

Cercospora

Your Way To Grow
Crookston Factory District
Feb 24, 2022



Cercospora – Morning Line Odds



How are you going to place your bet?



Topics covered

- Application tips
- ACSC application and RSA data
- ACSC 2022 recommendations –(NON CR+)
- CR+ data and 2022 ACSC recommendations



Fungicide Application Tips

CLS variety rating – CLS control should improve with a better CLS variety rating. However, this may not equate to fewer fungicide applications.

Water volume – CLS fungicides need excellent coverage to protect the sugarbeet leaf surface. To achieve this requires **15 to 20 gallons** of water per acre. Using nozzles that will produce Medium droplet sizes of 250–350µm (microns) is optimum for fungicide applications. Utilize nozzle manufacturer's recommended application pressure for maximum leaf coverage.

Spray intervals – Start early and stay on track once CLS is found in your area. The time interval between applications should not exceed 12 days, plan best as possible around adverse weather conditions (rain, wind, hail). For EBDC's alone follow a 7-8-day spray interval.

Glyphosate tank mixes – Are not recommended with CLS fungicide applications since optimum water volume requirements are different for glyphosate and CLS fungicide applications as the target pests are not the same.



What effect does variety have?



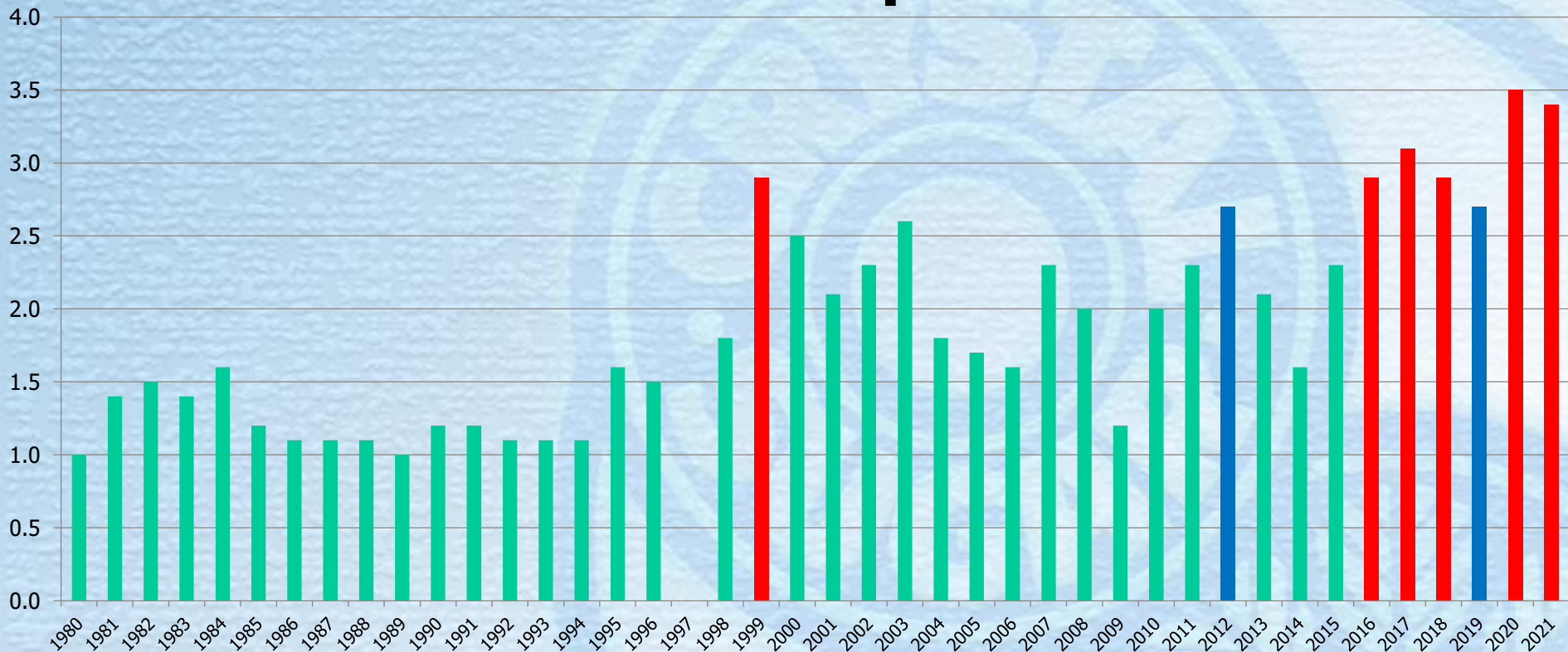
Differences in varietal resistance response to CLS. Greener variety is a 4.1 and brown area is a 4.6. Photo taken on Sept.2, 2020.



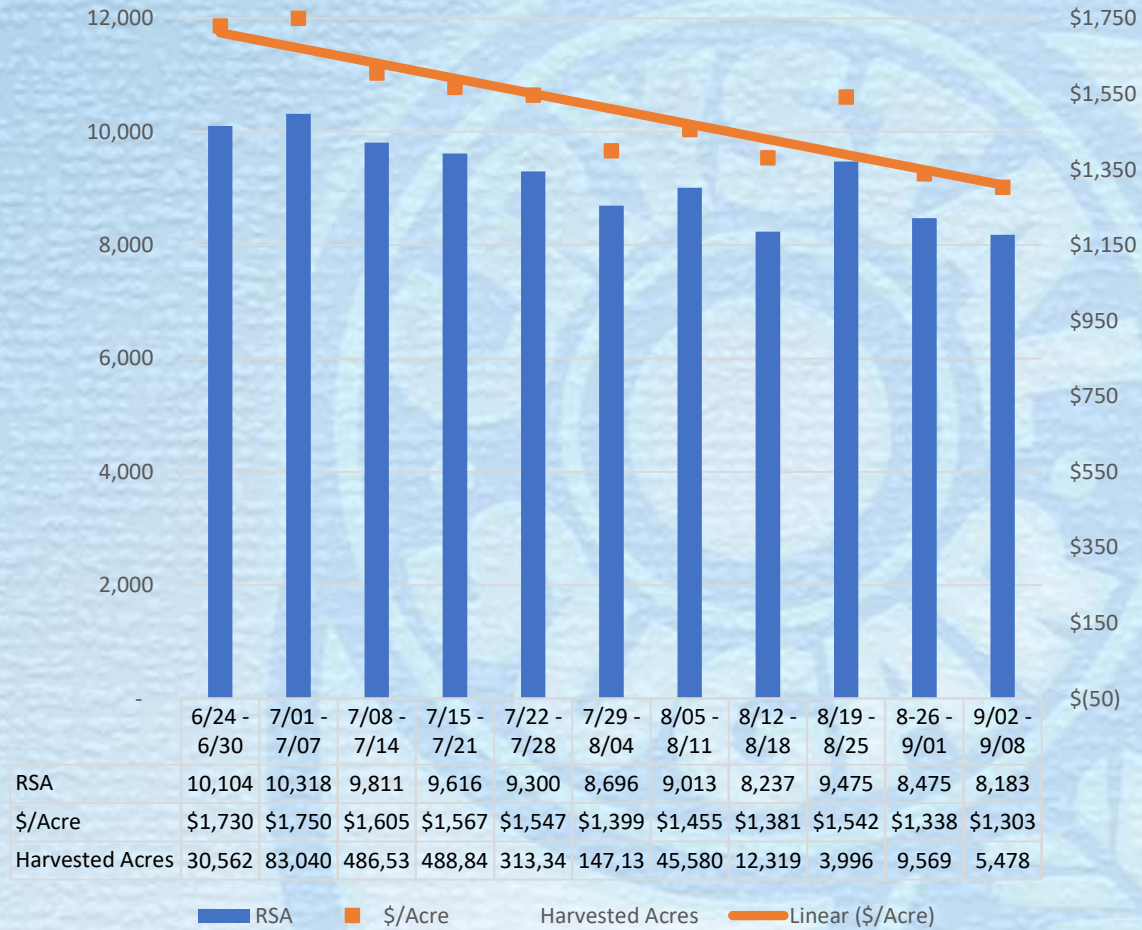
ACSC Average Number of Fungicide Applications

2021 = 3.4 Apps

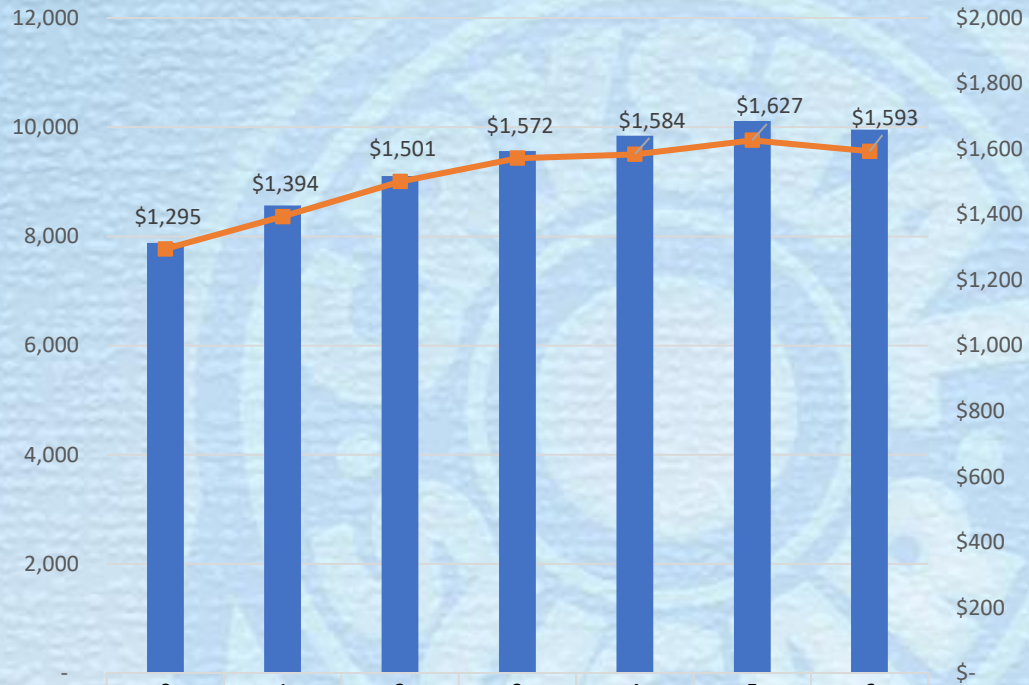
Red = Top Years



RRV 5 Yr Avg Initial Fungicide App Timing (2017 - 2021) RSA & Rev/Acre



RRV 5 Yr Avg # of Fungicide Apps (2017 - 2021) RSA & Rev/Acre

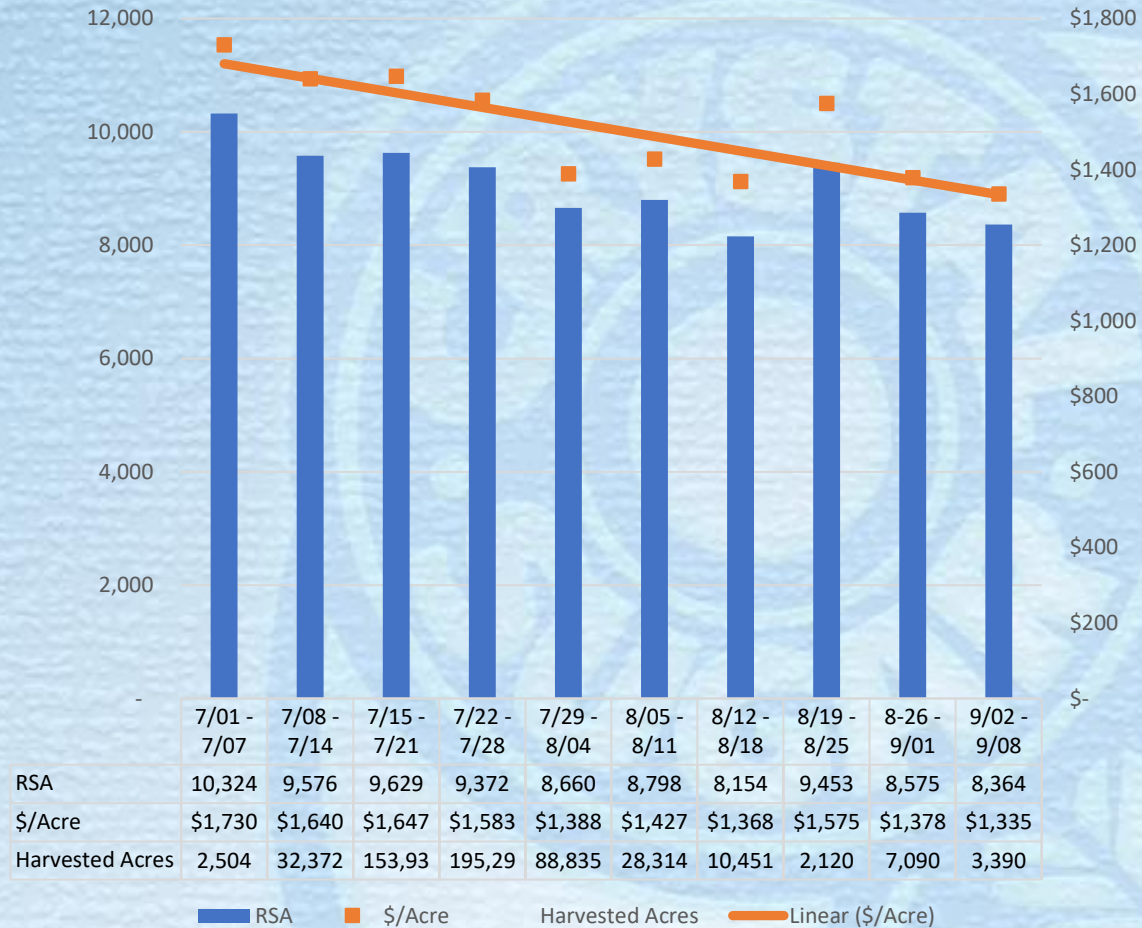


	0	1	2	3	4	5	6
RSA	7,878	8,568	9,108	9,563	9,845	10,114	9,953
Harvested Acres	9,891	114,064	348,919	531,164	536,088	152,795	16,021
\$/Acre	\$1,295	\$1,394	\$1,501	\$1,572	\$1,584	\$1,627	\$1,593

■ RSA
 —■— \$/Acre
 Harvested Acres



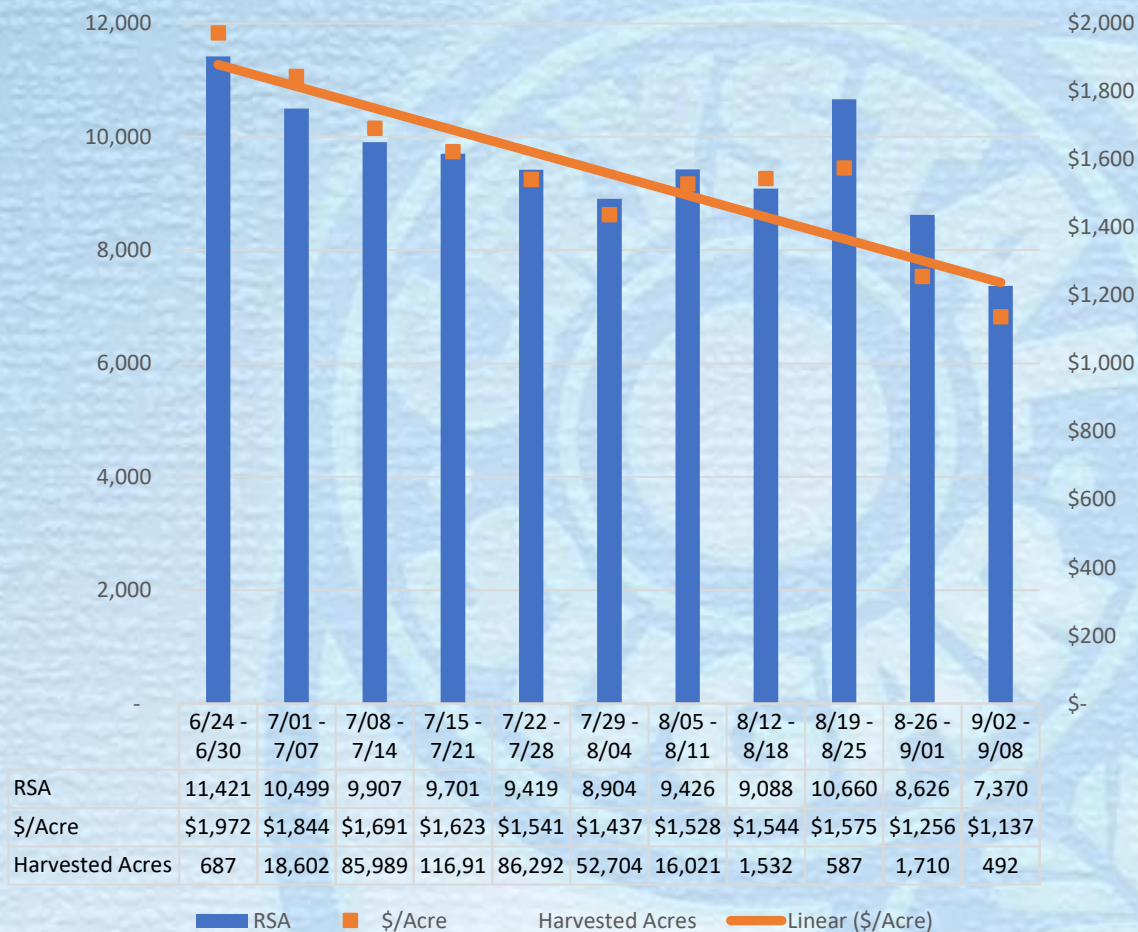
DTN 5 Yr Avg Initial Fungicide App Timing (2017 - 2021) RSA & Rev/Acre



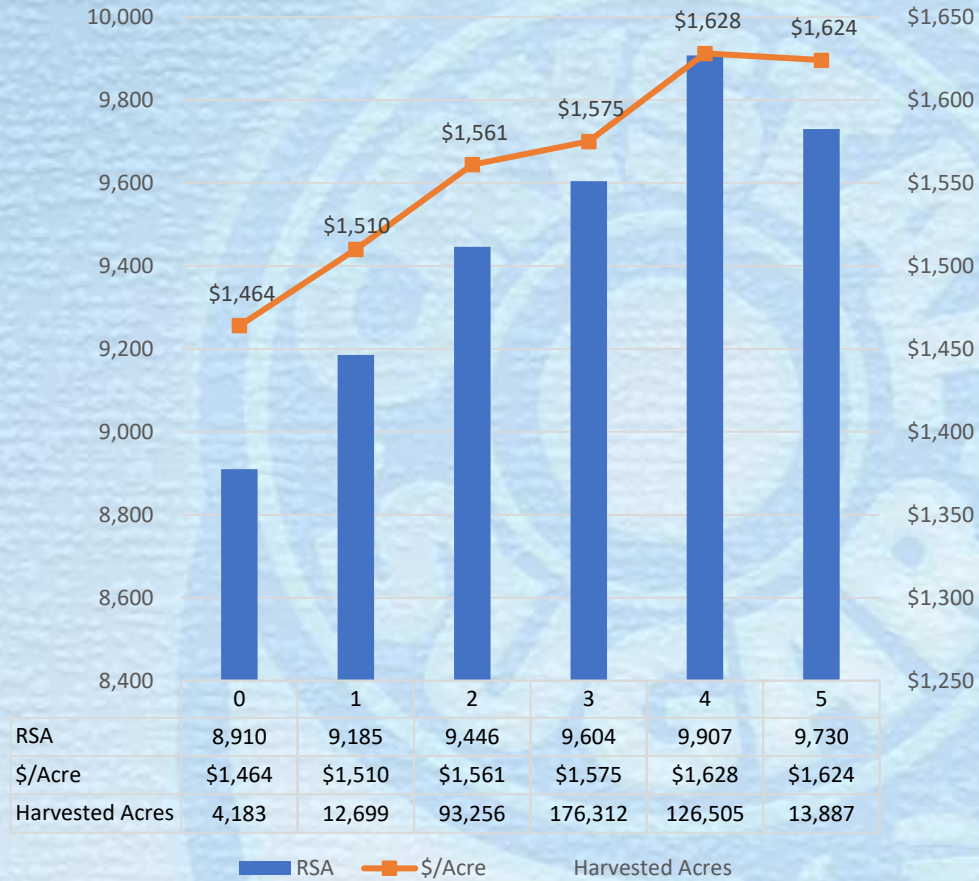
DTN 5 Yr Avg # of Fungicide Apps (2017 - 2021) RSA & Rev/Acre



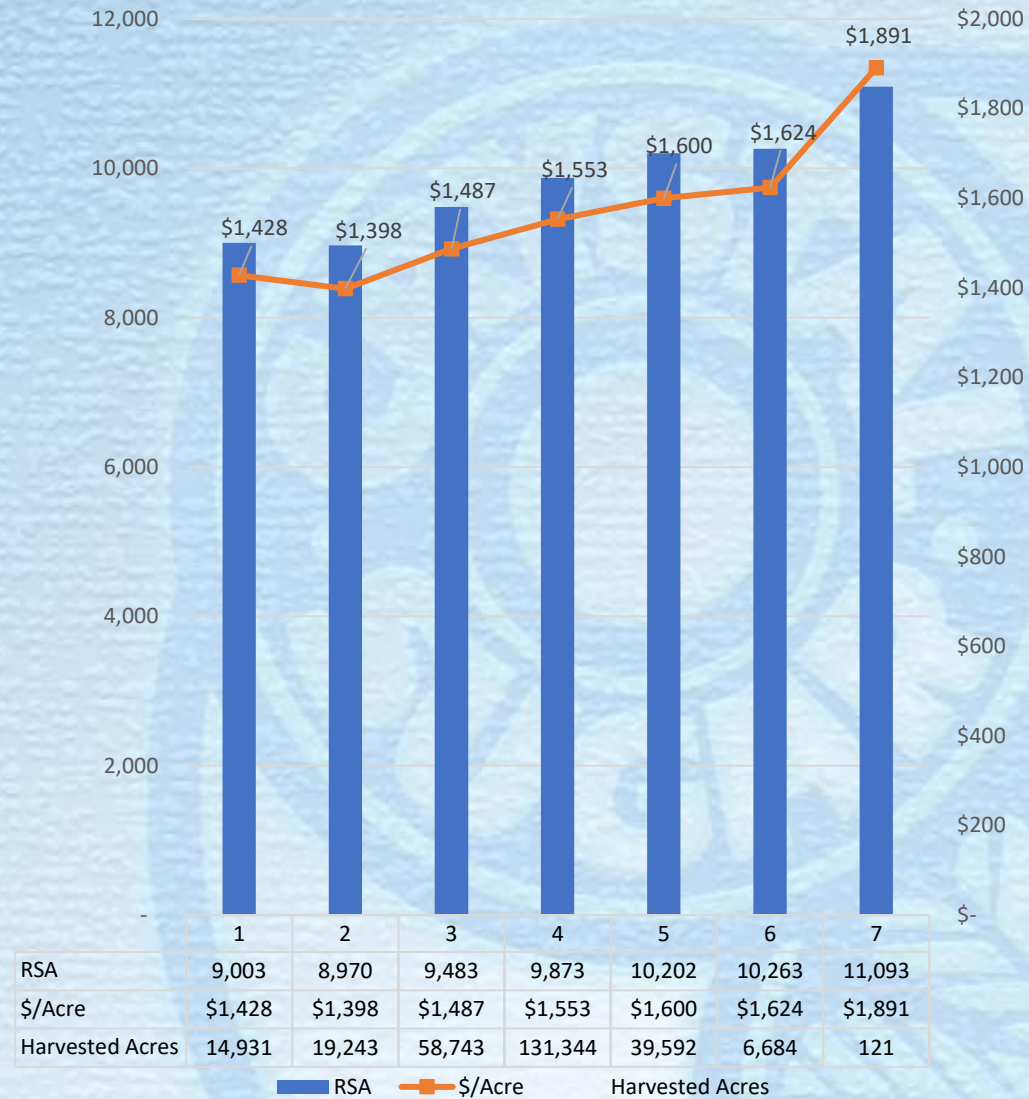
EGF 5 Yr Avg Initial Fungicide App Timing (2017 - 2021) RSA & Rev/Acre



EGF 5 Yr Avg # of Fungicide Apps (2017 - 2021) RSA & Rev/Acre



MHD 5 Yr Avg # of Fungicide Apps (2017 - 2021) RSA & Rev/Acre



Dr. Khan – CLS Fungicide – Tank-mix & Rotate

Fungicide Mixtures in Alternation For Control of *Cercospora beticola* in 2021 (dry year)

<u>Treatments @ 14 d</u>	<u>CLS (1-10)</u>	<u>RSH</u>	<u>Net \$/H</u>
Nontreated Check	10	8,759	1,168
Inspire XT + Manzate/ Manzate/ TPTH + Topsin/ Proline + Manzate/ Manzate / TPTH + Priaxor (6 Apps)	3.8	13,863	2,459
Inspire XT + Badge SC/ TPTH + Topsin/ Proline + Manzate/ TPTH + Priaxor/ TPTH + Manzate (5 Apps)	4.3	13,460	2,337
Manzate/ Man + TPTH/ Man + Proline/ Man + TPTH / Man + Inspire XT/ Man + TPTH / Man + Minerva (7 Apps)	3.8	13,396	2,302
LSD $P=0.05$	0.8	1,301	

Returns of \$2,126 to \$2,301 after deducting cost of fungicides and applications.



2022 ACSC Recommended

(Non CR+ Varieties)

Cercospora Fungicide Program

Application # Sequence based on Initial Fungicide Application Timing & 12-Day Intervals	Late June Initial Application	Early - Mid July Initial Application	Mid - Late July Initial Application	Late July Initial Application	
				Option 1	Option 2
1	Triazole + EBDC	Triazole + EBDC	Triazole + EBDC	Triazole + EBDC	TPTH + Benzimidazole
2	EBDC	TPTH + Benzimidazole	TPTH + Benzimidazole	TPTH + Benzimidazole	Triazole + EBDC
3	TPTH + Benzimidazole	Triazole + EBDC	Triazole + EBDC	Triazole + Headline/Priaxor	Headline/Priaxor + TPTH
4	Triazole + EBDC	EBDC	Headline/Priaxor + TPTH		
5	EBDC	Headline/Priaxor + TPTH			
6	Headline/Priaxor + TPTH				

- Late July Rec – not best for optimizing RSA & Rev/acre
- Last application designed for last week of Aug. – 1st week of Sept.
 - Benefits of CLS control include better frost tolerance/recovery, and plant health for storage
 - Fungicide application may still be needed in September
 - Discuss with Agriculturist fungicide options for Prepile & Stockpile w/PHI's



CR+ Varieties

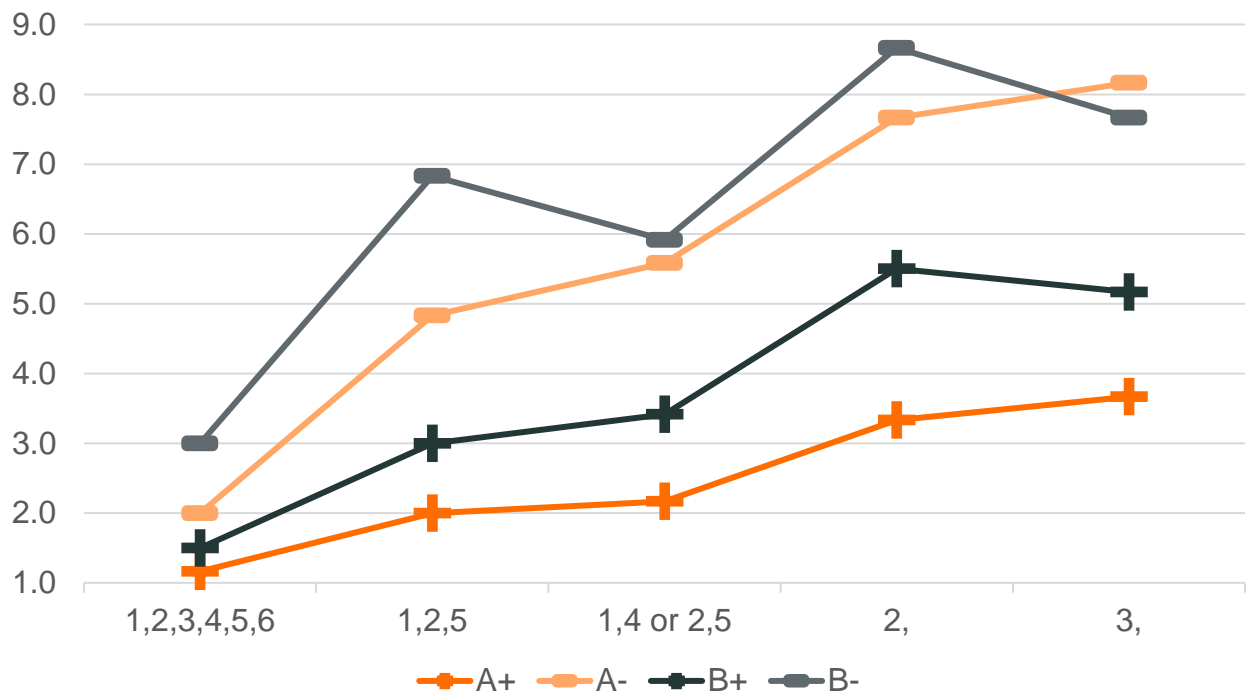
- New Cercospora trait. (Tolerance not immunity)
- CR+ Cercospora ratings around 2.4-2.6 compared to the current best at 3.9 (NON CR+) and approximately 4.6 average for all currently approved varieties for 2022.
- Tank-mixing and rotating fungicide MOA's will still be important to maintain the use of this trait.
- CR+ Varieties are available for the ACSC growing area in 2022.



CR+/- Genotypes X Spray management ROS site – CLS Data (Extreme CLS pressure)



Rating CR7 Across sprays and genotypes
Final Rating prior to regrowth

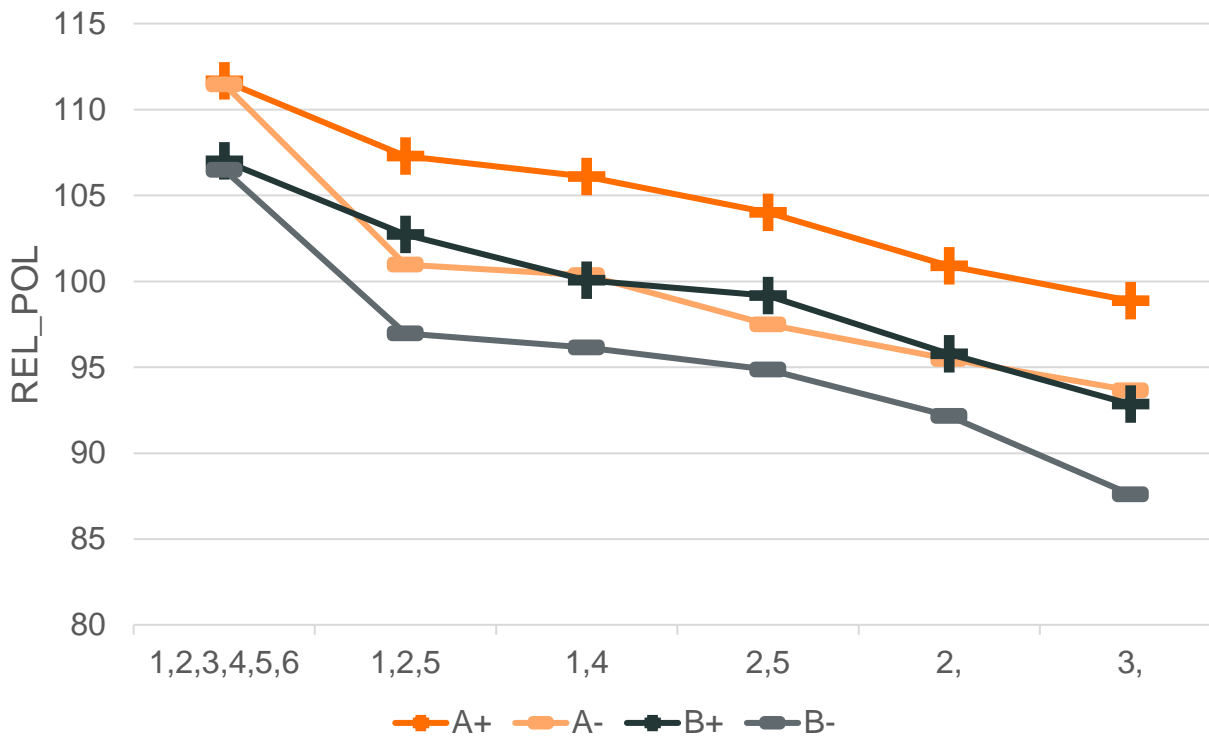


Spray #	Spray Treatment
Spray 1	Super Tin, Manzate
Spray 2	Eminent, Dithane,
Spray 3	Super Tin, Badge SC
Spray 4	Manzate, Inspire
Spray 5	Super Tin, Dithane
Spray 6	Badge SC, Proline

CR+/- Genotypes X Spray management ROS site – Sugar Content (Extreme CLS pressure)



Sugar Content Across sprays and genotypes

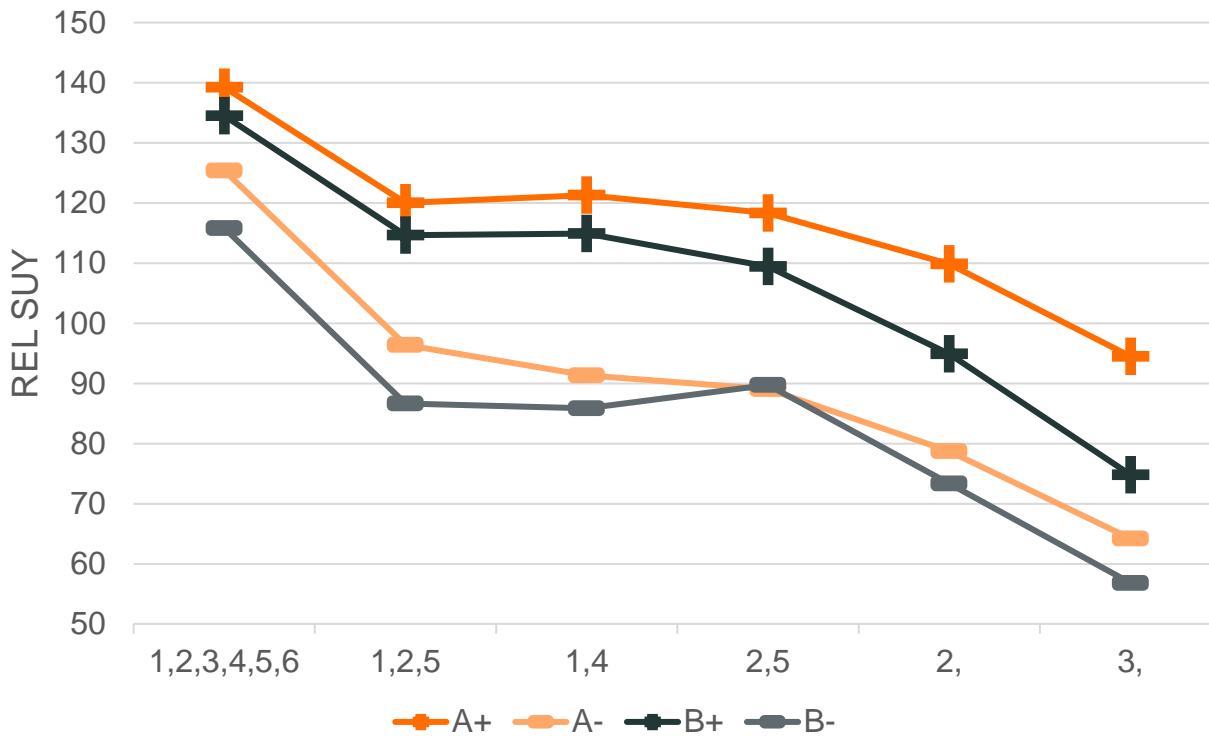


Spray #	Spray Treatment
Spray 1	Super Tin, Manzate
Spray 2	Eminent, Dithane,
Spray 3	Super Tin, Badge SC
Spray 4	Manzate, Inspire
Spray 5	Super Tin, Dithane
Spray 6	Badge SC, Proline

CR+/- Genotypes X Spray management ROS site – Sugar Yield (Extreme CLS pressure)



Sugar Yield Across sprays and genotypes



Spray #	Spray Treatment
Spray 1	Super Tin, Manzate
Spray 2	Eminent, Dithane,
Spray 3	Super Tin, Badge SC
Spray 4	Manzate, Inspire
Spray 5	Super Tin, Dithane
Spray 6	Badge SC, Proline

MDFC Trials - 2020



Trial Info. – BTS CR+



RESEARCH BREEDS CONFIDENCE



- Three fungicide programs were tested:
 - Early
 - Start on time but only 3 applications were made (last spray July 31)
 - Late
 - Start at the end of July and only spray 3 applications
 - Season-long
 - Follow the MDFC program – start on time and spray all season
- Two varieties were tested:
 - CR+ ~ CLS rating 1.90
 - Commercial ~ CLS rating 3.91

Used with permission



RESEARCH BREEDS CONFIDENCE

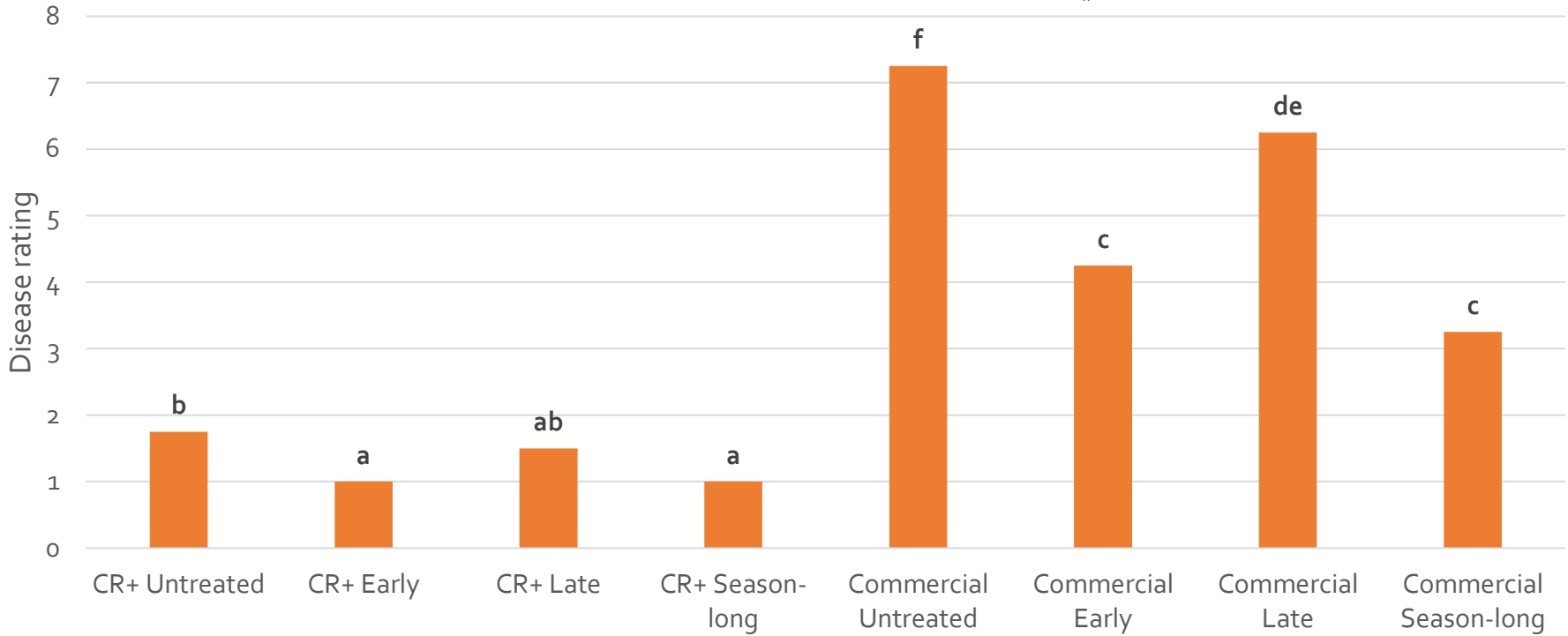
BTS CR+



LSD (p=0.10): 0.75
CV: 18.09

CLS Rating ~ September 8, 2020

* A higher rating indicates more CLS damage
*



Treatments with the same letter are not statistically different

Used with permission



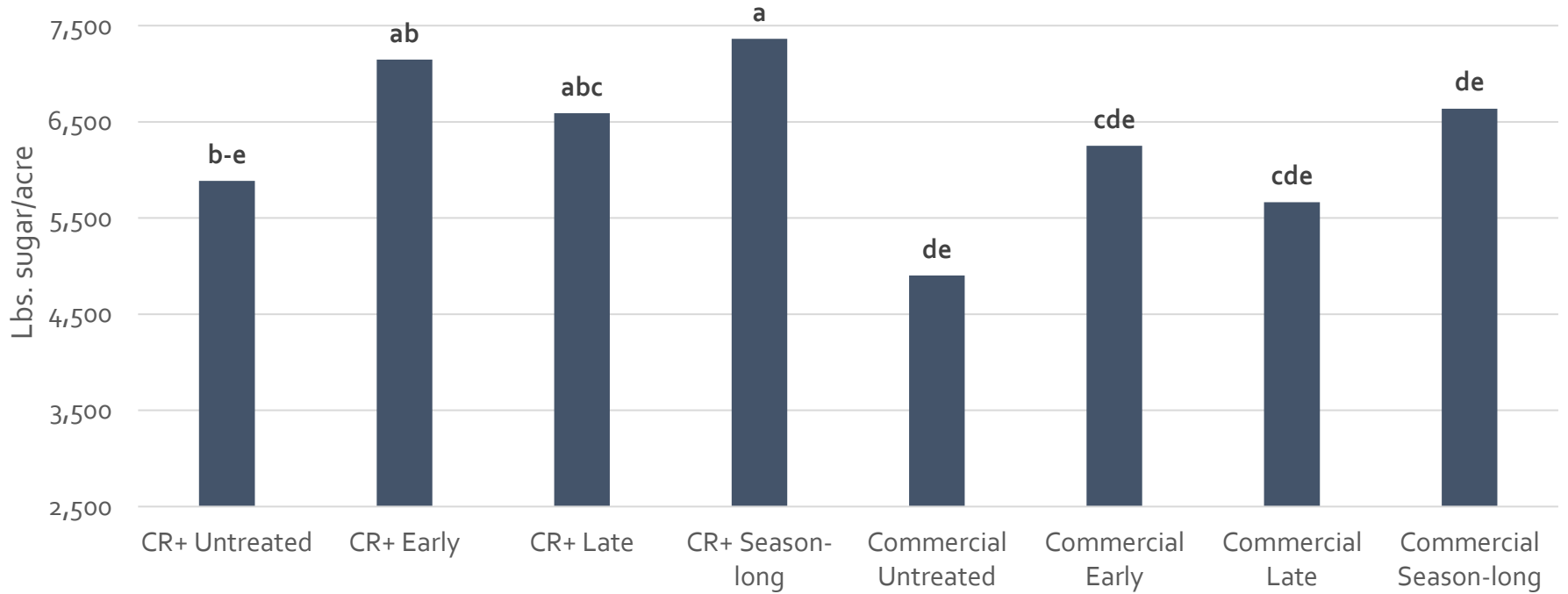
RESEARCH BREEDS CONFIDENCE

BTS CR+



LSD (p=0.10):
1,338.06
CV: 18.77

Recoverable Sugar per Acre



Treatments with the same letter are not statistically different

Used with permission

ASCS CR+ Variety Tips

- Early fungicide applications optimize control & RSA
- 1st two applications are important to achieve maximum potential
- Resistance management still necessary
 - Preserve trait's effectiveness
 - Bring back fungicide efficacy?
 - Decrease CLS inoculum?
- Placement of CR+ varieties
 - Fields bordering last year's beet fields with high pressure
 - Fields protected from wind (higher humidity) – river fields/shelter belts
 - Farther away fields – difficult to reach for timely applications
 - Field not planned for prepile deliveries
- Advantages: Keep CR+ fields in good shape to withstand late-season CLS outbreaks (example - 2021)



2022 ACSC Recommended

CR+ Variety CLS Fungicide Program

Application # Sequence based on Initial Fungicide Application Timing & 12-Day Intervals	Late June Initial Application	Early - Mid July Initial Application	Mid - Late July Initial Application	Late July Initial Application
1	Triazole + EBDC	Triazole + EBDC	Triazole + EBDC	Triazole + EBDC
2	TPTH + Benzimidazole	TPTH + Benzimidazole	TPTH + Benzimidazole	Extended Interval
3	Extended Interval	Extended Interval	Extended Interval	Headline/Priaxor + TPTH
4	Triazole + EBDC	Triazole + EBDC or EBDC	Triazole + Headline/Priaxor	
5	Extended Interval	Headline/Priaxor + TPTH		
6	Headline/Priaxor + TPTH			

- **Extended Intervals ARE NOT Skips** – Continue to monitor conditions for high DIV's and CLS
 - May require treatment based on pressure
- Last application designed for: Last week of Aug. – 1st week of Sept.
 - Benefits for CLS control, frost recovery, and plant health for storage
 - Fungicide application may still be needed in September
 - Discuss with Agriculturist fungicide options for Prepile & Stockpile w/PHI's



Questions?



Sugarbeet Root Disease Management



Fusarium



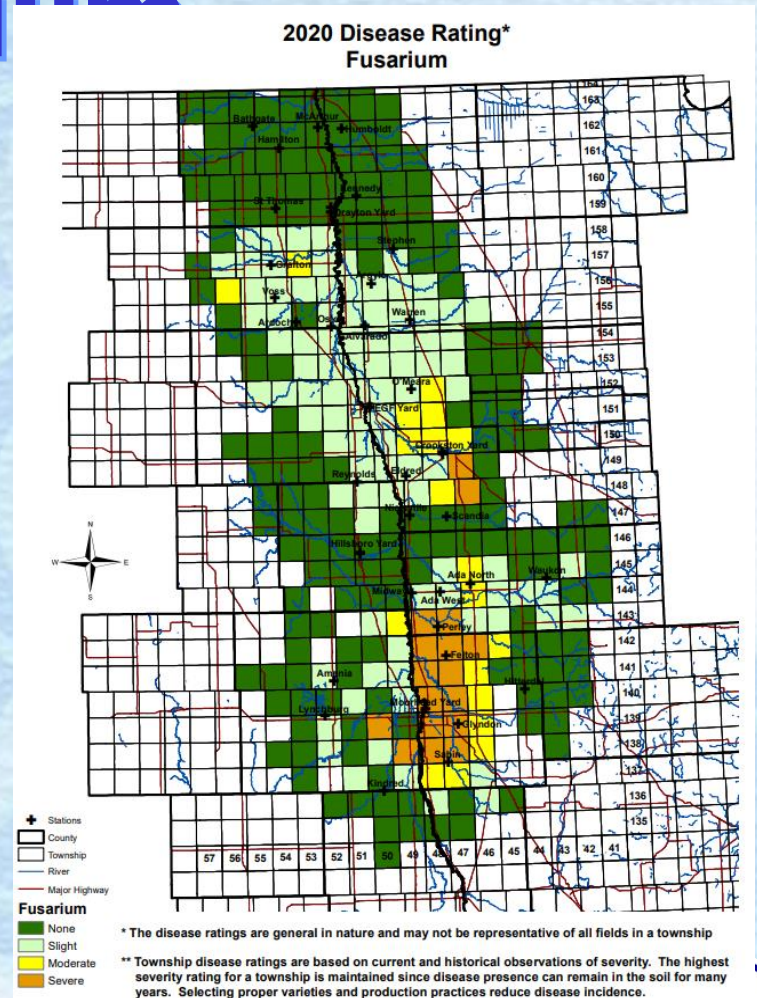
Fusarium

- Caused by soil borne fungus Fusarium oxysporum
- Overwinters in soil for long periods of time
- Warm soil temps and waterlogged fields provide



Fusarium

- Was most severe in Clay and Norman County
- Has spread south in Wilkin County MN
- Moderate areas in the Crookston district with severity



Fusarium Symptoms

- First appears on older leaves as chlorosis
- Half the leaf will display chlorosis
- As disease progresses older leaves become necrotic





Fusarium Management

- Choose resistant varieties
- Use good drainage practices
- Control alternate weed hosts
- Plant early
- Proper crop rotation



Aphanomyces



Aphanomyces

- Caused by soil borne fungus *Aphanomyces cochliodes*
- Warm and hot temperatures with wet soil conditions promote development

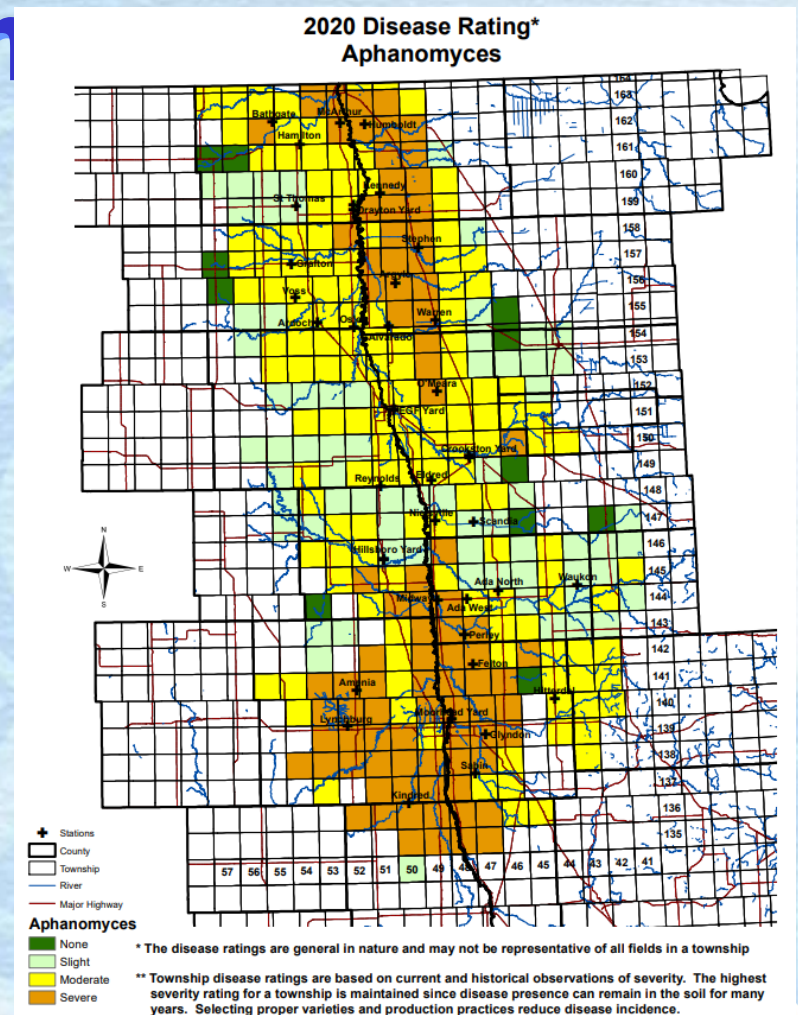


Aphanomyces Active Rot vs Inactive



Aphanomyces

- Aphanomyces is found throughout the valley with ranges in severity
- High Severity in the Moorhead District and in the southern part of the Hillsboro District



Aphanomyces Symptoms

- Damping off in sugarbeet seedlings
- Poor canopy development and chlorotic leaves
- Water-soaked lesions on roots
- Russetting occurs if soil is infested



Sugar Beet - *Aphanomyces* Root Rot



UNIVERSITY OF MINNESOTA | EXTENSION

Ashok Chanda & Jason Brantner



Aphanomyces Management

- Plant resistant varieties
- Use a Tachigaren seed treatment
- Apply Versalime
- Use cultural practices
- Plant early
- Use proper crop



Rhizoctonia



Justin
Krieg



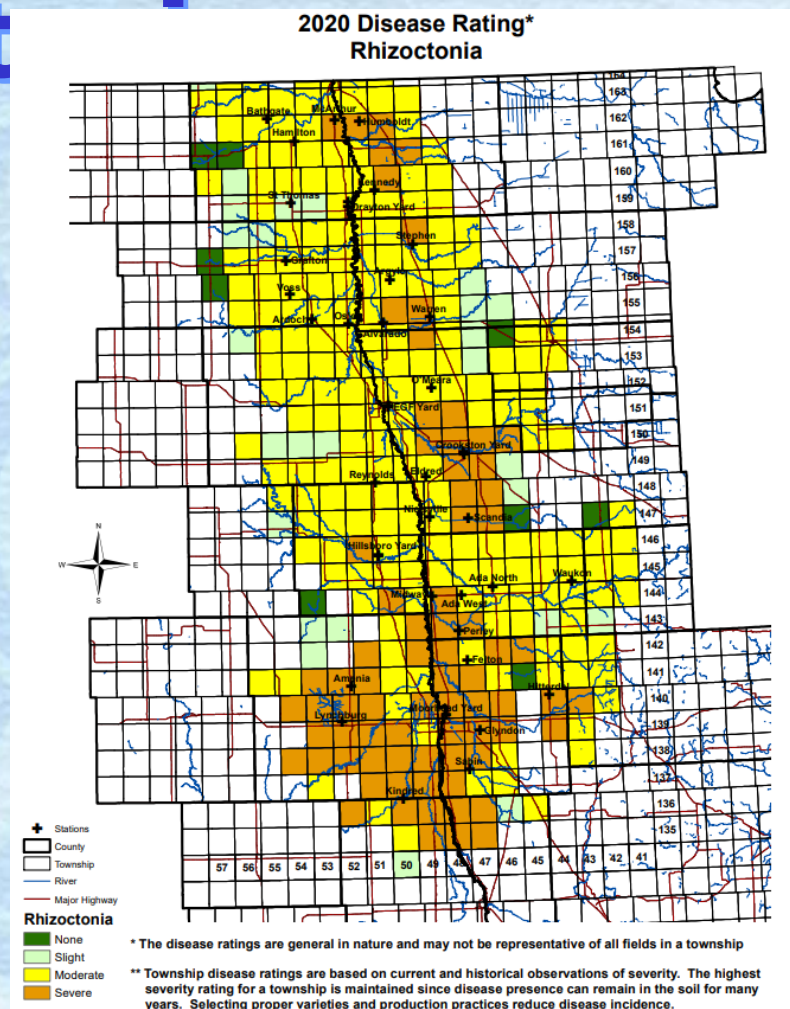
Rhizoctonia

- Caused by soil borne fungus *Rhizoctonia solani*.
- Warm and wet soil temps favor disease development
- Susceptible crops include corn &



Rhizoct

- Rhizoctonia is found throughout the RRV
- Can be found virtually in every sugarbeet field today
- Most of the Valley has a moderate rating



Rhizoctonia Symptoms

- Damping off in sugarbeet seedlings
- Rarely can cause foliar blight
- Wilted petioles that turn black
- Leaves become prostrate on soil








Sugar Beet - Rhizoctonia Root Rot



Rhizoctonia Management

- Plant resistance varieties
- Use a fungicide seed treatment
- Use at plant, in-furrow and post fungicide treatments
- Follow beets on small grain crops
- Limit mechanical weed control

Recommended Products	 AZteroid [®] FC ^{3,3}	 Priaxor [®] Xenium [®] Brand Fungicide	 Quadris [®]	 Elatus [®]	 EXCALIA [®]
METHOD	IN-FURROW/T-band BAND (3-7")/Broadcast	BAND/BROADCAST	BAND (7-11") BROADCAST	IN-FURROW BAND (3-7")	BAND (6-7") BROADCAST
LABELED TIMING	AT-PLANT Post 4 to 8 leaf	4 to 5 weeks after planting	4 to 8 leaf stage	In-Furrow at Plant Post 2-8 Leaf Stage	2 to 8 leaf stage
RATE	6 oz/Acre in-furrow/t-band 9.4 oz/Acre Band & Bdcst	6.7 oz/Acre	10 oz/Acre Band 15 oz/Acre Bdcst	At Plant: 7.1 oz/Acre on 22" rows (0.3-0.6 oz/1,000 row feet) Post: 7.1 oz/Acre	Band: .64 oz/Acre on 22" rows (0.023 to 0.027 oz/1,000 row feet) Bdcst: 2 oz/Acre
TANK-MIXES	w/starter fertilizer	Glyphosate w/surfactant	Glyphosate w/surfactant	Do not mix with Starter Fertilizer	No concerns. Consult your agriculturist.
WATER VOLUME	5-10 gal/acre	10-15 gal/Acre	10-20 gal/Acre	Minimum 10 gal/Acre	Minimum 10 gal/Acre



Rhizomania



Rhizomania

- The bearded root
- Root takes a wine glass shape with crazy root hairs
- Will show as blinkers in the field
- Controlled by resistant varieties





Keys to Sugarbeet Root Disease Management

- Use resistant seed varieties
- Use proper seed treatments when needed
- Apply timely chemical control when available
- Use good drainage practices
- Plant early
- Use crop rotations to your advantage
- Know your field history




Crystal Beet Seed Variety Selector

American Crystal Sugar Company

OUR COMPANY AGRONOMY SUGAR AGR-PRODUCTS COMMUNITY CAREERS Q MEMBERS ONLY

CRYSTAL BEET SEED

Where Great Sugar Begins



Home Agronomy Crystal Beet Seed

Our Cooperative's Seeds of Success

High-quality seed is a must for growing the world's sugar supply. Crystal Beet Seed is up to the challenge.

Key Seed Varieties

2022 Crystal Beet Seed Recommended List

Descriptions of sugarbeet varieties (agronomic and disease characteristics) managed by Crystal Beet Seed.

2023 Official Coded Variety Trials

Crystal Beet Seed conducts the Official Coded Variety Performance Trials in the Crystal growing region.

Planter Info

- Planter Plate - Recommendations for John Deere Max Emerge Planter
- Planter Plate - Recommendations for MonoSem NG+ Planter
- Planter Plate - Recommendations for Exacemerge Planter
- Planter Operation, Maintenance, and Storage

Variety Selector

The Variety Selector is intended to assist growers in selecting appropriate seed varieties by identifying varieties with characteristics that are known to be consistent with the information provided by the grower.

- Variety Selector (PDF)
- Planter Operation (Excel)

Sales Representatives

If you would like more information or would like to place an order for an approved variety, please contact your local sales representative.

Seed Production

Crystal Beet Seed produces seed in Oregon with the basic seed planter in August.

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Performance Data of RR Varieties Approved for 2021 Season - Sorted by Variety

Variety	Yrs	Rev/Ton ++			Rec/Ton			Sugar			Molasses			Emerg			Boiler / Ac			Aph Root			Rhizoc			Fusarium				
		20	2 Yr	2Y%	20	2 Yr	2Y%	20	2 Yr	2 Yr	20	2 Yr	2 Yr	20	2 Yr	2 Yr	20	2 Yr	2 Yr	20	2 Yr	2 Yr	20	2 Yr	2 Yr	20	2 Yr	2 Yr		
# Locations	1	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14		
BTS 8337	6	51.24	48.74	104	1300	1371	103	341	334	8662	9433	18.14	17.74	25.3	28.1	1.07	1.04	64	67	4	2	4.5	4.4	3.5	3.5	4.4	4.0	3.6	3.6	
BTS 8500	4	43.48	42.67	91	1307	1363	102	314	313	9476	10032	16.81	16.73	30.2	32.2	1.10	1.10	67	66	0	0	4.4	4.2	4.2	4.6	4.5	4.2	4.3		
BTS 8524	4	44.39	42.16	90	1279	1344	101	317	311	9150	9946	16.97	16.63	28.8	32.1	1.10	1.09	74	72	0	0	4.4	4.2	4.4	4.1	4.1	4.1	3.0	3.1	
BTS 8606	3	45.91	44.58	95	1284	1344	101	323	319	9022	9649	17.17	17.00	28.0	30.3	1.03	1.03	71	67	0	0	4.8	4.7	4.5	4.8	4.8	4.7	2.9	2.8	
BTS 8629	3	44.38	42.86	91	1406	1426	107	317	313	10066	10440	16.89	16.71	31.8	33.4	1.02	1.05	68	67	0	0	4.5	4.5	4.3	4.6	4.3	4.1	3.8	3.7	
BTS 8767	2	45.48	44.57	95	1317	1382	104	321	319	9299	9923	17.08	16.99	29.0	31.1	1.02	1.03	71	70	0	0	4.4	4.3	4.5	4.7	4.4	4.1	3.7	3.6	
BTS 8815	1	47.60	46.78	100	1307	1383	104	329	327	9013	9676	17.45	17.36	27.4	29.6	1.02	1.00	66	66	0	0	4.9	4.7	4.2	4.7	3.9	4.0	2.0	2.6	
BTS 8882	1	43.65	43.44	92	1381	1413	106	315	315	9981	10266	16.80	16.84	31.8	32.6	1.05	1.06	72	65	0	0	4.7	4.4	4.3	4.8	4.3	4.3	2.1	2.5	
BTS 8927	NC	53.07	51.25	1009	1482	1533	115	348	343	9720	10284	18.28	18.08	28.0	30.1	0.90	0.87	77	76	0	0	3	4.4	4.4	3.9	4.0	4.4	4.2	2.6	2.7
BTS 8938	NC	47.75	47.38	101	1409	1448	109	325	329	9700	10067	17.44	17.39	29.4	30.6	0.98	0.93	67	68	0	0	4.7	4.5	3.9	3.8	3.9	3.7	3.7	3.4	
BTS 8961	NC	45.49	44.32	94	1415	1445	108	321	319	9990	10393	17.12	16.97	31.1	32.6	1.05	1.04	73	73	0	0	4.7	4.5	4.0	4.0	4.1	3.9	2.2	2.4	
BTS 8976	NC	49.57	48.74	104	1351	1438	108	336	334	9116	9845	17.72	17.63	27.1	29.4	0.95	0.94	69	68	0	0	4.1	4.0	3.5	3.6	4.5	4.3	2.9	3.3	
Crystal 572	4	51.00	49.32	105	1405	1441	108	341	336	9307	9837	18.02	17.79	27.6	29.3	0.99	0.98	73	71	0	0	4.5	4.6	4.3	4.6	4.2	4.2	2.4	2.4	
Crystal 574	4	44.14	43.32	92	1396	1416	106	317	315	10010	10317	16.91	16.82	31.6	32.8	1.08	1.07	68	70	0	0	4.6	4.5	4.1	4.1	4.2	4.3	2.3	2.1	
Crystal 684	2	44.19	42.94	91	1432	1431	107	317	314	10283	10479	16.90	16.74	32.6	33.5	1.06	1.07	74	69	0	0	4.4	4.3	4.0	4.1	4.2	4.1	2.3	2.2	
Crystal 793	2	49.48	47.70	102	1514	1535	115	335	330	10253	10650	17.70	17.46	30.6	32.3	0.93	0.93	71	68	0	0	4.3	4.2	3.9	3.8	4.8	4.5	2.6	2.7	
Crystal 796	1	45.63	44.28	94	1372	1451	109	328	318	9674	10442	17.14	16.95	30.1	32.8	0.95	0.93	74	76	0	0	5.0	4.8	3.9	3.9	4.5	4.2	2.2	2.9	
Crystal 803	NC	49.01	48.05	102	1444	1469	110	334	332	9911	10142	17.62	17.54	29.3	30.6	0.95	0.96	77	0	0	0	3.9	3.9	4.0	4.2	5.0	4.9	2.5	2.6	
Crystal 804	NC	42.95	43.55	93	1383	1427	107	313	316	10068	10376	16.72	16.85	32.2	32.9	1.10	1.06	66	64	0	0	4.8	4.6	3.6	4.0	3.9	3.8	2.3	2.3	
Crystal 808	NC	46.00	44.52	95	1417	1437	108	323	319	9955	10333	16.79	17.01	30.8	32.4	1.04	1.04	76	75	0	0	5.1	4.9	4.0	3.8	3.9	4.0	2.3	2.4	
Crystal 912	NC	46.87	44.55	95	1520	1558	117	323	319	10725	11027	17.12	16.96	33.3	35.1	0.99	0.99	75	74	0	0	4.7	4.7	3.7	3.8	3.5	3.6	3.5		
Crystal 913	NC	48.81	48.37	103	1480	1555	117	338	333	10164	10701	18.61	17.65	35.5	37.2	0.97	0.93	74	73	0	0	4.1	4.1	3.7	3.7	4.6	4.4	2.5	2.5	
Crystal 916	NC	45.26	44.57	95	1410	1493	112	328	319	9967	10704	17.09	17.01	31.0	33.5	0.96	1.04	79	78	0	0	4.5	4.4	3.9	4.0	4.6	4.4	2.4	2.5	
Hilleshog Hill2317	NC	49.24	44.54	103	1385	1443	108	334	333	9428	9940	17.67	17.60	28.2	29.9	0.97	0.94	72	70	0	0	5.0	5.0	3.9	3.9	4.9	4.6	6.0	5.6	
Hilleshog Hill9708	3	47.99	45.68	97	1369	1401	105	330	323	9420	9940	17.47	17.44	29.5	30.8	0.98	0.98	72	72	0	0	5.0	5.0	4.0	4.3	3.8	3.8	3.6	3.8	
Hilleshog Hill9920	2	48.97	47.40	101	1398	1414	106	333	329	9533	9953	17.64	17.44	28.6	30.0	0.97	0.97	70	70	0	0	4.8	4.9	3.6	4.3	5.1	4.9	5.3	5.8	
Hilleshog HM4448RR	7	44.42	43.78	93	1358	1407	106	318	317	9725	10192	16.89	16.82	30.7	32.3	1.01	1.00	75	72	0	0	5.6	5.5	4.1	4.5	4.8	4.4	4.6	4.7	
Hilleshog HM9528RR	5	46.14	44.94	96	1362	1409	106	324	321	9576	10082	17.21	17.03	29.6	31.5	1.03	1.00	69	67	0	0	4.8	4.9	3.7	4.1	4.6	4.3	4.7	4.4	
Marbo MA504	4	44.42	42.61	91	1368	1394	105	318	312	9787	10241	16.87	16.61	30.9	32.8	1.00	1.00	72	71	0	0	5.4	5.3	5.1	5.6	4.8	4.8	4.3	4.4	
Marbo MA717	2	47.70	46.02	98	1454	1465	110	329	324	10054	10369	17.47	17.23	30.6	32.1	1.03	1.01	75	72	0	0	5.1	5.1	3.8	4.1	4.5	4.4	4.6	4.7	
Marbo MA902	NC	48.77	46.45	99	1393	1409	106	333	326	9508	9909	17.60	17.27	28.6	30.5	0.98	0.98	72	76	0	0	5.0	4.9	4.0	4.7	3.9	4.0	4.0	3.9	
SV 255	3	48.67	46.49	99	1396	1409	106	332	326	9523	9902	17.58	17.26	28.7	30.4	0.96	0.96	67	65	0	0	4.5	4.4	4.0	4.7	4.2	4.2	5.7	5.7	
SV 268	3	47.51	45.92	98	1317	1363	102	328	324	9093	9630	17.42	17.19	27.6	29.8	1.01	0.99	67	65	0	0	4.8	4.8	4.5	4.8	4.5	4.7	4.0	4.5	
SV 285	NC	45.60	47.59	101	1372	1398	105	336	330	9762	10084	17.74	17.48	27.5	29.1	0.97	0.97	65	62	0	0	4.5	4.7	4.3	4.8	4.0	4.2	5.4	5.1	
SV 335	5	47.34	46.27	98	1391	1400	105	328	325	9636	9861	17.36	17.23	29.4	30.4	0.97	0.97	66	68	0	0	4.7	4.6	4.1	4.4	4.6	4.3	5.6	5.2	
SV 375	1	47.28	46.34	99	1352	1391	104	328	325	9636	9861	17.25	17.25	29.8	30.1	0.99	0.97	63	63	4	2	4.8	4.4	4.0	4.5	4.5	4.3	5.2	5.1	
SV 1887	1	47.02	46.64	99	1334	1378	106	327	327	9270	9658	17.34	17.28	28.3	29.5	1.02	1.00	67	64	0	0	5.1	5.0	3.9	4.3	4.8	4.5	4.3	4.5	
SV 1888	1	47.38	46.34	99	1345	1345	106	328	326	9325	9834	17.40	17.27	29.1	30.6	1.00	0.98	63	62	4	2	4.7	4.8	4.0	4.3	4.2	4.2	5.5	5.5	
SV 1898L	NC	50.23	47.86	102	1510	1510	110	332	332	10188	10188	17.86	17.86	30.8	30.8	0.96	0.													

Northwest Research and Outreach Center

- NWROC has a disease diagnosis lab
- Accepts samples to be tested for disease identification
- Sample Info sheet can be downloaded from website

Crookston, MN

Northwest Research and Outreach Center

2021 SUGARBEEF PLANT PATHOLOGY SAMPLE INFORMATION SHEET

Sample 21- _____ Planting Date: _____ Date Sampled: _____
 (Leave blank) _____ Date Received: _____

Agriculturist: _____
 Cell: _____ Grower: _____
 Office: _____ Field Name: _____
 Email: _____

Please choose one from below: Civil (county, township, section) OR PLSS (TWP, RNG, SECT) OR Lat. Long.

<input type="checkbox"/> NW 1/4	Location	PLSS	Lat.	Long.
<input type="checkbox"/> NE 1/4	County	Township	4S.	-9S.
<input type="checkbox"/> SW 1/4	Township	Range		
<input type="checkbox"/> SE 1/4	Section	Section		

Description of the Problem

Has this problem occurred previously? Yes No

Part of the Plant Affected: Seedling All

Portion of the Field Affected: Root Scattered across

Seed Brand: _____ VTY: _____ Seed Treatments: Tachigaren 20 35 4S

Kabina Vibrance Crown Spotty

Systiva Poncho Beta Leaves Small portion

Cover Crop: Yes No

Type: Cru. Max Nipit

Metlock Suite Zebra

Current Chemicals applied

Herbicide(s): _____ Rhizoctonia control: _____

Insecticide(s): _____ Product: F Band Scat

Fungicide(s): _____ Method applied: F Band Scat

Field History

Year	Crop	Herbicides	Spent Lime	Tillage
2020			Year	<input type="checkbox"/> Conventional
2019			Rate	<input type="checkbox"/> No-Till
2018				<input type="checkbox"/> Ridge Till
				<input type="checkbox"/> Strip Till

Additional information: _____

For lab use only Do not write in area below



Sugar Beet - Rhizoctonia & Aphanomyces Root Rot



American Crystal Sugar Disease Maps

- Shows disease severity for each township
- Found under the individual disease section in the Gold Standards Tab

