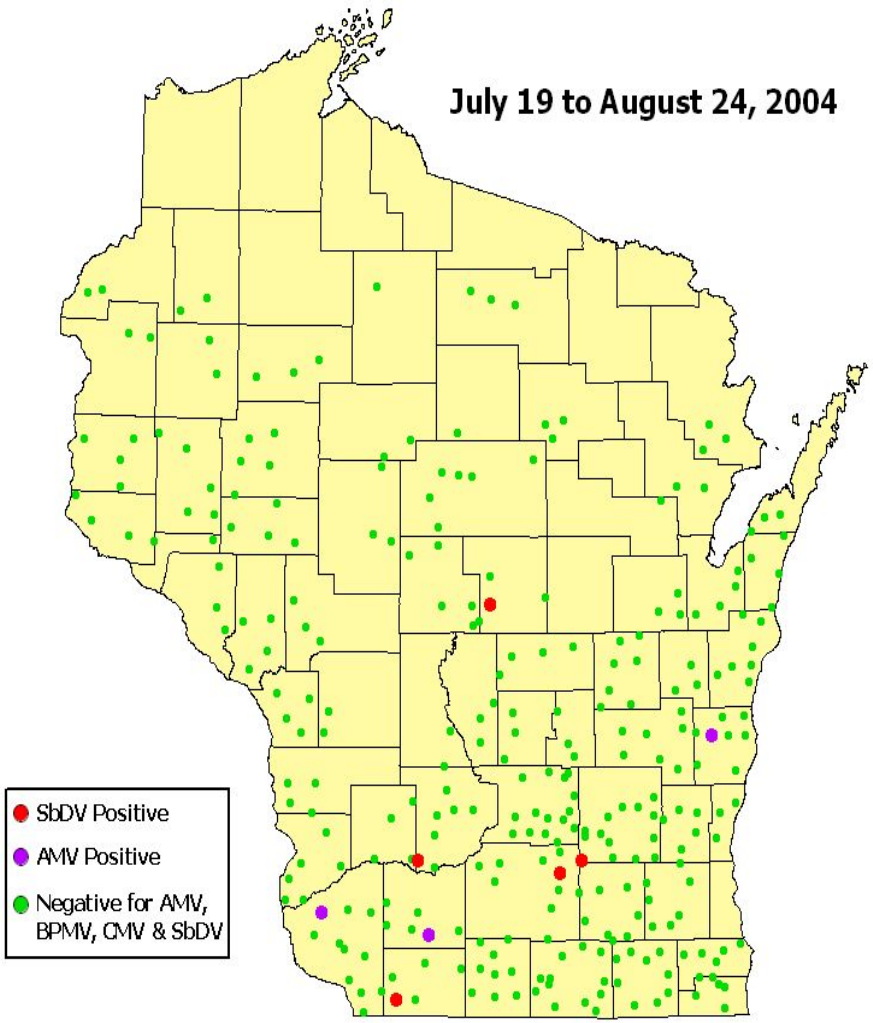
2004 Soybean Virus Survey Summary



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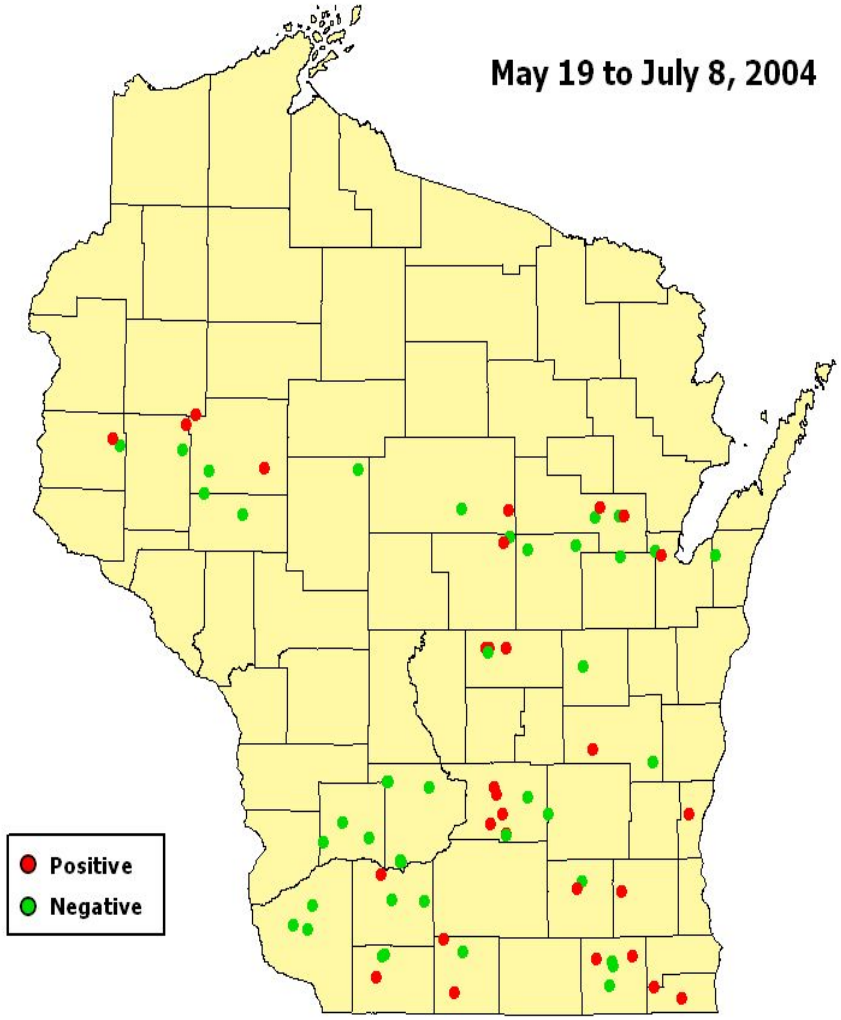
2004 Survey for Soybean Dwarf Virus (SbDV) in Clover



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Powdery Scab
Holley

Powdery scab of potato

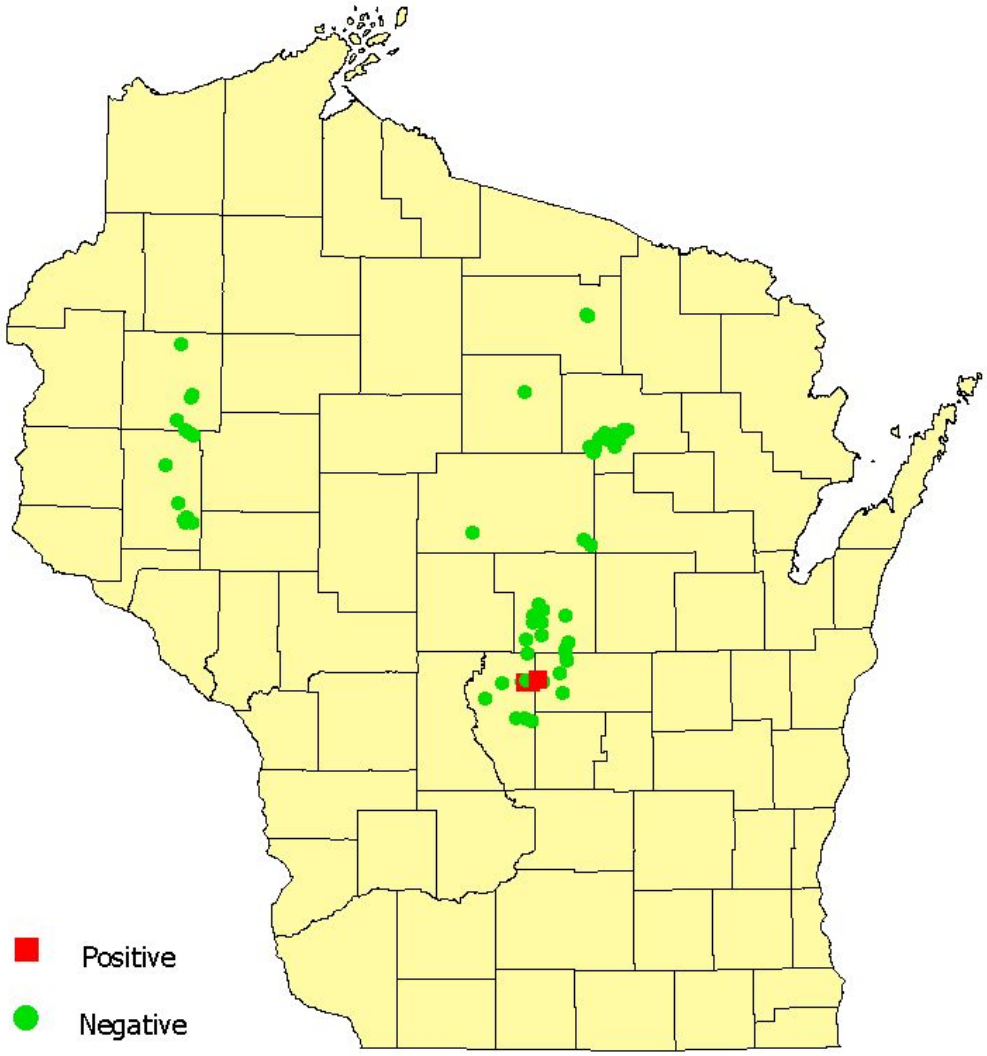
- First detected in WI in 2003
- common in western states
- caused by *Spongospora subterranea* f. sp. *subterranea*

- Causes surface blemish (similar to common scab) and dehydration in storage
- Vector of potato mop top virus (PMTV), the subject of a national survey effort in 2002

2003 powdery scab detection

- Detected on seed potatoes brought in from Colorado, Spring of 2003. (Potatoes were ordered destroyed prior to planting.)
- Symptoms were found on plants in August, 2003
- Laboratory analysis confirmed powdery scab

2003 Powdery Scab Survey



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2004 Powdery scab detections

- Found in Langlade and Oconto Counties by observant field personnel
- Distribution of the disease is still apparently very limited

Implications of find:

- No known regulatory significance
- Clean seed stock should prevent the introduction to additional farms
- Hancock and Rhinelander Agricultural Research Stations are still free of pathogen

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Ralstonia solanacearum

- Found on geraniums from Guatemala
- Causal agent of brown rot of potato
- Present in much of the world

- In 2003, seven Wisconsin greenhouses received Federal Emergency Action Notifications with orders to destroy infected geraniums and other plant material that may have become contaminated.
- In 2004, 24 greenhouses voluntarily destroyed infected material.
- In 2005--???

- Listed as a Select Agent on the Ag Bioterrorism Prevention Act of 2002

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Brown root rot of alfalfa

- Caused by *Phoma sclerotioides*
- May contribute to stand decline, yield loss and increased winterkill
- Found in Wisconsin by UW researchers in 2003
- Not detected in 23 alfalfa samples collected in southern tier counties in 2004

Soybean Cyst Nematode

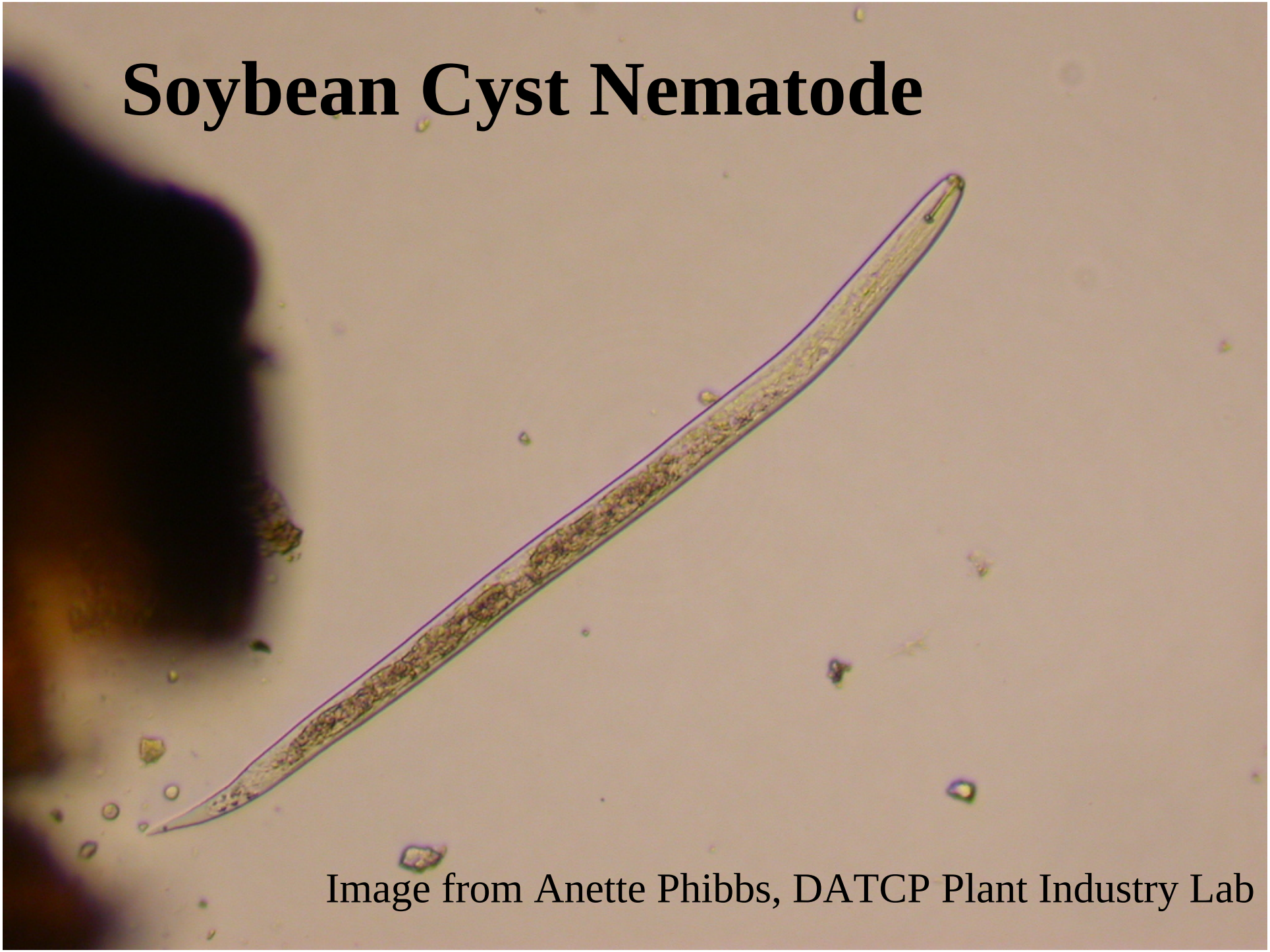
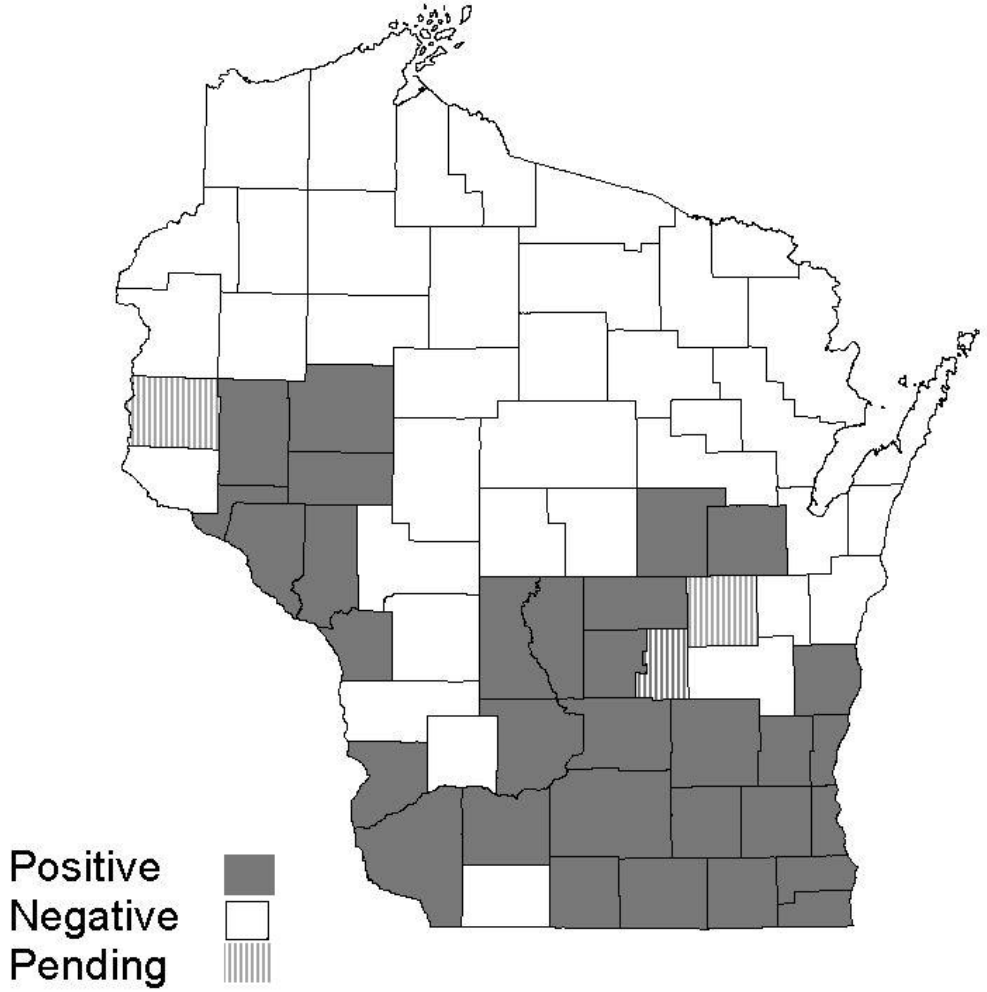


Image from Anette Phibbs, DATCP Plant Industry Lab

SCN

- Officially, no new counties added to list of infested counties despite several hundred soil samples taken
- Growers in counties where SCN has been identified should test for the organism
- Management strategies are well-established—see http://www.plantpath.wisc.edu/soyhealth/scn.htm

Soybean Cyst Nematode
Heterodera glycines
Wisconsin 2004



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http://www.datcp.state.wi.us/arm/environment/insects/pest-bulletin/

1-800-462-2803

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