

Cercospora Leaf Spot 2020

YWTG 2020



Goals, Objectives and Takeaways

- Review of 2019 AgNotes #607 CLS
- A Dollar Perspective on Treating CLS
- Recap the ACSC Grower Spraying Trends for 2019
- Effective Spraying Tips and Timing Actions
- 2020 ACSC Recommended Spray Program Review
- New Fungicide Label for Provysol in 2020



Are You More Familiar with #607-CLS Management Notes?



American Crystal Sugar Company
AgNotes



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www.crystalsugar.com

Cercospora Leafspot Management Notes



Last year's Cercospora Leafspot (CLS) management throughout the Red River Valley was overall successful when considering three company record RSA crops in a row (2016-2018 crops) aided by proper varietal choices and supporting cultural practices throughout the RRV allied industry. We cannot relax CLS management efforts at all; keeping CLS inoculum low continues to be a critical objective.



Are You More Familiar with #607-CLS Management Notes?

- Was the CLS rating considered when selecting a variety?
- Did spraying start when DIV's(daily infection values) were hit?
- Did 2 products always get tank mixed together?
- Were modes of actions always rotated between sprays?
- Was application rate minimum of 15-20 gallons per acre?



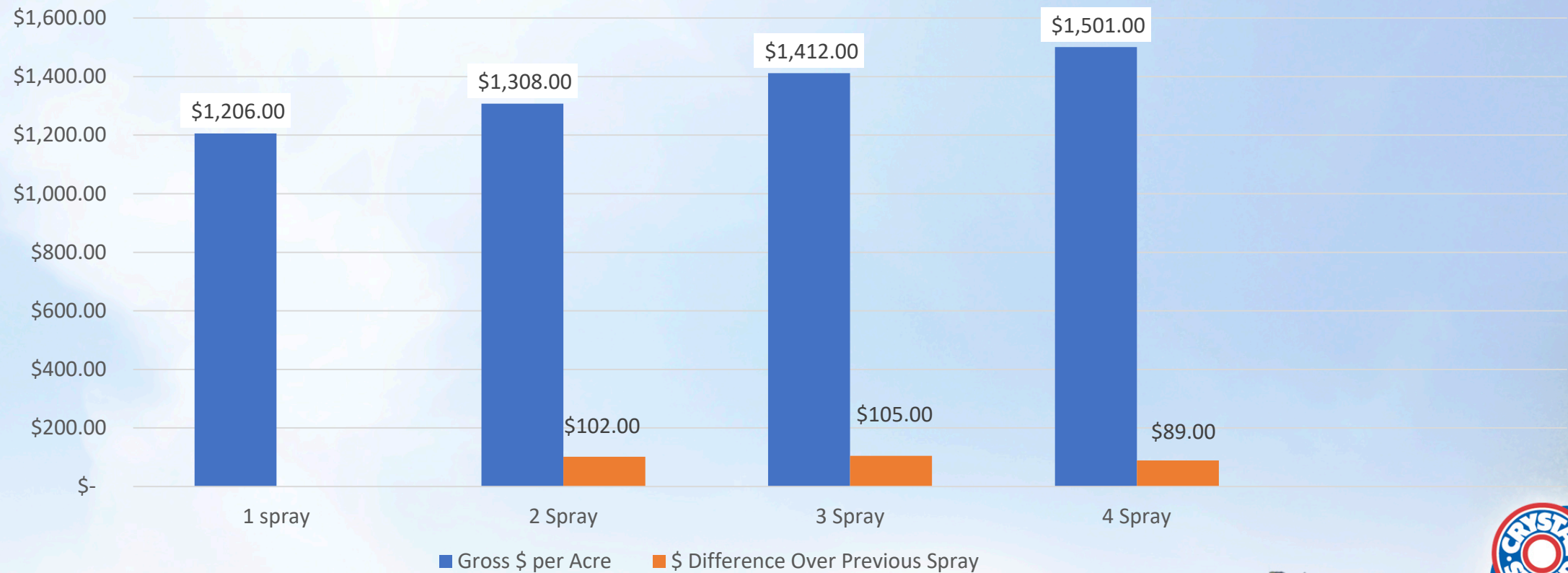
What's Your Perspective on Controlling CLS?

- Is it costing money or making money? How are you looking at it?
 - CLS robs sugar %, tonnage and increases impurities
- One could look at the probability of a decision.
- If one is a betting person, what's the risk/reward of well timed spray program?

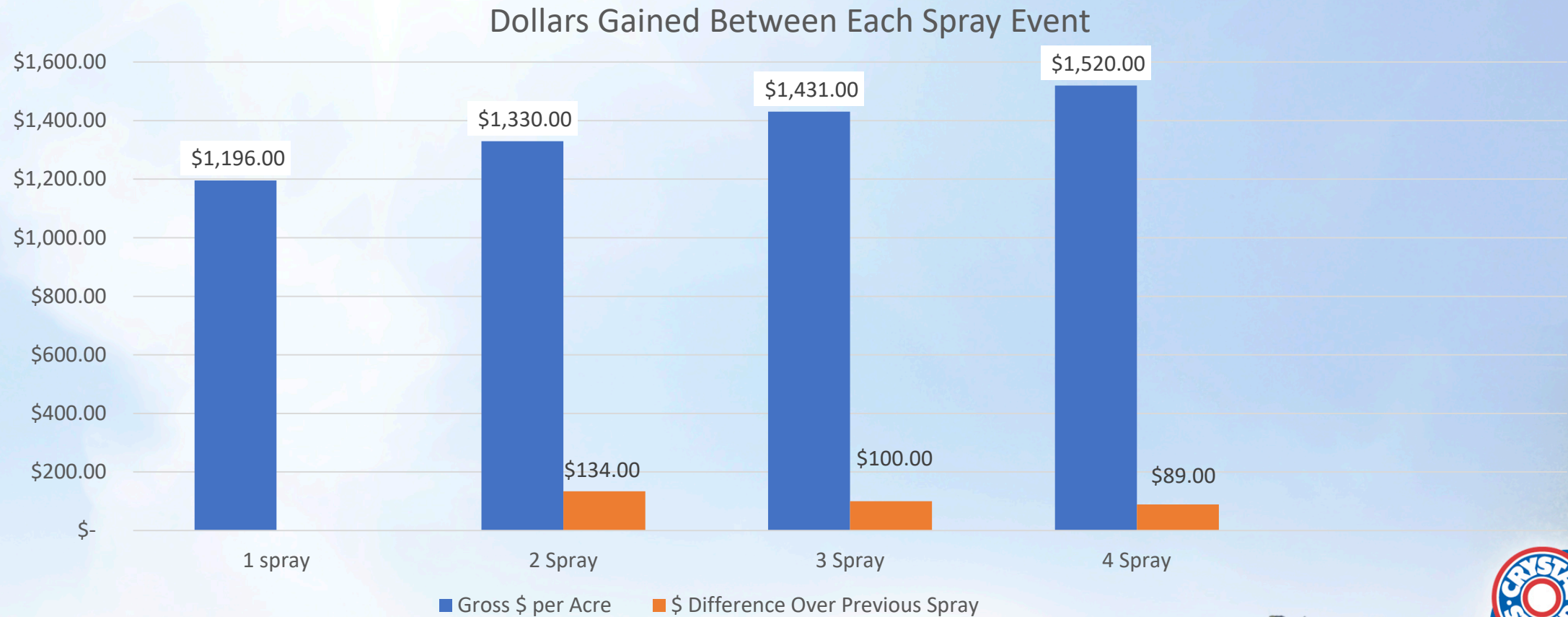


Gross & Individual Dollar Differences by Each CLS Spray Application (2015-2019) RRV

Dollars Gained Between Each Spray Event



Gross & Individual Dollar Differences by Each CLS Spray Application (2015-2019) EGF



Gross & Individual Dollar Differences by Each CLS Spray Application (2015-2019) MHD

Dollars Gained Between Each Spray Event



Gross & Individual Dollar Differences by Each CLS Spray Application (2015-2019) Hillsboro

Dollars Gained Between Each Spray Event



Gross & Individual Dollar Differences by Each CLS Spray Application (2015-2019) Crookston

Dollars Gained Between Each Spray Event



Gross & Individual Dollar Differences by Each CLS Spray Application (2015-2019) Drayton

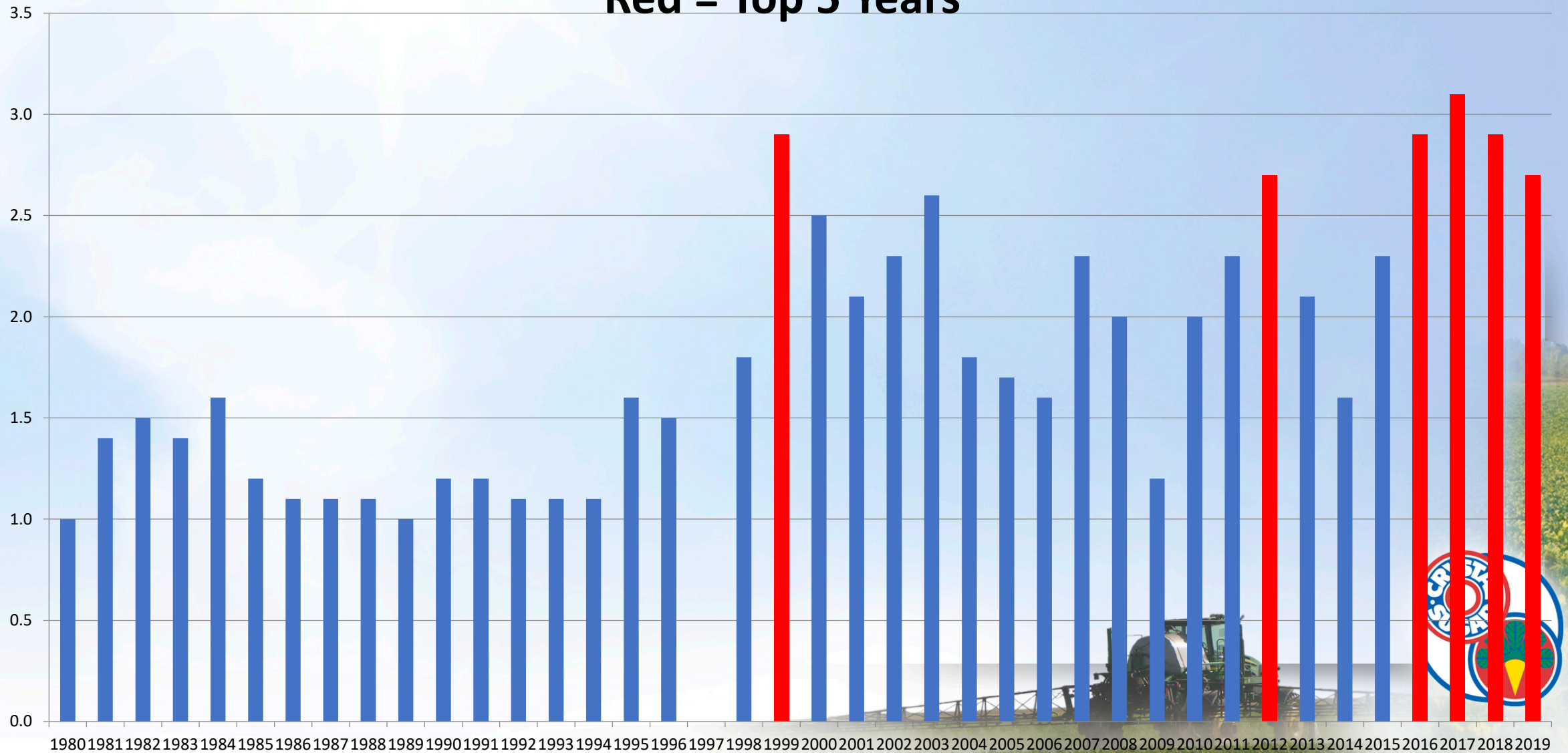
Dollars Gained Between Each Spray Event



ACSC Average Number of Fungicide Applications

2019 = 2.7 Apps

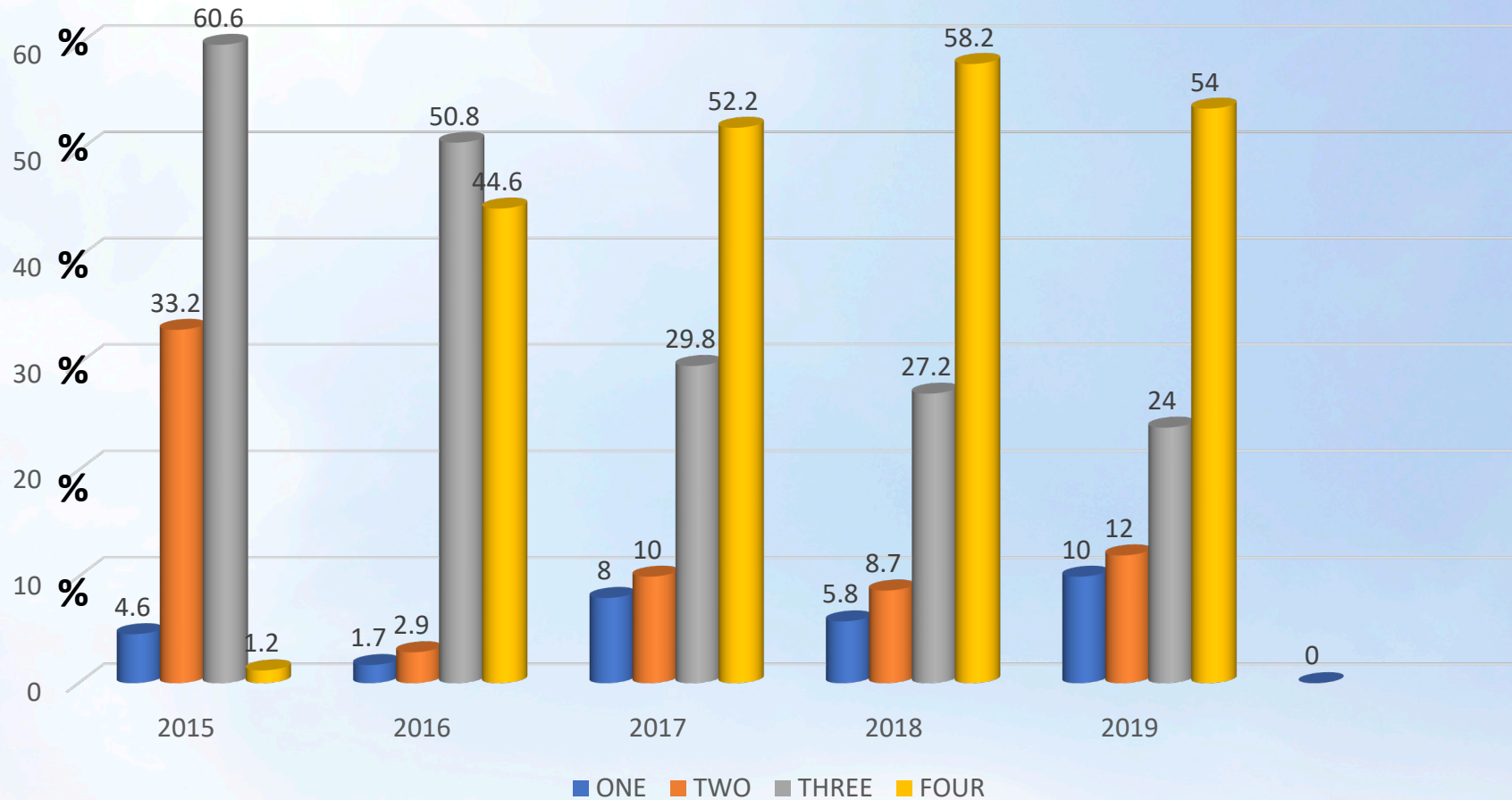
Red = Top 5 Years



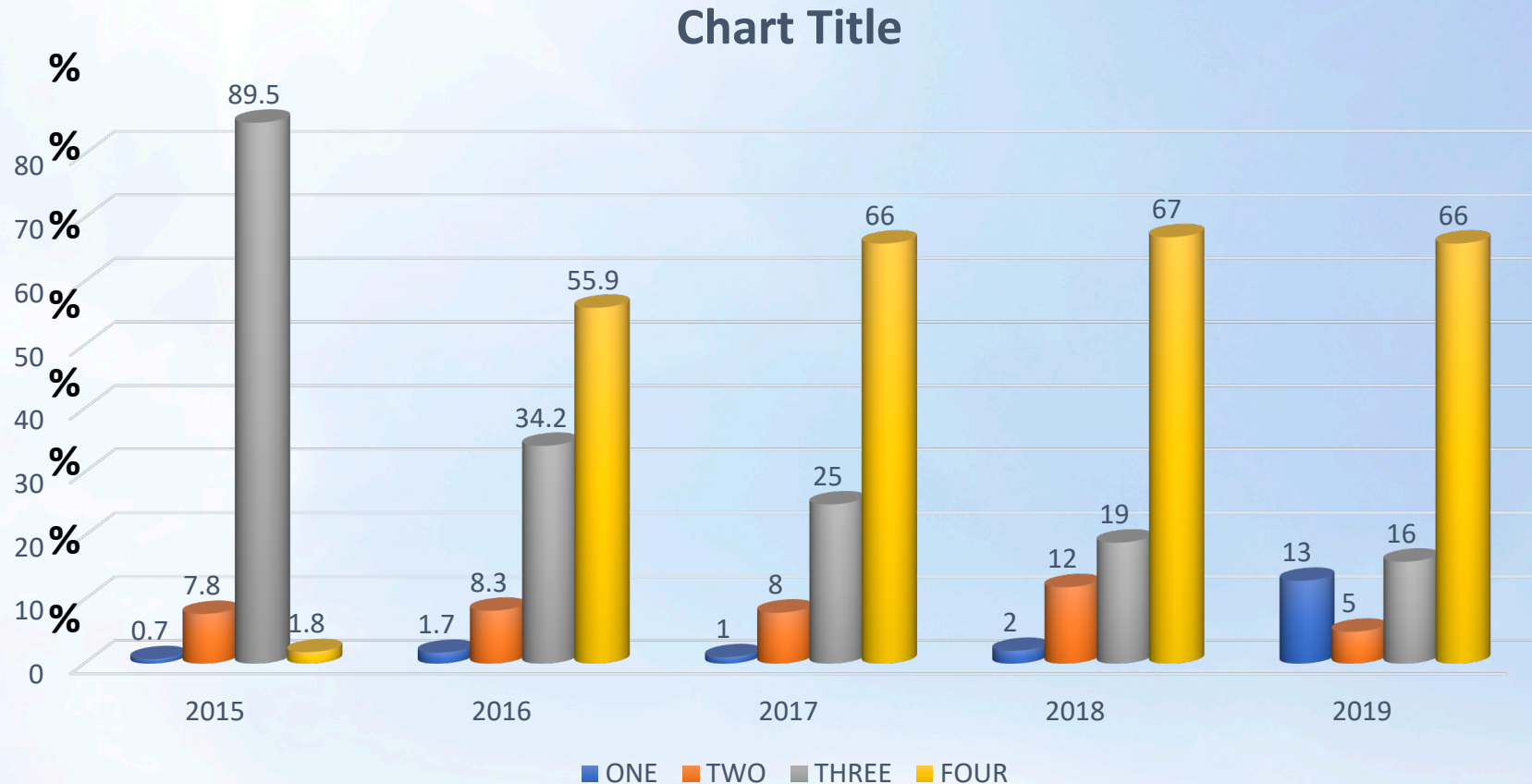
ACSC RED RIVER VALLEY NUMBER OF SPRAYS PER FIELD- % for Each Spray



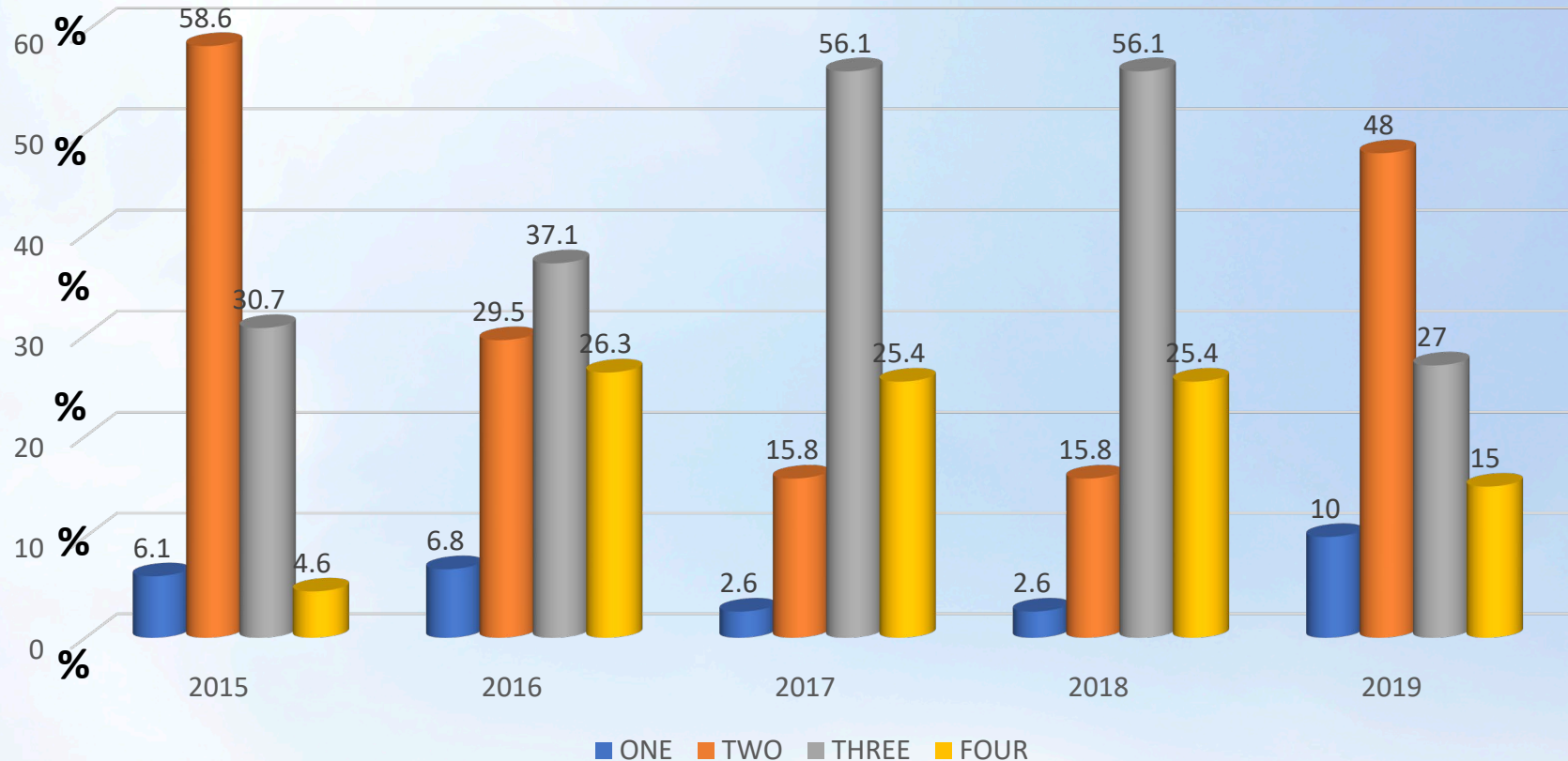
MOORHEAD DISTRICT NUMBER OF SPRAYS PER FIELD- % for Each Spray



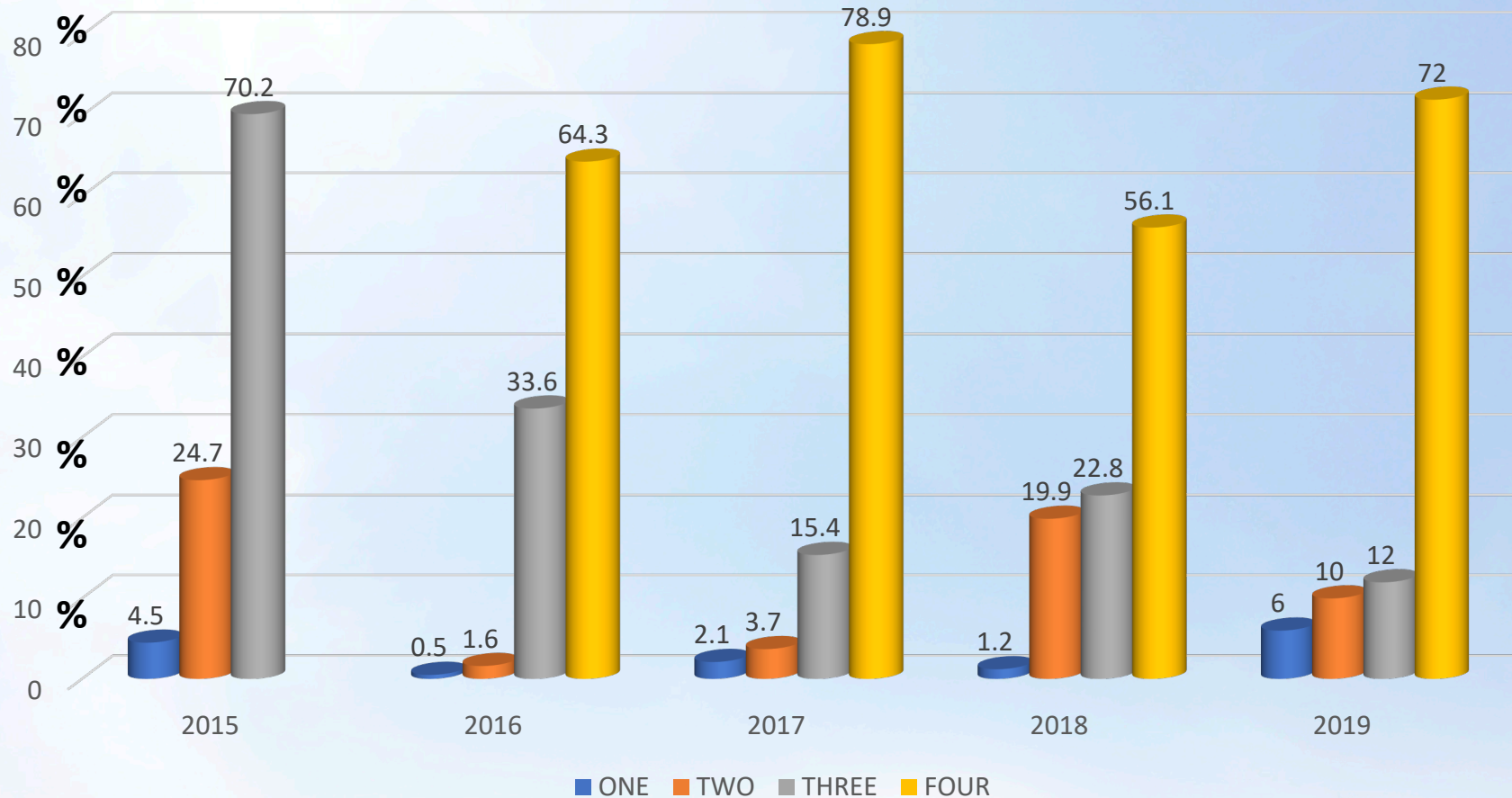
HILLSBORO DISTRICT NUMBER OF SPRAYS PER FIELD- % for Each Spray



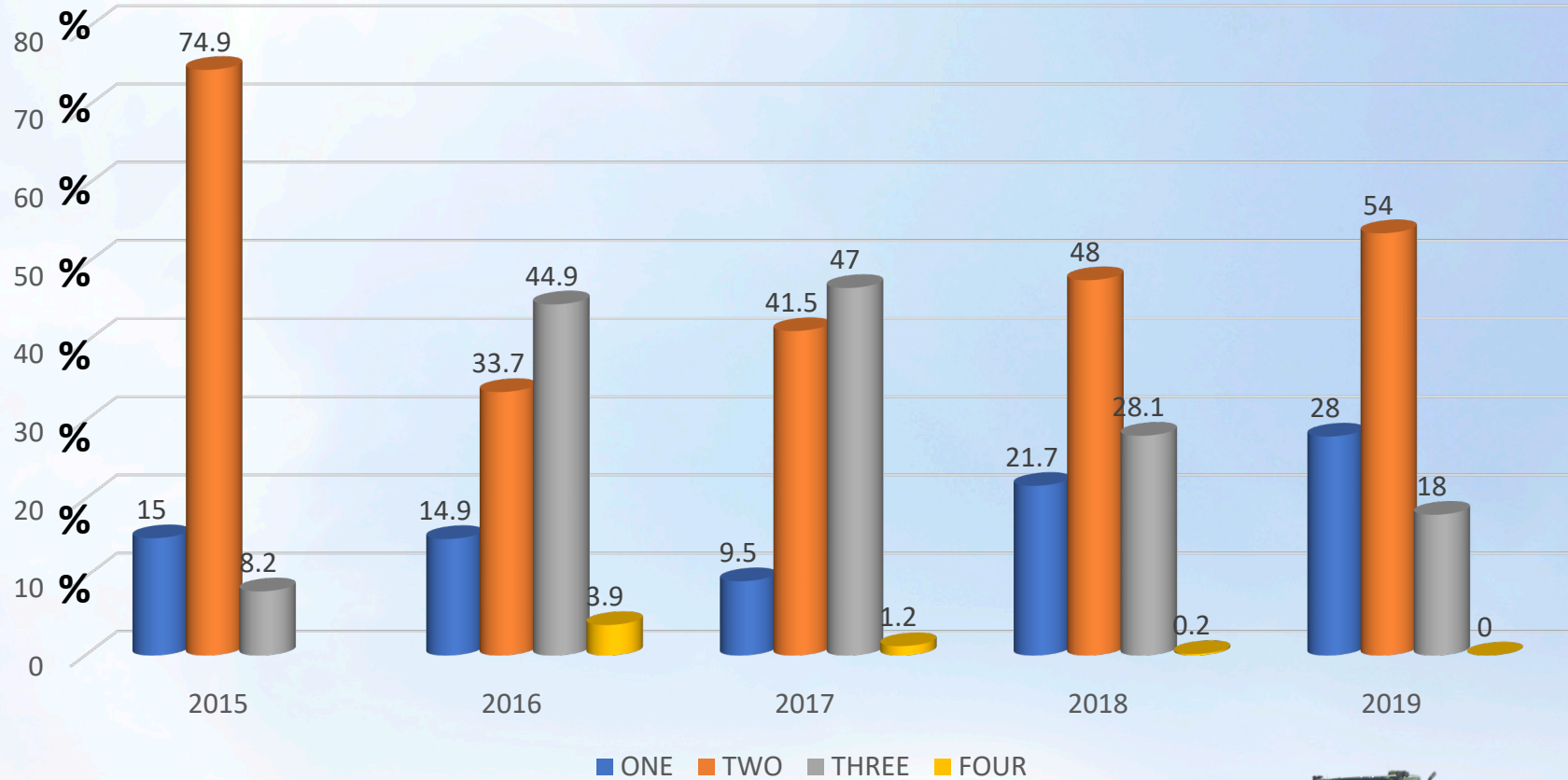
EAST GRAND FORKS DISTRICT NUMBER OF SPRAYS PER FIELD- % for Each Spray



CROOKSTON DISTRICT NUMBER OF SPRAYS PER FIELD- % for Each Spray



DRAYTON DISTRICT NUMBER OF SPRAYS PER FIELD- % for Each Spray



CLS Conditions-Know the Pest

- Warm, humid, rainy weather conducive for development of Cercospora Leafspot
- Leaf spots develop 5 to 21 days after infection, depending on: amount of inoculum, temp, & duration of wet period.
- Leaf spots typically occur first on lower, older leaves & progresses to younger leaves

Comparison of Cercospora and Bacterial Leaf Spot,
PP1244, March 2018; NDSU publication



Cercospora Daily Infection Values (DIV)

Found on:

- Crystal Agronomy App
- NDAWN
- Crystalsugar.com



Grand Forks						
Date	Daily Infection Value	Two-Day Total Infection Value	Daily Infection Risk	14-Day Accum Infection Values	21-Day Accum Infection Values	Season Total Infection Values
2018-06-29	2	2	Slight	10	10	10
2018-06-30	3	5	Moderate	13	13	13
2018-07-01	0	3	Slight	12	13	13
2018-07-02	0E	0E	Slight (E)	12E	13E	13E
2018-07-03	4	4E	Moderate (E)	16E	17E	17E
2018-07-04	3	7	Severe	19E	20E	20E
2018-07-05	0	3	Slight	19E	20E	20E
2018-07-06	0	0	Slight	19E	20E	20E
2018-07-07	2	2	Slight	21E	22E	22E
2018-07-08	3	5	Moderate	21E	24E	25E
2018-07-09	2	5	Moderate	23E	26E	27E
2018-07-10	3	5	Moderate	23E	29E	30E
2018-07-11	3	6	Moderate	25E	32E	33E
2018-07-12	0	3	Slight	25E	32E	33E
Grand Forks						
Date	Daily Infection Value	Two-Day Total Infection Value	Daily Infection Risk	14-Day Accum Infection Values	21-Day Accum Infection Values	Season Total Infection Values
2018-07-13	1	1	Slight	24E	33E	34E
2018-07-14	1	2	Slight	22E	34E	35E
2018-07-15	0	1	Slight	22E	31E	35E
2018-07-16	0	0	Slight	22	31E	35E
2018-07-17	0	0	Slight	18	28E	35E
2018-07-18	0	0	Slight	15	27E	35E
2018-07-19	3	3	Slight	18	30E	38E
2018-07-20	4	7	Severe	22	32E	42E
2018-07-21	2	6	Moderate	22	31E	44E
2018-07-22	3	5	Moderate	22	34E	47E
2018-07-23	3	6	Moderate	23	37	50E
2018-07-24	0	3	Slight	20	33	50E
2018-07-25	0	0	Slight	17	30	50E
2018-07-26	0	0	Slight	17	30	50E



Effective Spraying and Timing Considerations

- Disease control products work best in the **preventative** and **protection** mode
- Timing of 1st fungicide spray is very important!!
- Be **ahead of infection** during a period of wet conditions-
 - Watch visual symptoms and monitor DIV levels



Spray Now or Wait?

- Do we spray before a rain system coming, as long as we get rain fastness time, or is it better to wait?
 - A: Its better to have it on before the rain because rain moves spores and spores like wetness to infect tissue, protect with barrier of fungicide
- Remember: that new growth from last spray doesn't have fungicide on it
- Estimate a new ring of leaves/week during mid to late summer
- Consider morning dew levels on leaf tissue
- Poor coverage is like a broken window-doesn't keep rain out very well



ACSC Fungicide Recommendations

- Continue to Tank-mix MOA's and rotate chemistry families
- Keeps fungicides viable and preserves them
 - If a spore is resistant to one fungicide MOA the other may prevent infection
- Priaxor/Headline and Topsin still have a place in recs w/tank-mixes
 - Priaxor/Headline provides:
 - Storage benefits
 - Frost damage recovery
 - Still works in tank-mix
 - Topsin provides
 - Good tank-mix partner with Tin to decrease resistance development
 - Still works in tank-mix



Gone Forever: Single Fungicide Applications

TRIAZOLE	EBDC	TINS (TPTH)	BENZIMIDAZOLE	STROBILURIN
Minerva	Several:	Supertin	Topsin M	Headline
Proline	Dithane	Agritin	Thiophanate	Priaxor
Inspire XT	Koverall		Methyl 85	Gem
Provysol	Penncozeb			

- Good resistance management starts with rotating different modes of action
- **Never** use fungicides from same mode of action back-to-back



Resistance Management Tips

- Use multiple modes of action in each spray tank
- Use full rates of all tank mix partners, **ALL THE TIME**
- Know the PHI (pre-harvest interval)for prepile



New Fungicide 2020 Full Label- Provysol

- Group 3- DMI, a Triazole
 - Other triazoles examples: Proline, Inspire, Eminent
 - SC formulation, 21 day PHI, 4 fl. Oz/A application rate
 - Locally systemic like other DMI's, doesn't go to new growth
 - Translaminar, goes from top leaf surface into lower leaf surface
 - Binds well to leaf surface; 1 hour rainfast
 - Wanting 20 gpa water for better coverage
 - **Always** tankmix with other **Mode of Action** fungicides



ACSC Fungicide Recs

Timing of 1st Fungicide Application	Late June	Early - Mid July	Mid-Late July	Late July to Early Aug	Early-Mid August	Late August
Application #						
1	Triazole + EBDC	Triazole + EBDC	Triazole + EBDC	TPTH + Benzimidazole	Triazole + EBDC	Headline/Priaxor + TPTH
2	EBDC	TPTH + Benzimidazole	TPTH + Benzimidazole	Triazole + EBDC	Headline/Priaxor+ TPTH	
3	TPTH + Benzimidazole	Triazole + EBDC	Triazole + EBDC	Headline/Priaxor + TPTH		
4	Triazole + EBDC	EBDC	Headline/Priaxor + TPTH			
5	EBDC	Headline/Priaxor + TPTH				
6	Headline/Priaxor + TPTH					

- Triazoles: Do not use both Provysol & Inspire in the same growing season.
- 83% probability a cercospora spore resistant to Provysol is also resistant to Inspire.



2019 Top 4 Fungicide Applications

* Top 4 Exactly Follow ACSC Recs *

Fungicide Product & Combination	Treated Acres
Tin + Topsin	168,481
Priaxor/Headline + Tin	132,512
Inspire + EBDC	124,472
Proline + EBDC	98,321



In Summary

- CLS program starts with seed selection and ends a few weeks before harvest
- Implement a well-timed, **Preventative and Protection** attack plan
- Spray recommendations are ready to implement and execute
- Thank you for your attention today!





Disease Management Strategies

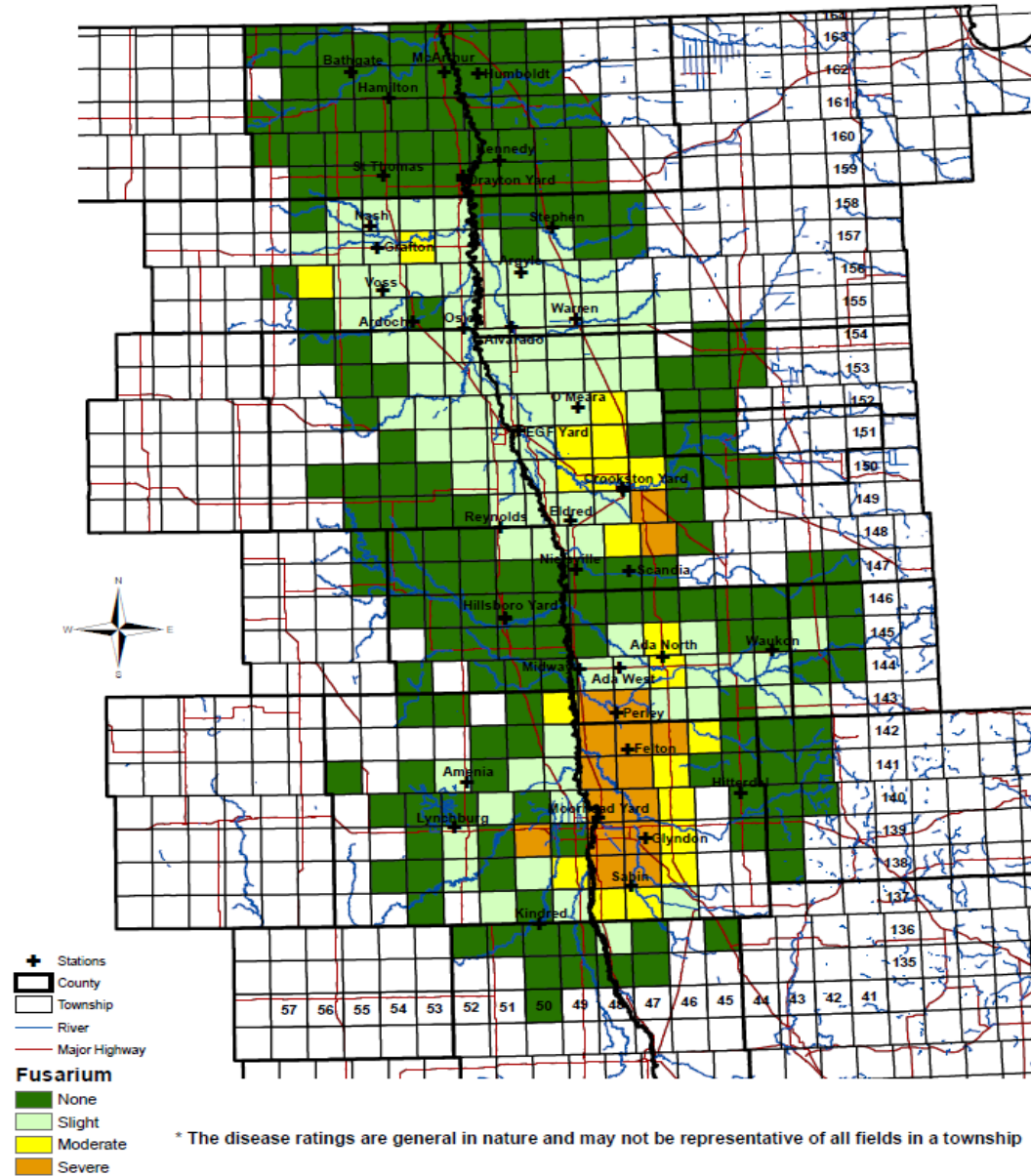






Fusarium Control Strategies in 2020 Crop

2018 Disease Rating* Fusarium



- 
- Continues to be RRV Production Issue
 - Likes wet, poorly structured soils
 - Optimum soil temp above 75 degrees F
 - First appears as interveinal yellowing on older leaves.



- 2 yr. Fusarium rating of 3.0 or less.
- Managed best with Fusarium tolerant varieties
 - BTS 8500
 - Crystal 574RR
 - Crystal 684RR
 - Crystal 804RR
 - Crystal 808RR
 - Crystal 796RR
 - Crystal 247RR
 - Crystal 578RR
 - BTS 8767





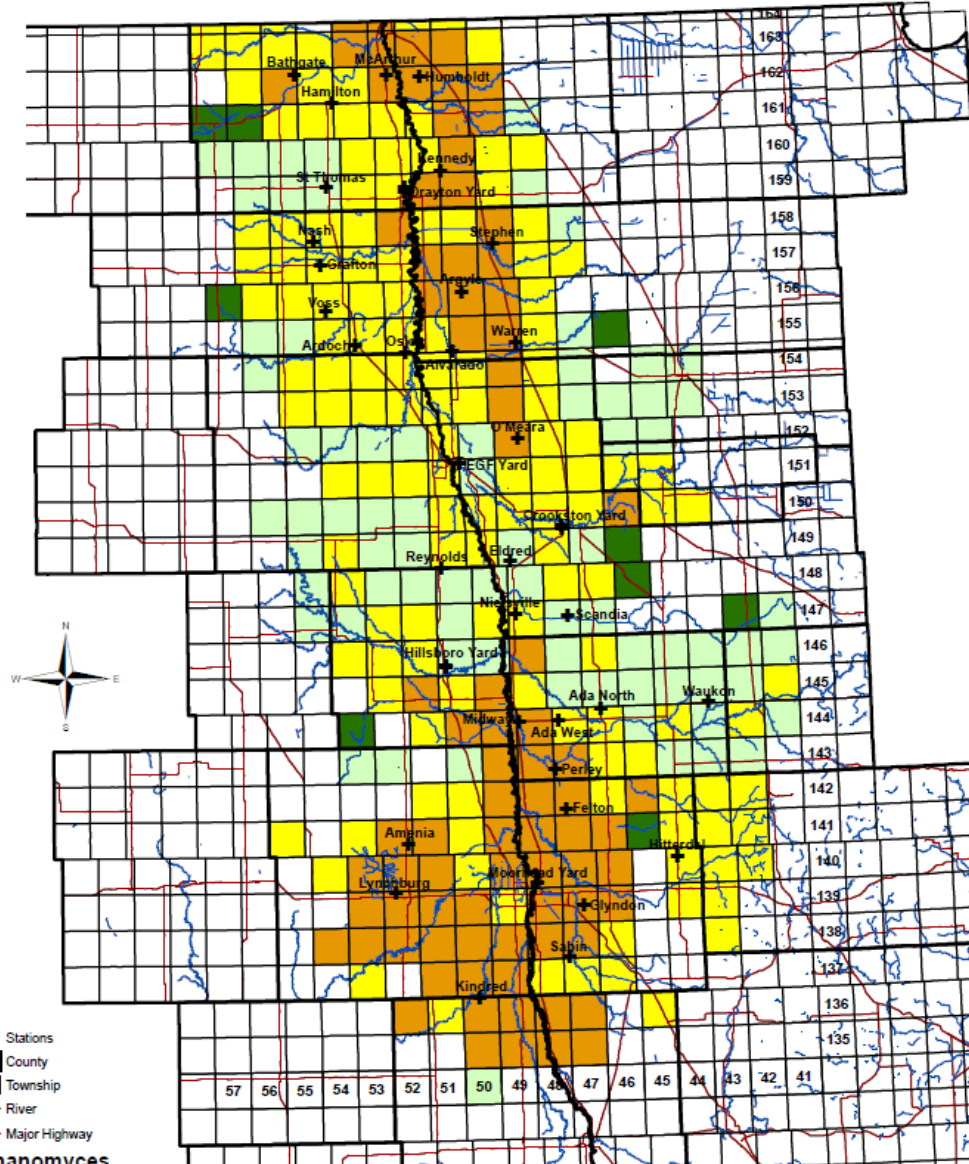
- Can be confused with Verticillium Wilt
 - Samples can be taken to NWROC Lab in Crookston for Identification
- Use good drainage practices
- Plant early
- Control alternate weed hosts



Aphanomyces



2018 Disease Rating* Aphanomyces



- ✚ Stations
 - ▭ County
 - ▭ Township
 - River
 - Major Highway
- Aphanomyces**
- None
 - Slight
 - Moderate
 - Severe

* The disease ratings are general in nature and may not be representative of all fields in a township





- Plant early
- Use 45 gram Tachigaren rate
- Plant Aphanomyces varieties with rating of 4.4 or less
- Provide excellent field drainage
- Apply VersaLime



- Apply 10 tons/acre
- Apply 1 year prior to sugarbeets for best results
- Spread as evenly as possible
- Incorporate thoroughly with tillage
- Consider an additional 5 tons per acre application on previously Versalime applied acreage
- Contact Ag Staff for assistance with procedure



VersaLime



Average Versalime Nutrients (lb/ton) Valley

- Nitrogen
 - 4.9 Lbs/ton Average
 - Phosphorus
 - 13.2 Lbs/ton Average
 - Potash
 - 1.7 Lbs/ton Average
 - Sulfur
 - 6.2 Lbs/ton Average
- Applying Versalime at a 10 Ton/Acre Rate would provide 49#N, 132#P, 17#K, 62#S
 - Benefits include decreased Aphanomyces and improved soil tilth
 - Apply 1 year before beets for best results



Split field comparison

10 tons Lime vs. No Lime





CRYSTAL CAREERS

COOPERATIVE PROFILE

SUGARBEET AGRONOMY

SUGAR & AGRI-PRODUCTS

SUGAR PROCESSING

MEMBERS ONLY

SUGAR PRODUCTS

Industrial Sugar
Retail Sugar

AGRI-PRODUCTS

Overview
Versalime
Pulp & Tailings Byproducts
Agri-Product SDS

SERVICES

Product Quality

SUGAR FACTS

Sugar FAQs
Healthy Truth



potential, for generations.

READ MORE

Latest News & Updates

2019 Blue Book Information - now available - members only

Variety & Freight Comparison Calculator - Updated Members Only

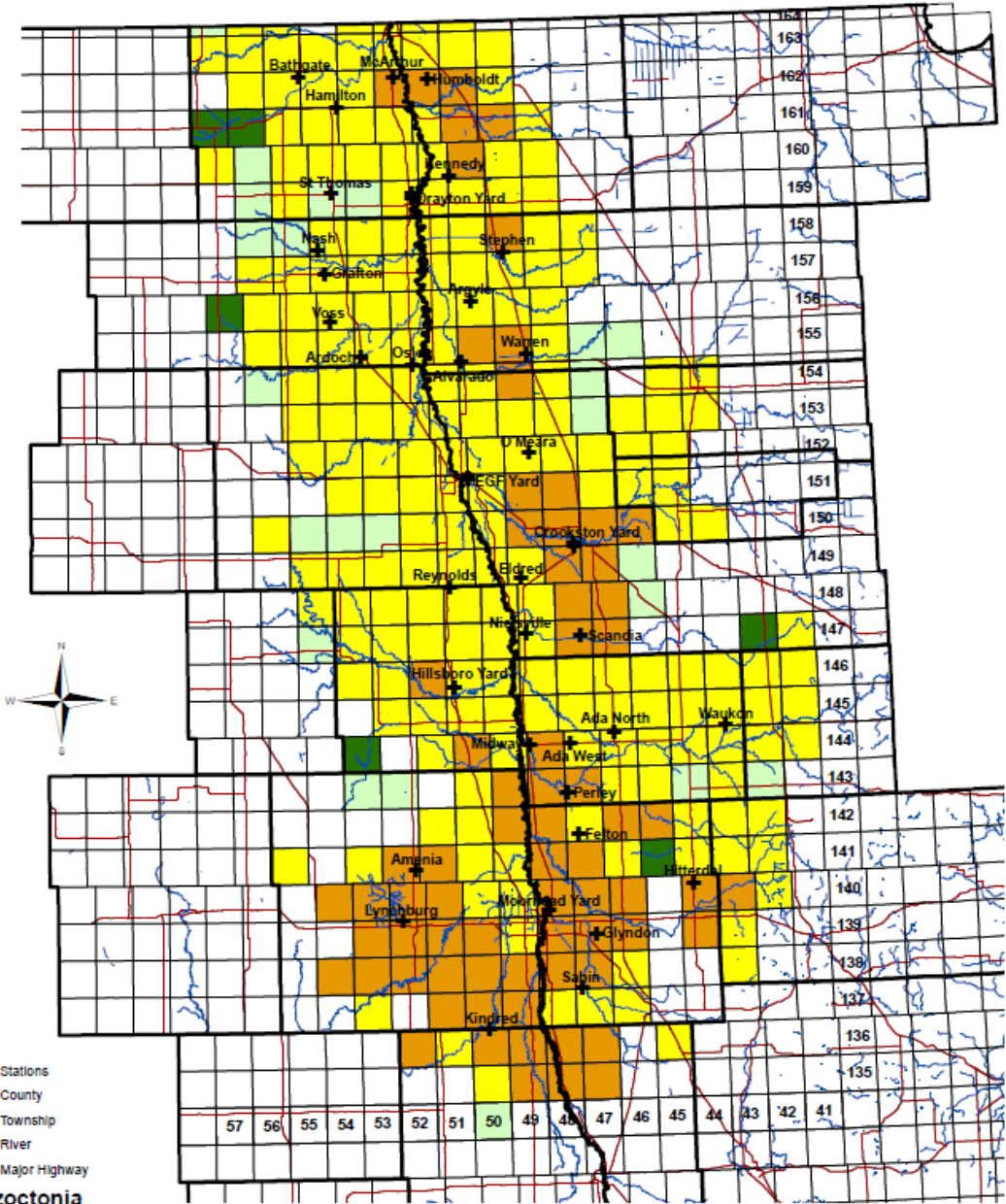
Circles of Strength 2019 Annual Meeting Video



Rhizoctonia

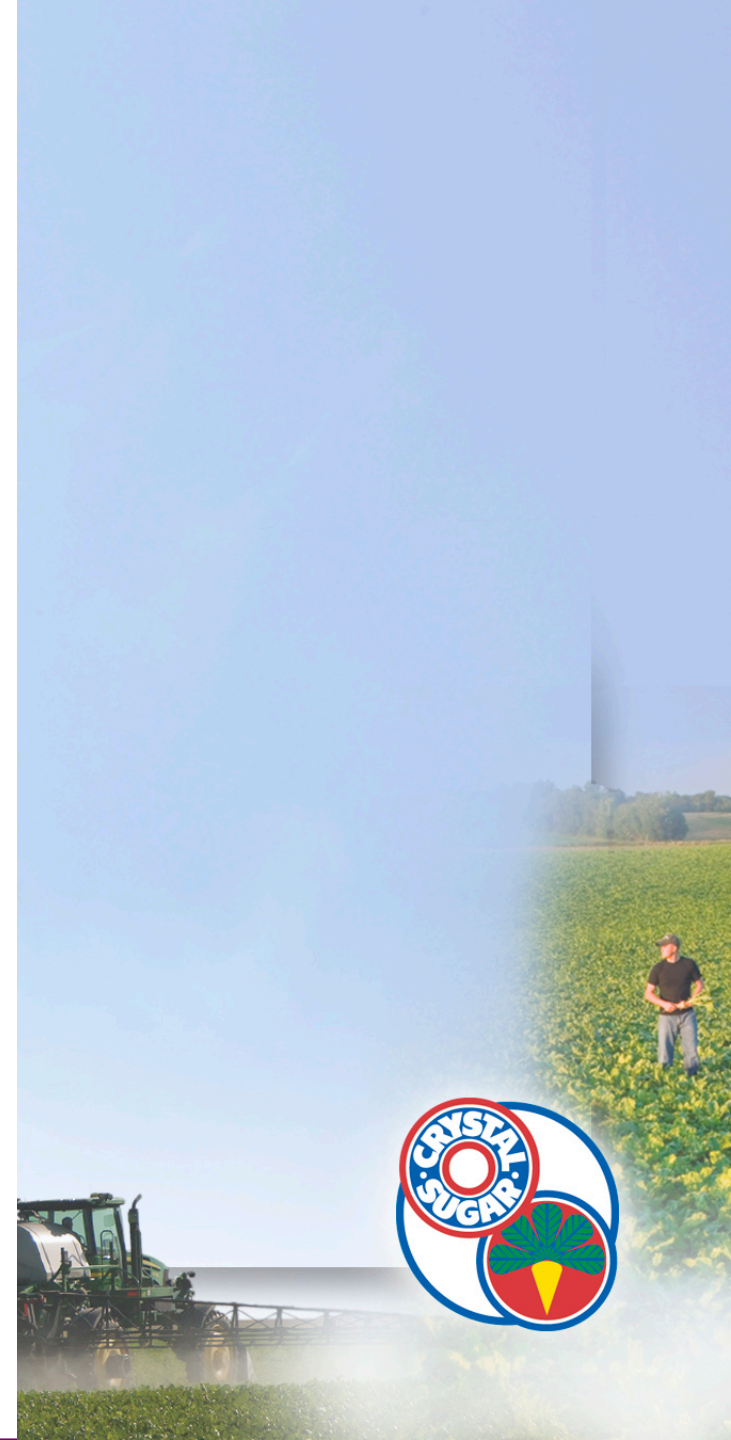


2018 Disease Rating* Rhizoctonia



- + Stations
 - County
 - Township
 - River
 - Major Highway
- Rhizoctonia**
- None
 - Slight
 - Moderate

* The disease ratings are general in nature and may not be representative of all fields in a township



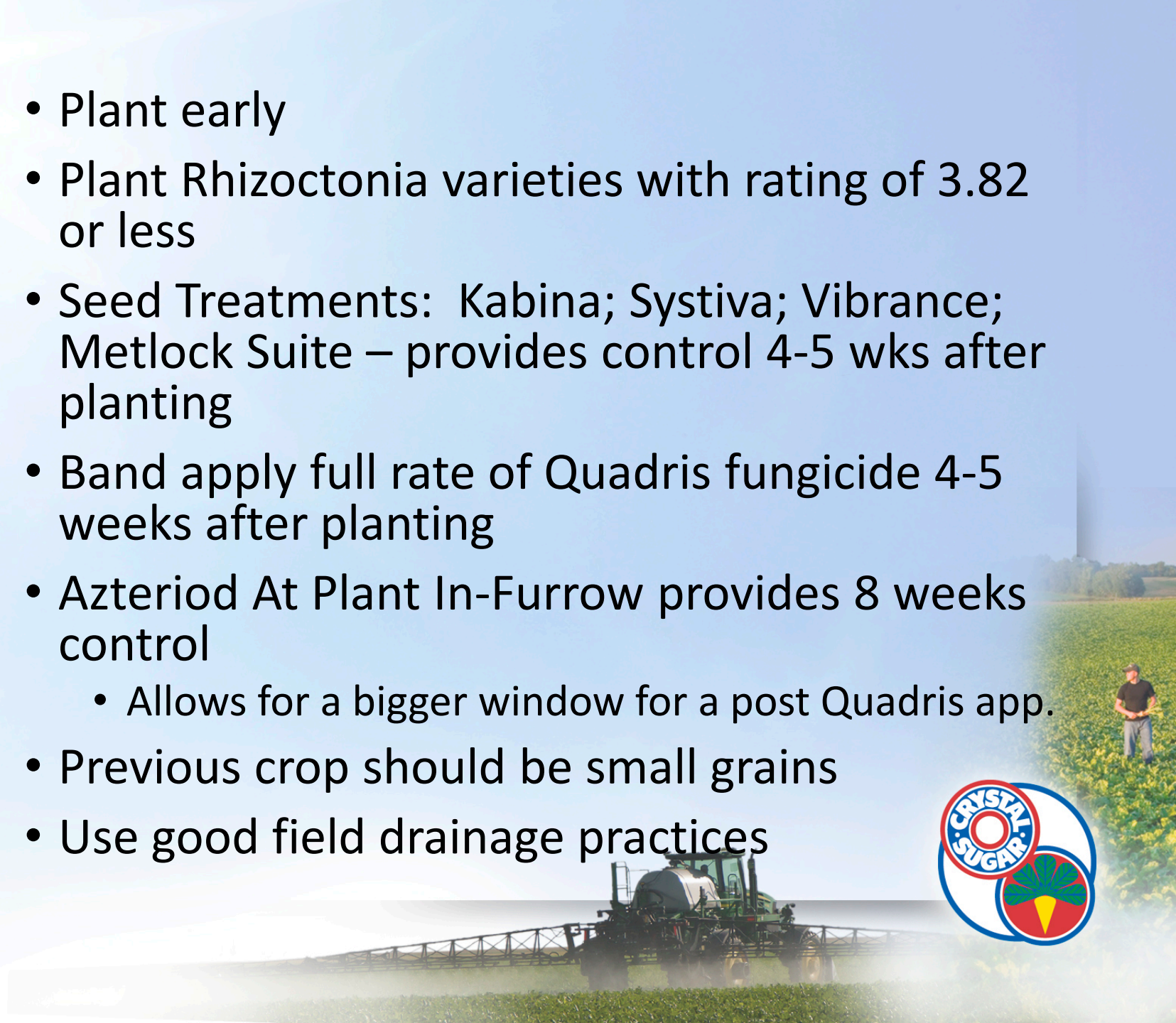


Degree of control options used depends on: Field History, Rhizoctonia Varietal Tolerance; preceding crop.





- Plant early
- Plant Rhizoctonia varieties with rating of 3.82 or less
- Seed Treatments: Kabina; Systiva; Vibrance; Metlock Suite – provides control 4-5 wks after planting
- Band apply full rate of Quadris fungicide 4-5 weeks after planting
- Azteriod At Plant In-Furrow provides 8 weeks control
 - Allows for a bigger window for a post Quadris app.
- Previous crop should be small grains
- Use good field drainage practices



Field Abandonment

Root Aphid/ Active Root Rot



Field Abandonment Procedures

- Field abandonment assessments will only be done by ACSC Ag staff when requested by shareholder
- A minimum of four sample areas and one additional area for each additional 40 acres.
- Mark off 50 feet of row (5 rows by 10ft) to be sampled.
- Determine % root aphid/active rot damage for each sample area and then average all sample areas to determine if % is above or below 50 %.

