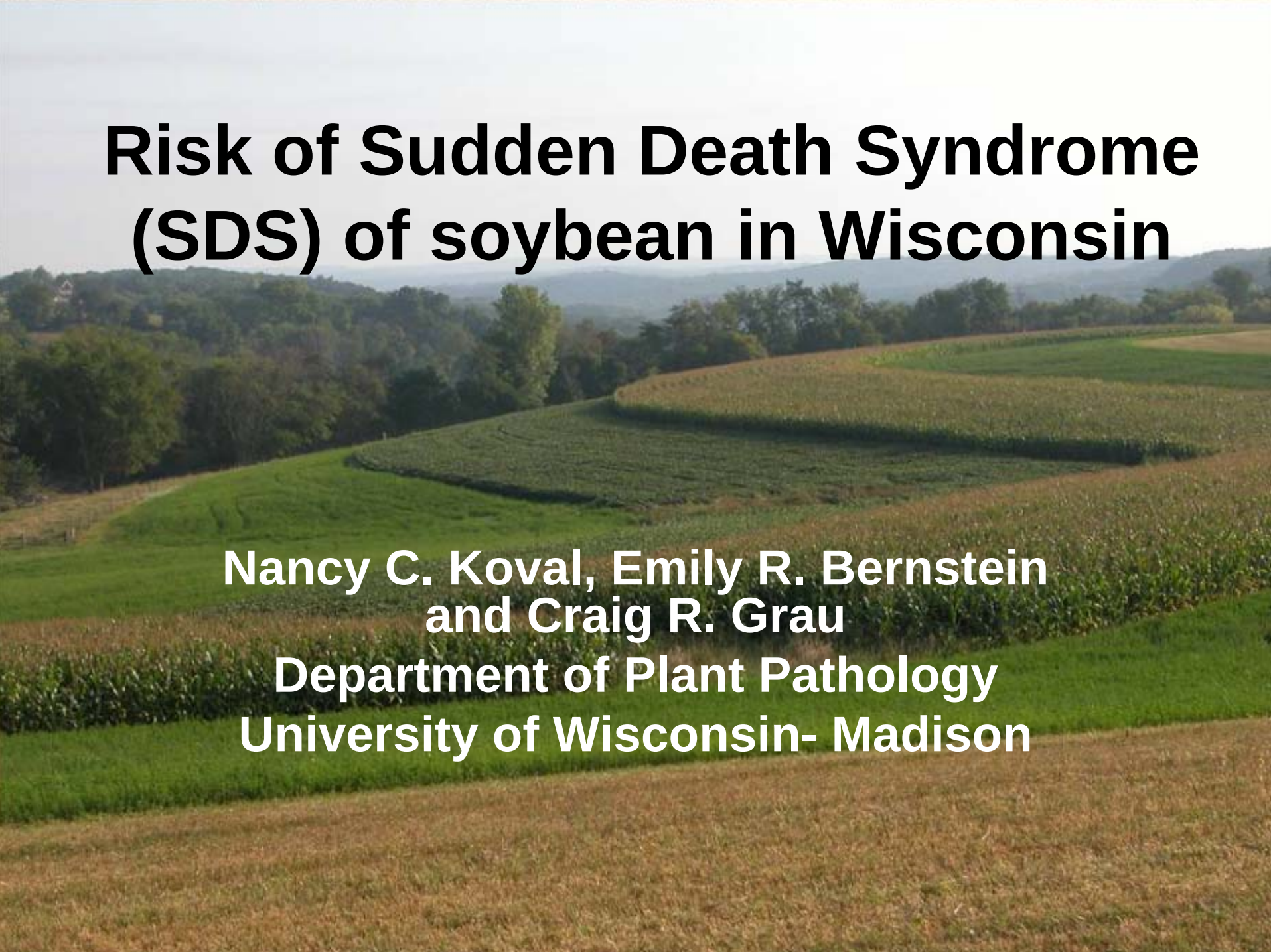
Risk of Sudden Death Syndrome (SDS) of soybean in Wisconsin



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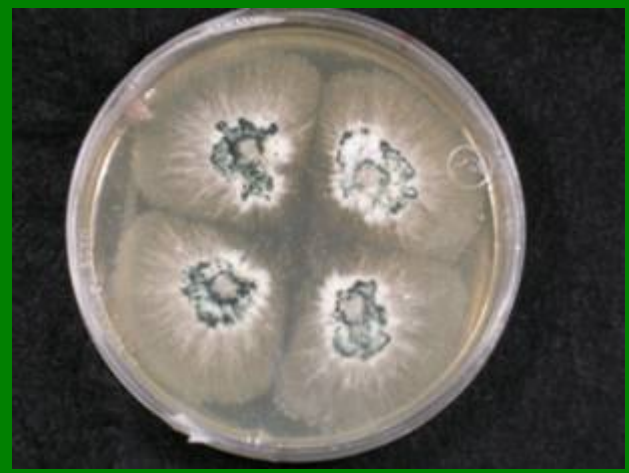
Sudden Death Syndrome (SDS) of Soybeans

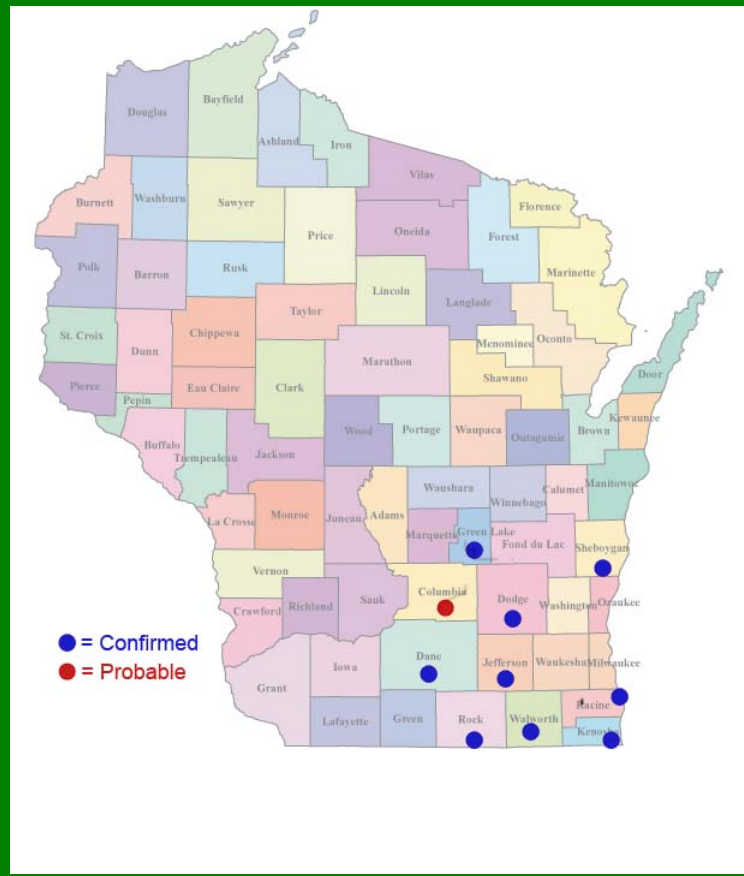
- **Causal agent: *Fusarium solani* f. sp. *glycines***
- **First reported in the US in 1971**
- **Accounted for 19 million bushel loss in the North central states in 2005**
  - **In 2000, estimated 75 million bushels lost**



SDS found in Wisconsin in 2006

- Nine confirmed counties, one probable
- Pathogenicity tests underway
- How many fields had SCN?

SDS Distribution in Wisconsin, 2006



Symptoms of SDS

- Sudden leaf drop with petiole retention
- Foliar: interveinal necrosis and chlorosis
- Root rot, stunted root system
  - Occasionally blue sporulation may be seen on the taproot
- No internal stem discoloration

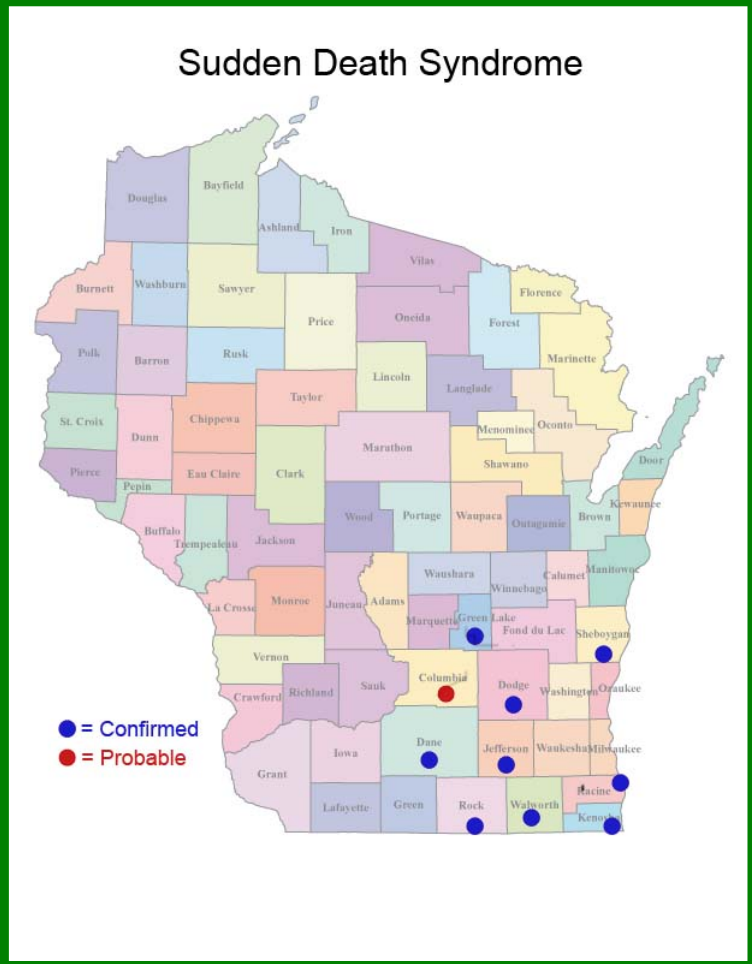
Symptoms of SDS and BSR

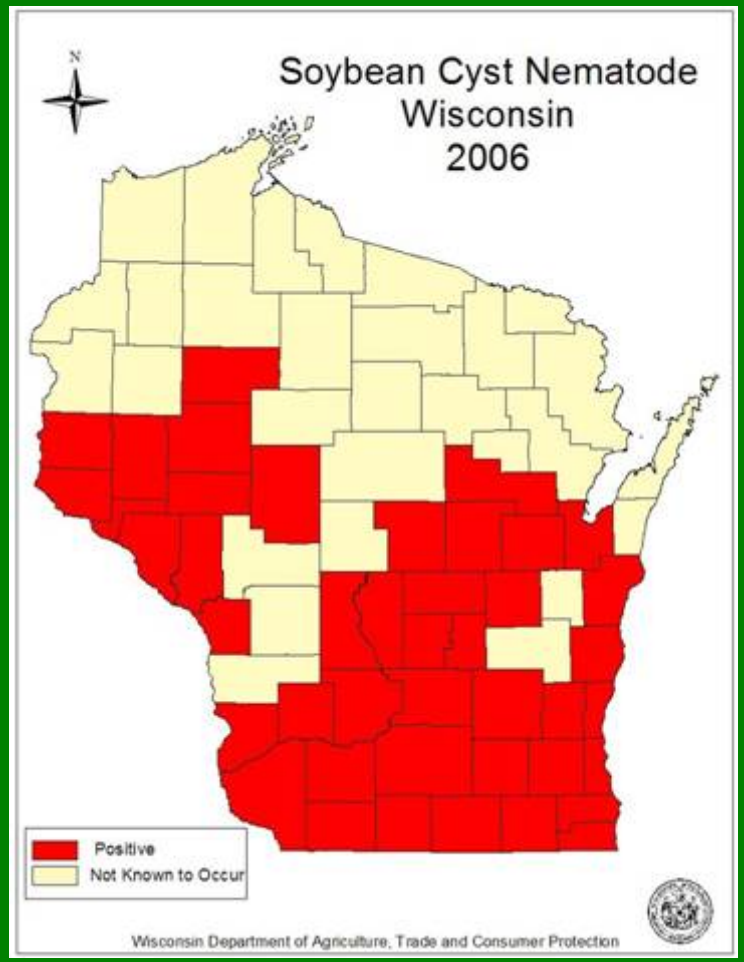
	SDS	BSR
Foliar		
Internal stem	asymptomatic	
Root		asymptomatic

Pattern of symptom development for SDS and BSR

	SDS	BSR
Leaf drop with petiole retention		
Growth stage when symptoms observed	R3 to R4	R5 to R6

SDS and SCN frequently found together in the same fields





Factors influencing disease severity

- Soil moisture
  - High soil moisture early in growing season increases disease severity
  - Less likely to be a problem in sandy soils
- Soil temperature
  - Cool soil temperatures, especially during early reproductive phases increase disease severity
- High year to year variability

Yield loss caused by SDS

- Yield loss may occur in the absence of foliar symptoms
- SDS infection results in lower seed weight and quantity
- May have 20-50% yield loss in seasons with high disease pressure

Management of SDS

- Resistant varieties
  - Seed companies are beginning to characterize varieties for SDS reaction
  - More varieties adapted to Wisconsin are being developed with partial SDS resistance
  - Important to plant SCN resistant varieties due to interaction with SDS

Management of SDS

- Cultural practices
  - Correct or limit soil compaction
    - Improve drainage
  - Trend of increased disease severity associated with higher soil pH
  - Later planting date
    - Warmer soil temperature
    - Balance with soybean aphid potential

Management of SDS

- **Cultural practices**
  - **Disease severity greater in no till**
  - **Minimal of crop rotation or crop sequence**

SDS- Summary

- SDS has been reported for the first time in Wisconsin
- The distribution of the pathogen is unknown
- SDS seems to follow SCN infestation
- Management is best achieved through variety selection

Research Funding

- **Wisconsin Soybean Marketing Board**

- **College of Agriculture & Life Sciences UW-Madison**