

# **Attacks on Soybean Stem Health**

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# Late Season Plant Mortality in Soybean Fields

Causes?





## Stem Canker



## Sclerotinia Stem Rot



## Brown Stem Rot





# Brown stem rot - Symptoms

## Foliar:

Interveinal chlorosis and necrosis,  
leaf curling and hastens maturity



## Internal stem necrosis:





# Cultivars Resistant and Susceptible to Brown Stem Rot



# **Brown Stem Rot Crop Rotation**

- **Continuous soybean: High risk**
- **Corn-Soybean: High risk**
- **Corn-Soybean-Wheat: Moderate Risk**
- **Corn-Corn-Soybean: moderate to low risk**
- **Corn-Corn-Corn-Soybean: Low risk**

# **Brown Stem Rot**

## **Crop Rotation**

**Factors that modify rotation effect**

- **Tillage**
- **Soil pH**



# Tillage and Brown Stem Rot

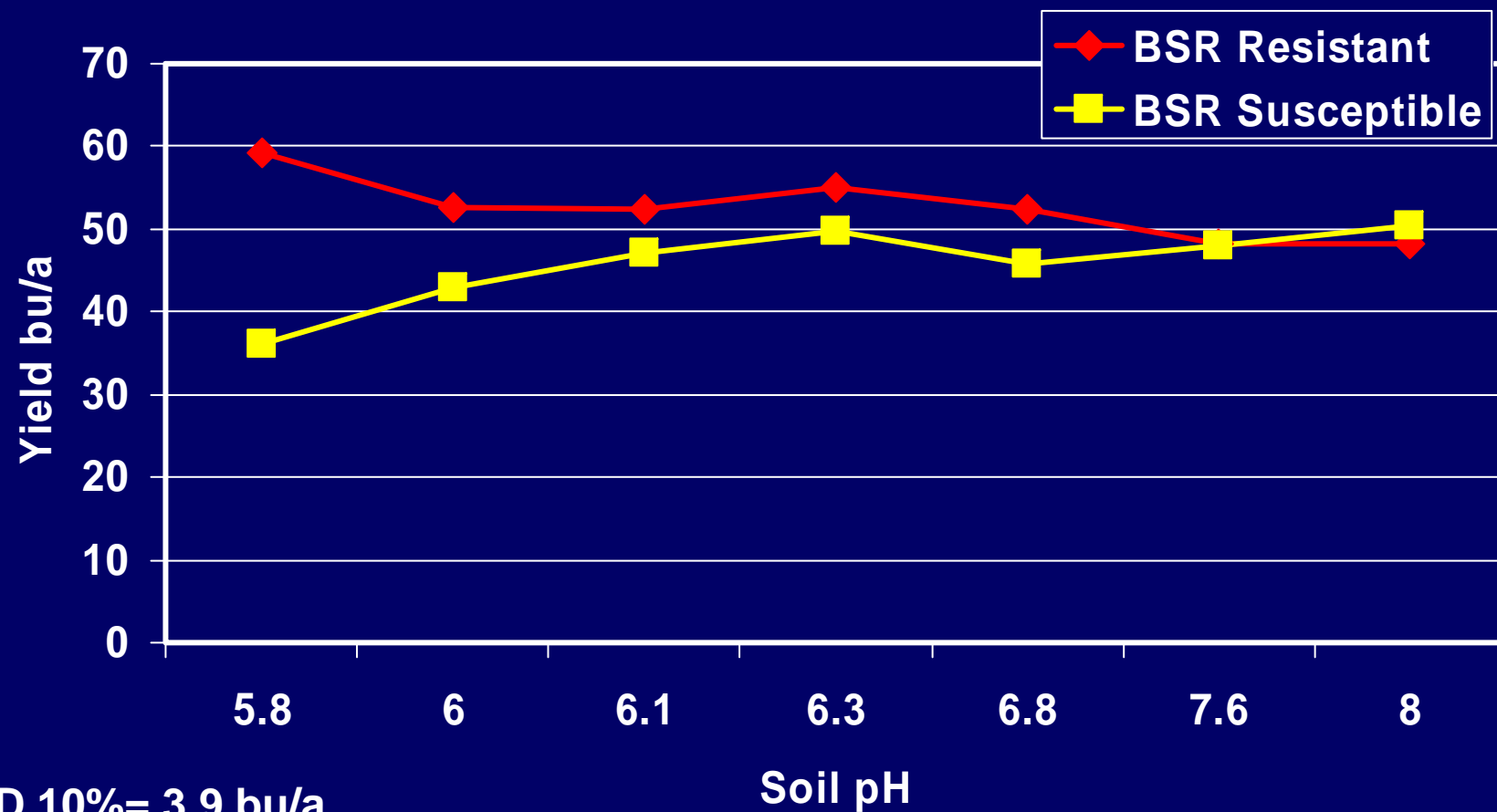
**Greater BSR**  
> pathogen survival

**Lower BSR**  
< pathogen survival





# Yield advantage of planting BSR resistant cultivars is greatest at low soil pH



# Summary

- **Resistant cultivars**
- **Longer rotations**
- **Greater importance for BSR resistant cultivars in no till or low soil pH systems**



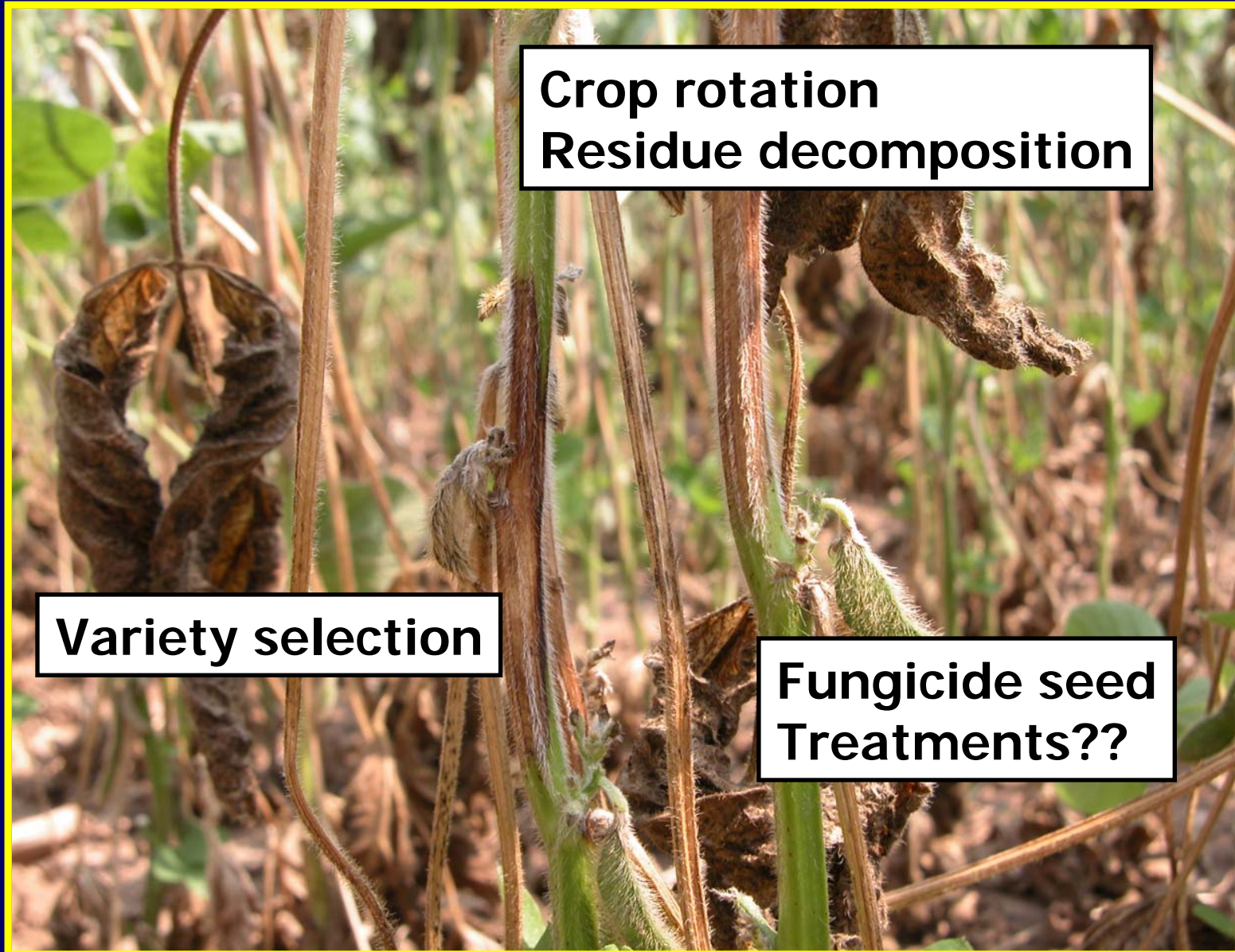
# Stem Canker Diagnosed

Characterized by brown stem lesions





# Stem Canker Management





# Sclerotinia Stem Rot – Soybean



# Partially Resistant Varieties

## More PR varieties available





# Tillage and Sclerotinia Stem Rot

## Lower SSR

- < canopy
- < pathogen survival

## Greater SSR

- > Canopy
- > pathogen survival



# Contans®WG

For agricultural use to reduce/control  
*Sclerotinia sclerotiorum* and  
*Sclerotinia minor* in the soil

Active Ingredient:  
Coniothyrium minitans strain CON/M/91-06 ..... 5.33%  
Other Ingredients: ..... 94.67%  
Total: ..... 100.00%  
Contains a minimum of 1 X 10<sup>10</sup> cfu/gram

KEEP OUT OF REACH OF CHILDREN  
CAUTION

## FIRST AID

If swallowed	Call a poison control center or doctor immediately for treatment advice. Have person lie on their side. If able to swallow, give small sips of water. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing	Remove all contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If inhaled	Move person to fresh air. If person is not breathing, call 911 or an ambulance. Then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

See back panel for additional precautionary statements.

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*Coniothyrium minitans*

Parasite of sclerotia

Contans WG  
formulation of conidia

Sprayed on soil and  
crop residue

Integrated with other  
management practices



# Options to use Small Grains to Reduce White Mold

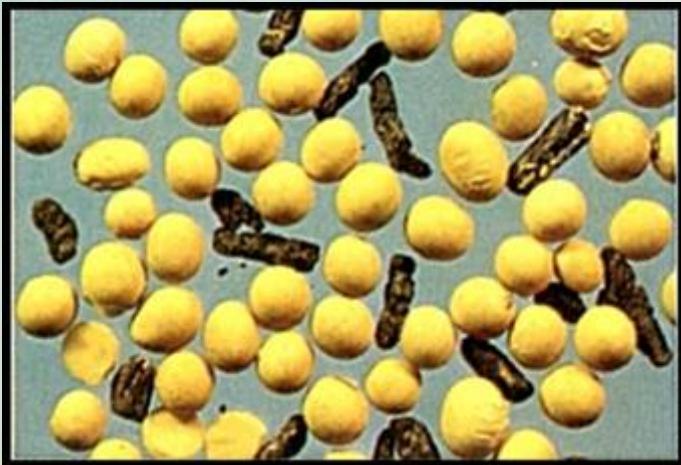


## Rotation Crop

## Cover Crop

- Preplant to soybean
- No tillage
- Soybean planted
- Cover crop killed





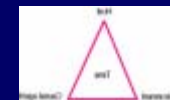
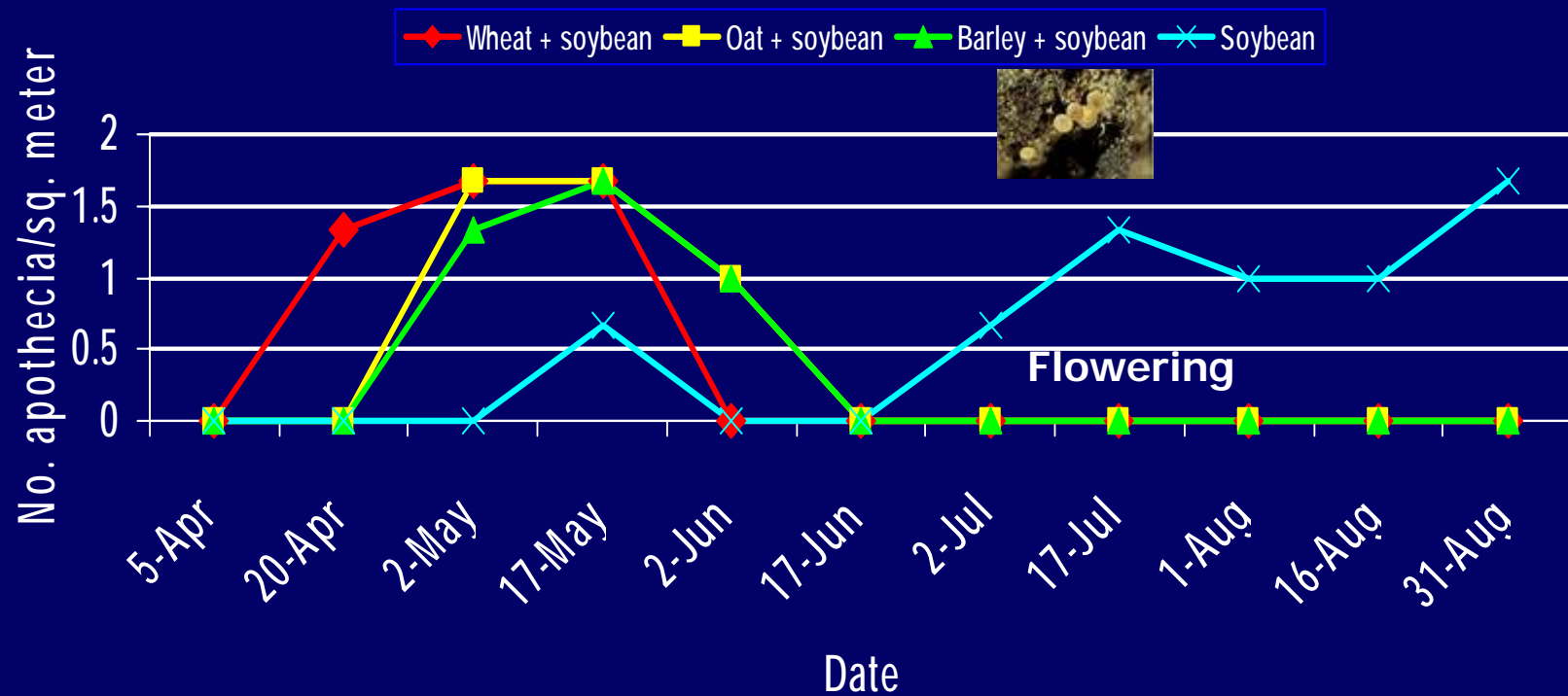
**Disruption of  
timing  
between  
apothecia  
and flowers**



**Herbicide**



# Apothecia development in small grain + soybean or soybean only cropping systems



# White Mold Management

- Coordinated system of cultivar selection, soybean canopy management, and inoculum management
- The next increment of reduced risk will come from:
  - Improved soybean genetics
  - Pathogen management - biocontrol





# Acknowledgements

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