Managing corn diseases in continuous no-till

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Factors Affecting Corn Production

- Reduced tillage (new farm bill)
- Early planting date
- Higher yields… (Biofuels)
- More corn on corn acres
- More disease pressure
- More RR hybrids with other traits
- More insect pressure

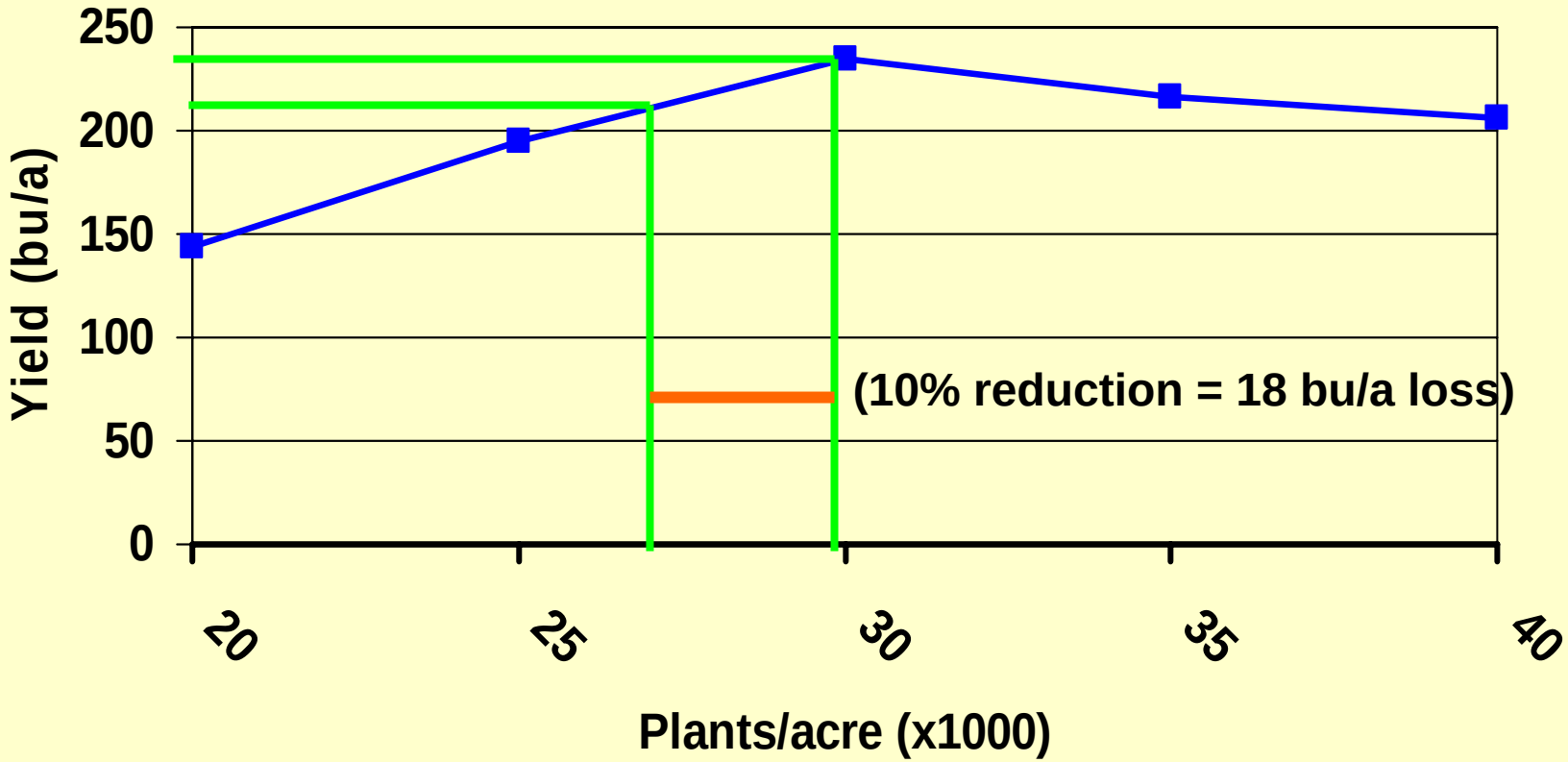
Killers and Root Nibblers!

- **Pythium and Rhizoctonia can kill seedlings before the emerge and reduce plant populations.**
- **Pythium, Rhizoctonia and Fusarium can nibble on the corn roots and reduce water uptake, especially when the corn plants are under drought stress.**

Do killers reduce corn yields?

- What is the ideal population for corn?
- How many seeds do you plant?
- How about final population

Final plant population and yield



Pythium seedling blight & root rot

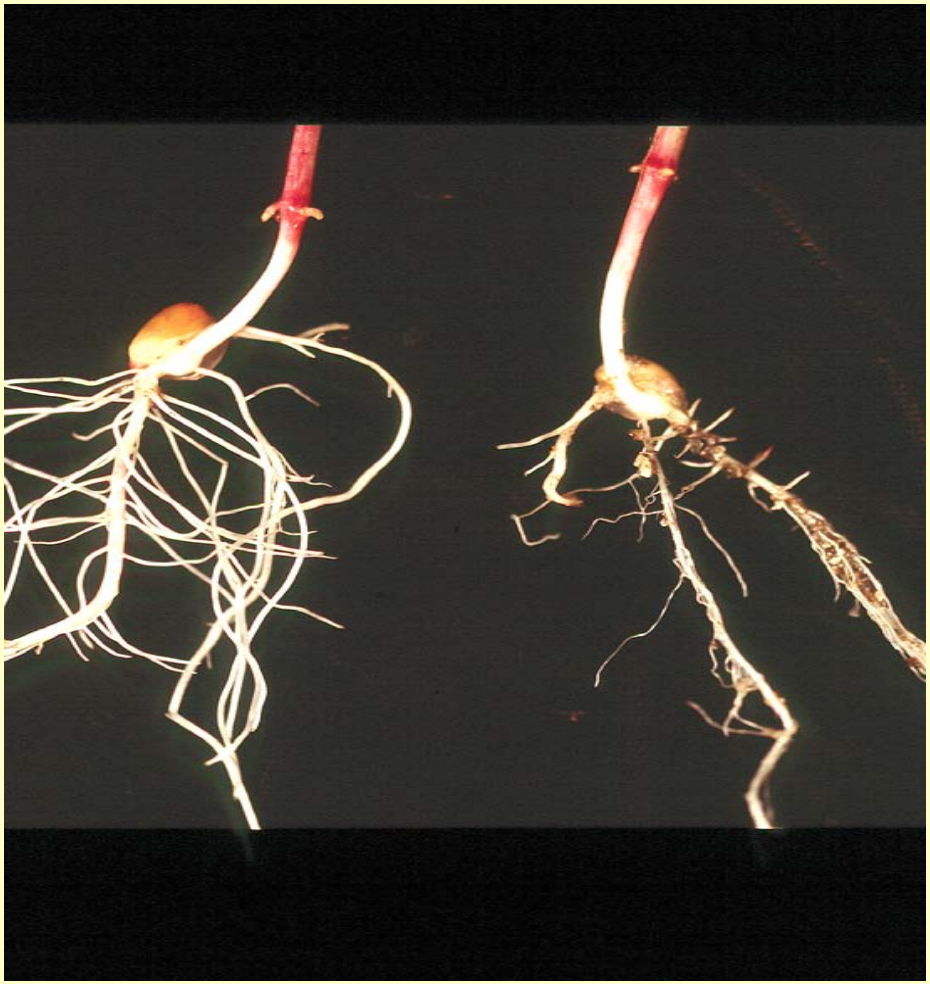
- Pythium (several species)
- Survives as oospores
- Moves in soil water as zoospores
- Reduces yield mainly by killing seedlings in cool wet soils
- May also reduce roots
- Reduced by Apron XL, Allegiance, and Dynasty

Pythium seedling blight & root rot

Rhizoctonia Root Rot

- Symptoms are more common in warm dry conditions
- May kill seedlings under severe disease pressure
- Reduces root hairs and fine roots
- Reduces water uptake by plant
- Reduced by fungicide seed treatments
  - Dynasty, Trilex, Maxim, Captan, Thiram,

Rhizoctonia Root Rot



Fusarium Root Rot

- Generally does not kill plants
- Attacks to root hairs and small roots
- Reduces water uptake
- Important following small grains and corn, especially under no-till systems
- Reduced in a corn-soybean rotation

Fusarium Root Rot

Fusarium root rot - Control

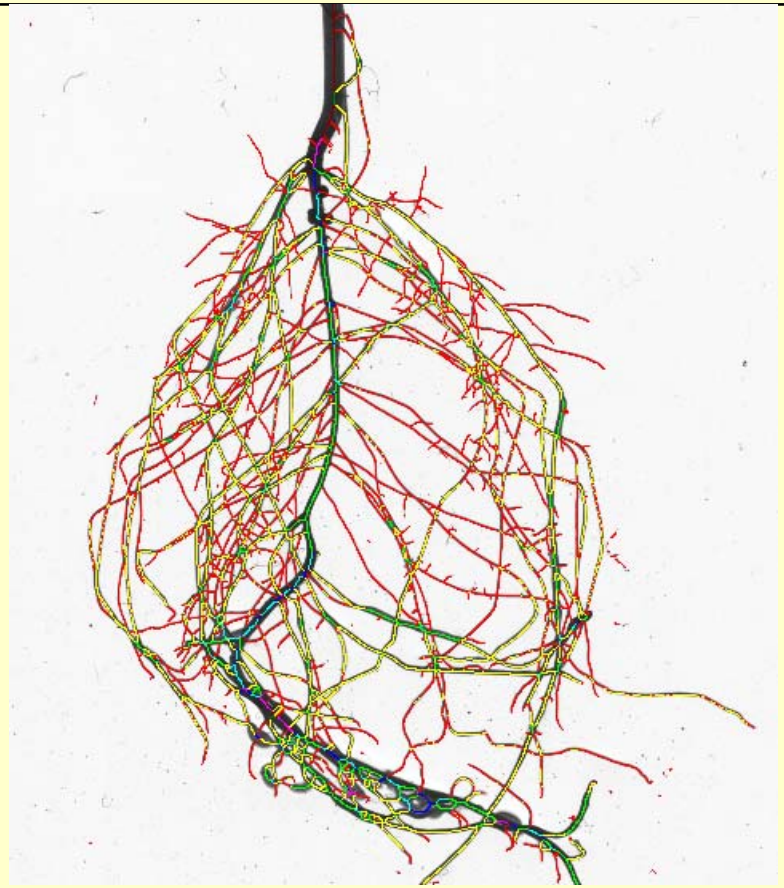
- Crop Rotation
- Some tillage ???
- Fungicide seed treatments
  - Maxim, Captan, Thiram, Dynasty. Trilex

Conclusions & Control

- Must control “killers”
- Nibblers can rob yield with no symptoms
- Crop rotation is good!
- Seed treatments are really insurance
- Pay attention to new products
- Current study……root scans

Computer scans of corn roots

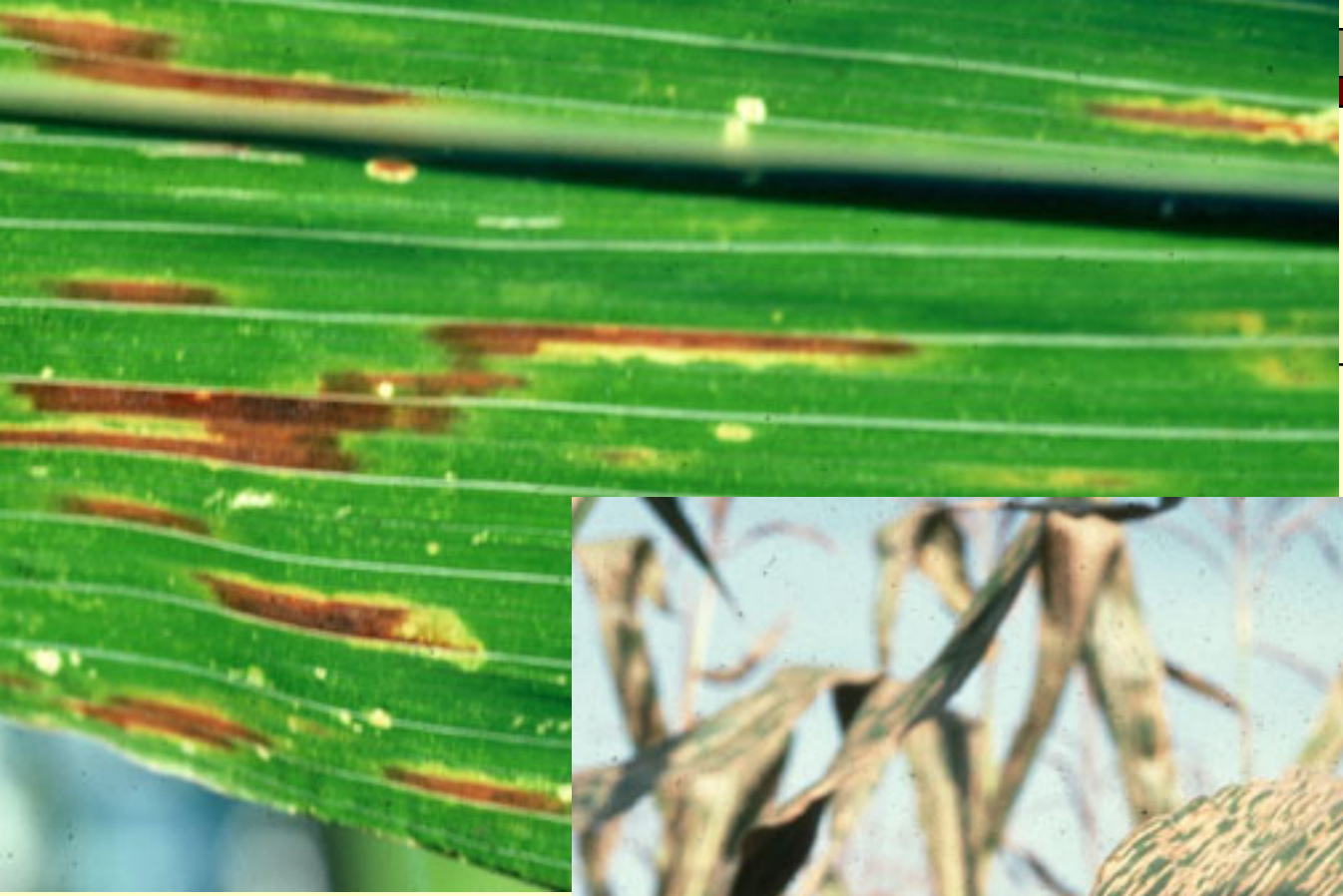
Control



Cruiser Extreme

Foliar Disease of Corn

- Gray Leaf Spot
- Common & Southern Rust
- Northern Corn Leaf Blight
- Southern Corn leaf Blight
- Eyespot



Gray Leaf Spot

Southern Rust

Northern Corn Leaf Blight

Southern Corn Leaf Blight

Eyespot

Control of foliar diseases

- Resistance and or tolerance
- Tillage ???
- Foliar fungicides
  - Strobularins (Quadris & Headline)
  - Triazoles, (Tilt & Folicur)
  - Combinations (Quilt & Stratego)

How effective are they?

- **Strobularin group**
  - **Gray leaf spot**
  - **Common and southern rust**
  - **Not as good on NCLB or SCLB**
- **Triazole group**
  - **Better on NCLB & SCLB**
  - **Not as good on GLS and rusts**

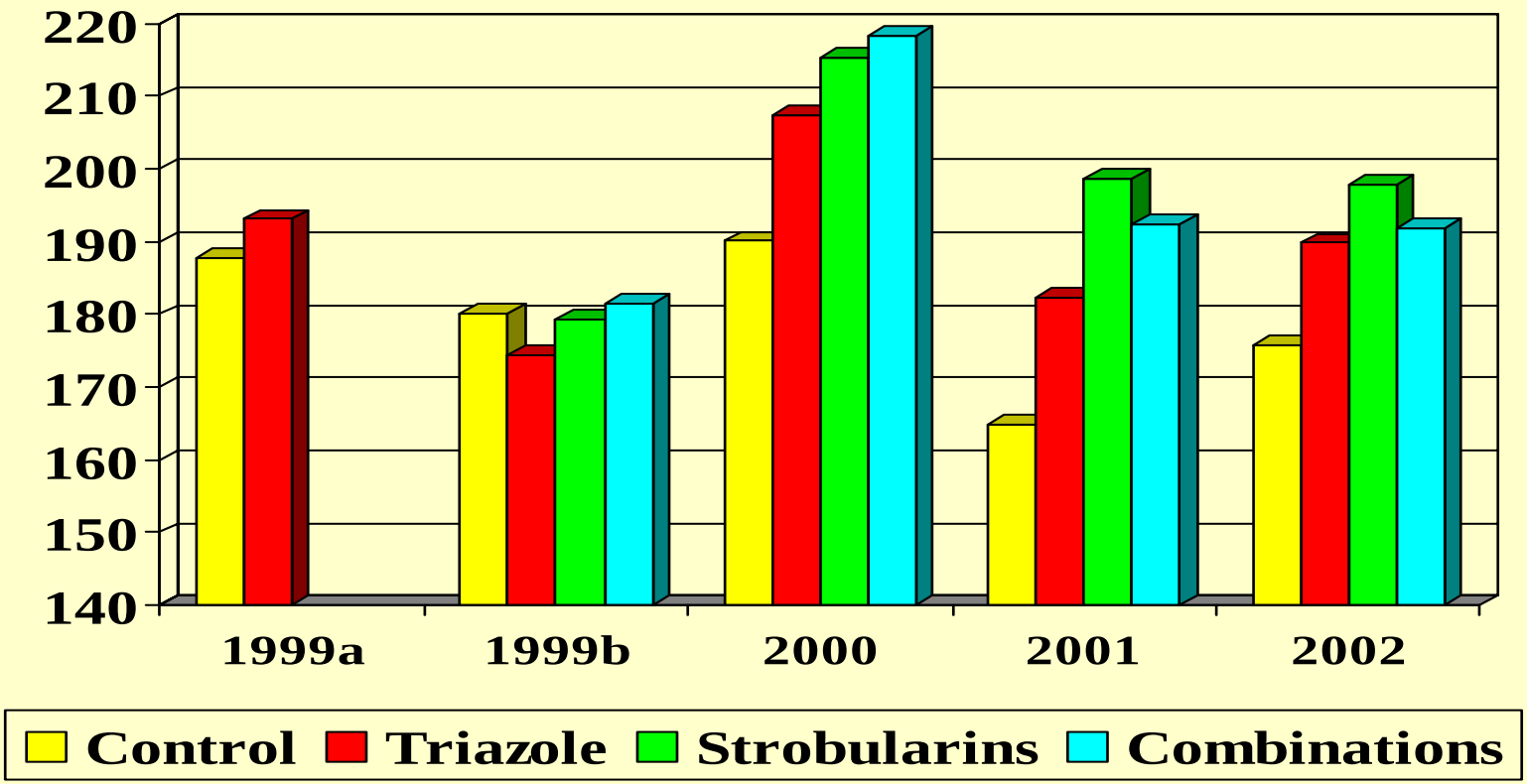
“Improved plant health”

- Company information
- University studies
  - Not all yield increase is disease control
- “Greener plants”
- Less lodging
- ??????????

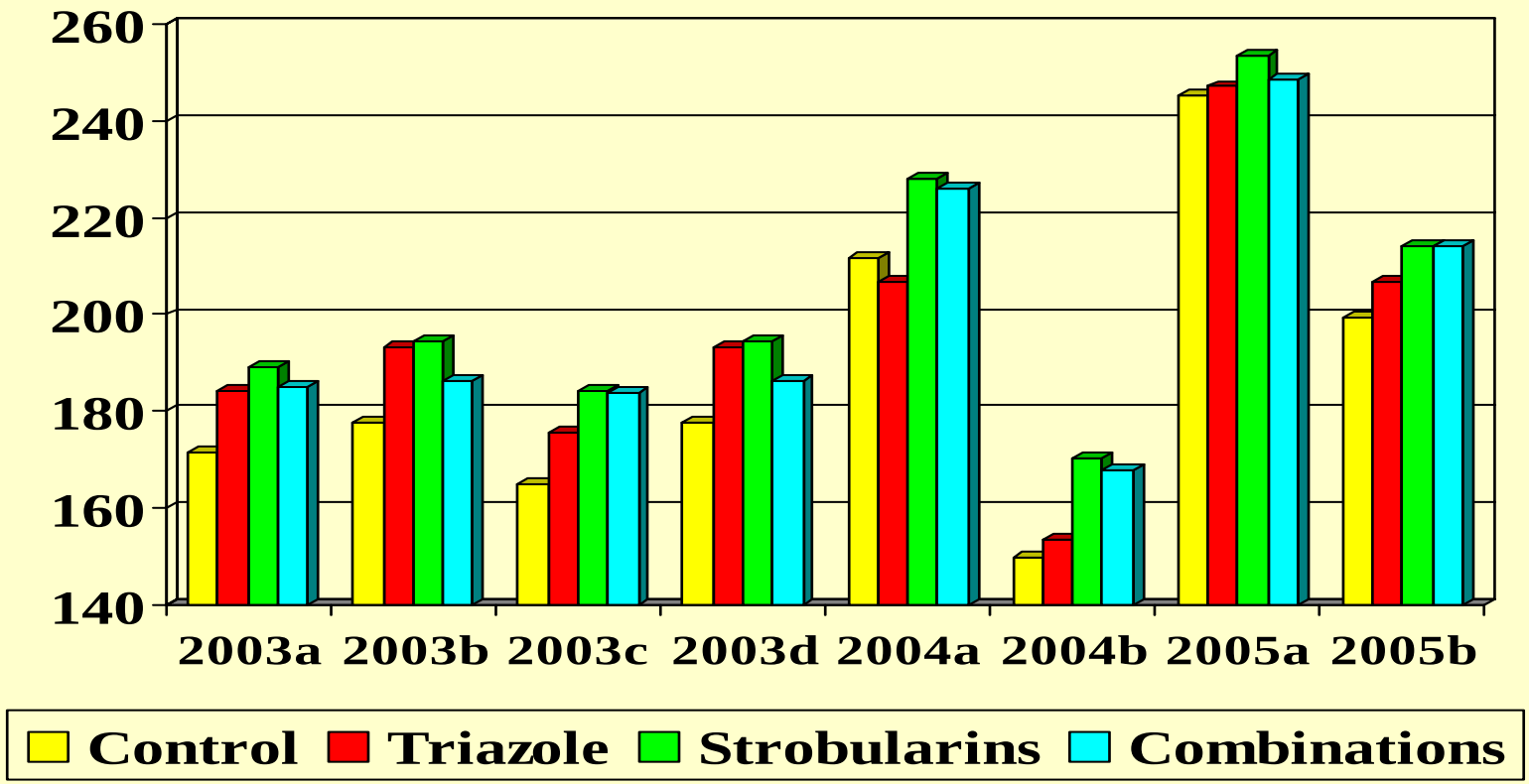
Disease control & yield

- Ron Hines (Dixon Springs)?
- Our trial in 2006
- Industry

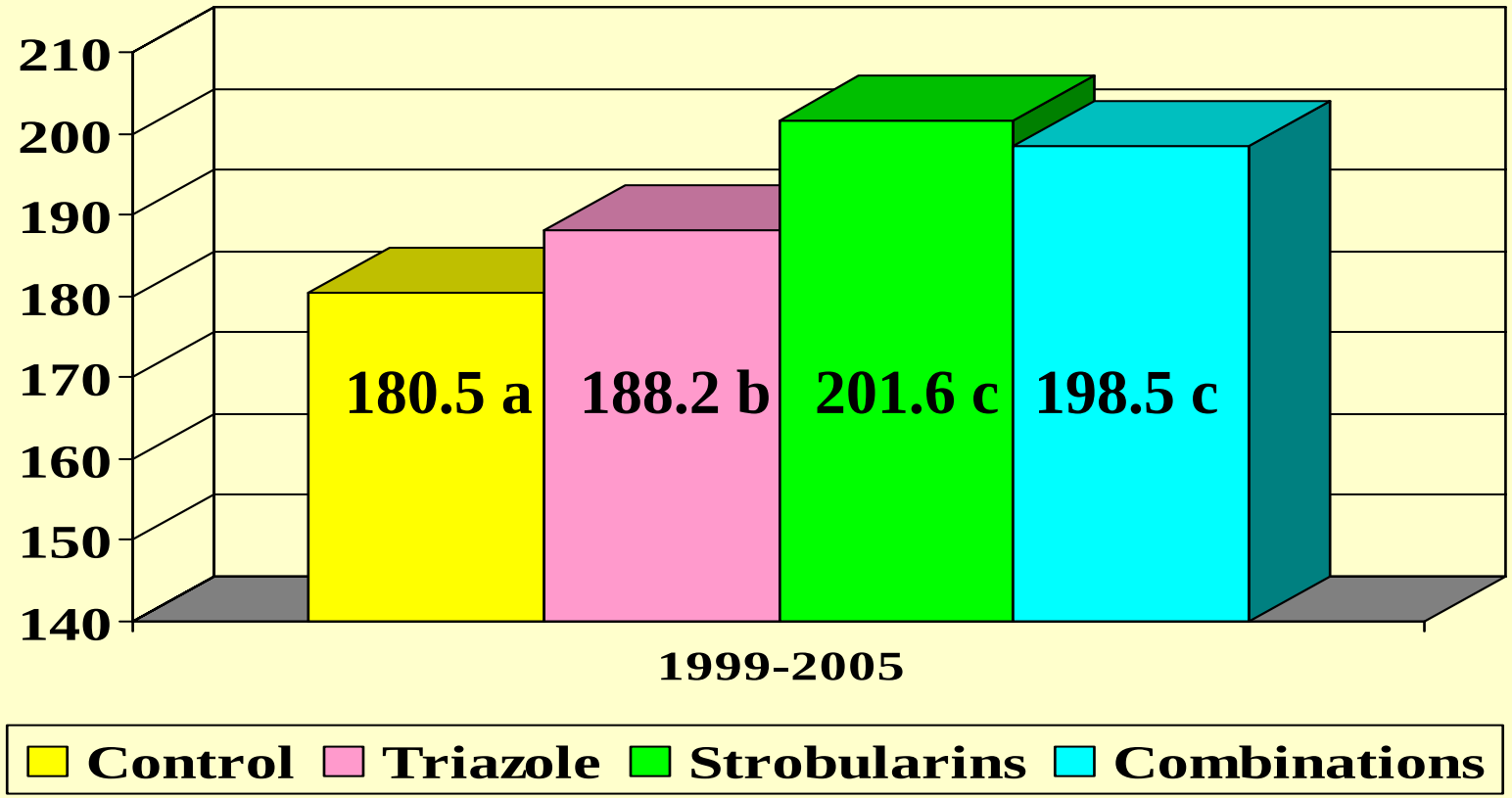
Data from Ron Hines, Dixon Springs for 1999 - 2002



Data from Ron Hines, Dixon Springs for 2003 - 2004



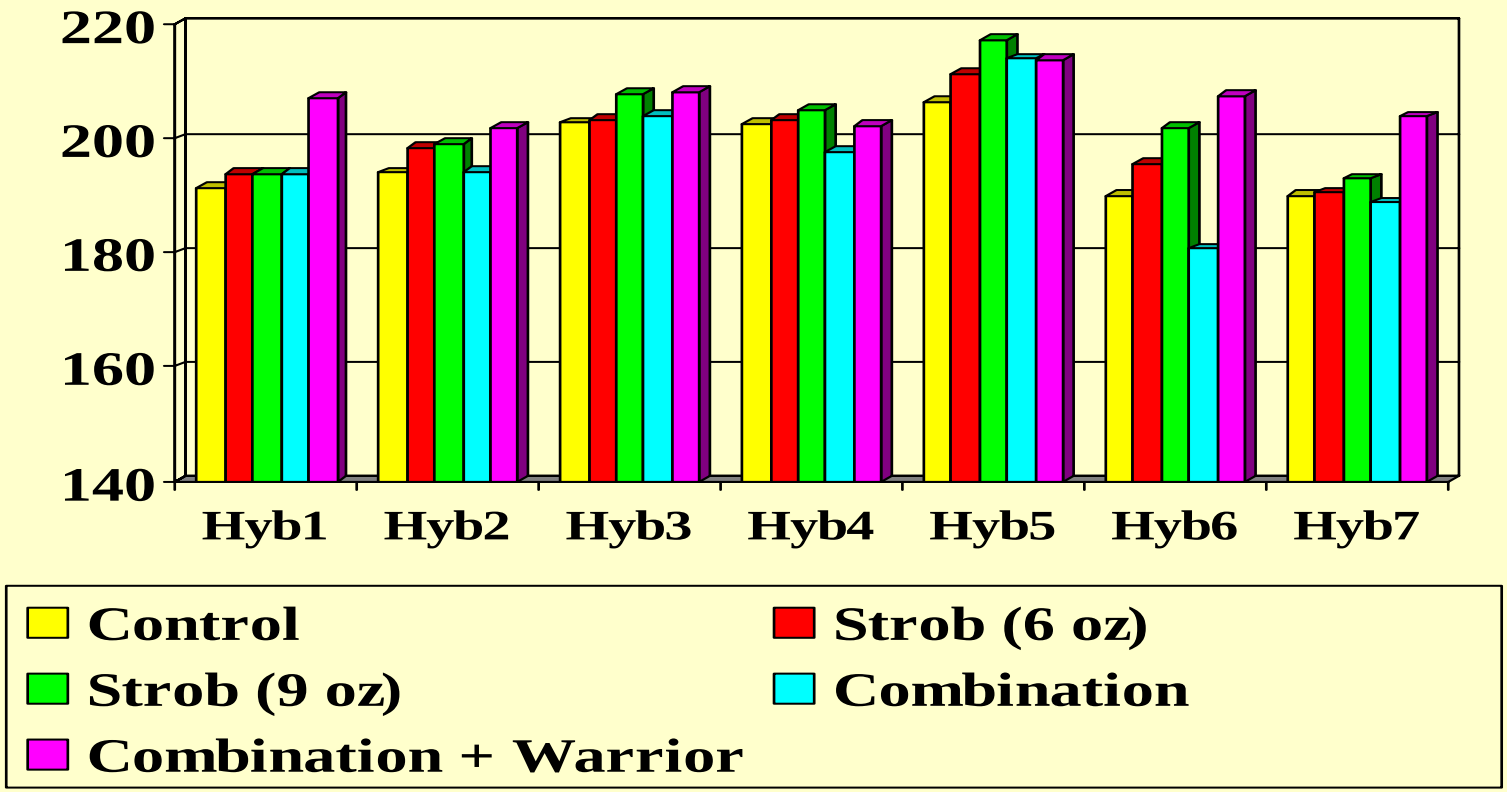
Data from Ron Hines, Dixon Springs data from 1999-2005



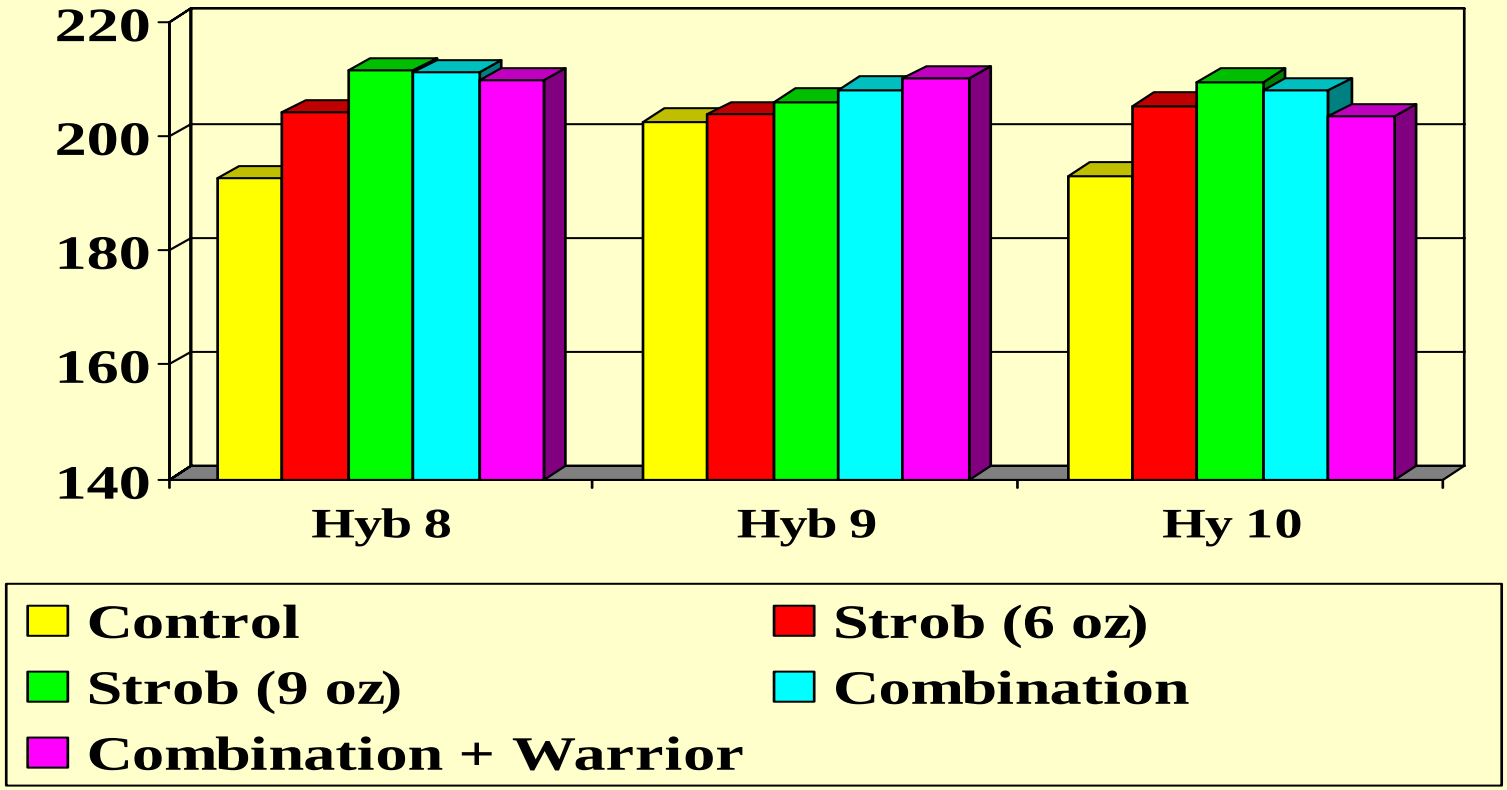
Our trials in 2006

- Ten commercial hybrids
- Seven fungicides/insecticides treatments
- Four reps
- Only at South Farm (one location)

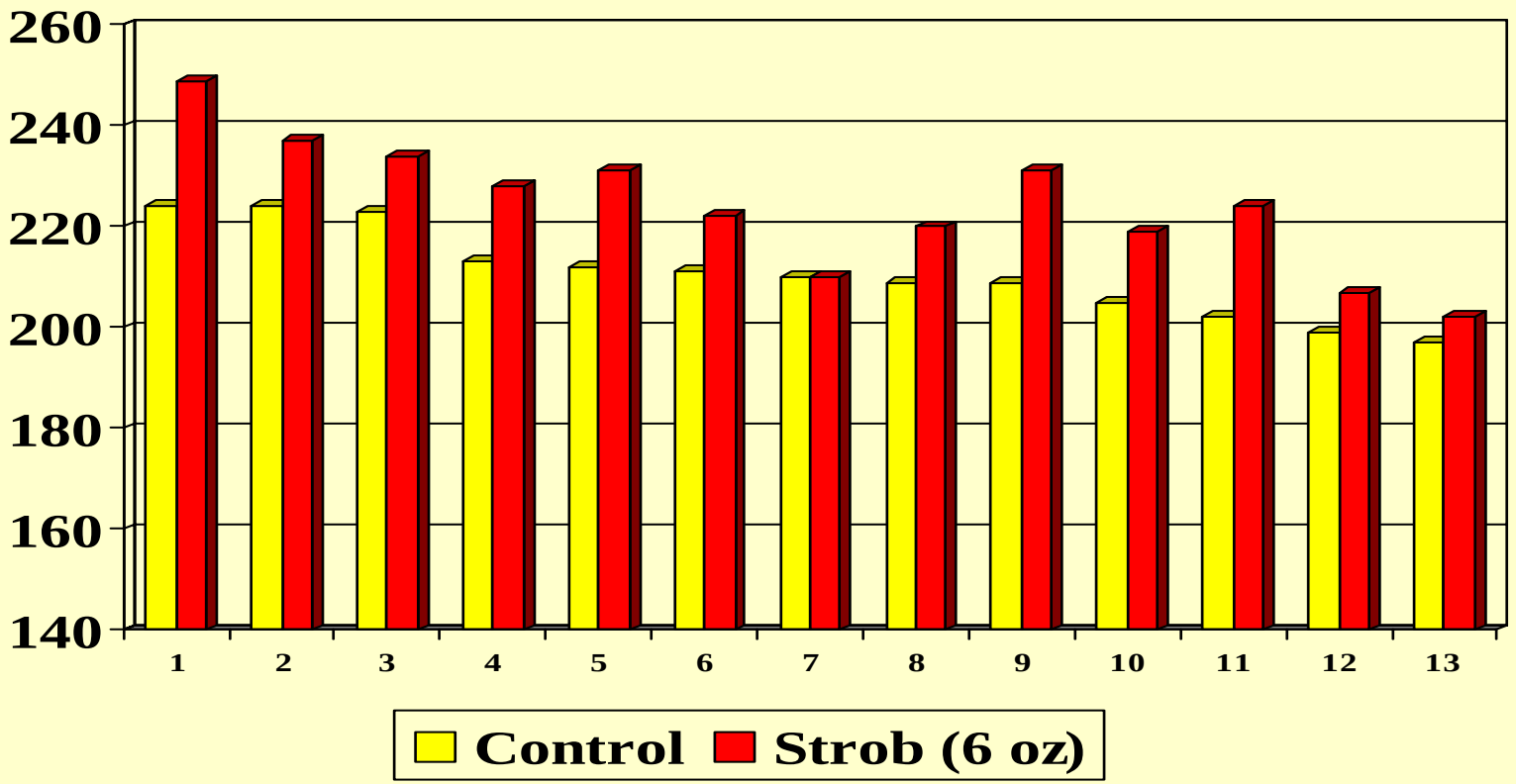
Data from seven hybrids with partial resistance to GLS in 2006



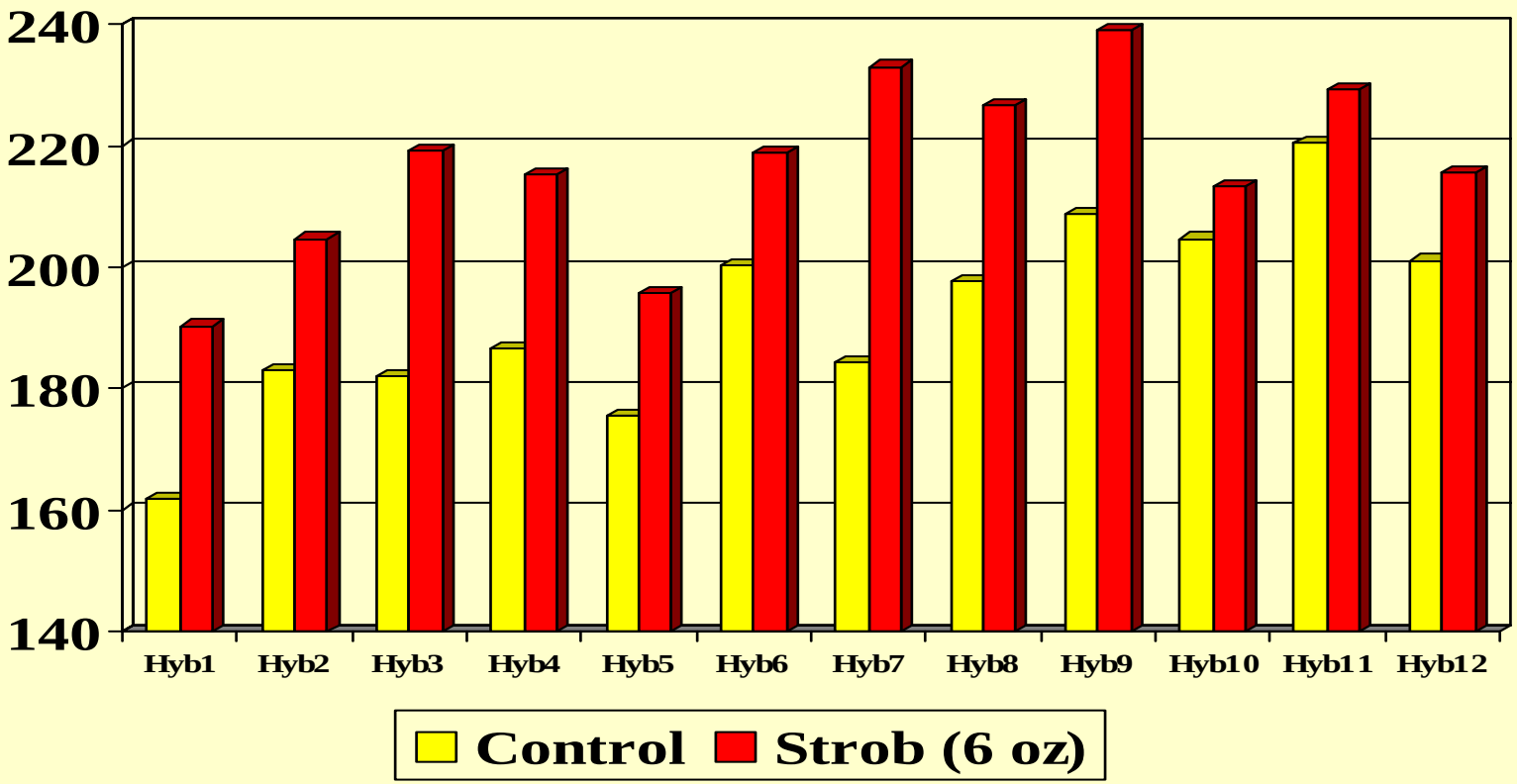
Data from three hybrids with poor resistance to GLS in 2006



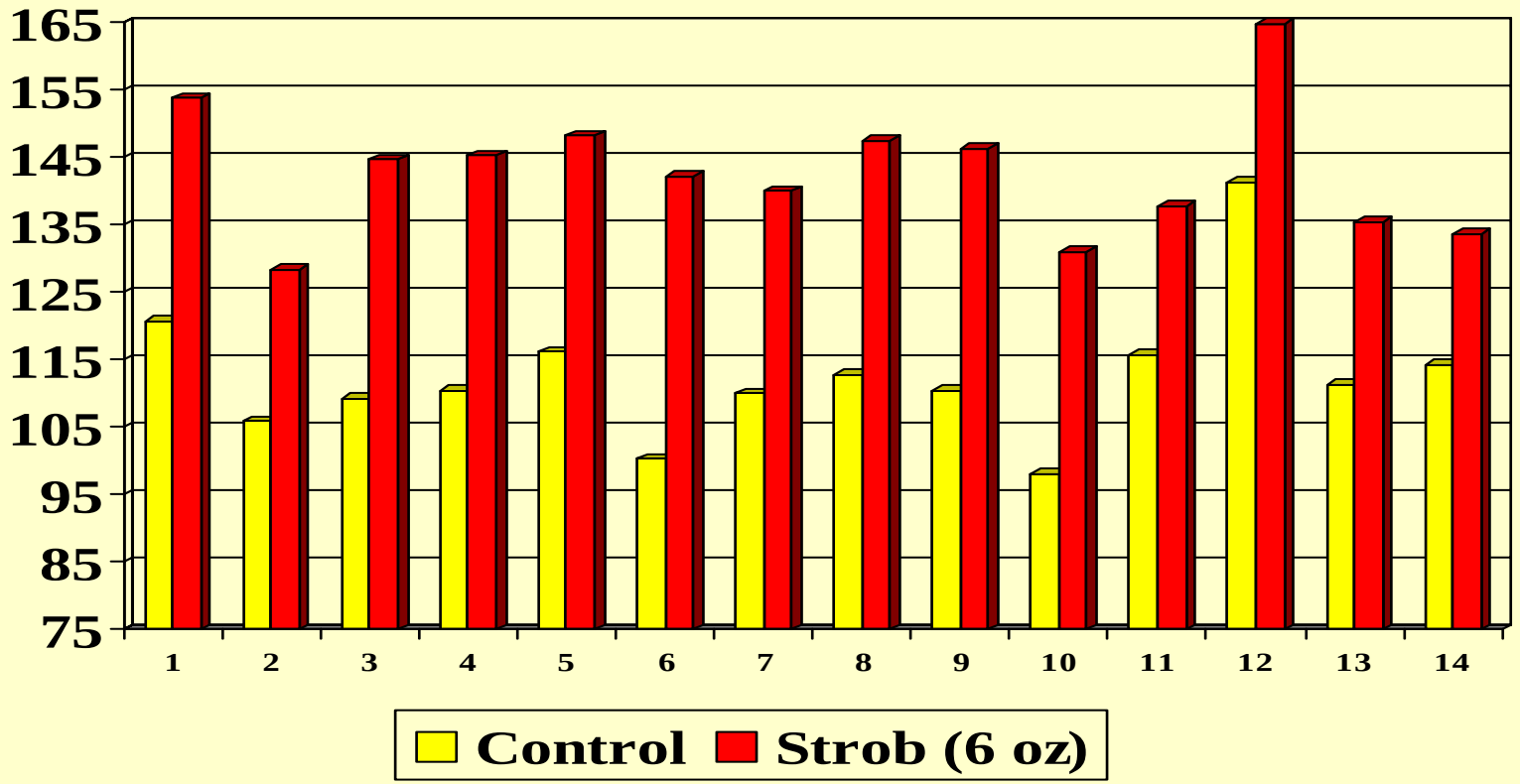
Data from 13 hybrids from a seed company trial in north central IL



Data from 12 hybrids from a seed company evaluation in central IL



Data from 14 hybrids from a seed company trial in southwest IL



Conclusions

- Triazoles and strobularins both control foliar diseases of hybrid corn
- Spraying does not always result in a yield increase
- There are hybrid differences
- There is an effect on “stay green” and there can be yield increases with little disease

Timing, coverage, etc

- **After tassels emerge…..**
- **Airplanes works great (2 – 5 gal/a)**
- **Ground sprays also work (15 – 20 gal/a)**
- **Adjavants (company approved)**

Thanks for your attention!

Questions?

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