



**Michigan Soybean
Promotion Committee**
www.michigansoybean.org



Disease control of irrigated crops

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Northern Corn Leaf Blight



Exserohilum turcicum (*Setosphaeria turcica*)

Gray Leaf Spot



Cercospora zeae-maydis

Gray Leaf Spot



Common Rust



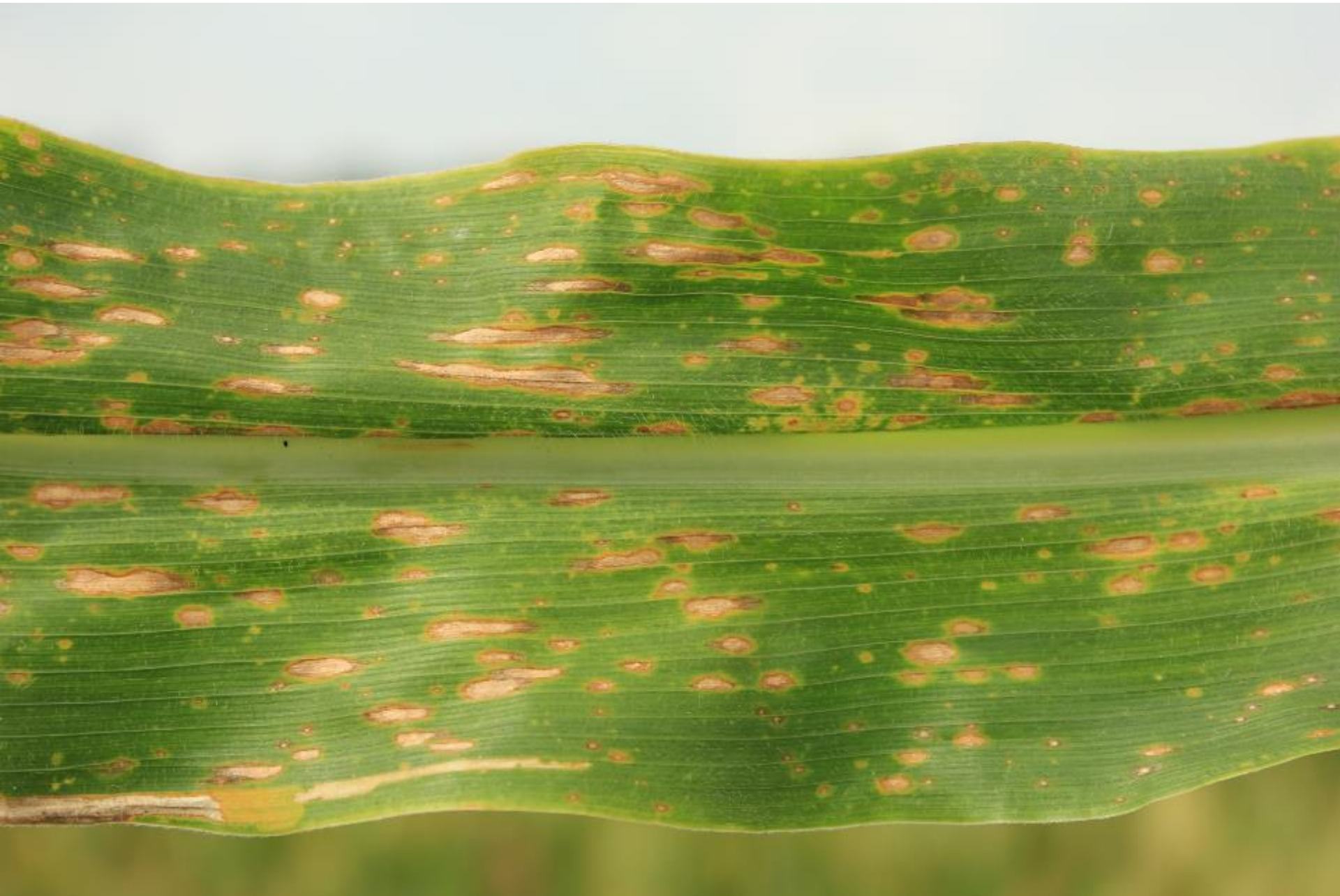
Puccinia sorghi

Northern Corn Leaf Spot



Bipolaris zeicola (*Cochliobolus carbonum*)

Northern Corn Leaf Spot



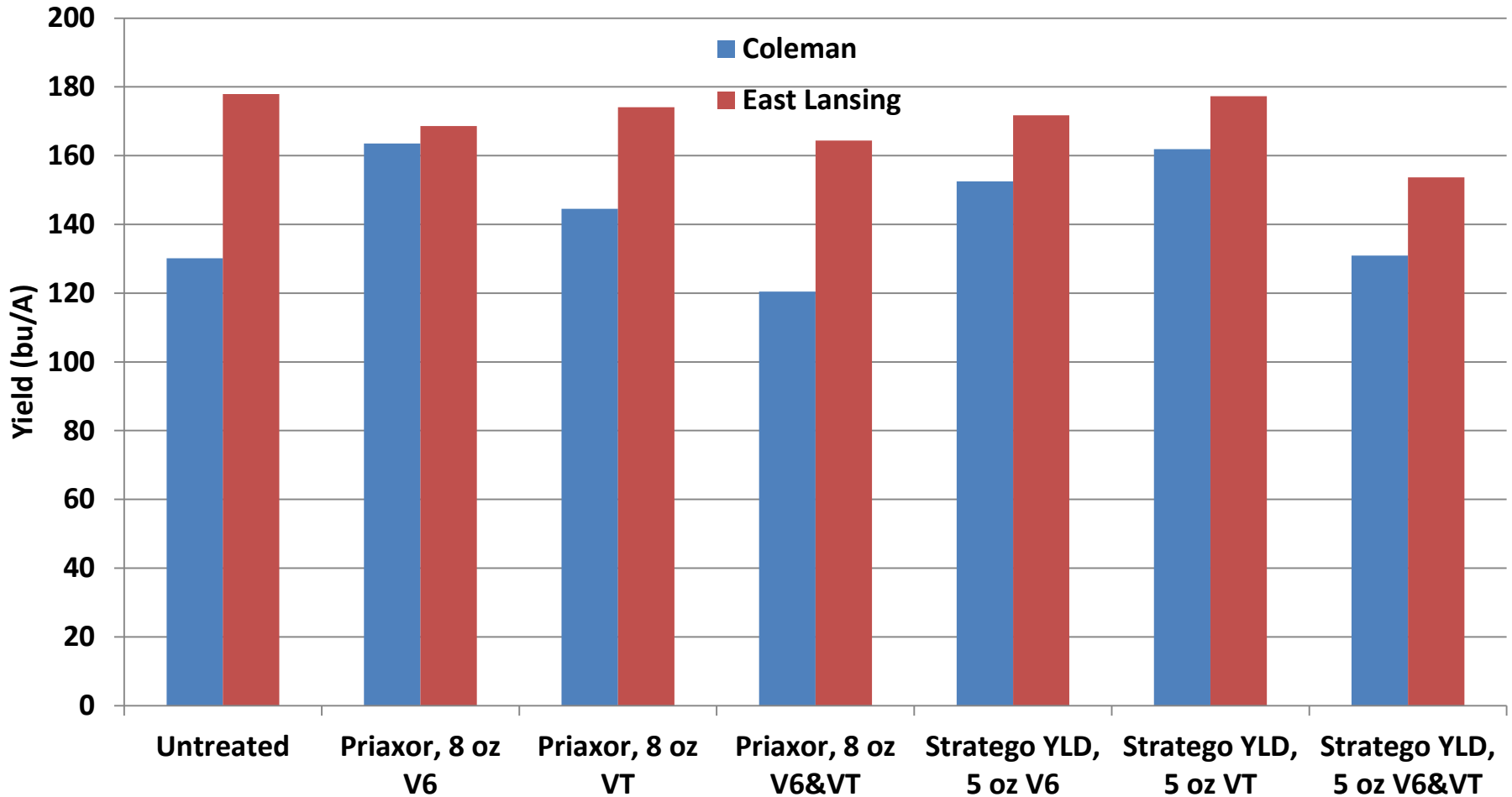
Corn fungicide trials



Break-even scenarios for corn

Corn price (\$/bu)	Application cost (\$/A)						
	\$12	\$16	\$20	\$24	\$28	\$32	\$36
\$3.00	4.0	5.3	6.7	8.0	9.3	10.7	12.0
\$4.00	3.0	4.0	5.0	6.0	7.0	8.0	9.0
\$5.00	2.4	3.2	4.0	4.8	5.6	6.4	7.2
\$6.00	2.0	2.7	3.3	4.0	4.7	5.3	6.0
\$7.00	1.8	2.3	2.9	3.4	4.0	4.6	5.1
\$8.00	1.5	2.0	2.5	3.0	3.5	4.0	4.5
\$9.00	1.3	1.8	2.2	2.7	3.1	3.6	4.0
\$10.00	1.2	1.6	2.0	2.4	2.8	3.2	3.6

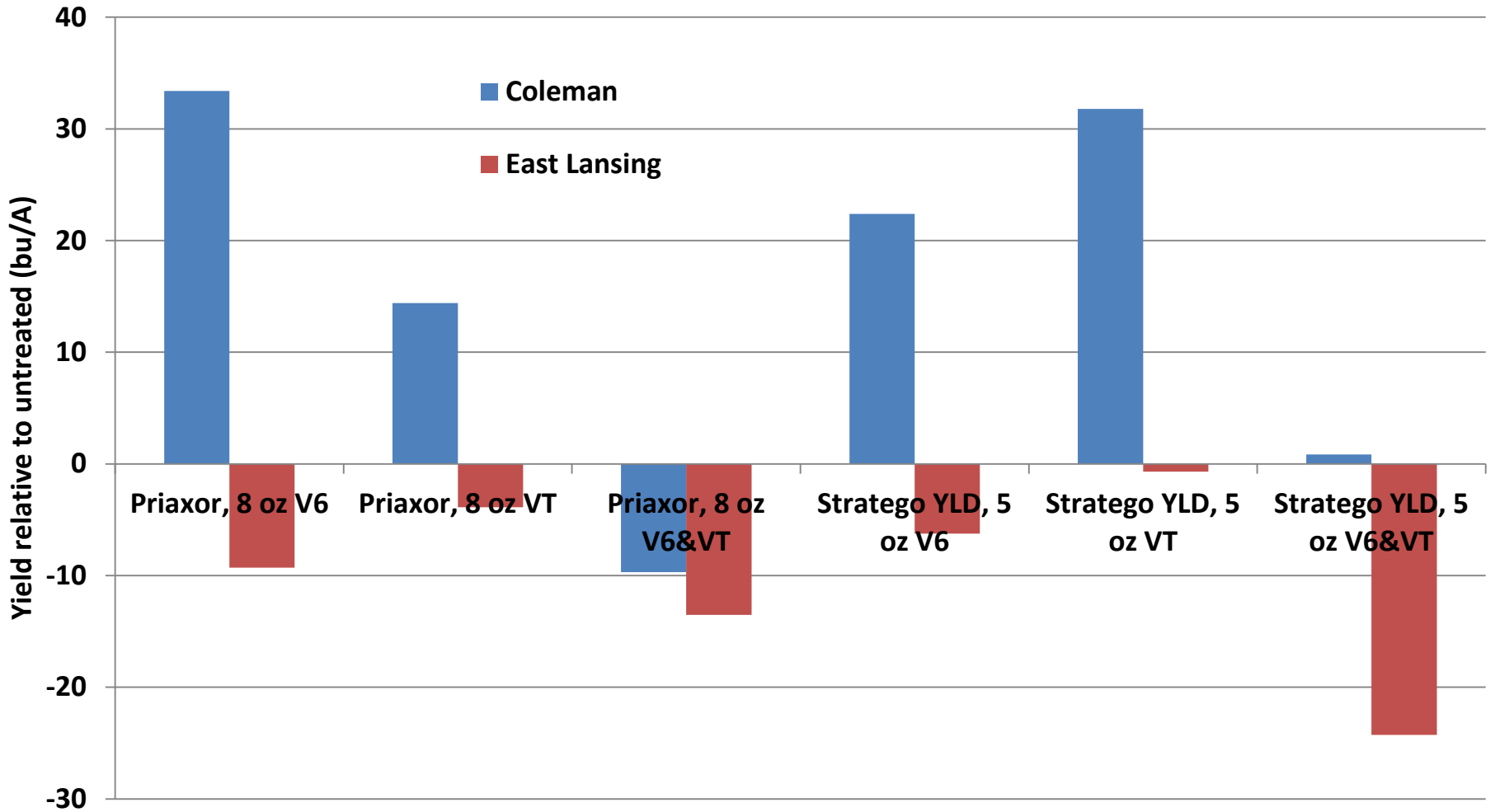
2014, Michigan corn fungicide trials



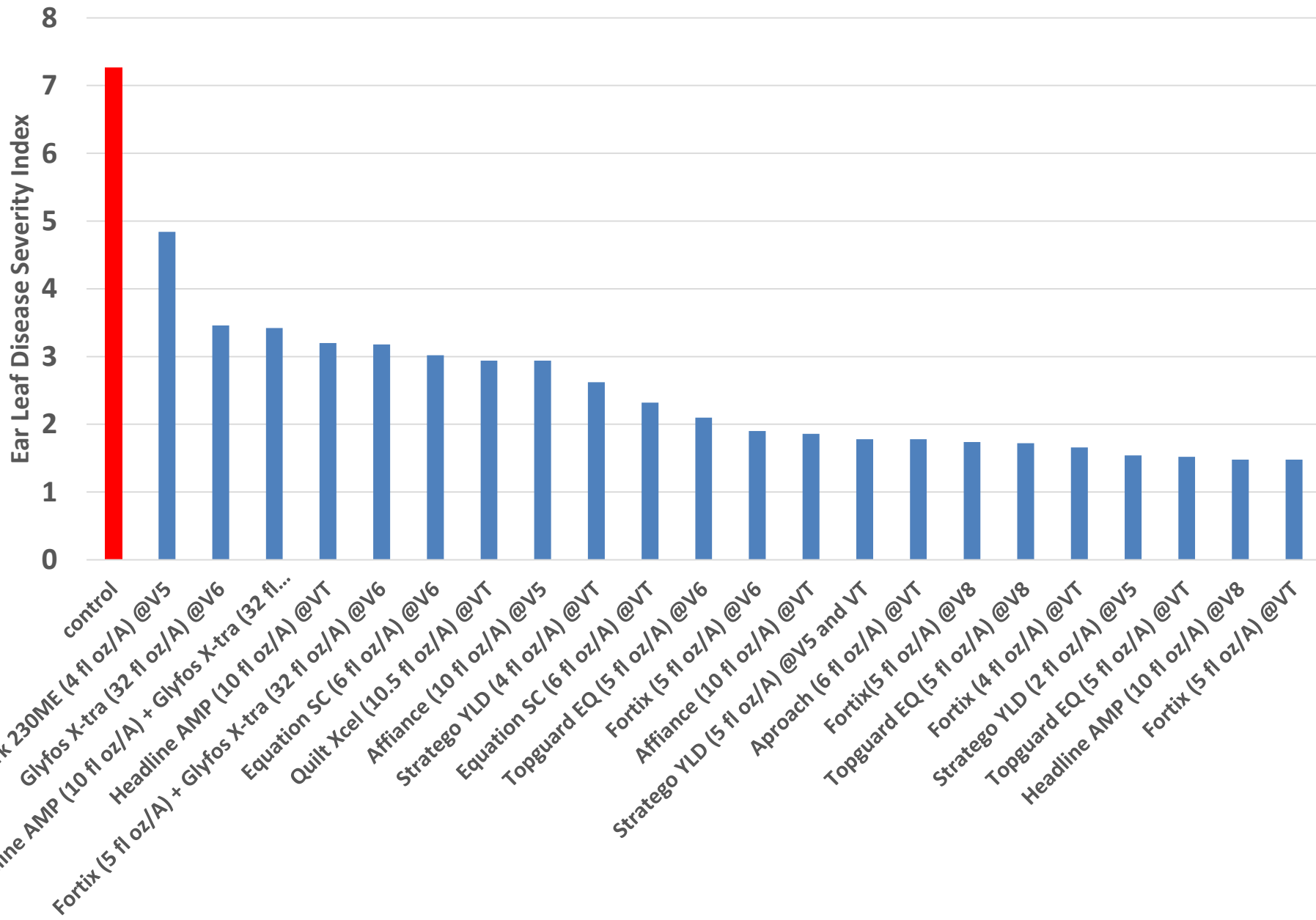
Coleman: DKC38-04RIB , East Lansing: NuTech 5V197

Low levels of Rust, GLS, NLB <1.5 DIX scores

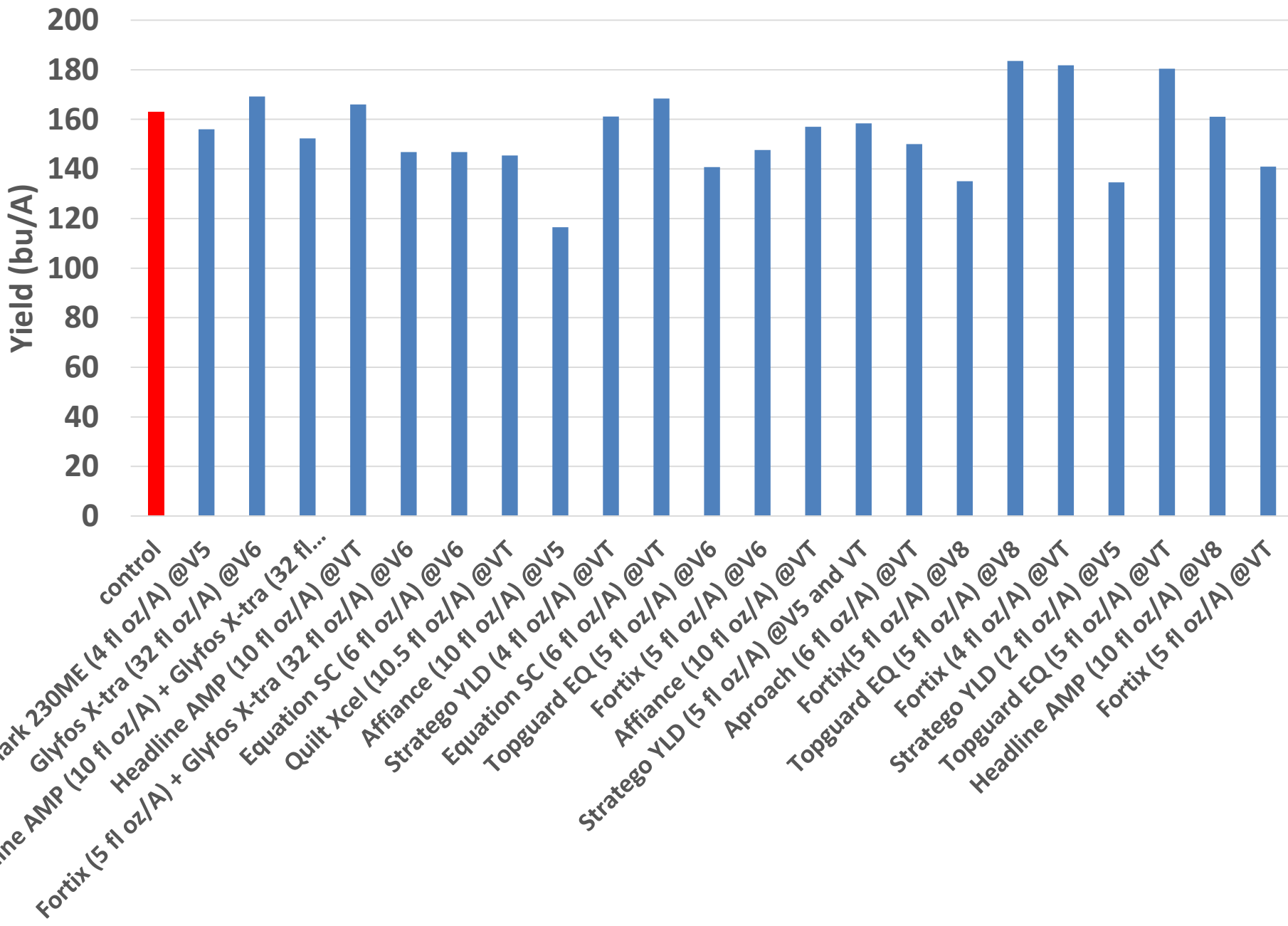
2014, Michigan corn fungicide trials



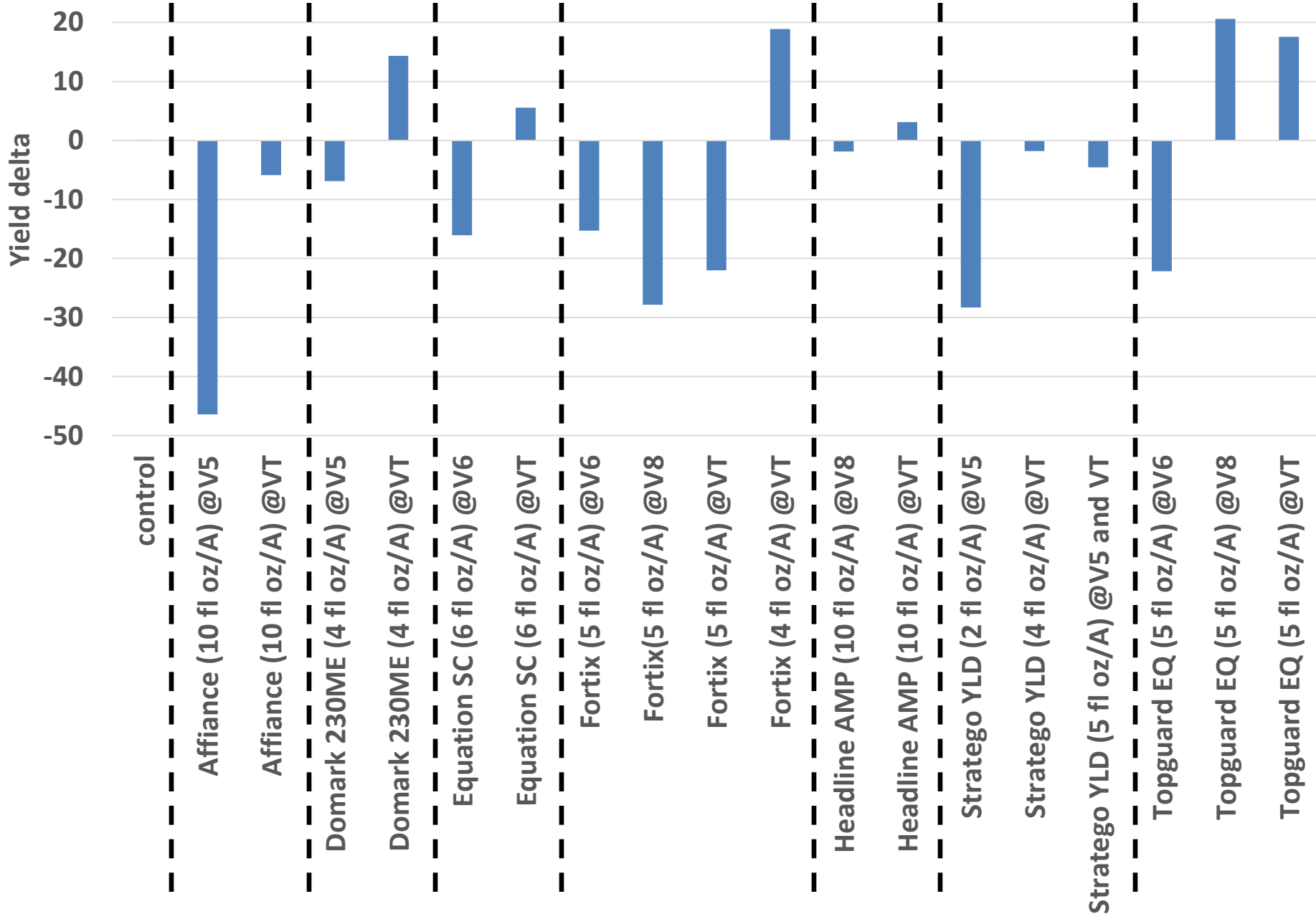
2015, MSU corn trials – NCLB (DSI)



2015, MSU corn trials – Yield (bu/A)



Early V vs. VT

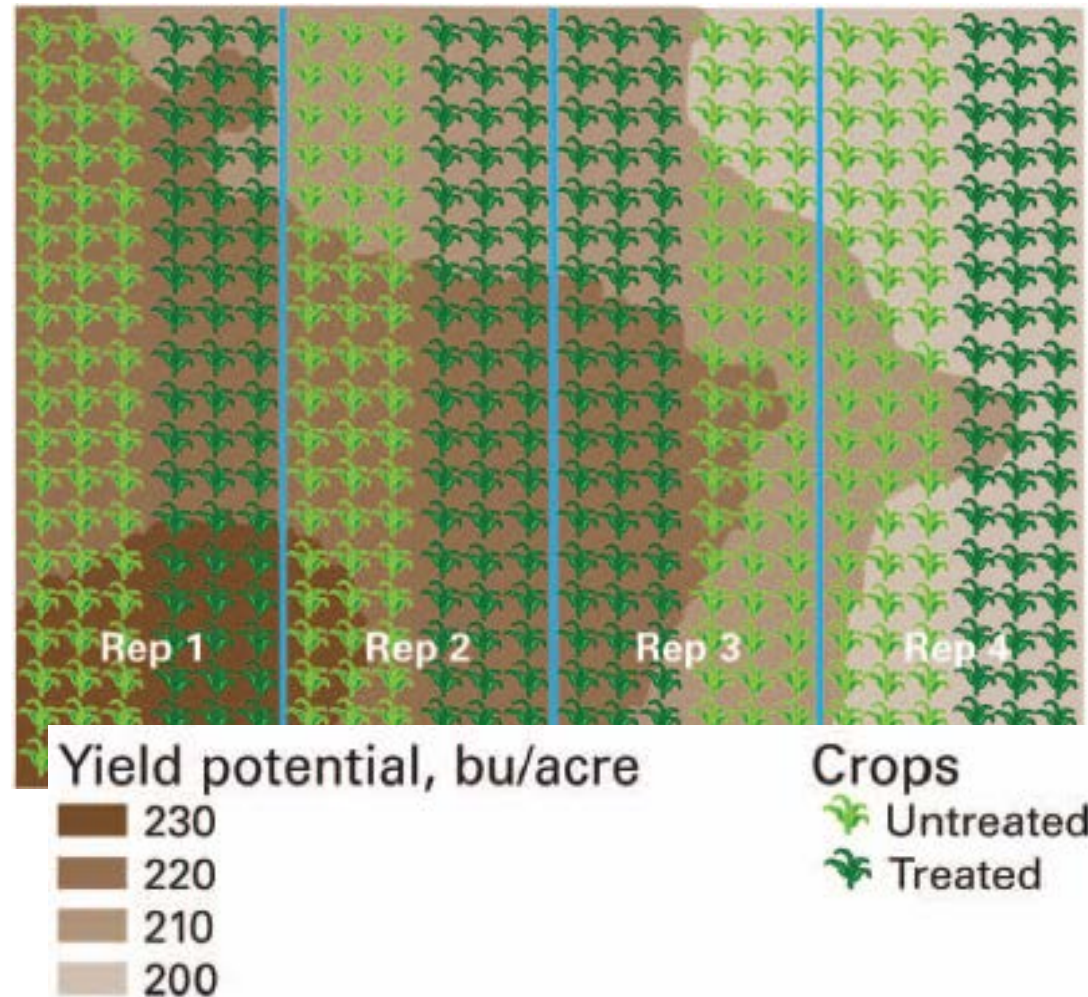


Corn fungicide conclusions

- Variability in data sets and fields:
 - Northern states showed high variation—difficult to link yield response to disease severity in all cases
 - Some environment related, but yearly variability exists
- Continue to see best economic response from fungicides when used in response to disease pressure
 - VT application

Should I be using a foliar fungicide?

- On farm trials
- Require replication



Goss's Wilt



Remerging Bacterial disease

New York Times
Sep-30-2013

Michigan Corn Growers Association



A Disease Cuts Corn Yields



Alison Robertson

Corn showed evidence of Goss's wilt, which is caused by a bacterium, in Iowa in 2011.

By **STEPHANIE STROM**
Published: September 30, 2013

ALTON, Iowa — It has come on like a tidal wave, washing across the Corn Belt from Minnesota to the Texas panhandle, a disease that few farmers had seen until five years ago.

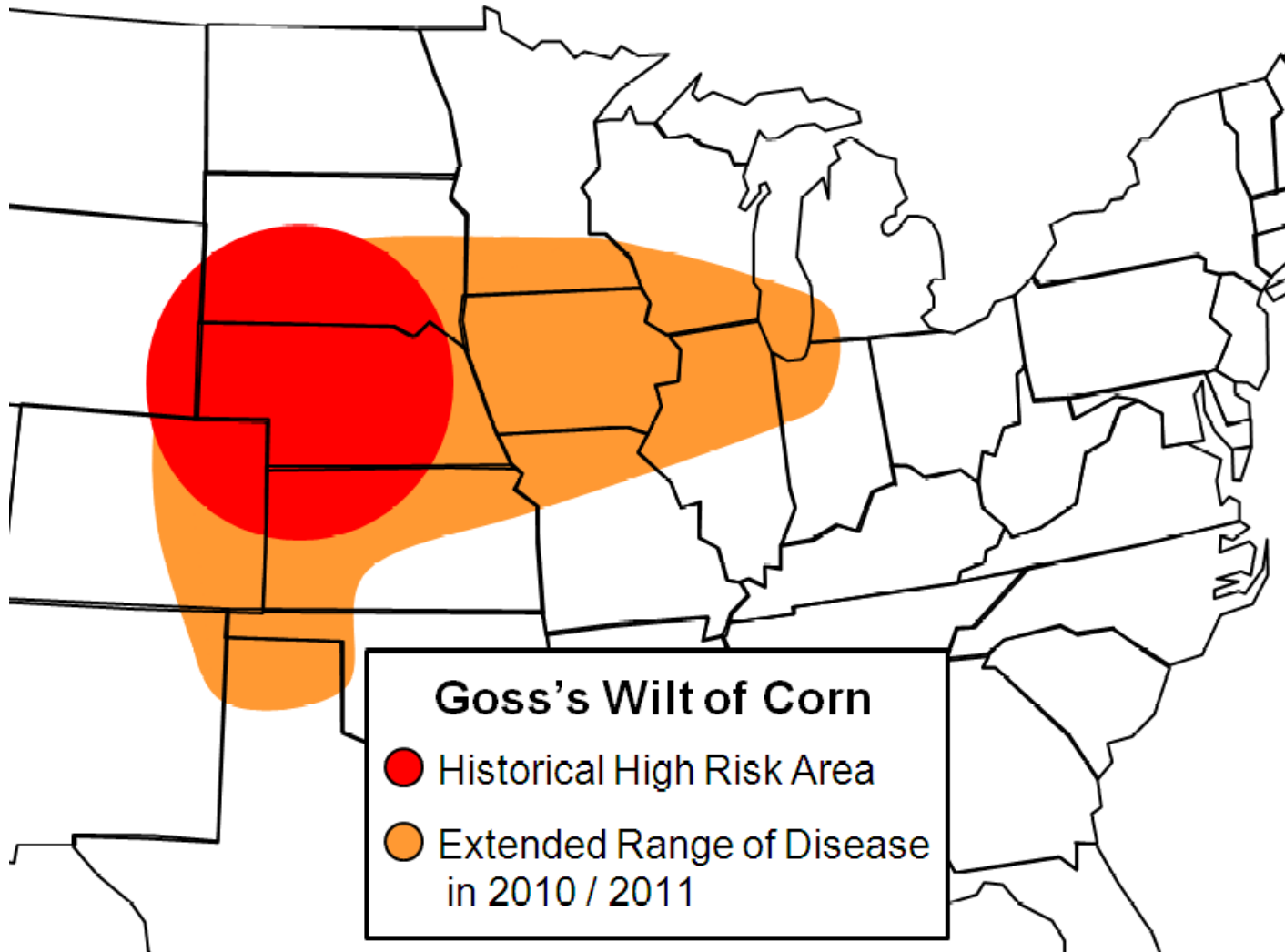
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• Environment



Known as Goss's wilt, it has cut some farmers' corn yields in half, and it is still spreading. This summer it reached Louisiana, farther south than it had ever been identified. [Alison Robertson](#), a plant pathologist at Iowa

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Goss's wilt distribution



2013 outbreak in Louisiana

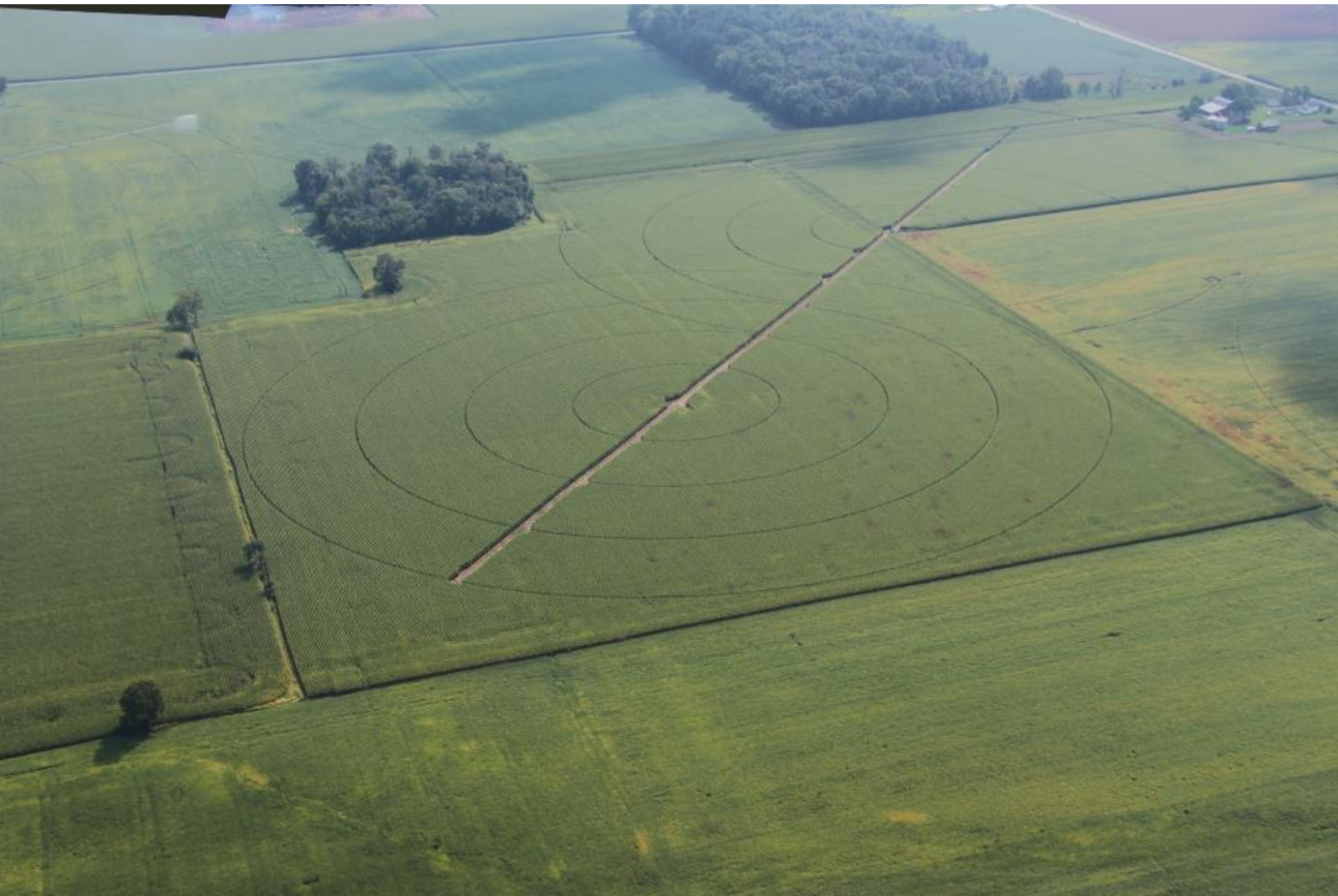
Scouting for Goss's wilt in Michigan

















Why the increase in Goss's wilt?

- Change in production systems
- Corn on corn
- Min. or no-till systems
- Susceptible hybrids
- Change in virulence of the Cmn pathogen
- Fungicides are not effective

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Tar spot of corn

Phyllachora maydis, and *Monographella maydis*



Only *Phyllachora maydis* confirmed to date

Purdue Diagnostic lab and Kiersten Wise

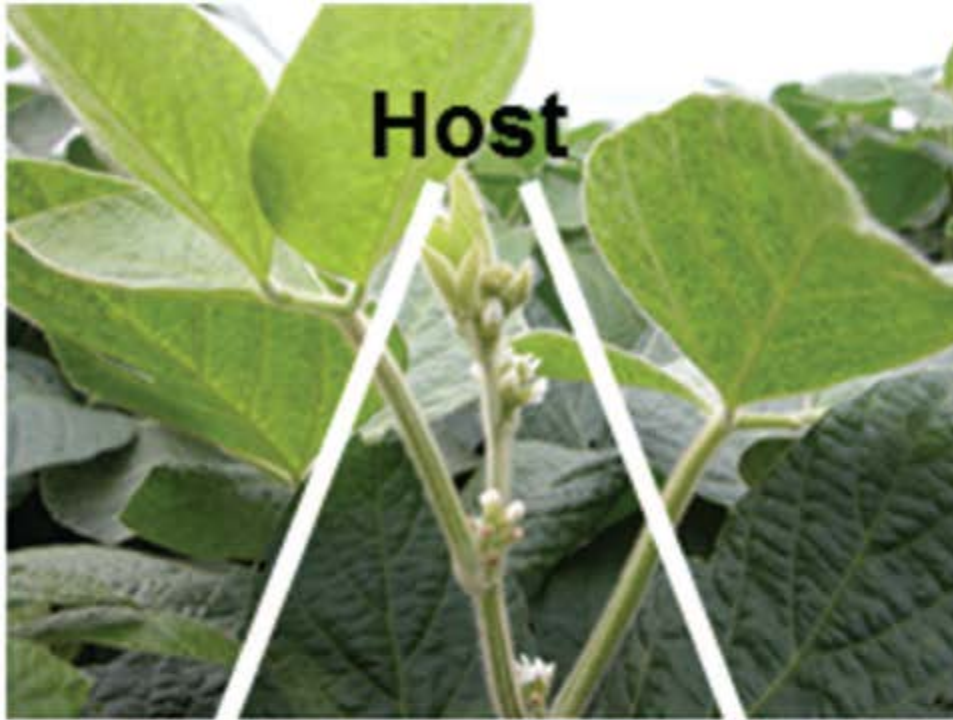
PPDL

White mold – 2014



Adjusted to 1bu/A

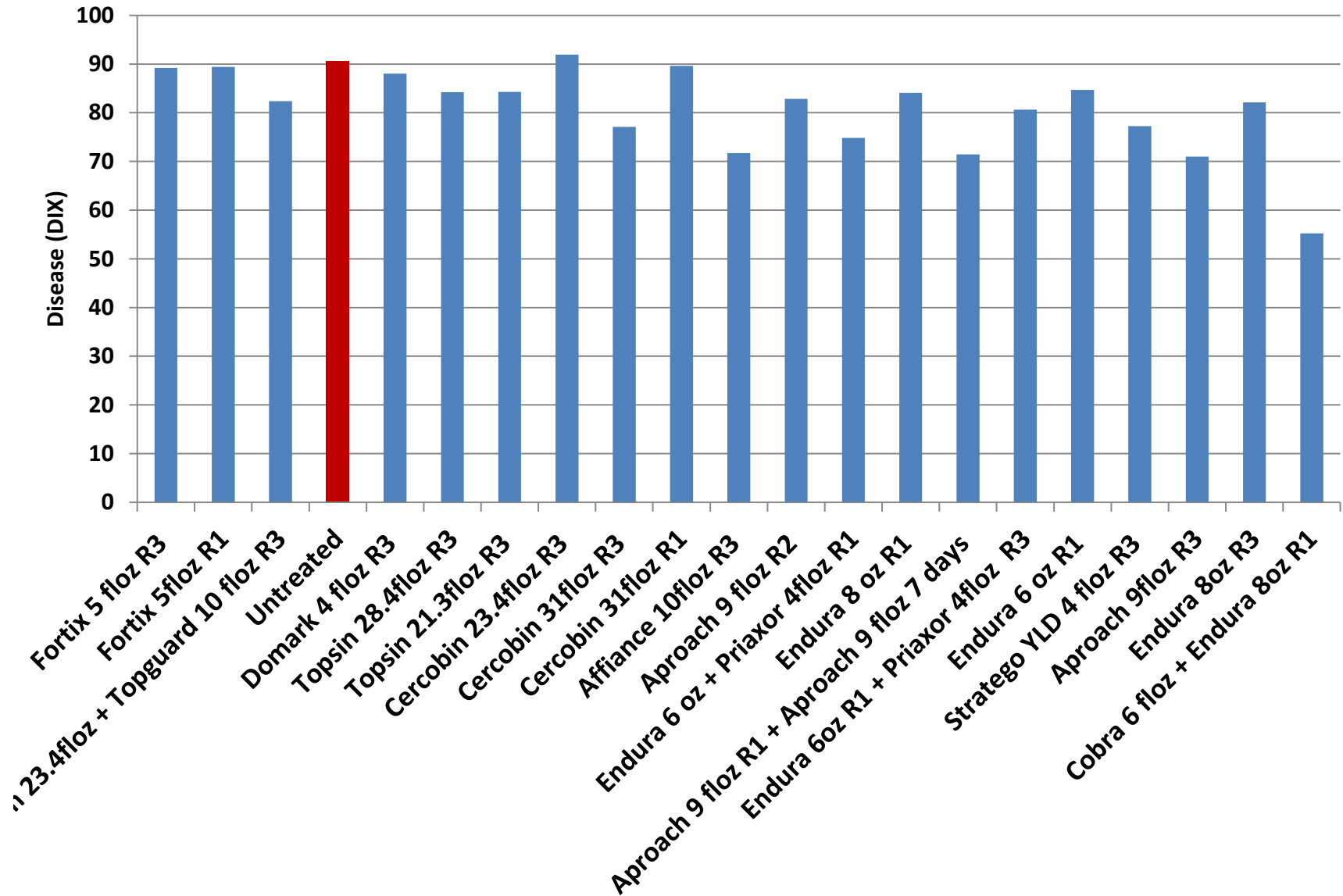
Photo courtesy: Martin Nagelkirk



Foliar fungicides – White mold

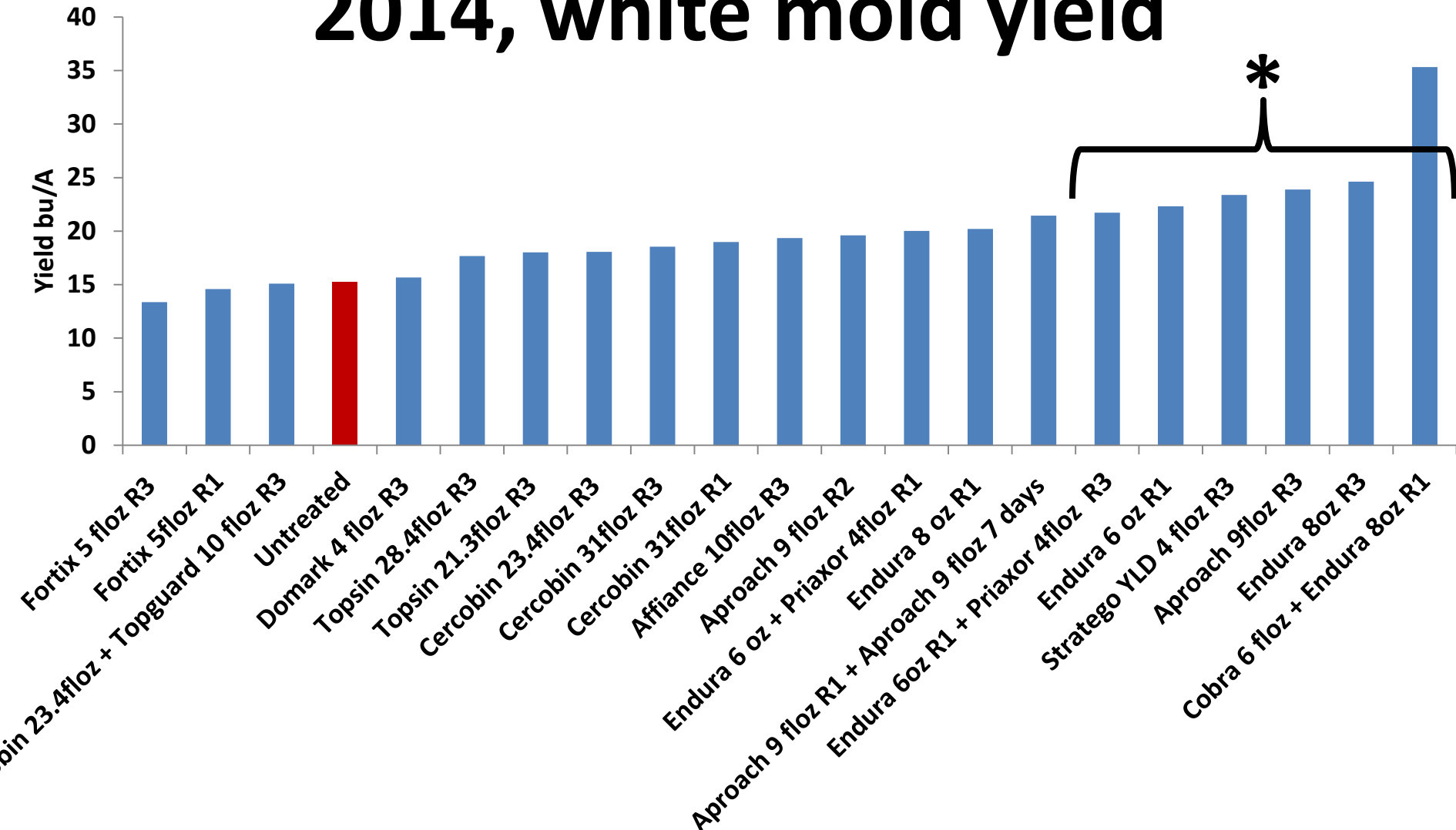


2014, white mold disease index (DSI)



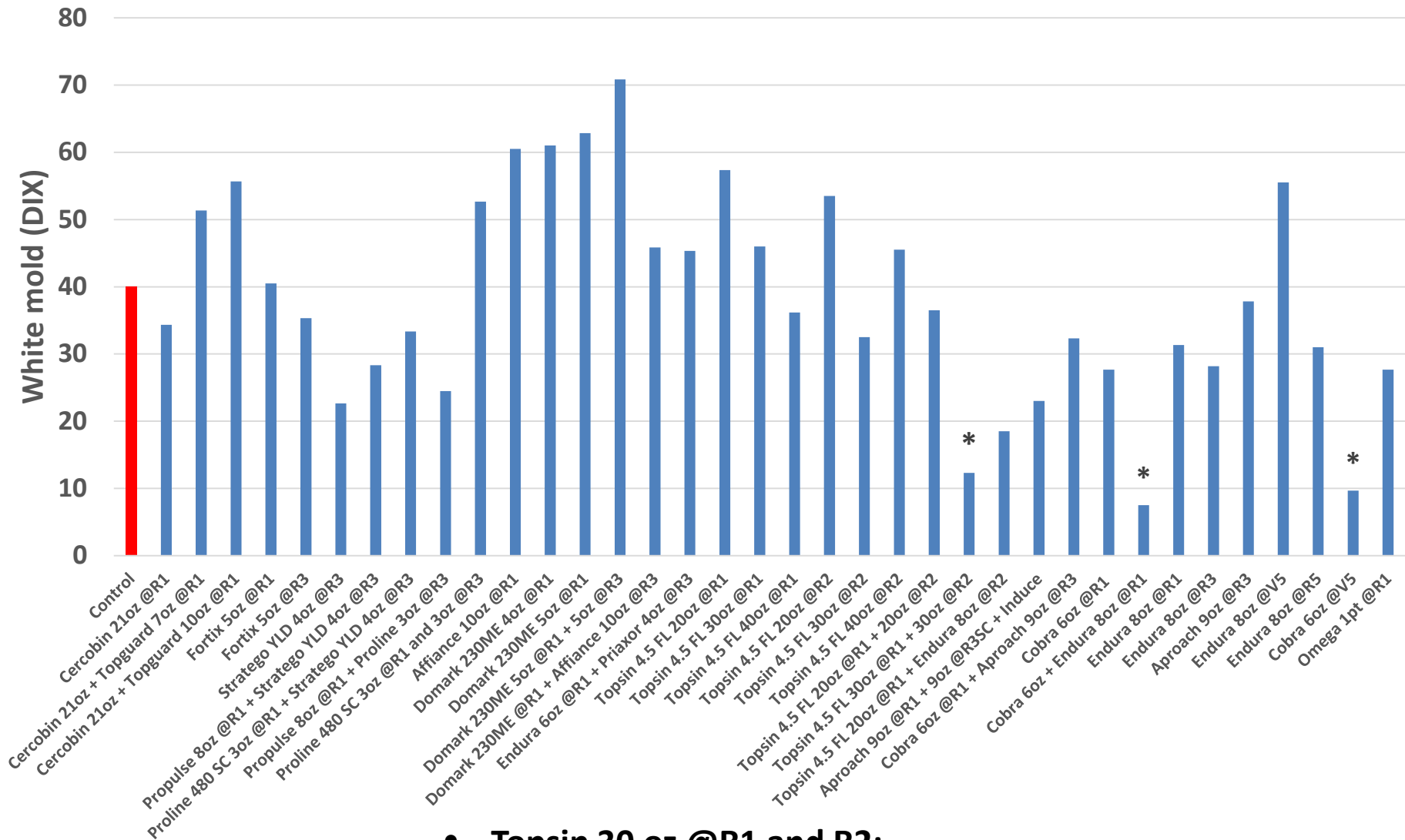
Disease pressure too high to statistically differentiate treatments

2014, white mold yield



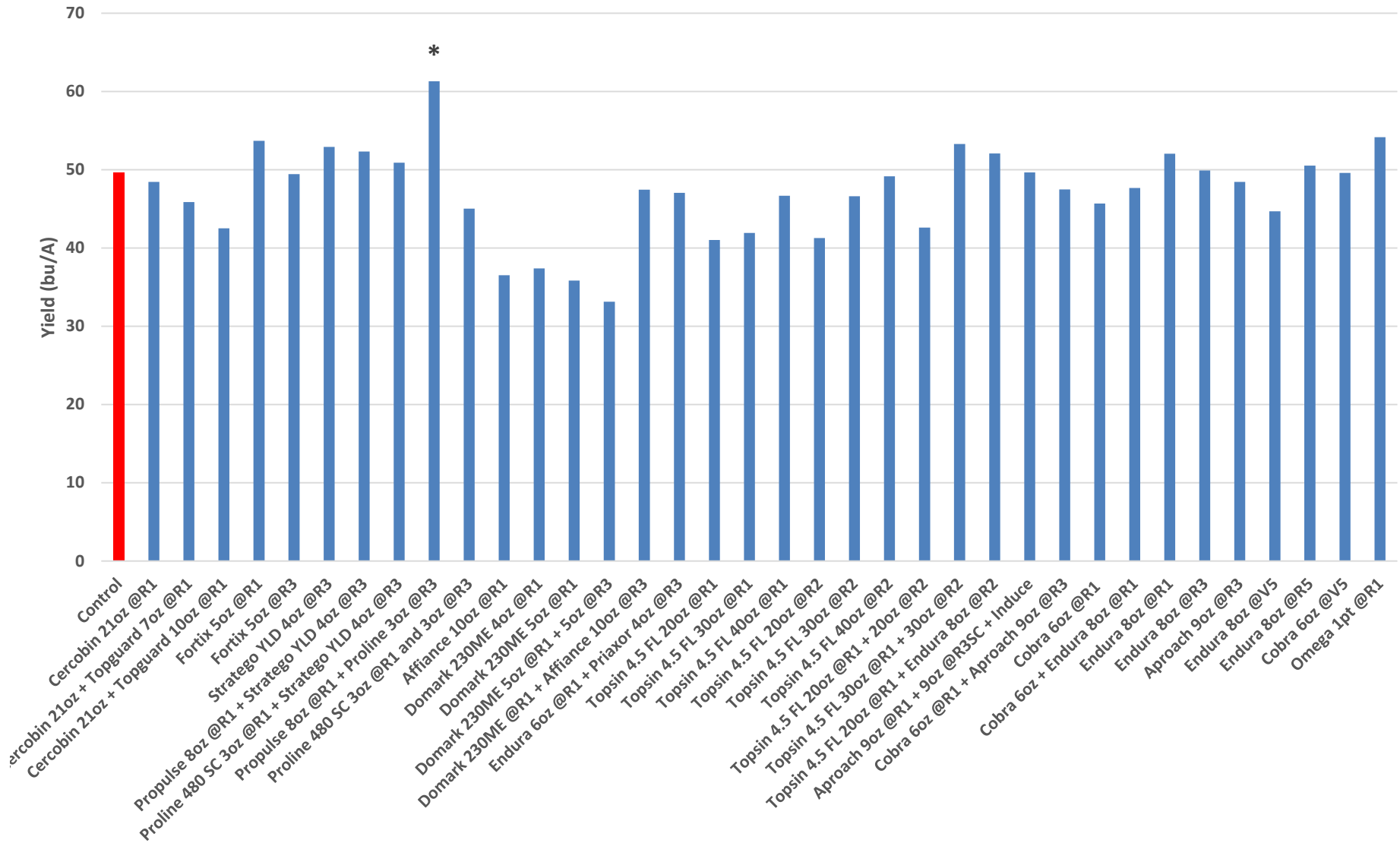
**Endura 6oz (R1) + Priaxor 4oz (R3); Endura 6oz (R1);
Stratego YLD 4oz (R3); Aproach 9oz (R3); Endura 8oz R3;
Cobra 6oz + Endura 8oz (R1)**

2015, white mold trial - Disease



- **Topsin 30 oz @R1 and R2;**
- **Cobra 6oz + Endura 8oz @R1;**
- **Cobra 6oz @V5**

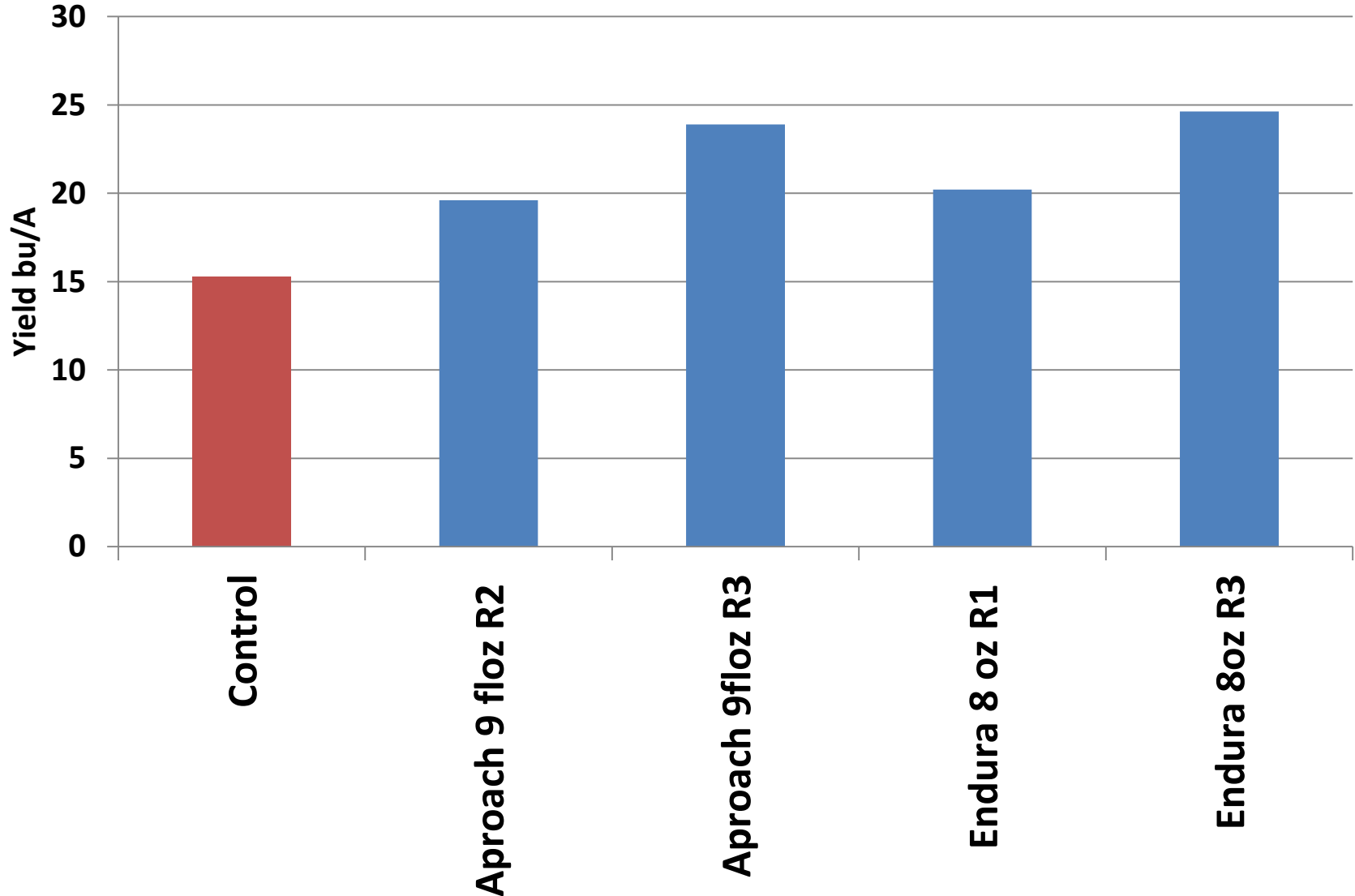
2015, white mold trial - Yield

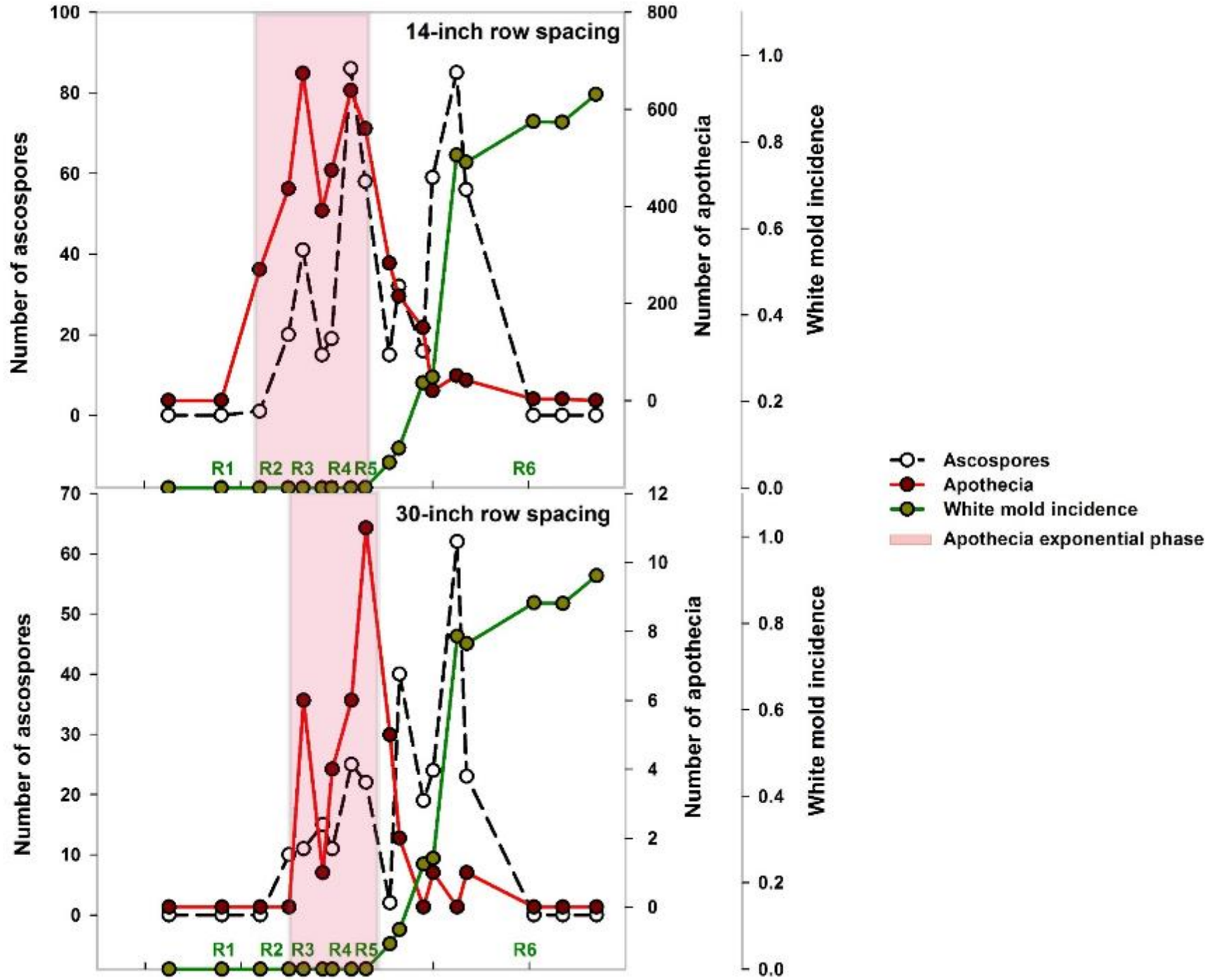


Only treatment significantly different to control: Propulse 8oz @R1 + Proline 3oz @R3

When to spray?

2014, application timing





White mold - Chemical control

- Chemical control as protectant not curative
- **Application timing to protect flowers up to beginning pod (R3)**
- Canopy penetration is essential
- Have realistic management expectations



Management of White Mold in Soybean

- No silver bullets – must integrate several management practices:
 - Partially-resistant varieties
 - MSU variety trials www.varietytrials.msu.edu
 - Row spacing and seeding population rates

Sudden Death Syndrome (SDS)

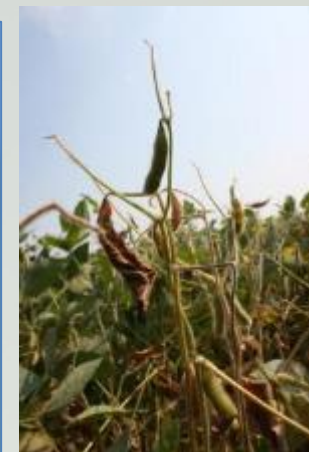
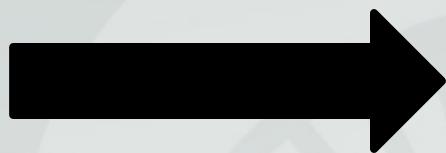
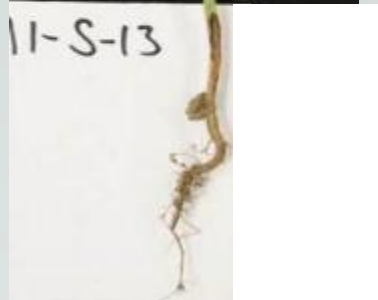


SDS has become a significant concern across the Midwest

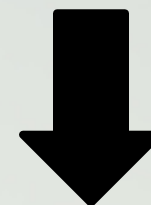
Complex Disease:

- **Root rot**
- **Foliar symptoms**

Fusarium virguliforme life cycle



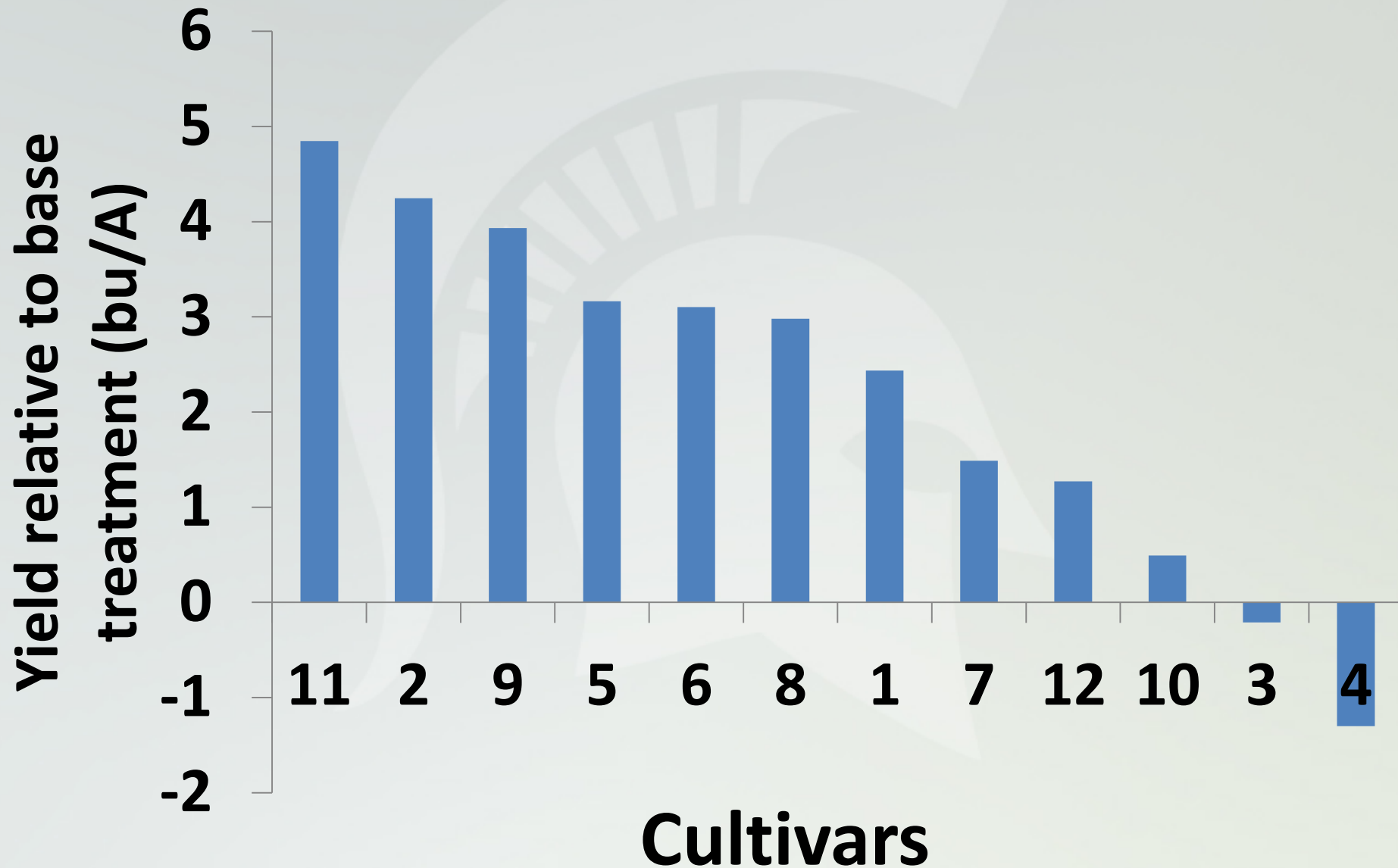
First found Arkansas in 1970



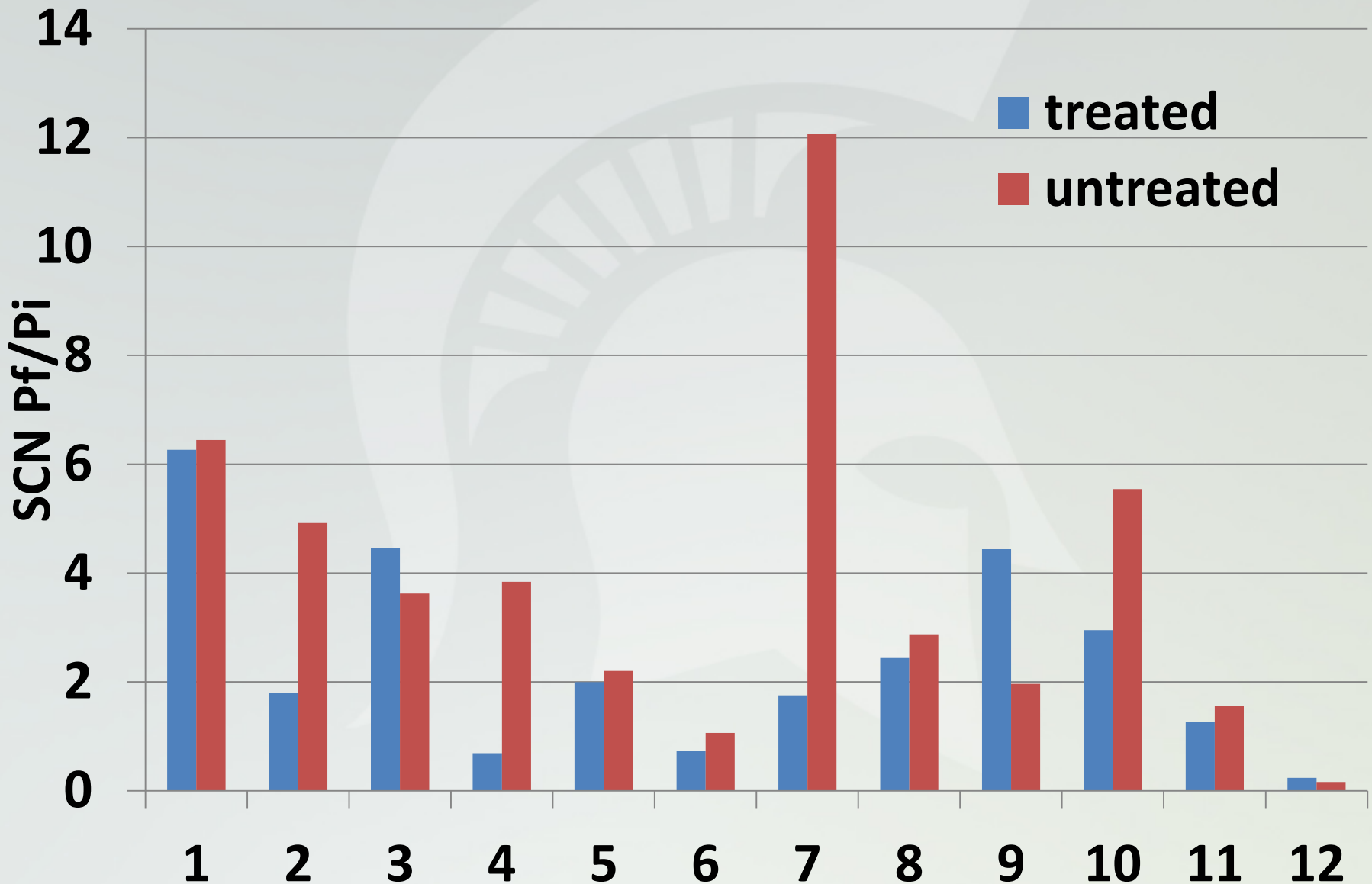
Commercial cultivars – differ in resistance



2014, Yield ILeVO vs. base treatment



2014, SCN reproduction ratio (Pf/Pi)



SDS management recommendations

- Prevent movement of infested soil
 - power wash equipment if possible
- Confirm it is SDS
- Utilize resistant varieties
- ILeVO seed treatment
- Test and manage for SCN
- Improve drainage
- Extended crop rotation may help

Irrigation management for soybeans

- Heavy applications favor SDS
- Many light applications favor white mold

Acknowledgements

- Dr. Carl Druskovich,
- MSU diagnostic lab, Fred and Jan
- John Boyse and Randy Laurenz
- Tim Dietz and Kyle Johnson
- Kerrek Griffes, Steve Gower - Asgrow
- Karen Zuver – Pioneer
- Bill Widdicombe and Lori Williams
- Midwest colleagues: Kiersten Wise et al.



Michigan Corn Growers Association



Michigan State University

AgBioResearch



National
Sclerotinia
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