

2024 Pre-planting considerations

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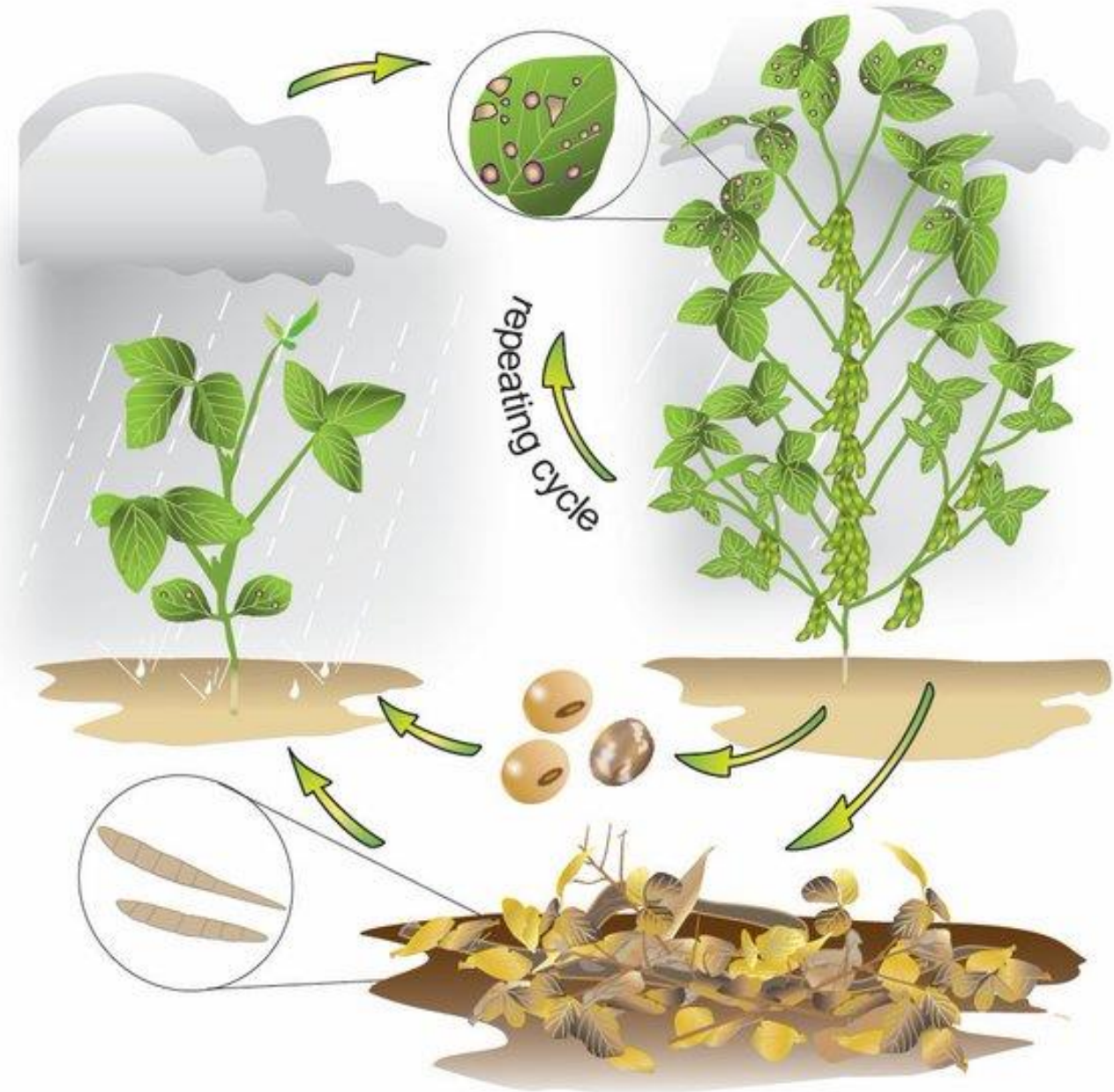
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Twitter: [KSUCropdiseases](https://twitter.com/KSUCropdiseases)

Frog eye leaf spot

- *Cercospora sojina*
- Lesions are gray to brown surrounded by narrow, dark reddish-brown margins and circular to angular in shape



2022 Frog Eye Leaf Spot Survey

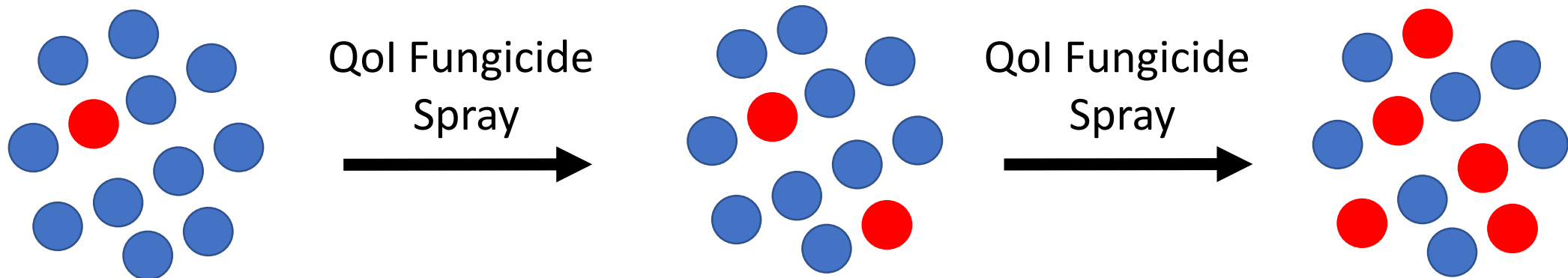
- Collected 10 symptomatic leaves per field
- 5 fields per county
- County name
- GPS coordinates
- Field ID per sample



Frog Eye Leaf Spot. Onofre, R.

QoI fungicides have a **high risk** of selection for fungal strains with resistance

- Frac Code 11
- Single-specific mode of action
- Acropetal penetrant (upward)
- Inhibiting mitochondrial respiration
 - Interrupting electron transport
- Azoxystrobin, fluoxastrobin, pyraclostrobin, trifloxystrobin



Qol fungicide sensitivity assay

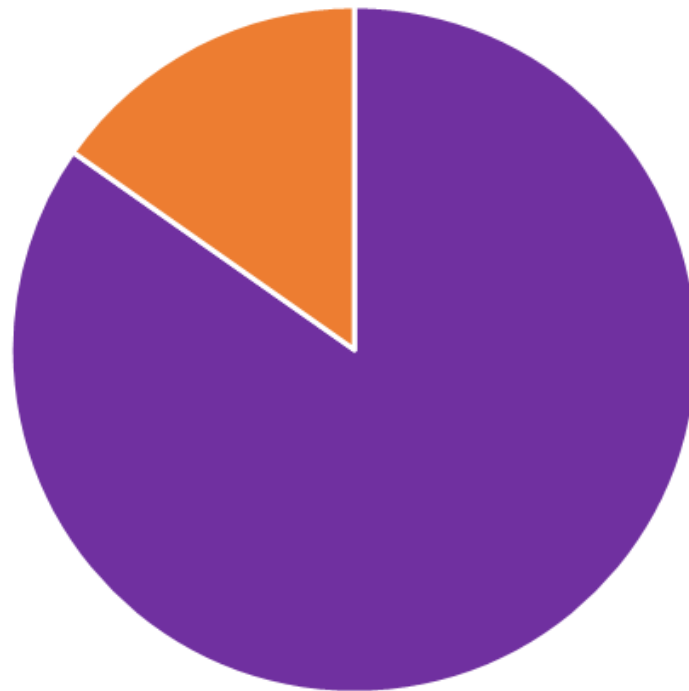
- Polymerase chain reaction (PCR) assays
- Target Mutations: G143A, F129L, and G137R
- Cytochrome *b* gene was sequenced (Mut4-F/Mut4-R)
- Identify Qol-sensitive and Qol-resistant isolates



First time that *C. soja* isolates resistant to QoI fungicides are present in soybean fields in Kansas.



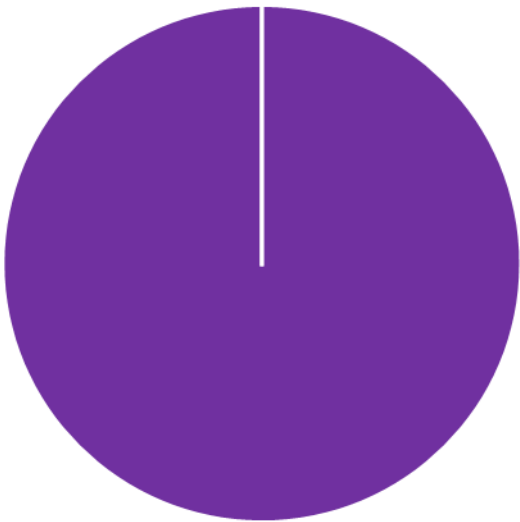
Dr. Carl Bradley
Professor
University of Kentucky



- 84.7 % of Kansas isolates had G143A mutation;
- Neither F129L nor G137R mutations were found.

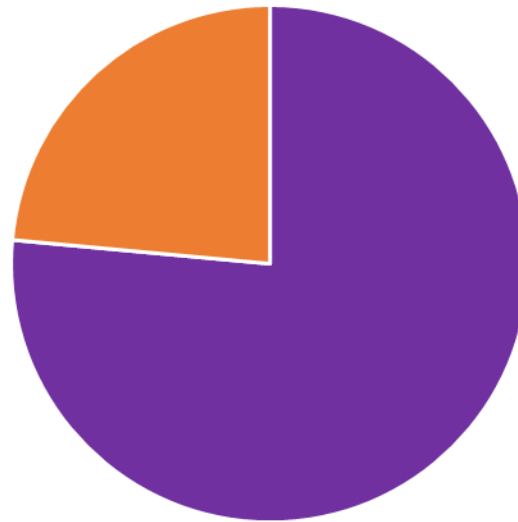
Despite low disease severity was observed in the 2022 soybean season, Qol-resistant isolates is present in all counties tested

Resistant = 100 %



Butler
Doniphan
Jackson
Republic

Resistant = 76.5 %

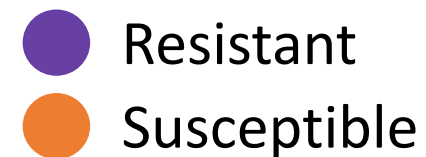


Jefferson

Resistant = 50 %



Atchison



(02/2022)

11	Azoxystrobin 22.8%	Quadris 2.08 SC, multiple generics	6.0 – 15.5	VG	VG	P-G	P	P
	Fluoxastrobin 40.3%	Aftershock 400 SC, Evito 400 SC	6.0 – 12.0	VG	G	P-G	P	P
	Picoxystrobin 22.5%	Approach 2.08 SC	6.0 – 12.0	VG	G	P-G	P	P
	Pyraclastrobin 23.6%	Headline 2.09 EC/SC	6.0 – 12.0	VG	VG	P-G	P	P

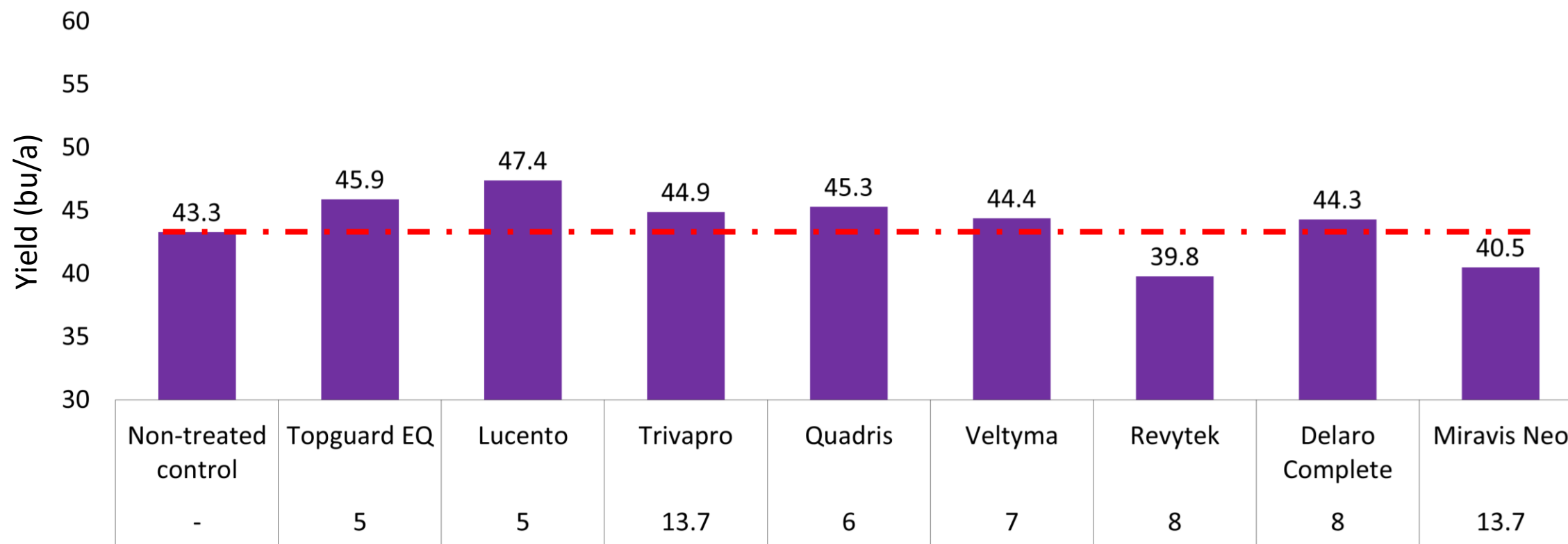
(02/2022)

[illegible]

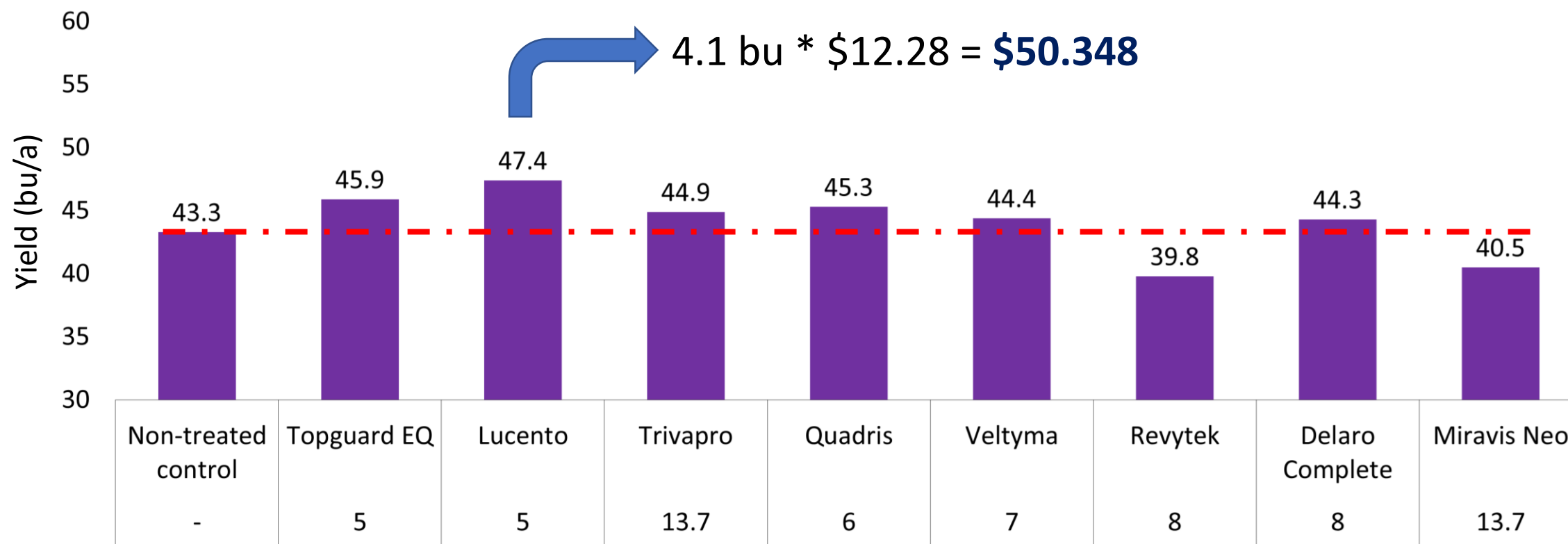
Uniform Foliar Fungicide Trial

FRAC code	Product/Trade Name	Rate/A (fl oz)	Active ingredient (%)
11	Topguard EQ	5	Azoxystrobin 25.30%
3			Flutriafol 18.63%
7	Lucento	5	Bixafen 15.55%
3			Flutriafol 26.47%
7	Trivapro	13.7	Benzovindiflupyr 2.9
11			Azoxystrobin 10.5%%
3			Propiconazole 11.9%
11	Quadris Top 2.72 SC	6	Azoxystrobin 7.0 %
3			Difenoconazole 11.4%
11	Veltyma	7	Pyraclostrobin 17.56%
3			Mefentrifluconazole 17.56%
7	Revytek	8	Fluxapyroxad 7.74%
11			Pyraclostrobin 15.49%
3			Mefentrifluconazole 11.61%
7	Delaro Complete	8	Fluopyran 10.9%
11			Trifloxystrobin 13.1%
3			Prothioconazole 11.6
7	Miravis Neo	13.7	Pydiflumetofen 7.0%
11			Azoxystrobin 9.3%
3			Propiconazole 11.6%

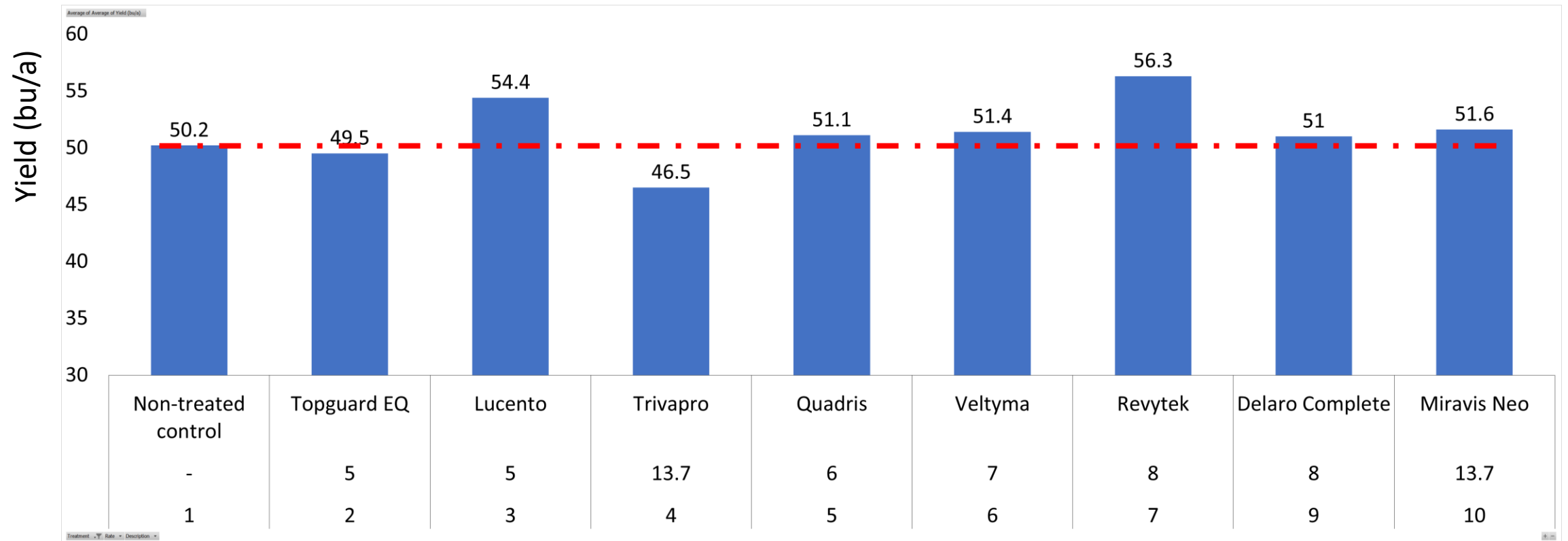
Parsons (dryland)



Parsons (dryland)



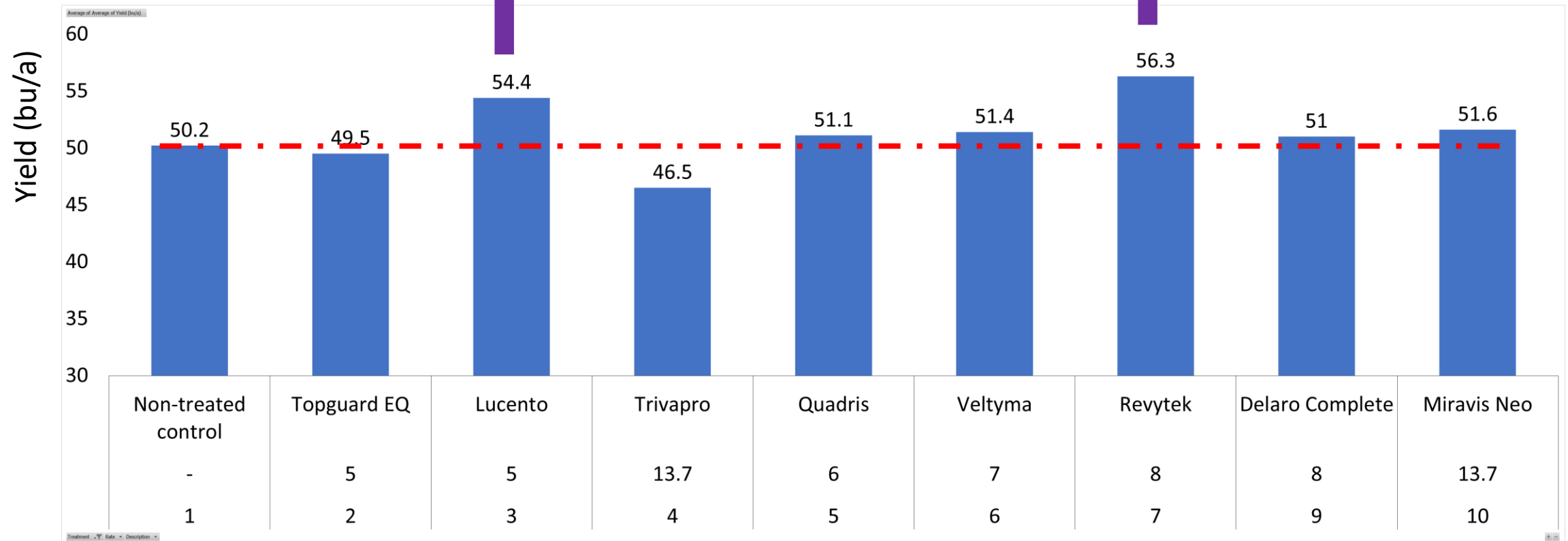
Scandia (irrigated)



Scandia (irrigated)

$$4.2 \text{ bu} * \$12.28 = \text{\$51.576}$$

$$6.1 \text{ bu} * \$12.28 = \text{\$74.908}$$



2024 Soybean Fungicide Decisions

- Avoid QoI fungicides (group 11)
 - Azoxystrobin, fluoxastrobin, pyraclostrobin, trifloxystrobin\
- Despite low levels of foliar disease, some products resulted in positive yield return
- Under dryland and irrigated conditions, Lucento (7+3) resulted in ~4 bu/a higher than the non-treated control
- Revytek (7+11+3) provided best yield results (~6 bu/a) under irrigated conditions

Sudden Death Syndrome (SDS)



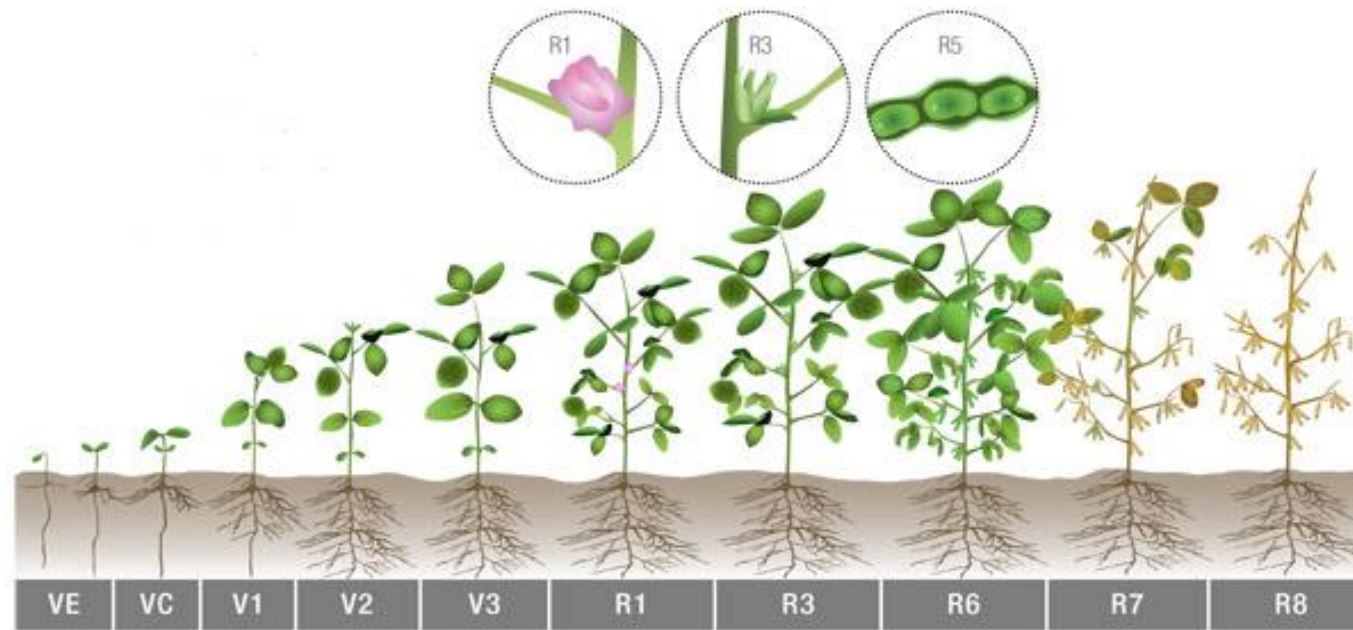
- *Fusarium virguliforme*
- Yield losses of up to 100%
 - Flower abortion
 - Reduced number of pods and seed size
 - Premature defoliation
- Survives in the soil and crop residue



Sudden Death Syndrome (SDS)



Early planting date, the perfect storm for SDS



59°F to 63°F
high soil moisture

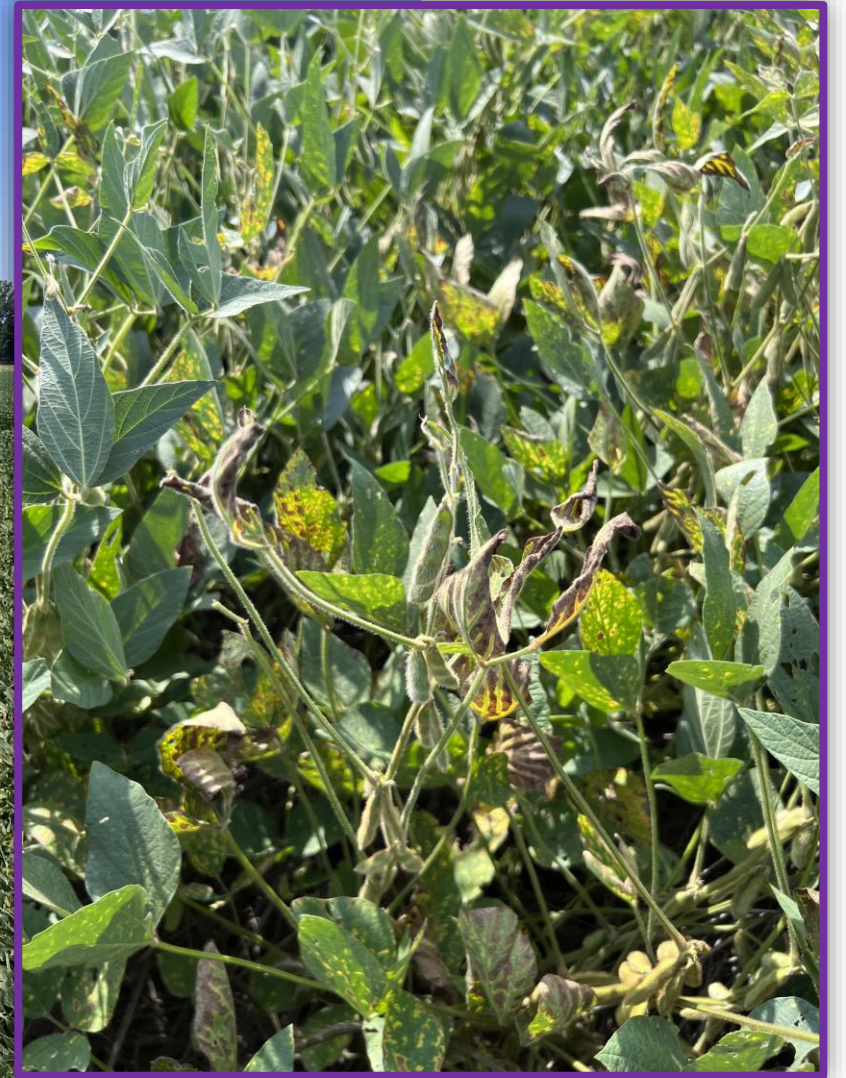
Root infection
& colonization

~77°F
Rain/Irrigation

Foliar disease
symptoms

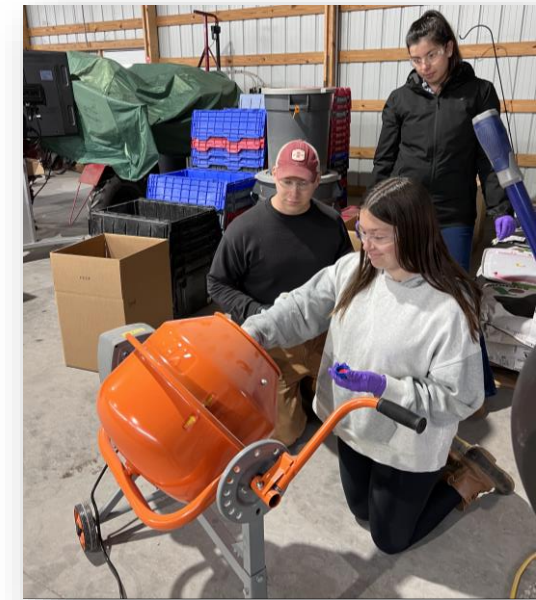
Yield losses

2022 Season – Shawnee county



Multistate Seed Treatment Evaluation for Soybean Sudden Death Syndrome in 2022

- Indiana, Iowa, Kansas, Michigan, Minnesota, Ohio, South Dakota, Wisconsin and Ontario, Canada
- **Objective**
 - Evaluate the impact of seed treatment on SDS using resistant and susceptible soybean cultivars



NCSRP NORTH CENTRAL SOYBEAN
RESEARCH PROGRAM



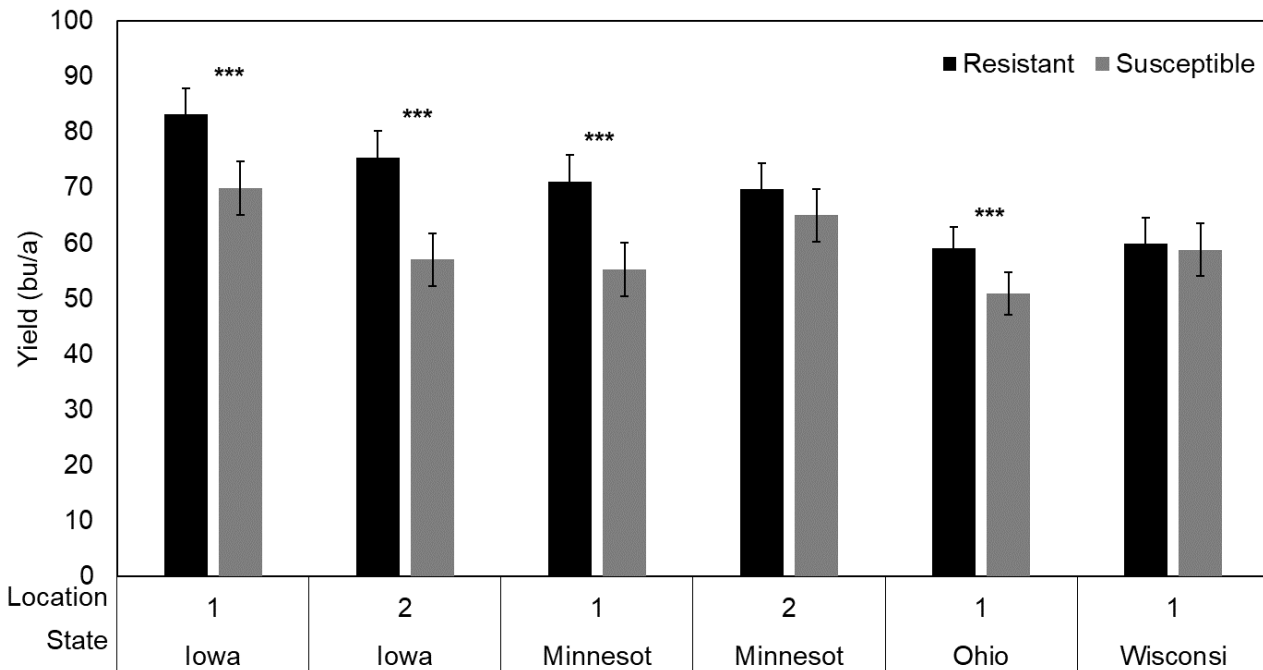
KANSAS STATE
UNIVERSITY

Treatment list

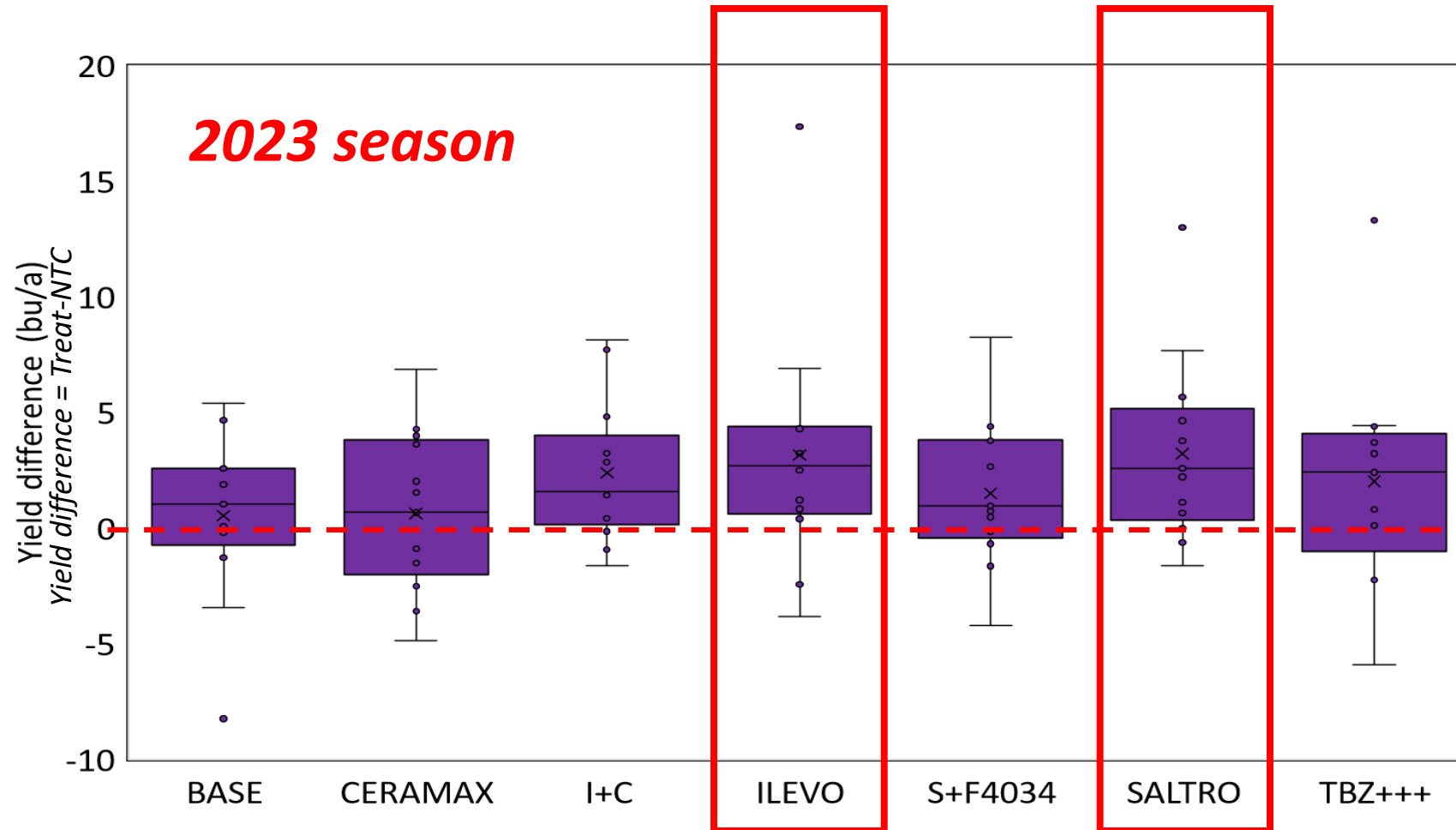
Treatment list		a. i/rate
1	Untreated check	-
2	Base	– Allegiance FL, Stamina, Systiva XS, Poncho 600, and Flo Rite 1706
3	Base + ILEVO	– Fluopyran (0.15 mg A/seed)
4	Base + Saltro	– Pydiflumetofen (0.075 mg A/seed)
5	Base+ Thiabendazole (TBZ) + Headsup +Biost 2 nd Gen + Ascribe SAR	– Thiabendazole (0.64 floz/cwt) – Saponins extract of <i>Chenopodium quinoa</i> (0.16 floz/cwt) – <i>Burkholderia ssp.</i> Strain A396 (0.4 floz/cwt) – Ascribe SAR (0.5 floz/cwt)
6	Base + Saltro + Ataplan	– Pydiflumetofen (0.075 mg A/seed) – <i>Bacillus velezensis</i> strain RT1301 and <i>Bacillus subtilis</i> strain RT1477 (0.32 floz/140k seeds)
7	Base + CeraMax	– Natamycin (2.46 floz/100 lbs)
8	Base + ILEVO + CeraMax	– Fluopyran (0.15 mg A/seed)+ Natamycin (2.46 floz/100 lbs)

SDS management starts by choosing resistant cultivars

2022 season: +10 bu/a

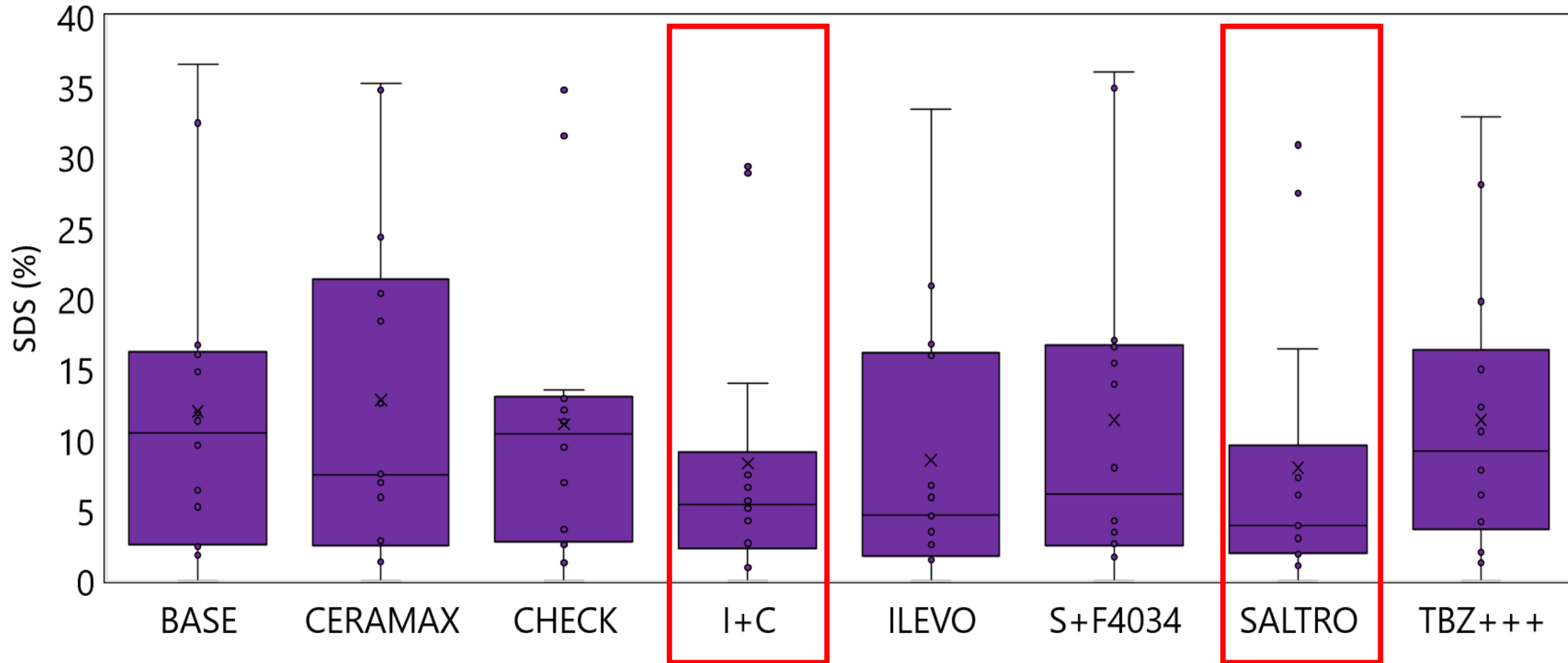


Although all the seed treatments provided a positive yield difference average in comparison with the NTC, Ileva (alone) and Saltro (alone) had the strongest responses across all the environments



Ilevo+Ceramax and Saltro (alone) provided a significant reduction on SDS root rot

2023 season



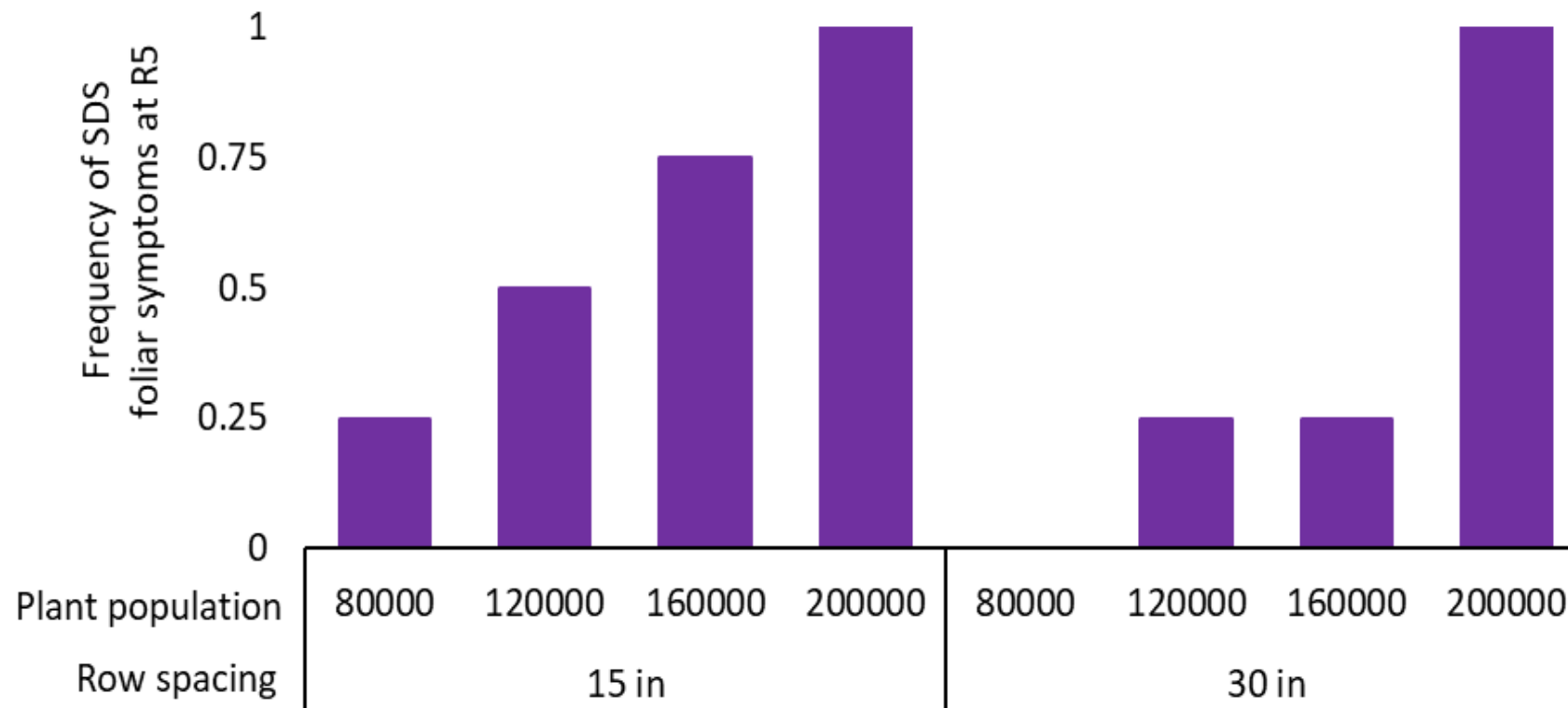
Are you planting soybean before corn?

- Select a resistant cultivar
 - Our data shows +10 bu/a yield advantage over the susceptible cultivar
- Considerer adding a seed treatment
 - Treatments including a biological and non-biological combination resulted in more consistent SDS control and lower variability.

How do row spacing and plant population influences SDS development?

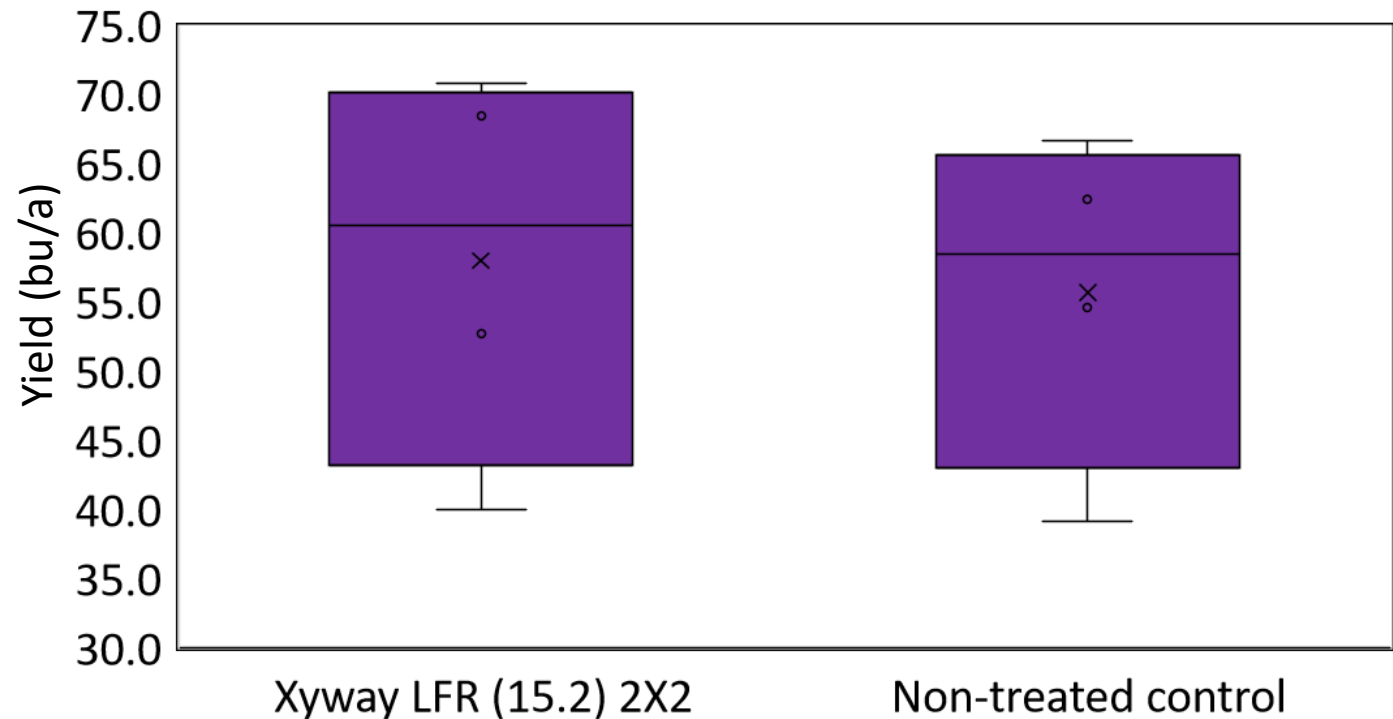


**SDS preliminary data - Topeka



At-planting fungicide: soy research update

- **Xyway LFR Fungicide**
 - Liquid Fertilizer Ready
 - Flutriafol (Group 3)
 - Rate: 15.2 fl oz/a
 - At-plating (2x2)
 - Water volume: 9 GPA
- **Two seasons**
 - 2022 & 2023
- **Four sites total**
 - Rossville, Scandia, and Parsons
- **Low disease levels**





Feel free to contact me!

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