Tracking Soybean Rust

Sentinel Plots

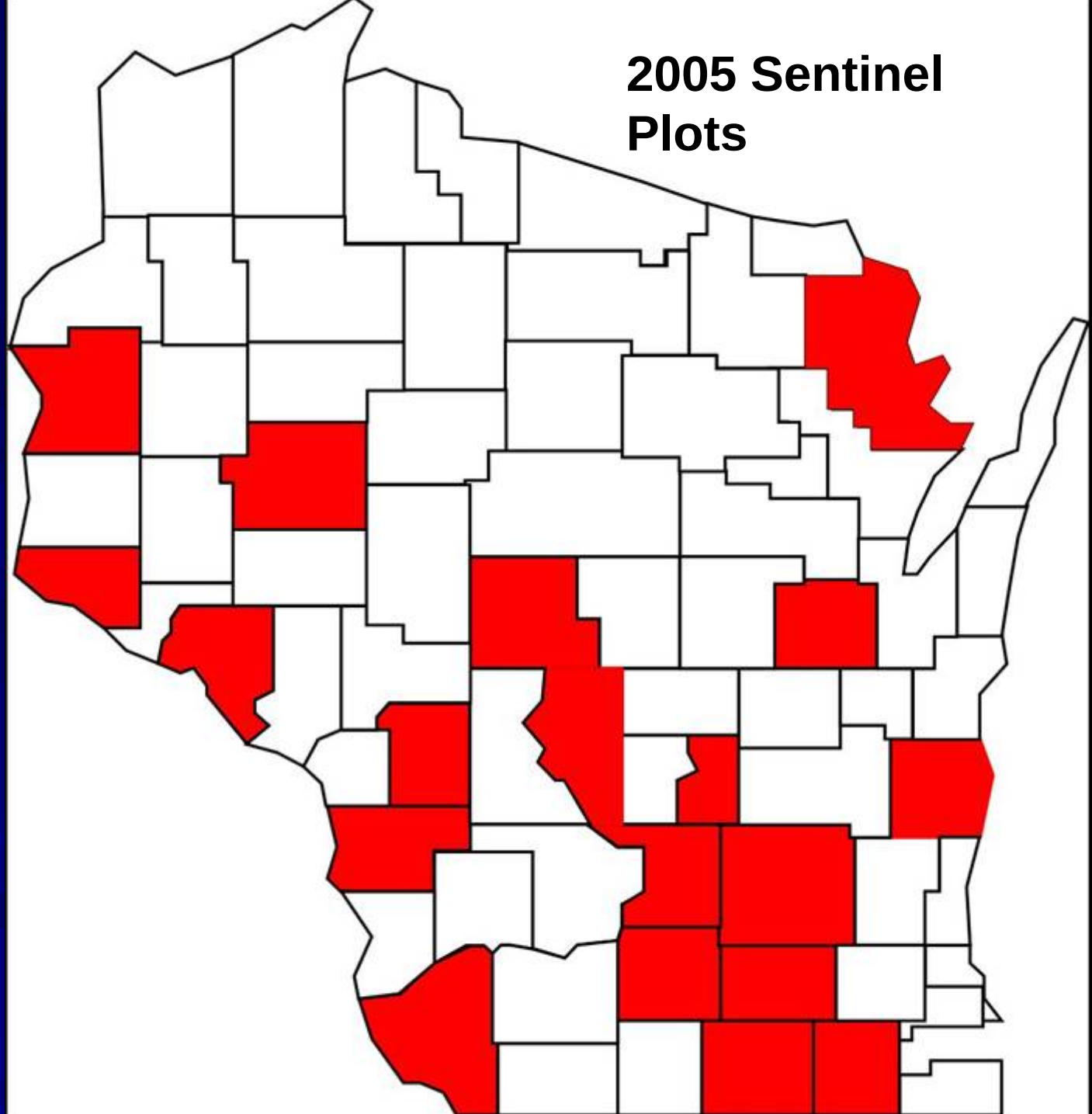
Spore Trapping Programs

Why Monitor Soybean Rust Movement?

- Essential IPM practice for soybean rust management

Sentinel Plots

- WI part of a multi-state network
  - 34 states
  - 22 WI sentinel plots
    - County extension agents
    - ARS staff
    - UW Research staff
- Multiple crops, plants
  - Soybean
  - Dry beans
  - Kudzu


2005 Sentinel Plots

Sentinel Plots

- Goals
  - Quantify timing of spore production in overwintering areas
  - Data collection for epidemiological research
  - Provide first detection in state/region

Sentinel Plots

- Monitoring Protocol
  - Early Plant
  - 25’ x 50’ plot area (minimum)
  - Monitoring Schedule
    - Vegetative stages; Bi-monthly
      - Weekly if environmental conditions are conducive
      - Weekly if found in region
    - Reproductive stages; weekly

Sentinel Plots

- Pre-detection Monitoring protocol
  - Designed to detect rust @ 5% incidence
  - 100 leaflets/site
    - **Lower canopy**
    - **Main stem only**
    - **Use 10X – 20X handlense**
    - **Incubate in plastic bag if desired**

Sentinel Plots

- Reporting
  - **First state detection/crop**
    - **Sample to UW Plant Disease Diagnostic Clinic**
    - **Positive detects sent to USDA Lab for confirmation**
    - **If Positive**
      - **Results posted on USDA Soybean Rust Website http://www.sbrusa.net/**
      - **Disseminated through Plant Disease Diagnostic Clinics Soybean Rust Hotline**
        - **Funded by WI Soybean Marketing Board**
        - **1-866-787-8411 or 1-866-RUST411**

Sentinel Plots

- New County Detections
  - Sample Sent to UW Plant Disease Diagnostic Clinic
  - Positive detects reported through
    - **Soybean rust hotline**
    - **USDA Soybean Rust Website**

Value of Sentinel Plots

"MOST finds were in commercial fields but EARLIEST finds were in sentinel plots".

- Intense observation
- Trained observers
- Unsprayed soybeans

USDA Public Soybean Rust Website - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address http://www.sbrusa.net/ Go Links

Getting Started

Prev Next

November - 2005

		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

December - 2005

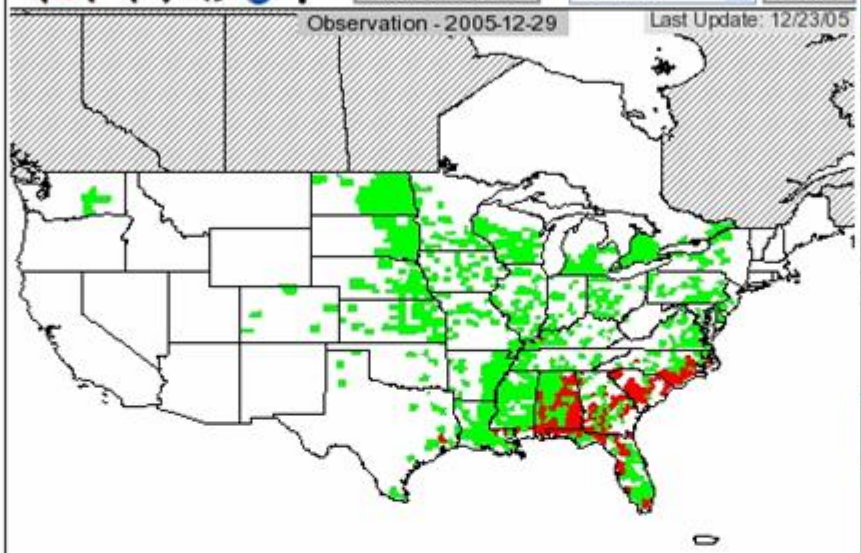
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

January - 2006

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Map Description - Overlay - Load

Observation - 2005-12-29 Last Update: 12/23/05



scouted, not found scouted, confirmed

Sign Up For Alerts

Dec 29, 2005

Observation

State Update Map

Chronology of Positive Detections

SBR Forecast (12/27/05)
Seasonal Freeze Line and Kudzu Dieback
Click For Details...

USDA Links

APHIS-PPQ Soybean Rust Site
CSREES Web site
National Plant Diagnostic Network site
Return to: USDA SBR website
USDA Position on Spore trapping

Printable Map

National Map Commentary (updated: 12/23/05)

Alabama has reported one more county positive, Mobile county. Please consult the appropriate state commentary for more information about each state's find(s). Caldwell county, KY is the farthest north location and Hyde county, NC is the farthest east location where soybean rust has been found in 2005. Liberty county in Texas is the furthest west that rust has been found in 2005. Alabama now has 33 counties reported positive with rust; Florida has 23; Georgia has 35; Mississippi has two; South Carolina has 23; North Carolina has 18; Louisiana has 2;and Texas has 1; Kentucky has 1. There were 35 counties that reported soybean rust in the month of August with ten reports for September , forty-seven in October [one of the reported counties was confirmed in September], 28 in November,and two

Additional Links

Aerobiology Risk Analysis
American Phytopath. Society Home Page
Animated Hurricane Maps
Soybean rust Identification card

Done Internet

Internet

start 12:53 PM

USDA SBR Website

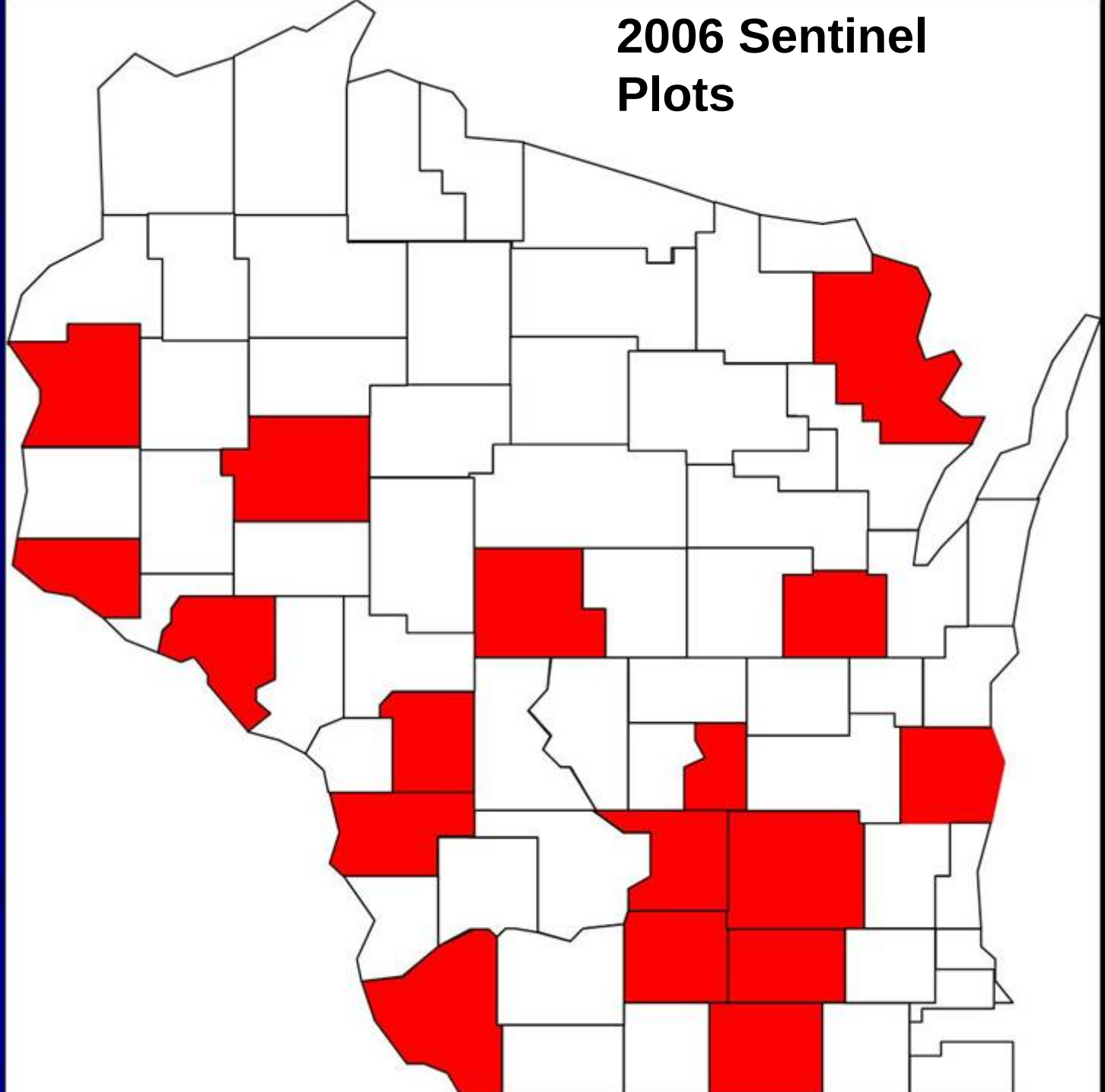
- Observation Map
  - Monitored counties in green
  - Positive rust detects in red
- State Update Map
  - Management scenarios
  - Scouting techniques
  - Outlook for the state

USDA SBR Website

- Signup for email updates
- SBR forecast
  - **Summer: projects rust movement & conditions for disease development**
  - **Winter:**
    - **Freeze line**
      - **marks locations that have experienced freezing temperatures**
    - **Kudzu dieback**
      - **tracks the southward defoliation of host vegetation**

USDA SBR Website

- National Commentary
- Additional links
  - ID
  - Forecasting

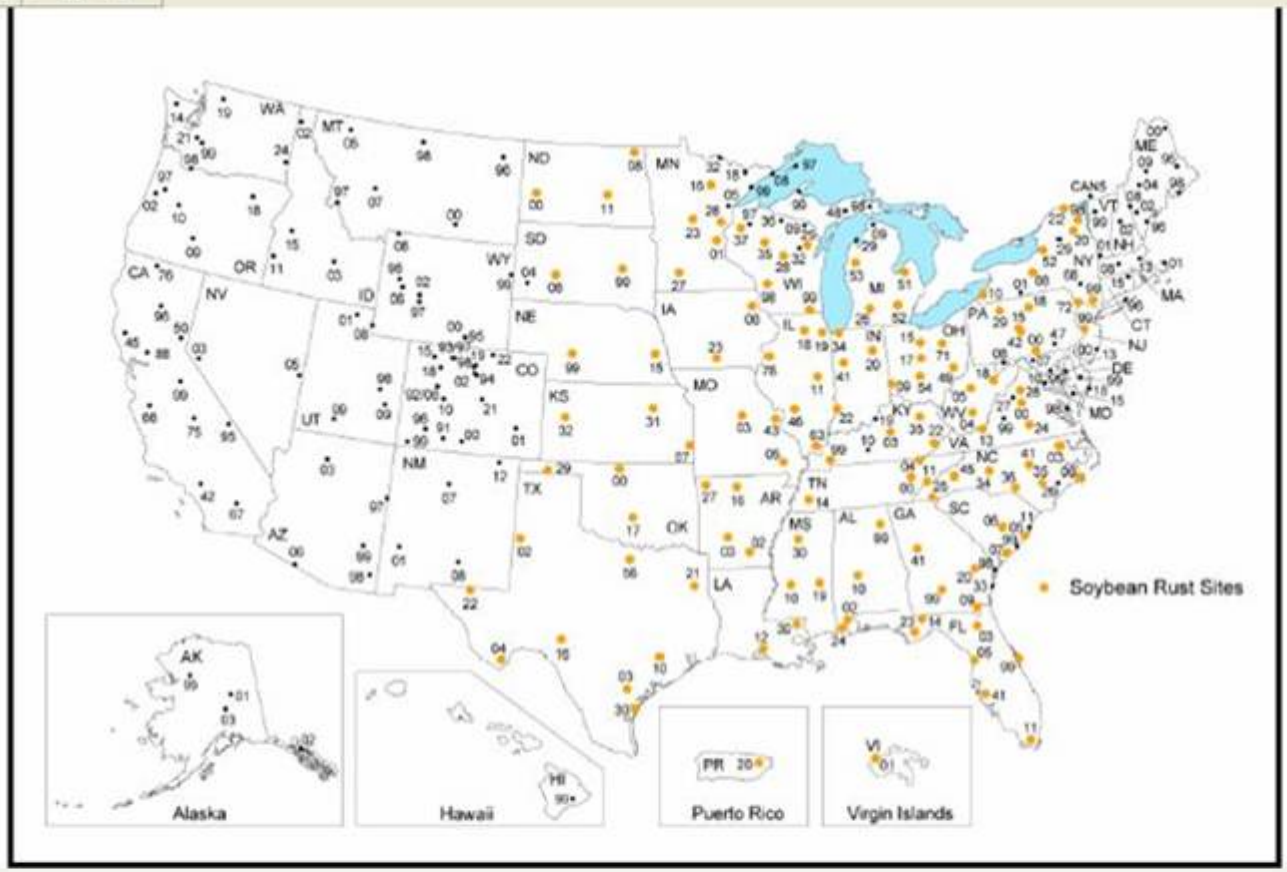

2006 Sentinel Plots

Spore Trapping

- Objectives
  - Early Warning
  - Model validation
    - **Spore dissemination**
    - **Disease expression**
  - Define inoculum source
  - Quantify Spore production

USDA-ARS
Spore Trapping Efforts

- USDA ARS Cereal Disease Lab-Univ. of MN
- Rainwater collected from National Atmospheric Deposition Program
- Polymerase Chain Reaction (PCR) techniques



UW Spore Tracking Efforts

- PVC style trap
  - UW Ag. Research Stations
  - Pest Pros/WAPAC
- Traps emptied after rainfall
- PCR techniques to ID presence

Syngenta

"Syntinel RustTracker"

- Wind Vane Style
  - Passive-design
  - Multi-state effort
  - 2 traps in WI
  - Visual analysis
    - Dr. John Rupe, University of Arkansas
    - "rust-like" spores
    - 1 spore found in WI, Aug 1, 2005