

RESULTS OF AMERICAN CRYSTAL'S 2016 OFFICIAL CODED VARIETY TRIALS

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American Crystal's coded variety trials are designed to provide an unbiased evaluation of the genetic potential of sugarbeet variety entries under several different environments. The two-year average of these evaluations then are used to establish a list of approved varieties which ensures the use of high quality, productive varieties to maximize returns for growers and the cooperative as a whole.

This report presents data from the 2016 American Crystal and Minn-Dak official trials and describes the procedures and cultural practices involved in the trials.

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Procedures and Cultural Practices

Sugarbeet official variety testing was conducted both in the Crystal and Minn-Dak areas of the Red River Valley by American Crystal Sugar Company personnel at the Technical Services Center.

All Crystal and Minn-Dak entries were coded by KayJay Ag Services. The seed then was sent to American Crystal Technical Services Center at Moorhead for official testing.

Thirteen official yield trial sites were planted in the Crystal area with eleven harvested. Four Minn-Dak official yield trial sites were planted and harvested. Plant-to-stand trials (4.5 inch spacing) were used to evaluate the commercial, experimental and conventional varieties. Seed companies had the option of treating seed with Tachigaren, insecticide and a Rhizoctonia seed treatment fungicide. The treatments used on the seed planted in the official variety yield trials can be found in table 6. Plots were planted crosswise (90°) to the cooperators' normal farming operations, where possible. Row spacing was 22 inches. Planting was performed with a 12-row SRES GPS controlled vacuum planter. Plot rows for all official trials were maintained at 45 feet with about 37 feet harvested. An alpha lattice plot design was used for all trials. Emergence counts were taken on two 12 foot sections of row from each plot to be harvested. Multiple seedlings were counted as a single plant if they emerged less than one inch apart. The stands in all of the plant-to-stand coded trials were refined by removing doubles (multiple seedlings less than 1.5 inches apart) by hand but were not further reduced.

Nine ACSC sites were used for variety approval calculations (Casselton, Averill, Ada, Hillsboro, Fisher, Crookston, Grand Forks, St. Thomas, Stephen). Two sites were abandoned due to non-uniform emergence (Kindred) and water damage (Alvarado). Two sites experienced moderate to severe Aphanomyces (Perley & Cavalier) and this Aphanomyces yield trial data is in table 3. Late season Cercospora was noted at numerous ACSC sites. Three MDFC sites experienced heavy Cercospora infection due to fungicide application timing issues and potential resistance. One MDFC site (Mooreton) was not used for variety approval calculations due to weaker stands and more Rhizoctonia infection. .

Rhizoctonia was less prevalent in 2016 following seed treatment on all varieties and an application of Quadris, band treatment at the 6-10 leaf stage. Based upon demonstration plot observations, root aphids likely had minimal impact in 2016. Root aphids were observed at 2 of 13 ACSC yield sites and several Rhizoctonia nurseries. ACSC does not run root aphid evaluation nurseries, but seed companies may know tolerance levels of their varieties.

Roundup Powermax with Event and full rates of fungicides were applied using a pickup sprayer driven down the alleys. Hand weeding was used where necessary. The micro rate program was used on conventional trials. All yield trials were treated with Quadris in a band during the 6-10 leaf stage (14 oz/A since 2004) for Rhizoctonia control. Incognito/Agri Tin, Proline, and Headline were used for Cercospora control in 2016. Ground spraying was conducted by ACSC technical staff.

RR varieties with commercial seed were planted in four-row, six replication trials. The RR experimental entries were planted in smaller two-row, four replication trials. Two applications of Roundup were made in the 4-6 (32 oz) and 8-12 (22 oz) leaf stages.

Conventional yield trials were reinstated in 2016 for the ACSC cooperative at six sites. Eleven conventional varieties were approved for sale in 2017; these varieties were tested in 2016 and approval is based upon one year of data. Three conventional varieties were previously approved and have data from previous years in the 2012 Sugarbeet Research and Extension Report.

All plot rows were measured for total length after approximately 2.5 feet at each end were removed at the end of August, with skips greater than 60 inches (including short rows) being measured for adjustment purposes. Harvest was performed with two modified four-row harvesters (4310 and 4310A John Deere). All harvested beets of each plot were used for yield determination while one sample (approx 25 lbs) for sugar and impurity analysis was obtained from each plot. Quality analysis was performed at the ACSC Technical Services quality lab in Moorhead.

Soil type and disease pressure was observed for each of the trial sites (table 5). This information relates to the current year's results, not the multiple year summary results.

Varieties were planted in disease nurseries in North Dakota, Minnesota and Michigan to evaluate varieties for disease tolerance. ACSC adjusts the Cercospora, Aphanomyces, Rhizoctonia and Fusarium nursery data each year to provide a consistent target for variety approval criteria.

Acknowledgements

Thanks to the beet seed companies for their participation in the official variety testing program and to all grower-cooperators, agricultural, and beet seed staffs for their assistance. Special thanks are extended to Dr. Mohamed Khan for CR nursery infection, Dr. Albert Sims for hosting a Rhizoctonia nursery, Randy Nelson, Robert Dregseth and Jason Brantner for RRV disease ratings, USDA staff in Michigan for CR and Rhizoctonia nursery ratings. The Betaseed staff for Aphanomyces and Cercospora ratings in the Shakopee area, Germain Seed Technology for seed treatments and Kay Jay Ag Services for sampling and coding all variety entries.

Table 1. Varieties Meeting ACSC Approval Criteria for the 2017 Sugarbeet Crop ++

Roundup Ready ®	Full Market	Aph Spec	Rhc Spec	High Rzm	Conventional	Full Market	High Rzm
BTS 80RR52	Yes	Aph	Rhc +	Hi Rzm	Beta EXP 687	New	Hi Rzm
BTS 82RR28	Yes	Aph		Hi Rzm	Beta EXP 698	New	Hi Rzm
BTS 82RR33	Yes			Hi Rzm			
BTS 8337	Yes	Aph		Hi Rzm	Crystal R761	Yes	Hi Rzm
BTS 8363	Yes			Hi Rzm	Crystal 620	New	Hi Rzm
BTS 83CN	Yes	Aph	Rhc	Hi Rzm	Crystal 622	New	Hi Rzm
BTS 8500	New	Aph		Hi Rzm	Hilleshög 3035Rz	Yes	Rzm
BTS 8512	New	Aph		Hi Rzm	Hilleshög 9891Rz	New	Rzm
BTS 8524	New	Aph		Hi Rzm	Maribo MA615Rz	New	Rzm
BTS 8572	New	Aph		Hi Rzm	Seedex Deuce (SX0873TT)	Yes	Hi Rzm
Crystal 093RR	Yes	Aph		Hi Rzm	Seedex 8869 Cnv	New	Hi Rzm
Crystal 101RR	Yes	Aph		Hi Rzm	SESVanderhave 48611	New	Hi Rzm
Crystal 246RR	Yes	Aph +		Hi Rzm			
Crystal 247RR	Yes			Hi Rzm			
Crystal 355RR	Yes	Aph	Rhc	Hi Rzm			
Crystal 467RR	Yes	Aph		Hi Rzm			
Crystal 572RR	New			Hi Rzm			
Crystal 573RR	New	Aph		Hi Rzm			
Crystal 574RR	New	Aph		Hi Rzm			
Crystal 575RR	New	Aph		Hi Rzm			
Crystal 576RR	No	Aph		Hi Rzm			
Crystal 578RR	New			Hi Rzm			
Crystal 981RR	Yes	Aph		Hi Rzm			
Crystal 986RR	Yes	Aph		Rzm			
Hilleshög 4094RR	Yes		Rhc	Rzm			
Hilleshög 4302RR	Yes	Aph	Rhc	Rzm			
Hilleshög 4448RR	Yes			Rzm			
Hilleshög 9517RR	Yes	Aph		Hi Rzm			
Hilleshög 9528RR	Yes	Aph		Hi Rzm			
Hilleshög 9707	No	Aph		Hi Rzm			
Hilleshög 9708	New			Hi Rzm			
Hilleshög 9711	New	Aph		Hi Rzm			
Maribo 102	Yes +	Aph +		Rzm			
Maribo 109	Yes	Aph	Rhc	Hi Rzm			
Maribo 305	Yes			Rzm			
Maribo 502	No	Aph		Hi Rzm			
Maribo 504	New			Hi Rzm			
Seedex Canyon RR(844TT)	Yes	Aph		Hi Rzm			
Seedex Cruze RR(846)	Yes	Aph		Rzm			
Seedex Terrain RR(848)	Yes			Hi Rzm			
Seedex Winchester RR	Yes	Aph		Rzm			
Seedex RR0856(Marathon)	New			Hi Rzm			
Seedex RR0858(Avalanche)	New	Aph		Hi Rzm			
SESVdh RR241	Yes	Aph		Rzm			
SESVdh RR244TT	Yes			Hi Rzm			
SESVdh RR333	Yes	Aph		Hi Rzm			
SESVdh RR336	Yes	Aph		Rzm			
SESVdh RR351	New	Aph		Hi Rzm			
SESVdh RR353	New	Aph		Hi Rzm			

++Roundup Ready sugarbeets are subject to the ACSC RRSB Bolter Destruction Policy
 + Previously approved varieties not meeting current approval standards may be sold in 2017.
 Roundup Ready ® is a registered trademark of Monsanto Company.

Created 11-4-2016

Aph Spec = variety meets Aphanomyces specialty requirements
 Rhc Spec = variety meets Rhizoctonia specialty requirements
 Hi Rzm = may perform better under severe Rzm.
 New = newly approved

Table 4. Performance Data of Conventional Varieties Approved for 2017 Growing Season (Five Conventional Sites)

Variety @	Yrs Com	Rev/Ton ++	Rev/Acre ++	Rec/Ton	Rec/Acre	Sugar	Yield	Molasses	Emerg	Bolter / Ac	CR +	Aph Root+	Rhizoc.+	Fusarium+	Rzm+
# Locations		5	5	5	5	5	5	5	5	5	3	1	4	2	
Previous Approved															
Crystal R761	7	49.24	1806	310	11360	16.77	36.7	1.28	69	0	4.99	3.6	4.6	3.2	Hi
Hilleshög 3035Rz	10	54.81	1777	328	10630	17.51	32.5	1.14	78	135	4.53	4.4	3.9	3.6	Rzm
Seedex Deuce (SX0873TT)	NC	53.39	1973	323	11921	17.15	36.9	1.00	76	18	4.68	5.7	4.7	4.7	Hi
Newly Approved															
BETA EXP 687	NC	53.52	1929	323	11665	17.40	36.0	1.22	73	0	4.14	4.9	4.2	3.4	Hi
BETA EXP 698	NC	51.53	1957	317	12066	16.98	38.1	1.13	70	0	4.27	3.7	4.4	2.7	Hi
Crystal 620	NC	52.14	1943	319	11860	17.06	37.1	1.11	72	0	4.19	4.3	4.5	2.7	Hi
Crystal 622	NC	54.49	1798	327	10805	17.52	33.1	1.19	67	0	3.96	4.4	4.1	3.6	Hi
Hilleshög 9891Rz	NC	52.84	1689	321	10294	17.27	32.1	1.21	78	0	4.42	4.5	4.2	3.8	Rzm
Maribo MA615Rz	NC	51.87	1970	318	12063	17.04	37.9	1.13	73	0	5.04	4.8	4.5	5.1	Rzm
Seedex 8869 Cnv	NC	52.57	2007	320	12228	17.04	38.1	1.02	80	0	4.76	4.7	4.7	2.9	Hi
SV 48611	NC	53.90	1916	325	11525	17.36	35.5	1.13	67	0	4.85	4.5	4.7	5.2	Hi
Benchmark var. mean		50.82	1869	315	11573	16.86	36.8	1.12	71						

Created: 11-04-16

++ 2016 Revnue estimate based on a \$52.44 beet payment (5-yr ave) at 17.5% sugar and 1.5% loss to molasses.

Emergence is % of planted seeds producing a 4 leaf beet.

+ Aph ratings from Shakopee (res<4.4, susc>5.5). CR from Randolph MN, Foxhome MN & Michigan (res<4.5, susc>5.2). Fusarium from RRV (res<3.0, susc>5.0).

+ Rhizoc. from Mhd, NWROC & Mich (res<3.8, susc>5). Hi may perform better under severe Rzm.

Bolters /Ac are based upon a plant stand of 45,000.

+++ Sites include Casselton, Ada, Crookston, Grand Forks, St. Thomas in 2016.

Table 6. Planting & Harvest Dates, Previous Crop and Disease Levels for 2016 ACSC & MDFC Official Trial Sites *

Location	District / Trial Type	Cooperator	Planting Date	Harvest Date	Preceding Crop	Soil Type	Diseases Present @						Comments
							Aph	Rhc	Rzm	Fus	Maggot	Rt Aphid	
Kindred ND	Mhd/Hlb	Scott Nipstad	5/2	Abandon	Wheat	Medium	L	M	N	N	N	N	Erratic emergence
Casselton	Mhd/Hlb	Todd Weber	4/22	10/20	Wheat	Medium/Light	L-M	L	N	N	N	L	Conv. trial. Late season CR.
Averill MN	Mhd/Hlb	Ernie Oberg	4/28	10/19	Soybeans	Light	L	L-M	M	N	N	N	Late season CR.
Perley MN	EGF/Crk	Tim Hoff	5/10	10/10	Wheat	Medium	M-V	L	L-M	N	N	N	Aph. yield tial. Hail damage 3 times.
Ada MN	Mhd/Hlb	Corey Jacobson	4/23	10/14	Wheat	Medium	L	L	L-M	N	N	L	Thinner stands. Conv trial
Hillsboro ND	EGF/Crk	SK Farms	5/1	10/13	Wheat	Medium/Light	L	N	N	N	N	N	Some hail damage. Late season CR.
Fisher MN	EGF/Crk	Scott Knutson	4/23	10/9	Wheat	Medium/Light	L-M	N	L	N	N	N	Late season CR.
Crookston MN	EGF/Crk	Dennis Deboer	5/9	10/20	Wheat	Medium	L	N	L	N	N	N	Slight water stunting. Some weaker stands.
Grand Forks ND	EGF/Crk	Robert Drees	4/29	9/20	Wheat	Medium/Light	N	L	N	N	N	N	Late season CR.
Alvarado MN	EGF/Crk	Sands Farms	4/30	Abandon	Wheat	Medium/Heavy	NA	NA	NA	NA	NA	NA	Water damage.
St Thomas	Dtn	Tom Kennelly	5/4	9/26	Wheat	Medium/Light	L-M	M	L	N	N	N	Late season CR.
Stephen	Dtn	Peter Hvidsten	5/4	10/2	Wheat	Medium	L	N	L	N	N	N	Late season CR.
Cavalier	Dtn	Robert Vivatson	5/5	10/1	Wheat	Medium	M-V	L	N	N	N	N	Lost conv. trial.
Mhd Rhc-S	Rhc Nurs	Jon Hickel	5/12	7/28	Soybeans	Medium/Heavy	L	V	N	L	N	L	
Mhd Rhc-E	Rhc Nurs	Jon Hickel	5/12	7/28	Soybeans	Medium/Heavy	L	V	N	L	N	L	
Mhd Rhc-W	Rhc Nurs	Jon Hickel	5/12	8/9	Soybeans	Medium/Heavy	L	V	N	L-M	N	L	
NWROC Rhc	Rhc Nurs	Albert Sims	5/16	8/30	Soybeans	Medium	L	V	N	N	N	N	
BSDF Rhc	Rhc Nurs	Mitch McGrath	5/8	8/10	NA	NA	NA	NA	NA	NA	NA	NA	
Mhd SE Fus	Fusarium	Ernie Oberg	5/12	7/18	Soybeans	Medium	NA	L	N	V	NA	NA	
Mhd Fus	Fusarium	Kevin Nelson	5/12	7/20	Soybeans	Medium	NA	N	N	V	NA	NA	
Shakopee MN	Aph Nurs	Patrick O'Boyle	5/7	8/30	NA	NA	NA	NA	NA	NA	NA	NA	
Longmont CO	RA Nurs	Eric Runkle		10/10	NA	NA	NA	NA	NA	NA	NA	NA	
Foxhome CR	Cercospora	Kevin Etzler	5/13	8/29	Wheat	Medium	NA	L	NA	L	NA	NA	
BSDF CR	CR Nurs	Mitch McGrath	5/6	9/6	NA	NA	NA	NA	NA	NA	NA	NA	
Randolph MN CR	Cercospora	Patrick O'Boyle	5/3	8/9	NA	Medium/Light	NA	NA	NA	NA	NA	NA	
Barnesville	Minn-Dak	Maier Farms	5/1	10/23	Wheat	Medium	L	M	L-M	M	N	N	Lighter late season CR.
Foxhome MN	Minn-Dak	Bradow Farms	4/16	9/13	Corn	Medium	M	L-M	N	N	N	N	Mod stands. Late season CR.
Mooreton ND	Minn-Dak	Skovholt Farms	4/16	9/12	Wheat	Medium	L	M-V	M	N	N	N	Mod stands
Norcross	Minn-Dak	Vipond Grain Farms	4/16	10/22	Corn	Medium/Light	L-M	M-V	N	N	N	N	Late season CR.

Created 10/31/2016

* Fertilizer applied in accordance to cooperative recommendations.

@ Disease notes for Aph., Rhizoc., Rhizomania, Fusarium, Root Maggot and Root Aphids were based upon visual evaluations (N=none, L=light, M=moderate, V=severe, NA=not observed)

Table 7. Seed Treatments Used on Approved Varieties in Official Variety Trials in 2016

Description	Years in Trial	Years ** Comm.	Seed Lot	Fungicide (Rhizoctonia)	Insecticide (Spring Tails & Maggots)	Tachigaren Rate (Aphanomyces)	Priming Emergence	Fungicide (Damping Off)
ACSC Commercial								
BTS 80RR52	7	5	5X14850	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 82RR28	5	3	5x21940	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 82RR33	5	3	5x22250	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8337	4	2	5x17540	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8363	4	2	5x22290	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 83CN	4	2	5x19150	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
Crystal 093RR	7	5	PTK6-115	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 101RR	6	5	PTK6-159	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 246RR	5	3	PTK6-142	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 247RR	5	3	PTK6-106	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 355RR	4	1	PTK6-124	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 981RR	8	3	PTK6-150	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 986RR	8	5	PTK6-133	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Hilleshög 4094RR	9	7	12378996	Kabina 14g	Cruiser Maxx	NA	NA	Apron XL Maxim
Hilleshög 4302RR	6	3	12366395	Vibrance	Cruiser Maxx	45	XBEET	Apron XL Maxim
Hilleshög 4448RR	5	3	12362963	Vibrance	Cruiser Maxx	45	NA	Apron XL Maxim
Hilleshög 9517RR	4	2	12379346	Vibrance	Cruiser Maxx	NA	NA	Apron XL Maxim
Hilleshög 9528RR	4	2	12362428	Vibrance	Cruiser Maxx	NA	XBEET	Apron XL Maxim
Maribo 102	6	2	12378978	Kabina 14g	Cruiser Maxx.	20	NA	Apron XL Maxim
Maribo 109	3	1	12378968	Vibrance	Cruiser Maxx.	20	NA	Apron XL Maxim
Maribo 305	4	1	12377947	Vibrance	NA	20	NA	Apron XL Maxim
SX Canyon RR(844TT)	3	1	67007	Metlock/Rizolex/Kabina 7g	Nipsit	20	XBEET	Sebring Thiram
SX Cruze RR(846)	3	1	67011	Metlock/Rizolex/Kabina 7g	Nipsit	20	XBEET	Sebring Thiram
SX Terrain RR(848)	3	1	NA	Metlock/Rizolex/Kabina 7g	Nipsit	20	NA	Sebring Thiram
SX Winchester RR(832)	4	2	67012	Metlock/Rizolex/Kabina 7g	Nipsit	20	XBEET	Sebring Thiram
SV RR241	3	1	63137	Metlock/Rizolex/Kabina 7g	Nipsit	20	XBEET	Sebring Thiram
SV RR244TT	3	1	63138	Metlock/Rizolex/Kabina 7g	Nipsit	20	XBEET	Sebring Thiram
SV RR333	4	1	63136	Metlock/Rizolex/Kabina 7g	Nipsit	20	XBEET	Sebring Thiram
SV RR336	4	2	63152	Metlock/Rizolex/Kabina 7g	Nipsit	20	XBEET	Sebring Thiram
ACSC Experimental								
BTS 8500	2	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8512	2	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8524	2	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8572	2	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8603	1	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8606	1	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8610	1	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8614	1	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8629	1	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8634	1	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8642	1	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BTS 8682	1	NC	Exp	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
Crystal 467RR	3	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 572RR	2	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 573RR	2	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 574RR	2	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 575RR	2	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 576RR	2	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 578RR	2	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 684RR	1	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 685RR	1	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 686RR	1	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Crystal 687RR	1	NC	Exp	Kabina 14g	Poncho Beta	45	XBEET	Allegiance Thiram
Hilleshög 9602RR	3	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9707	2	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9708	2	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9711	2	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9892	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9893	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9894	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9895	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9896	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9897	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Maribo MA502	2	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Maribo MA504	2	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Maribo MA611	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Maribo MA612	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Maribo MA613	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Seedex RR1861	1	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
Seedex RR1862	1	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
Seedex RR1863	1	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
Seedex RR1864	1	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
Seedex RR0856	2	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
Seedex RR0858	2	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
SV RR265	1	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
SV RR266	1	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
SV RR267	1	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
SV RR268	1	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
SV RR351	2	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram
SV RR353	2	NC	Exp	Kabina 14g	Nipsit	20	NA	Sebring Thiram

Table 7. Seed Treatments Used on Approved Varieties in Official Variety Trials in 2016

Description	Years in Trial	Years ** Comm.	Seed Lot	Fungicide (Rhizoctonia)	Insecticide (Spring Tails & Maggots)	Tachigaren Rate (Aphanomyces)	Priming Emergence	Fungicide (Damping Off)
ACSC Conventional								
BETA EXP 676	1	NC	Conv	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BETA EXP 687	1	NC	Conv	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
BETA EXP 698	1	NC	Conv	Kabina 14g	Poncho Beta	35	Ultipro	Allegiance Thiram
Crystal 620	1	NC	Conv	Kabina 14g	Poncho Beta	45	XBEEET	Allegiance Thiram
Crystal 622	1	NC	Conv	Kabina 14g	Poncho Beta	45	XBEEET	Allegiance Thiram
Crystal 624	1	NC	Conv	Kabina 14g	Poncho Beta	45	XBEEET	Allegiance Thiram
Crystal R761	10	7	Conv	Kabina 14g	Poncho Beta	45	XBEEET	Allegiance Thiram
Hilleshög 3035Rz	12	10	Conv	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög 9890Rz	1	NC	Conv	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög 9891Rz	1	NC	Conv	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Maribo MA614Rz	1	NC	Conv	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Maribo MA615Rz	1	NC	Conv	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Seedex 8869 Cnv	1	NC	Conv	Kabina 14g	NipsIt	45	NA	Sebring Thiram
Seedex Deuce (SX0873TT)	9	NC	Conv	Kabina 14g	NipsIt	45	NA	Sebring Thiram
SV 48611	1	NC	Conv	Kabina 14g	NipsIt	45	NA	Sebring Thiram
SV 48612	1	NC	Conv	Kabina 14g	NipsIt	45	NA	Sebring Thiram
MDFC Commercial								
BTS 70RR99	7	5	5x15830	Kabina 14g	Poncho Beta	NA	Ultipro	Allegiance Thiram
BTS 7373	4	2	5x20100	Kabina 14g	Poncho Beta	NA	Ultipro	Allegiance Thiram
BTS 73MN	4	2	5x14950	Kabina 14g	Poncho Beta	NA	Ultipro	Allegiance Thiram
Crystal D352	4	2	5x19250	Kabina 14g	NA	NA	NA	Allegiance Thiram
Crystal RR012	7	5	5x15380	Kabina 14g	NA	NA	NA	Allegiance Thiram
Crystal RR228	5	3	5x18540	Kabina 14g	NA	NA	NA	Allegiance Thiram
Crystal RR260	5	3	5x19820	Kabina 14g	NA	NA	NA	Allegiance Thiram
Crystal RR830	9	7	5x20010	Kabina 14g	NA	NA	NA	Allegiance Thiram
Hilleshög 4062RR	9	7	12383150	Vibrance	Cruiser Maxx	20	XBEEET	Apron XL Maxim
Hilleshög 4302RR	6	1	12366397	Vibrance	NA	20	NA	Apron XL Maxim
Hilleshög 9528RR	4	1	12362428	Vibrance	NA	20	NA	Apron XL Maxim
SV RR747	3	1	63143	Kabina 14g	NA	NA	XBEEET	Apron XL LS Thiram
MDFC Experimental								
BTS 7540	2	NC	Exp	Kabina 14g	Poncho Beta	45	Ultipro	Allegiance Thiram
BTS 7550	2	NC	Exp	Kabina 14g	Poncho Beta	45	Ultipro	Allegiance Thiram
BTS 7600	1	NC	Exp	Kabina 14g	Poncho Beta	45	Ultipro	Allegiance Thiram
BTS 7607	1	NC	Exp	Kabina 14g	Poncho Beta	45	Ultipro	Allegiance Thiram
BTS 7618	1	NC	Exp	Kabina 14g	Poncho Beta	45	Ultipro	Allegiance Thiram
BTS 7629	1	NC	Exp	Kabina 14g	Poncho Beta	45	Ultipro	Allegiance Thiram
Crystal D508	2	NC	Exp	Kabina 14g	NA	45	NA	Allegiance Thiram
Crystal D609	1	NC	Exp	Kabina 14g	NA	45	NA	Allegiance Thiram
Crystal D659	1	NC	Exp	Kabina 14g	NA	45	NA	Allegiance Thiram
Crystal D678	1	NC	Exp	Kabina 14g	NA	45	NA	Allegiance Thiram
Hilleshög HIL9880	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9881	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9882	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9883	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög HIL9884	1	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Hilleshög 9602RR	3	NC	Exp	Vibrance	Cruiser Maxx	20	NA	Apron XL Maxim
Maribo MA605	1	NC	Exp	Vibrance	Cruiser Maxx	45	NA	Apron XL Maxim
Maribo MA606	1	NC	Exp	Vibrance	Cruiser Maxx	45	NA	Apron XL Maxim
Maribo MA607	1	NC	Exp	Vibrance	Cruiser Maxx	45	NA	Apron XL Maxim
SV RR746	3	NC	Exp	Kabina 14g	NA	45	NA	Sebring Thiram
SV RR655	2	NC	Exp	Kabina 14g	NA	45	NA	Sebring Thiram
SV RR656	2	NC	Exp	Kabina 14g	NA	45	NA	Sebring Thiram
SV RR761	1	NC	Exp	Kabina 14g	NA	45	NA	Sebring Thiram
SV RR762	1	NC	Exp	Kabina 14g	NA	45	NA	Sebring Thiram
SV RR763	1	NC	Exp	Kabina 14g	NA	45	NA	Sebring Thiram
Seedex RR1964	1	NC	Exp	Kabina 14g	NA	45	NA	Sebring Thiram
Seedex RR1965	1	NC	Exp	Kabina 14g	NA	45	NA	Sebring Thiram

Seed received by ACSC without Tachigaren was treated with Tachigaren for the Aphanomyces nurseries.

NA indicates no treatment applied in this category.

Table 20. 2016 Performance of Varieties - Conventional Official Trial
5 Cnv sites

Unadjusted		Rec/T	Rec/T	Rec/A	Rec/A	Loss	Rev/T	Rev/T	Rev/A	Rev/A	Sugar	Yield	Na	K	AmN	Bolter	Emerg.
Description @	Code	lbs.	%Mean	lbs.	%Mean	Mol %	\$ ++	%Mean	\$ ++	%Mean	%	T/A	ppm	ppm	ppm	/Ac	%
BETA EXP 676	801	319.2	100	11198	99	1.09	52.20	100	1830	99	17.05	35.12	221	1606	335	0	62.7
BETA EXP 687	808	323.4	101	11665	103	1.22	53.52	103	1929	105	17.40	36.00	181	1619	451	0	72.6
BETA EXP 698	815	317.1	99	12066	107	1.13	51.53	99	1957	106	16.98	38.13	193	1615	374	0	69.8
Crystal 620	816	319.0	100	11860	105	1.11	52.14	100	1943	105	17.06	37.07	164	1585	378	0	71.6
Crystal 622	810	326.5	102	10805	96	1.19	54.49	104	1798	98	17.52	33.12	197	1606	424	0	66.6
Crystal 624	804	318.6	100	11539	102	1.03	51.99	100	1882	102	16.96	36.19	193	1556	317	0	63.6
Crystal R761	812	309.8	97	11360	101	1.28	49.24	94	1806	98	16.77	36.69	246	1762	435	0	69.2
Hilleshög 3035Rz	807	327.6	103	10630	94	1.14	54.81	105	1777	96	17.51	32.48	167	1578	400	135	77.7
Hilleshög 9890Rz	814	310.4	97	11030	98	1.16	49.44	95	1760	96	16.68	35.59	213	1576	406	0	75.6
Hilleshög 9891Rz	809	321.3	101	10294	91	1.21	52.84	101	1689	92	17.27	32.10	188	1593	445	0	78.2
Maribo MA614Rz	806	305.5	96	11274	100	1.25	47.89	92	1759	95	16.52	37.06	292	1643	423	0	71.7
Maribo MA615Rz	805	318.2	100	12063	107	1.13	51.87	99	1970	107	17.04	37.92	237	1559	374	0	72.6
Seedex 8869 Cnv	811	320.4	100	12228	108	1.02	52.57	101	2007	109	17.04	38.14	171	1512	329	0	79.6
Seedex Deuce (SX0873TT)	803	323.0	101	11921	106	1.00	53.39	102	1973	107	17.15	36.89	190	1501	306	18	76.2
SV 48611	813	324.7	102	11525	102	1.13	53.90	103	1916	104	17.36	35.49	154	1559	405	0	66.9
SV 48612	802	312.9	98	11360	101	1.15	50.23	96	1823	99	16.79	36.40	195	1586	399	0	63.5
BTS 81RR17(Check)	817	315.7	99	11488	102	1.25	51.10	98	1855	101	17.03	36.41	193	1702	444	0	77.2
BTS 80RR52(Check)	818	323.0	101	11688	104	1.15	53.39	102	1935	105	17.31	36.02	171	1602	403	0	72.7
Hilleshög 4302RR (Check)	819	326.3	102	10546	94	1.02	54.41	104	1755	95	17.34	32.32	193	1568	306	0	64.2
Crystal 101RR (Check)	820	319.1	100	11228	100	1.20	52.16	100	1835	100	17.15	35.38	217	1720	397	0	71.5
ACFILL #39	821	309.5	97	9529	84	1.36	49.14	94	1514	82	16.84	30.87	273	1658	517	18	56.3
Susc 3N - Aph Tol	822	325.8	102	9540	85	1.18	54.26	104	1581	86	17.47	29.32	225	1579	410	0	53.5
RR Filler #02	823	322.6	101	12088	107	1.05	53.26	102	1995	108	17.18	37.50	186	1575	325	0	72.6
RR Filler #08	824	322.1	101	11713	104	1.15	53.09	102	1931	105	17.26	36.33	160	1567	418	0	74.4
Benchmark Mean		321.0		11238		1.16	52.77		1845		17.21	35.03	194	1648	388		71.4
Trial Mean		319.2		11277		1.15	52.20		1842		17.11	35.36	201	1601	392		70.0
Coeff. of Var. (%)		2.9		7.3		8.1	5.6		8.5		2.5	7.0	22.0	5.2	13.8		12.2
Mean LSD (0.05)		6.5		866		0.08	2.03		155		0.29	2.65	33	71	47		7.2
Mean LSD (0.01)		8.6		1147		0.10	2.69		206		0.39	3.51	43	94	63		9.6
Sig Lvl		**		**		**	**		**		**	**	**	**	**		**

* 2016 Data from 5 sites

Created 11-3-2016

+ Na, K, AmN, Bolter, emergence & tare not adjusted to commercial status. %Mn = percentage of trial mean.

Trial # = 16ACScnv

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$52.44 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Table 21. 2016 Performance of Varieties - Conventional Official Trial
Casselton ND - All Characters

Unadjusted		Rec/T	Rec/T	Rec/A	Rec/A	Loss	Rev/T	Rev/T	Rev/A	Rev/A	Sugar	Yield	Na	K	AmN	Bolter	Emerg.
Description @	Code	lbs.	%Mean	lbs.	%Mean	Mol %	\$ ++	%Mean	\$ ++	%Mean	%	T/A	ppm	ppm	ppm	/Ac	%
BETA EXP 676	801	321.9	103	13456	108	1.46	53.03	105	2212	110	17.54	41.72	223	1943	536	0	48.6
BETA EXP 687	808	317.8	101	13011	104	1.71	51.75	103	2119	105	17.60	40.94	167	1916	758	0	51.7
BETA EXP 698	815	305.3	97	13749	110	1.68	47.85	95	2152	107	16.95	45.04	237	2001	684	0	45.4
Crystal 620	816	317.5	101	14116	113	1.51	51.65	103	2294	114	17.38	44.50	164	1866	612	0	46.3
Crystal 622	810	320.3	102	12163	97	1.73	52.54	104	1994	99	17.73	37.76	188	1954	745	0	37.7
Crystal 624	804	313.2	100	12463	100	1.43	50.31	100	1994	99	17.10	39.89	196	1939	522	0	46.9
Crystal R761	812	302.4	97	11782	94	1.79	46.94	93	1837	91	16.90	38.98	243	2084	752	0	45.8
Hilleshög 3035Rz	807	321.3	103	11890	95	1.60	52.84	105	1947	97	17.67	37.09	174	1920	662	383	62.4
Hilleshög 9890Rz	814	296.6	95	11973	96	1.62	45.12	90	1836	91	16.44	40.40	230	1903	667	0	59.6
Hilleshög 9891Rz	809	314.7	100	12395	99	1.69	50.79	101	2002	100	17.42	39.32	200	1904	730	0	62.6
Maribo MA614Rz	806	292.9	93	12167	97	1.84	43.96	87	1817	90	16.49	41.29	350	2001	767	0	44.8
Maribo MA615Rz	805	316.5	101	13187	105	1.57	51.36	102	2135	106	17.40	41.73	242	1849	632	0	64.8
Seedex 8869 Cnv	811	312.5	100	12206	98	1.52	50.10	100	1957	97	17.15	39.14	213	1969	586	0	52.8
Seedex Deuce (SX0873TT)	803	318.4	102	11583	93	1.43	51.92	103	1898	94	17.34	36.28	209	1927	521	0	57.8
SV 48611	813	318.2	102	11685	93	1.69	51.89	103	1905	95	17.60	36.65	166	1990	708	0	52.9
SV 48612	802	313.9	100	11513	92	1.50	50.53	100	1859	93	17.21	37.02	183	1821	612	0	46.3
BTS 81RR17(Check)	817	307.8	98	13609	109	1.77	48.63	97	2137	106	17.15	44.03	177	2048	762	0	69.2
BTS 80RR52(Check)	818	312.0	100	13630	109	1.71	49.92	99	2184	109	17.30	43.48	173	1947	738	0	52.4
Hilleshög 4302RR (Check)	819	327.1	104	11790	94	1.34	54.66	109	1971	98	17.69	35.95	210	1862	472	0	50.0
Crystal 101RR (Check)	820	316.4	101	12845	103	1.74	51.30	102	2089	104	17.57	40.90	199	2051	733	0	47.0
ACFILL #39	821	303.6	97	10387	83	1.78	47.30	94	1636	81	16.97	34.27	234	2003	764	0	39.0
Susc 3N - Aph Tol	822	314.8	100	10702	86	1.76	50.82	101	1729	86	17.50	33.99	224	1963	755	0	30.9
RR Filler #02	823	320.3	102	14685	117	1.44	52.53	104	2403	120	17.47	46.28	194	1808	567	0	57.1
RR Filler #08	824	313.5	100	13248	106	1.66	50.41	100	2113	105	17.34	42.09	168	1811	741	0	59.1
Benchmark Mean		315.8		12969		1.64	51.13		2095		17.43	41.09	190	1977	676		54.6
Trial Mean		313.3		12510		1.62	50.34		2009		17.29	39.95	207	1937	668		51.3
Coeff. of Var. (%)		3.2		6.5		7.7	6.3		8.2		2.5	6.0	21.2	4.4	11.7		15.4
F Value		2.29		7		4.28	2.29		5		2.30	8.07	3	3	5		5.3
Mean LSD (0.05)		15.1		1153		0.19	4.72		240		0.64	3.36	64	134	118		11.3
Mean LSD (0.01)		20.0		1532		0.25	6.27		319		0.85	4.46	85	179	157		15.0
Sig Lvl		**		**		**	**		**		**	**	**	**	**		**

* 2016 Data from Casselton ND

+ Na, K, AmN, Bolter, emergence & tare not adjusted to commercial status. %Mn = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$52.44 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 10/28/2016

Trial # = 168202

Table 22. 2016 Performance of Varieties - Conventional Official Trial
Ada MN - All Characters

Unadjusted		Rec/T	Rec/T	Rec/A	Rec/A	Loss	Rev/T	Rev/T	Rev/A	Rev/A	Sugar	Yield	Na	K	AmN	Bolter	Emerg.
Description @	Code	lbs.	%Mean	lbs.	%Mean	Mol %	\$ ++	%Mean	\$ ++	%Mean	%	T/A	ppm	ppm	ppm	/Ac	%
BETA EXP 676	801	321.0	98	11334	95	0.98	52.75	96	1855	93	17.04	35.28	239	1469	287	0	48.0
BETA EXP 687	808	336.3	103	13381	112	0.99	57.55	105	2272	114	17.82	39.78	119	1361	365	0	60.0
BETA EXP 698	815	332.1	101	11918	100	0.90	56.23	102	2025	101	17.51	35.74	124	1410	281	0	50.9
Crystal 620	816	331.4	101	11807	99	0.90	56.01	102	2000	100	17.46	35.38	129	1351	292	0	64.9
Crystal 622	810	339.8	104	12146	102	0.99	58.64	107	2097	105	17.97	35.77	147	1371	345	0	50.9
Crystal 624	804	331.9	101	12268	103	0.84	56.16	102	2067	103	17.44	37.02	165	1322	239	0	46.1
Crystal R761	812	309.5	94	11466	96	1.22	49.14	90	1826	91	16.70	36.91	259	1645	415	0	53.4
Hilleshög 3035Rz	807	330.2	101	12023	101	0.99	55.63	101	2042	102	17.49	36.15	152	1313	360	0	72.5
Hilleshög 9890Rz	814	320.1	98	11334	95	1.03	52.48	96	1853	93	17.03	35.74	162	1304	388	0	63.0
Hilleshög 9891Rz	809	327.6	100	10988	92	1.03	54.81	100	1846	92	17.40	33.75	208	1378	350	0	65.7
Maribo MA614Rz	806	312.8	95	12557	105	1.12	50.20	91	2004	100	16.75	40.43	284	1460	370	0	65.7
Maribo MA615Rz	805	330.2	101	13663	114	0.94	55.64	101	2322	116	17.46	41.19	223	1371	285	0	56.1
Seedex 8869 Cnv	811	333.3	102	13624	114	0.90	56.60	103	2290	114	17.56	41.35	144	1332	285	0	74.0
Seedex Deuce (SX0873TT)	803	331.1	101	12833	107	0.86	55.91	102	2176	109	17.41	38.51	159	1313	263	0	69.2
SV 48611	813	337.8	103	12047	101	0.95	58.03	106	2088	104	17.83	35.78	111	1372	327	0	60.5
SV 48612	802	315.6	96	12224	102	1.07	51.08	93	1975	99	16.86	38.62	181	1413	392	0	56.4
BTS 81RR17(Check)	817	330.4	101	12304	103	1.04	55.71	101	2060	103	17.56	37.17	165	1473	356	0	65.6
BTS 80RR52(Check)	818	331.5	101	12367	103	1.00	56.04	102	2109	105	17.57	37.00	147	1368	357	0	66.8
Hilleshög 4302RR (Check)	819	333.2	102	10357	87	0.85	56.57	103	1752	88	17.53	30.95	162	1300	262	0	46.6
Crystal 101RR (Check)	820	330.6	101	10722	90	1.13	55.76	102	1804	90	17.66	32.97	216	1543	385	0	60.5
ACFILL #39	821	320.8	98	9195	77	1.27	52.68	96	1508	75	17.30	29.01	261	1446	497	0	32.1
Susc 3N - Aph Tol	822	317.7	97	9282	78	0.95	51.72	94	1486	74	16.84	29.18	256	1309	298	0	38.0
RR Filler #02	823	332.6	101	13682	115	0.88	56.38	103	2327	116	17.50	40.80	179	1344	261	0	71.4
RR Filler #08	824	329.9	101	13244	111	1.05	55.55	101	2236	112	17.56	40.21	136	1487	374	0	57.0
Benchmark Mean		331.4		11438		1.01	56.02		1931		17.58	34.52	172	1421	340		59.8
Trial Mean		327.8		11949		1.00	54.89		2001		17.39	36.45	180	1394	335		58.1
Coeff. of Var. (%)		3.0		8.8		8.7	5.6		9.5		2.5	8.6	27.3	6.9	13.6		15.9
F Value		2.24		5		6.19	2.24		5		2.07	4.91	4	3	6		5.0
Mean LSD (0.05)		15.2		1504		0.12	4.77		283		0.68	4.43	72	141	68		13.6
Mean LSD (0.01)		20.2		1997		0.17	6.34		376		0.91	5.89	96	187	90		18.1
Sig Lvl		**		**		**	**		**		*	**	**	**	**		**

* 2016 Data from Ada MN

+ Na, K, AmN, Bolter, emergence & tare not adjusted to commercial status. %Mn = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$52.44 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 10/28/2016

Trial # = 168205

Table 23. 2016 Performance of Varieties - Conventional Official Trial
Crookston MN - All Characters

Unadjusted		Rec/T	Rec/T	Rec/A	Rec/A	Loss	Rev/T	Rev/T	Rev/A	Rev/A	Sugar	Yield	Na	K	AmN	Bolter	Emerg.
Description @	Code	lbs.	%Mean	lbs.	%Mean	Mol %	\$ ++	%Mean	\$ ++	%Mean	%	T/A	ppm	ppm	ppm	/Ac	%
BETA EXP 676	801	333.1	100	10600	95	0.86	56.55	99	1798	95	17.51	31.90	234	1333	228	0	63.2
BETA EXP 687	808	336.4	101	10759	97	1.01	57.57	101	1843	98	17.83	31.99	172	1419	340	0	86.3
BETA EXP 698	815	332.5	99	12585	113	0.87	56.34	99	2134	113	17.49	37.83	163	1396	244	0	87.5
Crystal 620	816	333.2	100	12727	115	0.91	56.56	99	2160	114	17.57	38.24	152	1456	266	0	85.6
Crystal 622	810	338.5	101	9550	86	0.93	58.25	102	1643	87	17.85	28.24	213	1376	277	0	84.1
Crystal 624	804	336.5	101	11558	104	0.80	57.61	101	1977	105	17.63	34.40	169	1301	215	0	75.3
Crystal R761	812	327.2	98	11206	101	0.95	54.69	96	1875	99	17.31	34.21	209	1459	274	0	83.7
Hilleshög 3035Rz	807	341.2	102	10252	92	0.87	59.07	104	1776	94	17.94	30.04	163	1348	259	0	86.9
Hilleshög 9890Rz	814	321.5	96	11492	104	0.99	52.90	93	1889	100	17.07	35.75	244	1382	310	0	87.2
Hilleshög 9891Rz	809	341.9	102	9619	87	0.87	59.31	104	1672	88	17.96	28.07	135	1349	263	0	87.9
Maribo MA614Rz	806	328.8	98	10412	94	0.88	55.19	97	1747	92	17.32	31.69	218	1349	247	0	85.0
Maribo MA615Rz	805	327.5	98	11674	105	0.92	54.80	96	1953	103	17.29	35.61	247	1335	268	0	83.8
Seedex 8869 Cnv	811	337.5	101	12994	117	0.76	57.93	102	2228	118	17.64	38.48	151	1210	216	0	91.4
Seedex Deuce (SX0873TT)	803	339.0	101	11736	106	0.78	58.38	102	2022	107	17.72	34.60	176	1228	210	0	87.8
SV 48611	813	339.0	101	11920	107	0.86	58.38	102	2052	109	17.81	35.20	158	1296	267	0	68.6
SV 48612	802	336.9	101	12090	109	0.84	57.72	101	2073	110	17.69	35.84	154	1351	236	0	69.7
BTS 81RR17(Check)	817	334.2	100	10884	98	1.00	56.89	100	1851	98	17.71	32.61	190	1449	320	0	79.1
BTS 80RR52(Check)	818	336.4	101	11104	100	0.91	57.59	101	1899	100	17.73	33.06	178	1386	270	0	79.7
Hilleshög 4302RR (Check)	819	338.3	101	10283	93	0.82	58.17	102	1771	94	17.73	30.37	168	1384	203	0	77.8
Crystal 101RR (Check)	820	334.1	100	11259	101	0.93	56.87	100	1917	101	17.64	33.64	198	1530	244	0	81.5
ACFILL #39	821	322.6	96	9926	89	1.13	53.25	93	1635	87	17.27	30.88	287	1406	399	0	72.3
Susc 3N - Aph Tol	822	339.1	101	9496	86	0.90	58.44	103	1633	86	17.86	28.08	209	1336	264	0	69.8
RR Filler #02	823	338.7	101	11491	104	0.84	58.30	102	1977	105	17.77	33.90	174	1370	222	0	73.1
RR Filler #08	824	335.8	100	10828	98	0.88	57.39	101	1848	98	17.67	32.31	157	1318	274	0	90.0
Benchmark Mean		335.8		10883		0.92	57.38		1860		17.70	32.42	184	1437	259		79.5
Trial Mean		334.6		11102		0.90	57.01		1890		17.62	33.21	188	1365	263		80.7
Coeff. of Var. (%)		2.1		5.0		7.4	3.9		5.8		1.8	4.9	18.6	4.8	14.3		11.5
F Value		2.08		11		5.14	2.08		8		1.88	12.19	4	4	5		2.7
Mean LSD (0.05)		10.7		842		0.10	3.34		165		0.47	2.47	54	99	58		13.5
Mean LSD (0.01)		14.2		1119		0.14	4.43		219		0.63	3.29	72	131	77		18.0
Sig Lvl		*		**		**	*		**		*	**	**	**	**		**

* 2016 Data from Crookston MN

+ Na, K, AmN, Bolter, emergence & tare not adjusted to commercial status. %Mn = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$52.44 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 10/28/2016

Trial # = 168208

Table 24. 2016 Performance of Varieties - Conventional Official Trial
Grand Forks ND - All Characters

Unadjusted Description @	Code	Rec/T lbs.	Rec/T %Mean	Rec/A lbs.	Rec/A %Mean	Loss Mol %	Rev/T \$ ++	Rev/T %Mean	Rev/A \$ ++	Rev/A %Mean	Sugar %	Yield T/A	Na ppm	K ppm	AmN ppm	Bolter /Ac	Emerg. %
BETA EXP 676	801	309.3	99	11550	99	1.06	49.09	98	1838	99	16.49	37.54	182	1693	301	0	80.1
BETA EXP 687	808	320.4	103	11676	100	1.11	52.58	105	1919	103	17.15	36.10	149	1664	362	0	78.5
BETA EXP 698	815	307.4	99	12289	106	1.09	48.51	97	1938	104	16.46	40.00	203	1726	314	0	75.4
Crystal 620	816	312.2	100	11647	100	1.04	50.00	100	1871	101	16.66	37.01	153	1610	326	0	77.3
Crystal 622	810	318.9	102	10681	92	1.17	52.09	105	1732	93	17.10	33.89	200	1692	380	0	81.6
Crystal 624	804	305.3	98	11779	101	1.01	47.83	96	1841	99	16.29	38.66	209	1626	283	0	75.4
Crystal R761	812	303.8	97	12568	108	1.23	47.35	95	1962	106	16.44	41.24	207	1937	371	0	79.7
Hilleshög 3035Rz	807	324.4	104	10910	94	1.04	53.82	108	1809	97	17.27	33.61	148	1581	335	194	87.1
Hilleshög 9890Rz	814	309.5	99	11859	102	1.06	49.16	99	1895	102	16.53	38.09	172	1635	326	0	83.6
Hilleshög 9891Rz	809	315.9	101	10341	89	1.18	51.16	103	1666	90	16.97	32.93	157	1651	415	0	83.2
Maribo MA614Rz	806	297.1	95	11449	98	1.15	45.25	91	1749	94	15.99	38.55	227	1715	353	0	78.9
Maribo MA615Rz	805	312.8	100	12401	107	1.13	50.19	101	1984	107	16.76	39.93	196	1655	366	0	69.9
Seedex 8869 Cnv	811	305.8	98	13060	112	0.93	47.98	96	2055	111	16.24	42.37	140	1590	251	0	84.8
Seedex Deuce (SX0873TT)	803	319.9	103	13162	113	0.91	52.42	105	2160	116	16.90	41.09	133	1608	224	95	79.3
SV 48611	813	313.3	101	12153	104	1.06	50.34	101	1949	105	16.73	38.93	145	1566	356	0	78.5
SV 48612	802	296.4	95	11783	101	1.17	45.04	90	1792	96	16.00	39.64	206	1676	387	0	69.9
BTS 81RR17(Check)	817	302.7	97	11440	98	1.14	47.01	94	1775	96	16.26	37.89	158	1757	353	0	86.3
BTS 80RR52(Check)	818	321.8	103	11955	103	1.01	53.00	106	1965	106	17.13	37.04	142	1613	307	0	84.8
Hilleshög 4302RR (Check)	819	320.1	103	10950	94	0.97	52.48	105	1792	96	16.98	34.25	168	1572	271	0	81.6
Crystal 101RR (Check)	820	305.2	98	11629	100	1.10	47.80	96	1826	98	16.33	38.14	194	1809	286	0	83.2
ACFILL #39	821	300.7	96	10352	89	1.32	46.38	93	1598	86	16.33	34.53	239	1749	464	0	73.4
Susc 3N - Aph Tol	822	329.3	106	10042	86	1.12	55.34	111	1679	90	17.60	30.61	191	1631	369	0	66.0
RR Filler #02	823	313.0	100	11921	102	0.97	50.25	101	1899	102	16.63	38.35	151	1653	259	0	75.8
RR Filler #08	824	315.6	101	11553	99	1.09	51.06	102	1872	101	16.86	36.66	148	1647	352	0	82.4
Benchmark Mean		312.5		11494		1.06	50.07		1840		16.68	36.83	165	1688	304		84.0
Trial Mean		311.7		11631		1.09	49.84		1857		16.67	37.38	176	1669	334		79.0
Coeff. of Var. (%)		2.8		6.2		8.8	5.5		7.2		2.6	6.4	18.0	4.6	16.5		10.6
F Value		2.98		4		3.53	2.98		3		2.89	5.23	3	4	3		1.7
Mean LSD (0.05)		13.8		1102		0.14	4.32		208		0.67	3.57	50	115	85		11.8
Mean LSD (0.01)		18.3		1465		0.19	5.74		276		0.89	4.74	67	153	113		15.7
Sig Lvl		**		**		**	**		**		**	**	**	**	**		**

* 2016 Data from Grand Forks ND

Created 10/28/2016
Trial # = 168209

+ Na, K, AmN, Bolter, emergence & tare not adjusted to commercial status. %Mn = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$52.44 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Table 25. 2016 Performance of Varieties - Conventional Official Trial
St Thomas ND - All Characters

Unadjusted		Rec/T	Rec/T	Rec/A	Rec/A	Loss	Rev/T	Rev/T	Rev/A	Rev/A	Sugar	Yield	Na	K	AmN	Bolter	Emerg.
Description @	Code	lbs.	%Mean	lbs.	%Mean	Mol %	\$ ++	%Mean	\$ ++	%Mean	%	T/A	ppm	ppm	ppm	/Ac	%
BETA EXP 676	801	313.4	101	9214	100	1.07	50.37	103	1481	102	16.75	29.40	234	1613	320	0	73.3
BETA EXP 687	808	303.1	98	9532	104	1.28	47.15	96	1477	102	16.44	31.57	307	1717	423	0	85.5
BETA EXP 698	815	308.7	100	9869	107	1.11	48.89	100	1564	107	16.54	31.95	242	1555	353	0	90.0
Crystal 620	816	300.4	97	9097	99	1.19	46.29	95	1393	96	16.20	30.48	223	1663	397	0	84.1
Crystal 622	810	317.1	103	9316	101	1.16	51.52	105	1515	104	17.01	29.35	227	1651	376	0	79.1
Crystal 624	804	307.1	99	9569	104	1.06	48.39	99	1514	104	16.42	31.04	229	1571	323	0	73.0
Crystal R761	812	304.8	99	9579	104	1.20	47.67	97	1500	103	16.44	31.40	316	1701	363	0	84.1
Hilleshög 3035Rz	807	319.0	103	8065	88	1.19	52.14	107	1314	90	17.14	25.36	204	1710	392	95	80.6
Hilleshög 9890Rz	814	304.3	99	8592	93	1.14	47.53	97	1340	92	16.36	28.26	267	1681	341	0	85.6
Hilleshög 9891Rz	809	306.4	99	7891	86	1.30	48.18	98	1245	86	16.61	25.66	244	1688	464	0	93.0
Maribo MA614Rz	806	296.6	96	9879	107	1.26	45.12	92	1495	103	16.09	33.46	384	1694	382	0	85.4
Maribo MA615Rz	805	304.3	99	9557	104	1.07	47.53	97	1493	103	16.29	31.39	274	1554	316	0	88.2
Seedex 8869 Cnv	811	311.0	101	9339	102	1.00	49.63	101	1497	103	16.55	29.89	211	1463	310	0	94.1
Seedex Deuce (SX0873TT)	803	307.4	100	10368	113	1.01	48.49	99	1617	111	16.39	34.11	258	1448	307	0	86.1
SV 48611	813	316.2	102	9806	107	1.10	51.25	105	1597	110	16.91	30.86	183	1556	373	0	74.1
SV 48612	802	297.7	96	9143	99	1.16	45.47	93	1386	95	16.05	30.91	252	1657	368	0	74.0
BTS 81RR17(Check)	817	305.6	99	9298	101	1.29	47.93	98	1448	100	16.57	30.65	265	1805	427	0	84.7
BTS 80RR52(Check)	818	315.0	102	9285	101	1.13	50.87	104	1507	104	16.88	29.33	218	1679	351	0	80.0
Hilleshög 4302RR (Check)	819	313.1	101	9116	99	1.11	50.27	103	1455	100	16.77	29.31	255	1713	315	0	64.8
Crystal 101RR (Check)	820	308.7	100	9761	106	1.13	48.89	100	1550	107	16.56	31.54	265	1696	325	0	85.1
ACFILL #39	821	301.0	97	7662	83	1.32	46.47	95	1184	81	16.37	25.43	351	1675	450	95	65.8
Susc 3N - Aph Tol	822	326.5	106	8195	89	1.15	54.48	111	1369	94	17.48	25.06	249	1634	369	0	62.6
RR Filler #02	823	306.2	99	8574	93	1.09	48.11	98	1349	93	16.41	27.97	229	1699	314	0	85.0
RR Filler #08	824	318.5	103	9888	108	1.07	51.98	106	1624	112	16.99	30.83	187	1552	347	0	84.1
Benchmark Mean		310.6		9365		1.17	49.49		1490		16.70	30.21	251	1723	354		78.6
Trial Mean		308.8		9191		1.15	48.94		1455		16.59	29.80	253	1641	363		80.9
Coeff. of Var. (%)		3.3		9.2		6.5	6.5		11.4		2.8	8.0	22.1	5.3	10.7		8.6
F Value		1.82		3		4.91	1.82		2		1.89	4.21	3	3	5		5.6
Mean LSD (0.05)		15.2		1190		0.11	4.78		234		0.70	3.38	84	134	59		10.3
Mean LSD (0.01)		20.3		1581		0.15	6.35		311		0.93	4.49	112	178	78		13.7
Sig Lvl		*		**		**	*		*		*	**	**	**	**		**

* 2016 Data from St Thomas ND

+ Na, K, AmN, Bolter, emergence & tare not adjusted to commercial status. %Mn = percentage of trial mean.

@ Some varieties not approved for sale. Refer to approval list for approval status.

++ Revenue estimates are based on a \$52.44 beet payment at 17.5% sugar & 1.5% loss to molasses and does not consider hauling costs.

Created 10/28/2016

Trial # = 168211

Table 26. Calculation for Approval of Sugarbeet Varieties for ACSC Market for 2017

Description	Approval Status	Rec/Ton				Rev/Acre				R/T + S/A	Cercospora Rating +				
		2015	2016	2 Yr	% Bench	2015	2016	2 Yr	% Bench		2014	2015	2016	2 Yr Mean	3 Yr Mean
Previously Approved (3 Yr)															
BTS 80RR52	Approved	317.7	316.8	317.3	101.4	1701	1960	1831	105.8	207.1	4.22	4.11	4.28		4.20
BTS 82RR28	Approved	313.0	309.4	311.2	99.4	1699	1888	1794	103.6	203.1	4.62	4.89	4.81		4.78
BTS 82RR33	Approved	317.0	310.9	314.0	100.3	1773	1877	1825	105.5	205.8	4.70	4.58	5.05		4.78
BTS 8337	Approved	334.1	325.2	329.7	105.3	1756	1877	1817	105.0	210.3	4.52	4.49	4.62		4.54
BTS 8363	Approved	309.7	309.8	309.8	99.0	1732	1937	1835	106.0	205.0	3.85	3.83	4.33		4.00
BTS 83CN	Approved	315.4	312.1	313.8	100.2	1689	1843	1766	102.1	202.3	4.60	4.65	4.65		4.63
Crystal 093RR	Approved	325.5	319.1	322.3	103.0	1742	1942	1842	106.4	209.4	4.88	4.76	4.95		4.87
Crystal 101RR	Approved	313.7	306.3	310.0	99.0	1618	1849	1734	100.2	199.2	4.26	4.65	4.59		4.50
Crystal 246RR	Approved	311.2	305.3	308.3	98.5	1703	1845	1774	102.5	201.0	4.52	4.49	4.81		4.61
Crystal 247RR	Approved	318.5	314.5	316.5	101.1	1812	2014	1913	110.5	211.7	4.20	4.19	4.65		4.35
Crystal 355RR	Approved	320.0	322.3	321.2	102.6	1624	1947	1786	103.2	205.8	4.58	4.43	4.60		4.54
Crystal 467RR	Approved	311.1	301.0	306.1	97.8	1765	1845	1805	104.3	202.1	4.40	4.34	4.69		4.47
Crystal 981RR	Approved	311.6	304.7	308.2	98.5	1594	1787	1691	97.7	196.1	4.89	5.05	5.06		5.00
Crystal 986RR	Approved	321.5	318.8	320.2	102.3	1646	1895	1771	102.3	204.6	4.61	4.97	4.75		4.78
Hilleshög 4094RR	Approved	305.1	305.3	305.2	97.5	1504	1717	1611	93.1	190.6	4.46	4.30	4.30		4.35
Hilleshög 4302RR	Approved	319.5	317.4	318.5	101.7	1624	1801	1713	99.0	200.7	4.52	4.13	4.13		4.26
Hilleshög 4448RR	Approved	324.4	309.1	316.8	101.2	1818	1873	1846	106.6	207.8	5.28	5.29	5.21		5.26
Hilleshög 9517RR	Approved	320.8	321.7	321.3	102.6	1482	1786	1634	94.4	197.1	4.39	4.03	4.26		4.22
Hilleshög 9528RR	Approved	322.6	319.1	320.9	102.5	1762	1982	1872	108.2	210.7	4.97	5.16	4.73		4.95
Maribo 102	Not Approved	325.9	315.7	320.8	102.5	1873	1943	1908	110.3	212.7	5.54	5.77	5.30		5.54
Maribo 109	Approved	334.0	332.4	332.3	106.5	1568	1889	1729	99.9	206.3	4.68	4.56	4.14		4.46
Maribo MA305	Approved	308.8	307.5	308.2	98.5	1634	1773	1704	98.4	196.9	4.83	4.76	4.72		4.77
SV RR241	Approved	317.7	319.3	318.5	101.8	1638	1929	1784	103.1	204.8	4.35	3.83	4.53		4.24
SV RR244TT	Approved	316.3	317.6	317.0	101.3	1687	1877	1782	103.0	204.2	5.51	4.17	4.46		4.71
SV RR333	Approved	319.7	318.3	319.0	101.9	1775	1950	1863	107.6	209.5	4.81	4.54	4.85		4.73
SV RR336	Approved	309.5	301.0	305.3	97.5	1528	1710	1619	93.6	191.1	4.53	3.94	4.62		4.36
SX Canyon RR(844TT)	Approved	314.6	317.4	316.0	101.0	1680	1926	1803	104.2	205.1	5.46	4.02	4.76		4.75
SX Cruze RR(846)	Approved	309.1	299.6	304.4	97.2	1642	1712	1677	96.9	194.1	4.83	4.57	4.65		4.69
SX Terrain RR(848)	Approved	316.3	318.2	317.3	101.4	1685	1818	1752	101.2	202.6	4.71	4.80	4.67		4.73
SX Winchester RR	Approved	323.3	320.5	321.9	102.8	1580	1831	1706	98.6	201.4	4.89	3.67	3.97		4.18
Candidates for Approval (2 Yr)															
BTS 8500	Approved	312.8	308.7	310.8	99.3	1738	1966	1852	107.0	206.3	--	4.45	4.54	4.50	--
BTS 8512	Approved	318.8	315.8	317.3	101.4	1713	1917	1815	104.9	206.3	--	4.12	4.04	4.08	--
BTS 8524	Approved	306.9	305.7	306.3	97.9	1742	1954	1848	106.8	204.6	--	4.40	4.74	4.57	--
BTS 8572	Approved	327.4	323.3	325.4	103.9	1719	1913	1816	104.9	208.9	--	4.60	4.41	4.50	--
Crystal 572RR	Approved	327.9	324.7	326.3	104.2	1724	1982	1853	107.1	211.3	--	4.65	4.57	4.61	--
Crystal 573RR	Approved	323.8	321.4	322.6	103.1	1756	1970	1863	107.7	210.7	--	4.15	4.35	4.25	--
Crystal 574RR	Approved	311.2	307.8	309.5	98.9	1800	2070	1935	111.8	210.7	--	4.30	4.51	4.41	--
Crystal 575RR	Approved	313.0	310.1	311.6	99.5	1759	1909	1834	106.0	205.5	--	4.53	4.53	4.53	--
Crystal 576RR	Not Approved	314.9	309.7	312.3	99.8	1654	1830	1742	100.7	200.4	--	4.55	4.54	4.55	--
Crystal 578RR	Approved	320.5	316.6	318.6	101.8	1797	2017	1907	110.2	212.0	--	4.93	4.87	4.90	--
Hilleshög 9602RR	Not Approved	305.8	302.9	304.4	97.2	1593	1878	1736	100.3	197.5	4.67	4.66	4.67	4.66	4.67
Hilleshög HIL9707	Not Approved	316.1	305.2	310.7	99.2	1552	1739	1646	95.1	194.3	--	4.60	4.53	4.56	--
Hilleshög HIL9708	Approved	323.3	312.4	317.9	101.5	1694	1857	1776	102.6	204.1	--	5.04	4.74	4.89	--
Hilleshög HIL9711	Approved	315.4	308.7	312.1	99.7	1682	1866	1774	102.5	202.2	--	5.06	4.60	4.83	--
Maribo MA502	Not Approved	313.2	302.7	308.0	98.4	1682	1825	1754	101.3	199.7	--	5.04	4.79	4.91	--
Maribo MA504	Approved	318.1	305.5	311.8	99.6	1865	1929	1897	109.6	209.2	--	5.25	5.04	5.14	--
Seedex RR0856(Marathon)	Approved	323.9	315.4	319.7	102.1	1831	2039	1935	111.8	213.9	--	5.37	4.44	4.91	--
Seedex RR0858(Avalanche)	Approved	326.8	320.7	323.8	103.4	1676	1916	1796	103.8	207.2	--	4.15	4.74	4.45	--
SV RR351	Approved	320.9	313.2	317.1	101.3	1621	1971	1796	103.8	205.1	--	4.62	4.50	4.56	--
SV RR353	Approved	317.3	317.1	317.2	101.3	1669	1954	1812	104.7	206.0	--	3.72	4.20	3.96	--
Benchmark Varieties															
Hilleshög 4012RR	Benchmark	2014	2015	2016		2014	2015	2016							
Crystal 875RR	Benchmark	313.7				1418									
BTS 80RR52	Benchmark	312.9	308.5			1452	1490								
BTS 81RR17(Check)	Benchmark	318.4	317.7	316.8		1530	1701	1960							
Hilleshög 4302RR	Benchmark	315.0	307.6	310.2		1443	1574	1845							
Crystal 101RR	Benchmark	319.5	317.4			1624	1801								
	Benchmark		306.3				1849								
Benchmark mean		315.00	313.33	312.68	313.0	1460.8	1597.3	1863.8	1730.5						

+ All Cercospora ratings 2014-2016 were adjusted to 1982 basis.

Variety approval criteria include: 1) 2 years of official trial data, 2) Cercospora rating must not exceed 5.20 (1982 adjusted data), 3a) R/T >= 100% of Bench or 3b) R/T >= 97% and R/T + S/A >= 202% of Bench. 3 yrs of data may be considered for initial approval.

Bench for 2016 added Crystal 101RR and dropped Crystal 875RR
To maintain approval, the 3-year Cercospora rating must not exceed 5.40 (1982 adjusted data)

Table 27. Projected Calculation for Approval of Sugarbeet Varieties for ACSC Market

Description	Approval ^ Likely	Rec/Ton		Rev/Acre		R/T + \$/A Bench	CR Rating ^^ 2016
		2016	% Bench	2016	% Bench		
Candidates for Retesting (1 Yr)							
BTS 8603	On Track	326.3	104.4	1905	102.2	206.6	4.96
BTS 8606	On Track	317.3	101.5	2000	107.3	208.8	5.12
BTS 8610	On Track	312.7	100.0	1818	97.5	197.6	4.77
BTS 8614	On Track	311.2	99.5	1936	103.9	203.4	4.66
BTS 8629	On Track	307.5	98.3	1955	104.9	203.2	4.59
BTS 8634	On Track	312.8	100.0	1826	98.0	198.0	4.52
BTS 8642	On Track	322.8	103.2	1831	98.2	201.5	4.74
BTS 8682	On Track	319.2	102.1	1830	98.2	200.3	4.32
Crystal 684RR	On Track	308.1	98.5	2111	113.3	211.8	4.57
Crystal 685RR	On Track	313.0	100.1	1910	102.5	202.6	4.67
Crystal 686RR	On Track	323.5	103.5	1910	102.5	205.9	4.70
Crystal 687RR	Not On Track	307.3	98.3	1859	99.7	198.0	4.86
Hilleshög HIL9892	Not On Track	311.1	99.5	1851	99.3	198.8	3.95
Hilleshög HIL9893	Not On Track	307.4	98.3	1894	101.6	199.9	5.03
Hilleshög HIL9894	Not On Track	305.5	97.7	1690	90.7	188.4	4.44
Hilleshög HIL9895	On Track	313.7	100.3	1873	100.5	200.8	4.49
Hilleshög HIL9896	Not On Track	304.7	97.4	1909	102.4	199.9	4.48
Hilleshög HIL9897	Not On Track	299.8	95.9	1889	101.4	197.2	4.52
Maribo MA611	On Track	313.1	100.1	1765	94.7	194.8	4.47
Maribo MA612	Not On Track	292.5	93.5	1681	90.2	183.7	4.59
Maribo MA613	Not On Track	299.3	95.7	1664	89.3	185.0	4.85
Seedex RR1861	On Track	316.2	101.1	1966	105.5	206.6	4.52
Seedex RR1862	On Track	312.2	99.8	1923	103.2	203.0	4.52
Seedex RR1863	On Track	323.4	103.4	2006	107.6	211.1	4.35
Seedex RR1864	On Track	319.5	102.2	1950	104.6	206.8	3.86
SV RR265	On Track	315.1	100.8	1979	106.2	207.0	5.00
SV RR266	On Track	317.3	101.5	1971	105.8	207.2	4.74
SV RR267	Not On Track	309.1	98.9	1817	97.5	196.3	4.56
SV RR268	On Track	319.0	102.0	1954	104.8	206.9	5.13
Benchmarks							
BTS 80RR52		316.8	101.3	1960	105.2		
BTS 81RR17(Check)		310.2	99.2	1845	99.0		
Hilleshög 4302RR		317.4	101.5	1801	96.6		
Crystal 101RR		306.3	98.0	1849	99.2		
Benchmark Mean		312.7		1864			

^ NOT = not on track for approval. On Track = data is tracking for potential approval.

Created 11-04-2016.

^^ All Cercospora ratings 2016 were adjusted to 1982 basis.

Full market approval criteria include: 1) 2 years of official trial data, 2) Cercospora rating must not exceed 5.20 (1982 adjusted data),

3a) R/T >= 100% of Bench or 3b) R/T >= 97% and R/T + \$/A equal to 202 of Bench.

Bench for 2016 added Crystal 101RR and dropped Crystal 875RR.

Table 28. Calculation for Approval of Sugarbeet Varieties for ACSC Aphanomyces Specialty Market for 2017

Trial Yrs	Description	Approval Status	Root Aph. Rating					Cercospora Rating +				
			2014	2015	2016	2 Yr Mn	3 Yr Mn	2014	2015	2016	2 Yr Mn	3 Yr Mn
Previously Approved (3 Yrs)			<=4.70					<=5.40				
7	BTS 80RR52	Approved	4.01	3.24	4.11	3.68	3.79	4.22	4.11	4.28	4.20	4.20
4	BTS 8337	Approved	3.68	2.55	3.26	2.91	3.16	4.52	4.49	4.62	4.56	4.54
4	BTS 83CN	Approved	4.16	3.79	4.34	4.07	4.10	4.60	4.65	4.65	4.65	4.63
6	Crystal 101RR	Approved	3.45	3.31	3.42	3.37	3.39	4.26	4.65	4.59	4.62	4.50
5	Crystal 246RR	NO	4.51	4.99	4.85	4.92	4.78	4.52	4.49	4.81	4.65	4.61
4	Crystal 355RR	Approved	4.15	3.26	4.46	3.86	3.96	4.58	4.43	4.60	4.52	4.54
3	Crystal 467RR	Approved	4.33	3.55	4.04	3.80	3.97	4.40	4.34	4.69	4.52	4.48
8	Crystal 981RR	Approved	3.79	3.25	3.54	3.40	3.53	4.89	5.05	5.06	5.06	5.00
4	Hilleshög 9517RR	Approved	3.89	3.09	3.83	3.46	3.60	4.39	4.03	4.26	4.15	4.23
4	Hilleshög 9528RR	Approved	5.44	2.97	3.77	3.37	4.06	4.97	5.16	4.73	4.95	4.95
6	Maribo 102	NO	4.99	2.78	3.90	3.34	3.89	5.54	5.77	5.30	5.54	5.54
3	Maribo 109	Approved	5.00	3.54	4.27	3.91	4.27	4.68	4.56	4.14	4.35	4.46
4	SX Winchester RR	Approved	5.06	3.07	3.85	3.46	3.99	4.89	3.67	3.97	3.82	4.18
3	SV RR241	Approved	5.42	2.87	4.63	3.75	4.31	4.35	3.83	4.53	4.18	4.24
4	SV RR336	Approved	5.50	2.78	3.69	3.24	3.99	4.53	3.94	4.62	4.28	4.36
Candidates for Approval			<=4.40					<=5.20				
5	BTS 82RR28	Approved	4.84	4.15	4.20	4.18	4.40	4.62	4.89	4.81	4.85	4.77
5	BTS 82RR33	NO	5.59	5.63	5.42	5.53	5.55	4.70	4.58	5.05	4.82	4.78
4	BTS 8363	NO	5.03	4.77	4.93	4.85	4.91	3.85	3.83	4.33	4.08	4.00
2	BTS 8500	Approved		3.54	4.22	3.88	--		4.45	4.54	4.50	--
2	BTS 8512	Approved		3.91	4.17	4.04	--		4.12	4.04	4.08	--
2	BTS 8524	Approved		3.33	3.89	3.61	--		4.40	4.74	4.57	--
2	BTS 8572	Approved		4.05	4.46	4.26	--		4.60	4.41	4.51	--
7	Crystal 093RR	Approved	4.69	3.86	4.32	4.09	4.29	4.88	4.76	4.95	4.86	4.86
5	Crystal 247RR	NO	5.05	4.94	4.77	4.86	4.92	4.20	4.19	4.65	4.42	4.35
2	Crystal 572RR	NO		4.33	4.74	4.54	--		4.65	4.57	4.61	--
2	Crystal 573RR	Approved		3.69	4.06	3.88	--		4.15	4.35	4.25	--
2	Crystal 574RR	Approved		2.93	3.69	3.31	--		4.30	4.51	4.41	--
2	Crystal 575RR	Approved		3.88	4.83	4.36	--		4.53	4.53	4.53	--
2	Crystal 576RR	Approved		3.24	3.97	3.61	--		4.55	4.54	4.55	--
2	Crystal 578RR	NO		4.52	4.44	4.48	--		4.93	4.87	4.90	--
8	Crystal 986RR	Approved	4.63	3.87	4.41	4.14	4.30	4.61	4.97	4.75	4.86	4.78
9	Hilleshög 4094RR	NO	4.47	4.60	4.42	4.51	4.50	4.46	4.30	4.30	4.30	4.35
6	Hilleshög 4302RR	Approved	4.20	4.02	4.63	4.33	4.28	4.52	4.13	4.13	4.13	4.26
5	Hilleshög 4448RR	NO	4.78	2.80	3.90	3.35	3.83	5.28	5.29	5.21	5.25	5.26
3	Hilleshög 9602RR	NO	4.55	4.67	4.43	4.55	4.55	4.67	4.66	4.67	4.67	4.67
2	Hilleshög HIL9707	Approved		3.52	3.99	3.76	--		4.60	4.53	4.57	--
2	Hilleshög HIL9708	NO		4.69	4.82	4.76	--		5.04	4.74	4.89	--
2	Hilleshög HIL9711	Approved		3.01	4.31	3.66	--		5.06	4.60	4.83	--
4	Maribo MA305	NO	4.99	4.76	4.42	4.59	4.72	4.83	4.76	4.72	4.74	4.77
2	Maribo MA502	Approved		2.93	3.06	3.00	--		5.04	4.79	4.92	--
2	Maribo MA504	NO		4.60	4.54	4.57	--		5.25	5.04	5.15	--
3	SX Canyon RR(844TT)	Approved	5.84	3.59	4.28	3.94	4.57	5.46	4.02	4.76	4.39	4.75
3	SX Cruze RR(846)	Approved	5.77	4.14	3.41	3.78	4.44	4.83	4.57	4.65	4.61	4.68
2	Seedex RR0856(Marathon)	NO		4.53	4.38	4.46	--		5.37	4.44	4.91	--
2	Seedex RR0858(Avalanche)	Approved		3.40	4.44	3.92	--		4.15	4.74	4.45	--
3	SX Terrain RR(848)	NO	5.58	3.69	4.93	4.31	4.73	4.71	4.80	4.67	4.74	4.73
3	SV RR244TT	NO	5.67	4.23	4.97	4.60	4.96	5.51	4.17	4.46	4.32	4.71
4	SV RR333	Approved	5.33	3.46	4.71	4.09	4.50	4.81	4.54	4.85	4.70	4.73
2	SV RR351	Approved		3.53	4.38	3.96	--		4.62	4.50	4.56	--
2	SV RR353	Approved		2.75	4.46	3.61	--		3.72	4.20	3.96	--
Approval Criteria new varieties						4.40					5.20	
Criteria to Maintain Approval						4.70					5.40	

+ All Cercospora ratings 2014-2016 were adjusted to 1982 basis.

Created 11-3-2016

Aphanomyces approval criteria include: 1) Cercospora rating must not exceed 5.20 (1982 adjusted data), 2) Aph root rating <= 4.40 after 2 years. 3 yrs of data may be considered for initial approval.

To maintain Aphanomyces approval criteria include: 1) Cercospora 3 year mean must not exceed 5.40, 2) Aph root rating <= 4.70 after 3 years. Previously approved varieties not meeting current approval standards may be sold in 2017.

Table 29. Calculation for Approval of Sugarbeet Varieties for ACSC Rhizoctonia Specialty Market for 2017

Description	Approval Status	Disease Index +					Cercospora Rating				
		2014	2015	2016	2 Yr Mn	3 Yr Mn	2014	2015	2016	2 Yr Mn	3 Yr Mn
Previously Approved (3 Yr)											
BTS 80RR52	Not Approved	4.36	3.95	4.41	4.18	4.24	4.22	4.11	4.28	4.20	4.20
BTS 83CN	Approved	4.01	3.86	4.16	4.01	4.01	4.60	4.65	4.65	4.65	4.63
Crystal 355RR	Approved ^	4.07	NE	3.96	NE	NE	4.58	4.43	4.60	4.52	4.54
Hilleshög 4094RR	Approved	3.52	3.44	3.93	3.69	3.63	4.46	4.30	4.30	4.30	4.35
Hilleshög 4302RR	Approved	3.58	3.70	3.65	3.68	3.64	4.52	4.13	4.13	4.13	4.26
Maribo 109	Approved	3.33	3.67	3.69	3.68	3.56	4.68	4.56	4.14	4.35	4.46
Candidates for Approval (2 Yr)											
BTS 82RR28	Not Approved	4.11	4.01	4.36	4.19	4.16	4.62	4.89	4.81	4.85	4.77
BTS 82RR33	Not Approved	4.20	4.18	4.04	4.11	4.14	4.70	4.58	5.05	4.82	4.78
BTS 8337	Not Approved	4.06	3.87	4.08	3.98	4.00	4.52	4.49	4.62	4.56	4.54
BTS 8363	Not Approved	4.24	4.12	4.34	4.23	4.23	3.85	3.83	4.33	4.08	4.00
BTS 8500	Not Approved	--	4.19	4.43	4.31	--	--	4.45	4.54	4.50	--
BTS 8512	Not Approved	--	4.28	4.44	4.36	--	--	4.12	4.04	4.08	--
BTS 8524	Not Approved	--	4.14	4.20	4.17	--	--	4.40	4.74	4.57	--
BTS 8572	Not Approved	--	3.85	4.54	4.20	--	--	4.60	4.41	4.51	--
Crystal 093RR	Not Approved	4.46	3.96	4.37	4.17	4.26	4.88	4.76	4.95	4.86	4.86
Crystal 101RR	Not Approved	4.84	4.64	4.78	4.71	4.75	4.26	4.65	4.59	4.62	4.50
Crystal 246RR	Not Approved	4.01	4.19	4.32	4.26	4.17	4.52	4.49	4.81	4.65	4.61
Crystal 247RR	Not Approved	4.41	4.33	4.32	4.33	4.35	4.20	4.19	4.65	4.42	4.35
Crystal 467RR	Not Approved	4.03	3.97	4.26	4.12	4.09	4.40	4.34	4.69	4.52	4.48
Crystal 572RR	Not Approved	--	3.89	4.21	4.05	--	--	4.65	4.57	4.61	--
Crystal 573RR	Not Approved	--	4.25	4.55	4.40	--	--	4.15	4.35	4.25	--
Crystal 574RR	Not Approved	--	4.16	4.47	4.32	--	--	4.30	4.51	4.41	--
Crystal 575RR	Not Approved	--	4.18	4.33	4.26	--	--	4.53	4.53	4.53	--
Crystal 576RR	Not Approved	--	3.68	4.01	3.85	--	--	4.55	4.54	4.55	--
Crystal 578RR	Not Approved	--	4.03	4.32	4.18	--	--	4.93	4.87	4.90	--
Crystal 981RR	Not Approved	4.85	4.40	4.59	4.50	4.61	4.89	5.05	5.06	5.06	5.00
Crystal 986RR	Not Approved	4.12	4.06	4.38	4.22	4.19	4.61	4.97	4.75	4.86	4.78
Hilleshög 4448RR	Not Approved	4.73	3.92	4.51	4.22	4.39	5.28	5.29	5.21	5.25	5.26
Hilleshög 9517RR	Not Approved	4.04	3.66	4.19	3.93	3.96	4.39	4.03	4.26	4.15	4.23
Hilleshög 9528RR	Not Approved	3.83	4.10	4.21	4.16	4.05	4.97	5.16	4.73	4.95	4.95
Hilleshög 9602RR	Not Approved	4.12	3.91	4.21	4.06	4.08	4.67	4.66	4.67	4.67	4.67
Hilleshög HIL9707	Not Approved	--	4.21	4.40	4.31	--	--	4.60	4.53	4.57	--
Hilleshög HIL9708	Not Approved	--	4.04	4.28	4.16	--	--	5.04	4.74	4.89	--
Hilleshög HIL9711	Not Approved	--	4.11	4.46	4.29	--	--	5.06	4.60	4.83	--
Maribo 102	Not Approved	4.30	4.07	4.50	4.29	4.29	5.54	5.77	5.30	5.54	5.54
Maribo MA305	Not Approved	4.62	3.83	4.40	4.12	4.28	4.83	4.76	4.72	4.74	4.77
Maribo MA502	Not Approved	--	4.14	4.73	4.44	--	--	5.04	4.79	4.92	--
Maribo MA504	Not Approved	--	3.98	4.58	4.28	--	--	5.25	5.04	5.15	--
SX Canyon RR(844TT)	Not Approved	4.15	4.22	4.40	4.31	4.26	5.46	4.02	4.76	4.39	4.75
SX Cruze RR(846)	Not Approved	4.67	4.18	4.69	4.44	4.51	4.83	4.57	4.65	4.61	4.68
Seedex RR0856(Marathon)	Not Approved	--	4.16	4.47	4.32	--	--	5.37	4.44	4.91	--
Seedex RR0858(Avalanche)	Not Approved	--	4.21	4.52	4.37	--	--	4.15	4.74	4.45	--
SX Terrain RR(848)	Not Approved	4.43	4.24	4.45	4.35	4.37	4.71	4.80	4.67	4.74	4.73
SX Winchester RR	Not Approved	4.35	4.28	4.63	4.46	4.42	4.89	3.67	3.97	3.82	4.18
SV RR241	Not Approved	4.43	3.97	4.37	4.17	4.26	4.35	3.83	4.53	4.18	4.24
SV RR244TT	Not Approved	3.84	4.18	4.45	4.32	4.16	5.51	4.17	4.46	4.32	4.71
SV RR333	Not Approved	4.39	4.11	4.44	4.28	4.31	4.81	4.54	4.85	4.70	4.73
SV RR336	Not Approved	4.29	4.38	4.65	4.52	4.44	4.53	3.94	4.62	4.28	4.36
SV RR351	Not Approved ^	--	NE	4.17	NE	--	--	4.62	4.50	4.56	--

Table 29. Calculation for Approval of Sugarbeet Varieties for ACSC Rhizoctonia Specialty Market for 2017

Description	Approval Status	Disease Index +					Cercospora Rating				
		2014	2015	2016	2 Yr Mn	3 Yr Mn	2014	2015	2016	2 Yr Mn	3 Yr Mn
Susceptible Checks											
RH CK#08 CRY5539RR	Susc Chk	4.73	4.65	4.84							
RH CK#24 BETA86RR88	Susc Chk	4.91	4.82	--							
RH CK#25 HILL4043RR	Susc Chk	4.66	4.35	4.76							
RH CK#27 HILL4012RR	Susc Chk	4.52	4.41	--							
RH CK#29 BETA87RR58	Susc Chk	4.53	4.77	4.67							
RH CK#30 SES36711RR	Susc Chk	4.21	4.91	--							
RH CK#31 HILL4000RR	Susc Chk	4.76	5.03	4.80							
RH CK#32 HILL4010RR	Susc Chk	4.99	--	--							
RH CK#34 BETA86RR66	Susc Chk	4.48	4.57	--							
RH CK#35 SES36812RR	Susc Chk	4.63	4.37	4.55							
RH CK#36 BETA85RR02	Susc Chk	4.50	4.71	--							
RH CK#37 SES36918RR	Susc Chk	4.61	4.34	4.67							
RH CK#40 CRY5101RR	Susc Chk	--	--	4.65							
RH CK#47 SES36272RR	Susc Chk	--	--	4.50							
RH CK#49 CRY5247RR	Susc Chk	--	--	4.38							
RH CK#28 CRY5658RR	Susc Chk	--	--	4.57							
Susceptible Hybrid Mean		4.63	4.62	4.64	4.63	4.63				5.20	5.40
Approval Criteria ++		3.82	3.82	3.82	3.82	3.82					
Disapproval Criteria						4.17					

Rhc and CR ratings were adjusted based upon check performance.

Created 11-3-2016

+ Disease Index is based on a scale of 0 (healthy) to 7 (dead).

++ Candidates must have better tolerance than susc. check mean * 80%. To maintain approval, tolerance must be better than susc. check mean * 90%.

Previously approved varieties not meeting current approval standards may be sold in 2017.

^ NE not entered into disease nursery. Variety approval will not be impacted by this miscommunication.

Table 30. Varieties Meeting MDFC Approval Criteria for the 2017 Sugarbeet Crop ++

Roundup Ready ®	Approval		
	Status	Aph Spec	Rhc Spec
ACH RR012	Established	Aph	
ACH RR830	Established	Aph	Rhc
ACH RR228	Established	Aph	
ACH RR260	Specialty	Aph	
ACH RRD352	Specialty	Aph	Rhc
ACH RRD508	Test Market	Aph	
BTS 70RR99	Established	Aph	
BTS 7373	Established	Aph	
BTS 73MN	Established	Aph	Rhc
BTS 7540	Test Market	Aph	
BTS 7550	Test Market	Aph	
HM 4302RR	Established	Aph	Rhc
HM 4062RR	Specialty	Aph	Rhc
HM 9528RR	Established	Aph	
SV RR746	Established	Aph	
SV RR747	Specialty	Aph	

Aph Spec = variety meets Aphanomyces specialty requirements of 4.45 or less Aph root rating.

Rhc Spec = variety meets Rhizoctonia specialty requirements of 3.82 or less of Rhc root rating.

Roundup Ready ® is a registered trademark of Monsanto Company.

Table 31. 2016 Performance of Varieties - MDFC Official Trials
4 sites

Description @	Code	Rec/T lbs.	Rec/T %Mean	Rec/A lbs.	Rec/A %Mean	Loss Mol %	Sugar %	Yield T/A	Na ppm	K ppm	AmN ppm	Bolter per Ac	Emerg. %	Tare %
Commercial Trial														
BTS 70RR99	160	269.0	103	9593	104	1.53	14.97	36.00	337	1650	621	0	64.7	7.3
BTS 7373	162	261.7	101	8726	95	1.57	14.65	33.45	399	1646	630	0	63.1	7.0
BTS 73MN	151	260.6	100	9325	101	1.45	14.49	35.83	338	1575	581	0	67.5	6.9
Crystal D352	158	248.9	96	8682	94	1.71	14.17	35.17	380	1716	731	0	72.5	6.7
Crystal RR012	157	270.3	104	9004	98	1.60	15.13	33.64	359	1701	659	0	65.1	8.0
Crystal RR228	153	281.7	108	9474	103	1.55	15.63	33.88	341	1622	640	0	59.1	7.1
Crystal RR260	152	239.2	92	9114	99	1.59	13.54	38.32	542	1691	583	18	75.9	6.9
Crystal RR830	155	241.7	93	8878	96	1.41	13.49	37.05	475	1578	501	0	68.0	6.3
Hilleshög 4062RR	159	253.3	97	8836	96	1.69	14.36	35.04	440	1718	693	0	56.6	6.0
Hilleshög 4302RR	154	267.7	103	9351	102	1.40	14.78	35.01	422	1633	492	9	60.0	6.6
Hilleshög 9528RR	161	267.8	103	9840	107	1.34	14.73	36.71	363	1446	524	0	66.5	5.7
SV RR747	156	257.6	99	9617	104	1.37	14.26	37.32	375	1527	517	9	56.8	5.2
Experimental Trial (Comm status)														
BTS 7540	309	268.1	103	9851	107	1.45	14.86	37.01	368	1623	555	0	68.6	3.7
BTS 7550	320	276.0	106	8658	94	1.36	15.18	31.73	290	1483	549	0	72.9	4.5
BTS 7600	321	271.8	105	8440	92	1.41	15.01	31.29	290	1522	575	0	69.9	4.8
BTS 7607	319	264.6	102	8914	97	1.48	14.71	33.94	421	1599	570	432	61.2	3.7
BTS 7618	322	251.7	97	8458	92	1.52	14.10	33.75	422	1437	646	0	72.2	3.8
BTS 7629	302	266.4	102	8365	91	1.51	14.83	31.54	385	1571	615	0	61.2	5.1
Crystal D508	306	275.5	106	8757	95	1.36	15.14	32.20	301	1466	552	0	61.6	5.3
Crystal D609	327	259.5	100	9117	99	1.58	14.55	35.58	437	1653	621	0	73.0	4.4
Crystal D659	304	273.8	105	9053	98	1.60	15.28	33.46	322	1679	675	0	66.5	5.7
Crystal D678	317	269.8	104	8071	88	1.41	14.92	30.26	290	1546	570	0	66.7	5.4
Hilleshög 9602RR	312	248.3	95	9296	101	1.38	13.81	37.22	413	1589	498	0	77.4	4.4
Hilleshög HIL9880	314	268.6	103	9447	103	1.55	14.98	35.32	441	1727	574	0	68.7	5.1
Hilleshög HIL9881	308	269.5	104	9577	104	1.42	14.92	35.38	396	1533	546	0	56.7	4.9
Hilleshög HIL9882	311	251.5	97	8191	89	1.46	14.03	32.72	379	1585	567	0	55.0	4.1
Hilleshög HIL9883	316	254.2	98	9590	104	1.36	14.06	37.76	376	1590	494	0	81.7	4.4
Hilleshög HIL9884	324	258.2	99	9206	100	1.38	14.29	35.89	402	1509	522	0	75.9	4.4
Maribo MA605	313	265.2	102	9105	99	1.51	14.76	34.48	428	1621	584	0	67.4	5.7
Maribo MA606	301	242.3	93	8405	91	1.52	13.61	34.91	485	1650	561	0	65.2	4.2
Maribo MA607	307	240.8	93	8055	88	1.43	13.47	33.22	442	1462	560	23	68.3	3.9
Seedex RR1964	310	270.0	104	9195	100	1.45	14.96	34.12	305	1635	573	0	59.7	5.1
Seedex RR1965	315	264.6	102	8991	98	1.41	14.64	34.16	355	1546	546	0	62.5	4.3
SV RR655	305	272.6	105	9914	108	1.38	15.02	36.48	297	1561	540	0	63.3	5.0
SV RR656	323	270.3	104	9711	106	1.45	14.97	35.71	315	1608	575	0	65.4	4.8
SV RR746	325	264.6	102	9288	101	1.42	14.66	35.20	311	1540	570	0	62.7	4.5
SV RR761	303	261.8	101	8887	97	1.46	14.55	34.23	338	1527	596	0	70.6	4.0
SV RR762	318	281.9	108	10321	112	1.32	15.45	36.47	272	1541	508	0	65.4	4.8
SV RR763	326	263.7	101	9270	101	1.45	14.64	35.31	367	1527	577	0	69.5	5.0
Crystal RR830(Check)	328	242.2	93	9052	98	1.42	13.52	37.77	476	1561	505	0	64.7	4.2
BTS 70RR99(Check)	329	263.9	101	9057	98	1.57	14.75	34.53	348	1662	646	0	61.5	4.5
Crystal RR260 (Check)	330	243.9	94	9476	103	1.55	13.73	39.07	530	1696	554	0	75.3	5.0
Comm.Trial Mean		260.0		9203		1.52	14.52	35.62	398	1625	598		64.6	6.6
Coeff. of Var. (%)		4.2		7.1		7.1	3.4	5.7	18.4	4.6	10.1		15.5	25.9
Mean LSD (0.05)		9.4		665		0.15	0.48	2.00	65	75	105		7.7	1.1
Mean LSD (0.01)		12.6		893		0.20	0.65	2.69	87	100	142		10.3	1.5
Sig Mrk		**		*		**	**	**	**	**	**		**	**

* 2016 Data from 4 sites

11/05/2016 13:40

Created 11/04/2016

@ Experimental trial data adjusted to commercial status. Statistics are from commercial trial.

Trial # = 16MDexp

Some varieties not approved for sale. Refer to approval list for approval status.

Bolters per acre are based upon 45,000 plants per acre.

Table 32. 2016 Performance of Varieties - MDFC Official Trials
Barnesville MN

Description @	Code	Rec/T lbs.	Rec/T %Mean	Rec/A lbs.	Rec/A %Mean	Loss Mol %	Sugar %	Yield T/A	Na ppm	K ppm	AmN ppm	Bolter per Ac	Emerg. %
Commercial Trial													
BTS 70RR99	160	299.6	104	10519	105	1.40	16.38	35.21	290	1578	564	0	70.8
BTS 7373	162	293.8	102	9428	94	1.53	16.21	32.14	361	1523	646	0	80.0
BTS 73MN	151	292.9	101	10326	103	1.30	15.94	35.25	287	1495	501	0	75.3
Crystal D352	158	273.6	95	9143	91	1.64	15.33	33.41	345	1633	706	0	77.9
Crystal RR012	157	295.8	102	9657	96	1.51	16.30	32.61	325	1660	609	0	84.1
Crystal RR228	153	315.0	109	10212	102	1.37	17.11	32.48	285	1493	558	0	74.7
Crystal RR260	152	258.9	90	9908	99	1.51	14.46	38.15	519	1598	558	0	87.0
Crystal RR830	155	270.1	94	9488	95	1.28	14.78	35.16	415	1454	447	0	77.6
Hilleshög 4062RR	159	285.4	99	9990	100	1.66	15.93	34.92	412	1641	703	0	76.0
Hilleshög 4302RR	154	297.9	103	10262	102	1.32	16.22	34.42	353	1559	476	0	77.6
Hilleshög 9528RR	161	292.8	101	10605	106	1.34	15.98	36.01	359	1347	547	0	69.8
SV RR747	156	288.5	100	10904	109	1.39	15.83	37.93	364	1486	552	32	74.7
Experimental Trial (Comm status)													
BTS 7540	309	301.2	104	10130	101	1.30	16.35	34.18	288	1615	477	0	74.5
BTS 7550	320	306.9	106	9601	96	1.20	16.53	31.84	206	1384	478	0	88.5
BTS 7600	321	303.4	105	9835	98	1.24	16.42	32.62	226	1438	502	0	87.9
BTS 7607	319	300.6	104	10222	102	1.27	16.29	34.09	306	1543	465	581	77.2
BTS 7618	322	273.9	95	9215	92	1.32	15.02	33.49	336	1262	556	0	92.4
BTS 7629	302	292.7	101	9125	91	1.42	16.06	30.90	326	1477	582	0	80.6
Crystal D508	306	300.1	104	9470	94	1.28	16.28	31.73	266	1453	511	0	79.0
Crystal D609	327	294.0	102	9856	98	1.33	16.05	33.80	337	1516	512	0	93.3
Crystal D659	304	306.7	106	9825	98	1.47	16.79	32.27	262	1619	602	0	84.7
Crystal D678	317	306.2	106	8674	86	1.19	16.51	28.60	225	1439	462	0	87.6
Hilleshög 9602RR	312	275.3	95	10230	102	1.36	15.13	37.13	356	1525	514	0	94.6
Hilleshög HIL9880	314	303.1	105	11326	113	1.50	16.65	37.63	390	1724	557	0	85.6
Hilleshög HIL9881	308	305.1	106	10879	108	1.32	16.59	35.38	367	1488	496	0	77.9
Hilleshög HIL9882	311	275.5	95	9192	92	1.47	15.23	33.64	332	1562	602	0	78.5
Hilleshög HIL9883	316	286.5	99	10626	106	1.35	15.66	37.61	341	1534	503	0	89.0
Hilleshög HIL9884	324	287.1	99	9866	98	1.29	15.66	34.87	367	1399	494	0	88.9
Maribo MA605	313	303.5	105	11028	110	1.31	16.49	36.40	344	1507	488	0	88.6
Maribo MA606	301	273.2	95	9260	92	1.52	15.18	34.08	378	1684	594	0	78.9
Maribo MA607	307	270.7	94	9247	92	1.36	14.90	34.34	402	1336	550	0	84.1
Seedex RR1964	310	303.5	105	9757	97	1.28	16.48	32.55	259	1539	491	0	70.0
Seedex RR1965	315	295.9	102	9466	94	1.30	16.11	32.36	299	1495	509	0	61.2
SV RR655	305	307.3	106	11313	113	1.21	16.58	36.69	234	1501	448	0	70.5
SV RR656	323	307.5	107	10775	107	1.29	16.66	35.03	246	1529	511	0	69.8
SV RR746	325	294.0	102	10139	101	1.36	16.04	35.14	273	1471	556	0	75.1
SV RR761	303	288.5	100	9259	92	1.29	15.72	32.18	297	1395	515	0	78.6
SV RR762	318	318.8	110	11080	110	1.12	17.08	34.81	221	1458	404	0	77.4
SV RR763	326	289.9	100	9971	99	1.29	15.78	34.61	333	1441	497	0	77.4
Crystal RR830(Check)	328	273.9	95	9876	98	1.25	14.95	36.08	383	1448	442	0	78.4
BTS 70RR99(Check)	329	285.8	99	10028	100	1.48	15.78	34.82	351	1629	582	0	68.3
Crystal RR260 (Check)	330	268.9	93	10010	100	1.47	14.89	37.62	490	1553	545	0	78.0
Comm.Trial Mean		288.7		10037		1.44	15.87	34.81	360	1539	572		77.1
Coeff. of Var. (%)		3.7		6.3		7.8	3.0	4.1	19.4	4.8	11.1		13.1
Mean LSD (0.05)		13.4		765		0.15	0.57	1.76	85	88	84		11.7
Mean LSD (0.01)		17.9		1018		0.20	0.76	2.35	113	118	112		15.6
Sig Mrk		**		**		**	**	**	**	**	**		ns

* 2016 Data from Barnesville MN

11/04/2016 18:42

Created 11/04/2016

@ Experimental trial data adjusted to commercial status. Statistics are from commercial trial.

Trial # = 166301

Some varieties not approved for sale. Refer to approval list for approval status.

Bolters per acre are based upon 45,000 plants per acre.

Table 33. 2016 Performance of Varieties - MDFC Official Trials
Foxhome MN

Description @	Code	Rec/T lbs.	Rec/T %Mean	Rec/A lbs.	Rec/A %Mean	Loss Mol %	Sugar %	Yield T/A	Na ppm	K ppm	AmN ppm	Bolter per Ac	Emerg. %
Commercial Trial													
BTS 70RR99	160	230.7	104	8076	108	1.84	13.38	35.17	331	1608	878	0	70.5
BTS 7373	162	216.9	98	6940	93	1.63	12.46	31.86	427	1459	715	0	61.1
BTS 73MN	151	218.1	99	7142	95	1.73	12.63	32.38	368	1384	839	0	67.8
Crystal D352	158	212.1	96	6974	93	2.02	12.63	32.89	361	1680	983	0	72.8
Crystal RR012	157	230.0	104	7749	104	1.83	13.31	33.43	371	1530	877	0	72.6
Crystal RR228	153	250.5	113	8147	109	1.74	14.27	32.61	337	1425	844	0	62.3
Crystal RR260	152	207.8	94	7340	98	1.71	12.10	35.42	522	1513	723	63	74.8
Crystal RR830	155	210.6	95	7147	96	1.56	12.10	34.16	457	1437	661	0	70.4
Hilleshög 4062RR	159	211.3	96	7591	101	1.70	12.27	35.90	443	1547	745	0	49.0
Hilleshög 4302RR	154	225.8	102	7514	100	1.48	12.78	33.55	405	1506	598	32	58.7
Hilleshög 9528RR	161	226.8	103	7868	105	1.25	12.59	34.72	330	1259	505	0	63.9
SV RR747	156	209.0	95	7311	98	1.23	11.68	34.95	411	1276	461	0	52.3
Experimental Trial (Comm status)													
BTS 7540	309	235.4	107	8010	107	1.63	13.44	33.97	369	1410	760	0	61.6
BTS 7550	320	247.8	112	7485	100	1.44	13.95	30.28	260	1341	653	0	72.1
BTS 7600	321	234.6	106	6470	86	1.71	13.47	27.78	331	1561	781	0	56.4
BTS 7607	319	227.8	103	7863	105	1.83	13.22	34.47	479	1517	845	383	52.6
BTS 7618	322	223.9	101	7446	99	1.83	13.02	33.50	453	1379	886	0	65.6
BTS 7629	302	234.5	106	6843	91	1.69	13.43	29.13	468	1383	784	0	50.1
Crystal D508	306	247.4	112	7465	100	1.54	13.97	30.54	265	1290	760	0	53.7
Crystal D609	327	227.0	103	8349	112	1.84	13.20	36.25	488	1515	842	0	66.2
Crystal D659	304	235.5	107	7700	103	2.05	13.78	33.06	348	1546	1052	0	47.0
Crystal D678	317	233.4	106	7055	94	1.70	13.44	29.51	327	1512	780	0	49.6
Hilleshög 9602RR	312	206.5	94	6918	92	1.46	11.79	32.95	475	1506	549	0	77.9
Hilleshög HIL9880	314	228.0	103	7297	98	1.61	13.06	31.96	467	1592	641	0	73.8
Hilleshög HIL9881	308	228.2	103	7751	104	1.55	13.02	32.73	395	1428	671	0	50.2
Hilleshög HIL9882	311	209.2	95	6242	83	1.51	11.97	29.18	342	1512	626	0	47.9
Hilleshög HIL9883	316	214.6	97	7339	98	1.39	12.16	33.97	383	1438	552	0	86.3
Hilleshög HIL9884	324	220.1	100	7239	97	1.40	12.44	32.61	462	1343	558	0	68.4
Maribo MA605	313	222.6	101	7286	97	1.73	12.85	32.84	494	1573	738	0	58.0
Maribo MA606	301	201.2	91	6020	80	1.52	11.58	31.15	544	1380	607	0	64.0
Maribo MA607	307	201.7	91	6608	88	1.34	11.51	32.63	434	1211	558	95	57.8
Seedex RR1964	310	229.1	104	7707	103	1.69	13.19	32.81	343	1562	756	0	59.5
Seedex RR1965	315	231.4	105	8099	108	1.53	13.18	34.06	357	1340	695	0	65.0
SV RR655	305	243.7	110	8337	111	1.51	13.77	34.25	265	1347	707	0	57.8
SV RR656	323	225.6	102	7752	104	1.73	13.07	33.60	338	1525	802	0	73.3
SV RR746	325	214.4	97	7025	94	1.63	12.38	32.19	347	1421	754	0	61.7
SV RR761	303	232.5	105	7387	99	1.60	13.28	31.85	334	1377	751	0	65.7
SV RR762	318	234.3	106	8067	108	1.51	13.29	34.45	308	1379	686	0	65.5
SV RR763	326	226.5	103	7137	95	1.63	12.98	32.01	413	1327	763	0	64.8
Crystal RR830(Check)	328	208.8	95	7569	101	1.55	12.01	36.51	462	1348	671	0	54.5
BTS 70RR99(Check)	329	233.3	106	7689	103	1.84	13.49	33.42	330	1547	900	0	46.3
Crystal RR260 (Check)	330	207.0	94	7305	98	1.71	12.08	34.82	518	1663	691	0	77.7
Comm.Trial Mean		220.8		7483		1.64	12.68	33.92	397	1469	736		64.7
Coeff. of Var. (%)		4.3		7.3		5.5	3.3	6.3	10.4	4.4	7.3		15.5
Mean LSD (0.05)		12.0		669		0.12	0.54	2.55	56	87	72		12.7
Mean LSD (0.01)		16.0		891		0.16	0.72	3.40	75	117	96		16.9
Sig Mrk		**		**		**	**	*	**	**	**		**

* 2016 Data from Foxhome MN

11/04/2016 18:44

Created 11/04/2016

@ Experimental trial data adjusted to commercial status. Statistics are from commercial trial.

Trial # = 166302

Some varieties not approved for sale. Refer to approval list for approval status.

Bolters per acre are based upon 45,000 plants per acre.

Table 34. 2016 Performance of Varieties - MDFC Official Trials
Mooreton ND

Description @	Code	Rec/T lbs.	Rec/T %Mean	Rec/A lbs.	Rec/A %Mean	Loss Mol %	Sugar %	Yield T/A	Na ppm	K ppm	AmN ppm	Bolter per Ac	Emerg. %
Commercial Trial													
BTS 70RR99	160	238.3	104	9833	108	1.76	13.68	41.19	518	1730	712	0	51.3
BTS 7373	162	236.1	104	8933	98	1.83	13.62	37.85	575	1781	730	0	44.1
BTS 73MN	151	235.3	103	9756	107	1.74	13.50	41.51	525	1729	696	0	57.1
Crystal D352	158	219.5	96	9293	102	1.96	12.95	42.07	603	1856	802	0	60.8
Crystal RR012	157	238.6	105	9334	102	1.92	13.88	38.90	598	1823	778	0	43.4
Crystal RR228	153	245.5	108	9524	104	1.88	14.17	39.01	571	1744	782	0	43.3
Crystal RR260	152	195.7	86	8332	91	2.00	11.77	42.78	879	1834	737	0	66.7
Crystal RR830	155	201.2	88	8701	95	1.78	11.83	43.46	794	1738	623	0	56.6
Hilleshög 4062RR	159	216.9	95	7894	87	2.09	12.93	36.20	690	1833	873	0	47.1
Hilleshög 4302RR	154	239.0	105	9098	100	1.70	13.65	38.02	683	1774	598	0	41.7
Hilleshög 9528RR	161	248.7	109	9992	109	1.69	14.08	40.43	526	1571	697	0	60.7
SV RR747	156	222.9	98	8824	97	1.77	12.93	39.43	579	1738	696	0	46.1
Experimental Trial (Comm status)													
BTS 7540	309	233.2	102	10459	115	1.77	13.46	44.55	588	1776	672	0	77.7
BTS 7550	320	241.4	106	9145	100	1.77	13.90	37.86	502	1598	758	0	70.4
BTS 7600	321	241.5	106	9103	100	1.61	13.77	37.50	421	1572	663	0	73.8
BTS 7607	319	223.6	98	8908	98	1.83	13.00	39.44	709	1745	691	194	58.8
BTS 7618	322	224.4	98	8769	96	1.93	13.15	39.00	694	1566	823	0	73.7
BTS 7629	302	234.5	103	9073	99	1.80	13.57	38.70	549	1698	734	0	68.8
Crystal D508	306	245.3	108	8756	96	1.62	13.95	35.54	463	1590	653	0	58.2
Crystal D609	327	218.7	96	8927	98	1.99	12.89	40.70	705	1810	799	0	68.7
Crystal D659	304	244.6	107	9545	105	1.76	14.05	38.85	494	1749	705	0	74.2
Crystal D678	317	233.6	102	8646	95	1.76	13.44	36.71	450	1674	742	0	63.1
Hilleshög 9602RR	312	221.8	97	9339	102	1.70	12.83	42.19	617	1595	657	0	65.5
Hilleshög HIL9880	314	231.9	102	8799	96	1.93	13.53	38.20	692	1810	749	0	49.6
Hilleshög HIL9881	308	235.8	103	9066	99	1.69	13.52	38.67	559	1612	659	0	38.2
Hilleshög HIL9882	311	227.2	100	8792	96	1.76	13.12	38.42	642	1621	694	0	46.8
Hilleshög HIL9883	316	225.1	99	9275	102	1.65	12.94	41.16	576	1619	627	0	75.1
Hilleshög HIL9884	324	229.3	101	9221	101	1.78	13.28	39.82	580	1652	727	0	71.9
Maribo MA605	313	225.4	99	8754	96	1.91	13.18	38.65	700	1699	766	0	68.5
Maribo MA606	301	220.2	97	8755	96	1.78	12.81	39.39	739	1754	647	0	56.3
Maribo MA607	307	210.8	92	6538	72	1.86	12.36	30.76	687	1620	759	0	73.3
Seedex RR1964	310	240.0	105	9467	104	1.82	13.85	39.25	489	1760	748	0	52.2
Seedex RR1965	315	225.1	99	8695	95	1.74	12.99	37.98	603	1714	663	0	59.5
SV RR655	305	224.2	98	8646	95	1.76	12.99	38.63	541	1743	687	0	56.6
SV RR656	323	241.3	106	9938	109	1.75	13.85	41.06	515	1748	684	0	56.6
SV RR746	325	240.8	106	9595	105	1.65	13.75	39.62	429	1657	667	0	43.4
SV RR761	303	230.9	101	9180	101	1.83	13.40	39.57	514	1711	762	0	64.2
SV RR762	318	260.5	114	10162	111	1.64	14.73	39.03	395	1667	657	0	55.6
SV RR763	326	238.1	104	9792	107	1.73	13.68	41.14	514	1670	694	0	65.8
Crystal RR830(Check)	328	198.1	87	8331	91	1.82	11.71	42.48	849	1727	641	0	59.5
BTS 70RR99(Check)	329	230.3	101	8855	97	1.89	13.41	38.25	532	1781	788	0	67.7
Crystal RR260 (Check)	330	206.8	91	9680	106	1.83	12.16	46.70	810	1794	643	0	75.0
Comm.Trial Mean		228.1		9126		1.84	13.25	40.07	628	1763	727		51.6
Coeff. of Var. (%)		5.1		7.1		7.3	3.8	5.4	18.2	4.4	10.0		16.6
Mean LSD (0.05)		13.4		798		0.17	0.59	2.69	139	91	92		10.1
Mean LSD (0.01)		17.8		1063		0.22	0.78	3.58	185	121	122		13.4
Sig Mrk		**		**		**	**	**	**	**	**		**

* 2016 Data from Mooreton ND

11/04/2016 19:03

Created 11/04/2016

@ Experimental trial data adjusted to commercial status. Statistics are from commercial trial.

Trial # = 166303

Some varieties not approved for sale. Refer to approval list for approval status.

Bolters per acre are based upon 45,000 plants per acre.

Table 35. 2016 Performance of Varieties - MDFC Official Trials
Norcross MN

Description @	Code	Rec/T lbs.	Rec/T %Mean	Rec/A lbs.	Rec/A %Mean	Loss Mol %	Sugar %	Yield T/A	Na ppm	K ppm	AmN ppm	Bolter per Ac	Emerg. %
Commercial Trial													
BTS 70RR99	160	308.2	102	10032	99	1.11	16.54	32.66	195	1691	344	0	64.1
BTS 7373	162	299.7	99	9519	94	1.26	16.24	31.76	239	1803	407	0	66.4
BTS 73MN	151	296.0	98	10133	100	1.05	15.86	34.17	171	1707	304	0	69.8
Crystal D352	158	289.7	96	9373	92	1.25	15.73	32.34	215	1702	435	0	78.1
Crystal RR012	157	314.1	104	9377	92	1.20	16.91	29.82	182	1761	396	0	59.6
Crystal RR228	153	318.1	105	9983	98	1.18	17.08	31.31	170	1801	375	0	57.8
Crystal RR260	152	293.7	97	10851	107	1.13	15.81	36.96	234	1819	308	0	75.0
Crystal RR830	155	286.8	95	10171	100	1.06	15.40	35.46	227	1716	283	0	69.5
Hilleshög 4062RR	159	298.8	99	9818	97	1.31	16.24	32.84	242	1833	438	0	56.0
Hilleshög 4302RR	154	308.7	102	10494	103	1.08	16.52	34.09	238	1710	297	0	60.7
Hilleshög 9528RR	161	302.9	100	10813	106	1.08	16.22	35.66	199	1613	333	0	71.1
SV RR747	156	310.0	103	11440	113	1.08	16.58	37.00	150	1613	350	0	53.7
Experimental Trial (Comm status)													
BTS 7540	309	303.5	100	10868	107	1.08	16.27	35.82	206	1693	315	0	60.2
BTS 7550	320	307.8	102	8390	83	1.03	16.42	27.27	181	1597	309	0	61.4
BTS 7600	321	305.6	101	8363	82	1.09	16.37	27.47	182	1578	363	0	60.2
BTS 7607	319	307.4	102	8717	86	0.98	16.36	28.39	178	1614	274	576	55.9
BTS 7618	322	283.9	94	8320	82	1.07	15.27	29.31	219	1561	338	0	57.5
BTS 7629	302	304.3	101	8557	84	1.12	16.34	28.22	192	1701	354	0	46.1
Crystal D508	306	309.3	102	9353	92	0.99	16.48	30.27	192	1542	291	0	55.1
Crystal D609	327	298.2	99	9305	92	1.15	16.06	31.25	215	1808	334	0	63.4
Crystal D659	304	308.0	102	9079	89	1.16	16.57	29.50	173	1800	365	0	60.1
Crystal D678	317	301.9	100	7858	77	1.05	16.15	26.21	182	1593	327	0	67.2
Hilleshög 9602RR	312	292.3	97	10743	106	1.02	15.65	36.85	180	1738	271	0	70.7
Hilleshög HIL9880	314	312.5	103	10260	101	1.13	16.75	32.76	200	1786	329	0	65.4
Hilleshög HIL9881	308	312.0	103	10635	105	1.10	16.71	34.12	215	1614	350	0	61.1
Hilleshög HIL9882	311	294.7	98	8701	86	1.06	15.80	29.56	197	1666	312	0	46.0
Hilleshög HIL9883	316	290.4	96	11144	110	1.05	15.58	38.37	190	1733	284	0	75.3
Hilleshög HIL9884	324	296.1	98	10662	105	1.02	15.83	36.04	188	1680	286	0	73.8
Maribo MA605	313	309.6	102	9331	92	1.11	16.61	30.16	180	1726	344	0	55.0
Maribo MA606	301	272.2	90	9575	94	1.26	14.86	35.28	285	1799	388	0	62.3
Maribo MA607	307	278.7	92	9618	95	1.10	15.04	34.37	228	1673	335	0	60.4
Seedex RR1964	310	304.8	101	9813	97	1.05	16.31	32.27	134	1696	320	0	56.4
Seedex RR1965	315	301.1	100	9805	96	1.05	16.12	32.57	158	1631	324	0	63.9
SV RR655	305	315.5	104	11343	112	1.07	16.86	36.04	156	1667	335	0	68.2
SV RR656	323	303.2	100	10214	100	1.05	16.23	33.57	164	1674	314	0	62.0
SV RR746	325	308.5	102	10366	102	1.04	16.47	33.54	173	1612	316	0	70.3
SV RR761	303	294.4	97	9746	96	1.11	15.84	33.22	205	1649	355	0	73.2
SV RR762	318	313.5	104	11893	117	1.00	16.68	37.89	148	1672	276	0	63.6
SV RR763	326	302.2	100	10146	100	1.12	16.23	33.63	180	1690	352	0	70.2
Crystal RR830(Check)	328	289.9	96	10381	102	1.05	15.56	35.87	225	1726	278	0	67.6
BTS 70RR99(Check)	329	305.8	101	9698	95	1.09	16.39	31.76	169	1705	334	0	64.4
Crystal RR260 (Check)	330	293.0	97	10975	108	1.15	15.80	37.46	262	1795	323	0	70.2
Comm.Trial Mean		302.2		10167		1.15	16.26	33.67	205	1731	356		65.2
Coeff. of Var. (%)		3.4		6.9		7.4	2.8	6.0	18.5	4.4	13.4		15.3
Mean LSD (0.05)		12.2		808		0.10	0.55	2.32	46	96	58		11.6
Mean LSD (0.01)		16.3		1074		0.14	0.74	3.09	61	128	77		15.4
Sig Mrk		**		**		**	**	**	**	**	**		**

* 2016 Data from Norcross MN

11/04/2016 19:15

Created 11/04/2016

@ Experimental trial data adjusted to commercial status. Statistics are from commercial trial.

Trial # = 166304

Some varieties not approved for sale. Refer to approval list for approval status.

Bolters per acre are based upon 45,000 plants per acre.

Table 36. 2016 Aphanomyces Ratings for Official Trial Entries
Betaseed Nursery - Shakopee, MN & ACSC - RRV

Chk++ Code	Description	Adjusted ^^							Trial Yrs \$\$
		Perley 10/17	Shak 8/30	2016	2 Yr	3 Yr	2015 ^^	2014 ^^	
530	BTS 70RR99	4.62	4.21	4.41	3.83	3.74	3.25	3.57	7
608	BTS 7373	3.84	2.89	3.37	3.04	2.94	2.72	2.72	4
535	BTS 73MN	3.61	3.73	3.67	3.83	3.86	3.99	3.93	4
544	BTS 7540	3.89	4.05	3.97	3.54	--	3.10	--	2
563	BTS 7550	4.30	4.47	4.39	4.01	--	3.64	--	2
605	BTS 7600	4.45	3.24	3.85	--	--	--	--	1
614	BTS 7607	5.17	5.40	5.29	--	--	--	--	1
547	BTS 7618	4.37	5.41	4.89	--	--	--	--	1
569	BTS 7629	4.29	3.90	4.10	--	--	--	--	1
609	BTS 80RR52	4.15	4.06	4.11	3.67	3.78	3.24	4.01	7
519	BTS 82RR28	4.33	4.07	4.20	4.17	4.39	4.15	4.84	5
582	BTS 82RR33	5.52	5.31	5.42	5.52	5.55	5.63	5.59	5
568	BTS 8337	3.85	2.67	3.26	2.90	3.16	2.55	3.68	4
522	BTS 8363	4.59	5.26	4.93	4.85	4.91	4.77	5.03	4
610	BTS 83CN	4.35	4.34	4.34	4.07	4.10	3.79	4.16	4
540	BTS 8500	3.76	4.68	4.22	3.88	--	3.54	--	2
514	BTS 8512	4.26	4.08	4.17	4.04	--	3.91	--	2
518	BTS 8524	3.94	3.85	3.89	3.61	--	3.33	--	2
542	BTS 8572	4.61	4.31	4.46	4.25	--	4.05	--	2
607	BTS 8603	5.09	4.30	4.69	--	--	--	--	1
549	BTS 8606	4.51	4.69	4.60	--	--	--	--	1
562	BTS 8610	3.67	3.35	3.51	--	--	--	--	1
528	BTS 8614	4.65	4.54	4.59	--	--	--	--	1
555	BTS 8629	3.85	4.44	4.14	--	--	--	--	1
571	BTS 8634	4.11	4.03	4.07	--	--	--	--	1
526	BTS 8642	3.93	3.20	3.57	--	--	--	--	1
545	BTS 8682	4.31	4.08	4.20	--	--	--	--	1
508	Crystal 093RR	3.79	4.85	4.32	4.09	4.29	3.86	4.69	7
602	Crystal 101RR	4.12	2.73	3.42	3.37	3.39	3.31	3.45	6
596	Crystal 246RR	4.60	5.09	4.85	4.92	4.78	4.99	4.51	5
554	Crystal 247RR	4.71	4.82	4.77	4.86	4.92	4.94	5.05	5
585	Crystal 355RR	4.21	4.71	4.46	3.86	3.96	3.26	4.15	4
595	Crystal 467RR	4.31	3.77	4.04	3.80	3.97	3.55	4.33	3
584	Crystal 572RR	4.64	4.83	4.74	4.54	--	4.33	--	2
552	Crystal 573RR	4.58	3.54	4.06	3.88	--	3.69	--	2
521	Crystal 574RR	3.69	3.69	3.69	3.31	--	2.93	--	2
588	Crystal 575RR	4.60	5.06	4.83	4.36	--	3.88	--	2
533	Crystal 576RR	4.35	3.59	3.97	3.60	--	3.24	--	2
579	Crystal 578RR	4.22	4.66	4.44	4.48	--	4.52	--	2
527	Crystal 684RR	3.78	3.69	3.74	--	--	--	--	1
590	Crystal 685RR	5.07	5.17	5.12	--	--	--	--	1
567	Crystal 686RR	4.73	4.17	4.45	--	--	--	--	1
573	Crystal 687RR	4.48	5.21	4.85	--	--	--	--	1
548	Crystal 981RR	4.38	2.70	3.54	3.39	3.53	3.25	3.79	8
517	Crystal 986RR	4.48	4.35	4.41	4.14	4.30	3.87	4.63	8
598	Crystal D352	3.88	3.69	3.78	3.58	3.65	3.38	3.80	4
592	Crystal D508	4.54	5.05	4.80	4.40	--	4.00	--	2
501	Crystal D609	4.02	3.81	3.91	--	--	--	--	1
583	Crystal D659	4.33	4.09	4.21	--	--	--	--	1
553	Crystal D678	4.44	3.18	3.81	--	--	--	--	1
574	Crystal RR012	4.65	4.80	4.73	4.30	4.14	3.87	3.83	7
546	Crystal RR228	3.92	2.67	3.29	3.07	2.83	2.84	2.35	5
575	Crystal RR260	4.58	4.52	4.55	4.31	4.43	4.07	4.67	5
550	Crystal RR830	4.21	4.93	4.57	4.19	4.10	3.82	3.92	9
534	Hilleshög 4062RR	4.57	4.42	4.49	4.49	4.27	4.49	3.83	9
565	Hilleshög 4094RR	4.19	4.66	4.42	4.51	4.50	4.60	4.47	9
577	Hilleshög 4302RR	4.24	5.01	4.63	4.33	4.28	4.02	4.20	6
511	Hilleshög 4448RR	3.54	4.26	3.90	3.35	3.83	2.80	4.78	5
539	Hilleshög 9517RR	3.92	3.74	3.83	3.46	3.60	3.09	3.89	4

Table 36. 2016 Aphanomyces Ratings for Official Trial Entries
Betaseed Nursery - Shakopee, MN & ACSC - RRV

Chk++	Code	Description	Adjusted ^^						Trial Yrs \$\$	
			Perley 10/17	Shak 8/30	2016	2 Yr	3 Yr	2015 ^^		2014 ^^
	612	Hilleshög 9528RR	3.78	3.75	3.77	3.37	4.06	2.97	5.44	4
	532	Hilleshög 9602RR	4.51	4.35	4.43	4.55	4.55	4.67	4.55	3
	580	Hilleshög HIL9707	4.15	3.83	3.99	3.75	--	3.52	--	2
	559	Hilleshög HIL9708	4.68	4.95	4.82	4.75	--	4.69	--	2
	599	Hilleshög HIL9711	4.20	4.42	4.31	3.66	--	3.01	--	2
	509	Hilleshög HIL9880	4.07	3.07	3.57	--	--	--	--	1
	578	Hilleshög HIL9881	3.91	3.48	3.69	--	--	--	--	1
	611	Hilleshög HIL9882	4.59	4.38	4.48	--	--	--	--	1
	538	Hilleshög HIL9883	3.83	4.47	4.15	--	--	--	--	1
	600	Hilleshög HIL9884	3.89	4.54	4.21	--	--	--	--	1
	593	Hilleshög HIL9892	3.86	3.50	3.68	--	--	--	--	1
	525	Hilleshög HIL9893	4.64	5.39	5.02	--	--	--	--	1
	502	Hilleshög HIL9894	4.12	4.14	4.13	--	--	--	--	1
	510	Hilleshög HIL9895	3.99	3.30	3.65	--	--	--	--	1
	560	Hilleshög HIL9896	4.33	4.36	4.34	--	--	--	--	1
	558	Hilleshög HIL9897	4.33	4.96	4.64	--	--	--	--	1
	529	Maribo 102	3.65	4.15	3.90	3.34	3.89	2.78	4.99	6
	541	Maribo 109	4.25	4.28	4.27	3.90	4.27	3.54	5.00	3
	603	Maribo MA305	3.72	5.11	4.42	4.59	4.72	4.76	4.99	4
	561	Maribo MA502	3.42	2.70	3.06	2.99	--	2.93	--	2
	572	Maribo MA504	4.14	4.93	4.54	4.57	--	4.60	--	2
	504	Maribo MA605	3.90	3.85	3.87	--	--	--	--	1
	576	Maribo MA606	4.44	4.22	4.33	--	--	--	--	1
	512	Maribo MA607	4.19	5.30	4.75	--	--	--	--	1
	520	Maribo MA611	4.21	3.67	3.94	--	--	--	--	1
	537	Maribo MA612	4.76	4.29	4.53	--	--	--	--	1
	536	Maribo MA613	4.59	4.84	4.72	--	--	--	--	1
	551	SX Canyon RR(844TT)	4.16	4.41	4.28	3.94	4.57	3.59	5.84	3
	516	SX Cruze RR(846)	3.53	3.28	3.41	3.77	4.44	4.14	5.77	3
	524	Seedex RR1861	4.36	4.44	4.40	--	--	--	--	1
	604	Seedex RR1862	4.66	4.89	4.78	--	--	--	--	1
	587	Seedex RR1863	3.69	3.41	3.55	--	--	--	--	1
	566	Seedex RR1864	3.72	3.96	3.84	--	--	--	--	1
	503	Seedex RR1964	4.56	4.73	4.64	--	--	--	--	1
	591	Seedex RR1965	3.93	4.32	4.12	--	--	--	--	1
	513	Seedex RR0856(Marathon)	4.46	4.31	4.38	4.46	--	4.53	--	2
	597	Seedex RR0858(Avalanche)	4.21	4.67	4.44	3.92	--	3.40	--	2
	557	SX Terrain RR(848)	4.94	4.92	4.93	4.31	4.73	3.69	5.58	3
	615	SX Winchester RR	4.03	3.67	3.85	3.46	3.99	3.07	5.06	4
	507	SV RR241	4.40	4.86	4.63	3.75	4.31	2.87	5.42	3
	613	SV RR244TT	4.84	5.11	4.97	4.60	4.96	4.23	5.67	3
	523	SV RR265	3.88	5.21	4.54	--	--	--	--	1
	586	SV RR266	4.23	5.01	4.62	--	--	--	--	1
	515	SV RR267	4.72	5.17	4.95	--	--	--	--	1
	505	SV RR268	3.89	4.12	4.00	--	--	--	--	1
	564	SV RR333	4.19	5.23	4.71	4.09	4.50	3.46	5.33	4
	531	SV RR336	3.98	3.40	3.69	3.24	3.99	2.78	5.50	4
	589	SV RR351	4.04	4.72	4.38	3.95	--	3.53	--	2
	556	SV RR353	4.38	4.55	4.46	3.60	--	2.75	--	2
	581	SV RR655	3.87	3.84	3.85	3.63	--	3.41	--	2
	543	SV RR656	3.77	4.29	4.03	4.34	--	4.65	--	2
	570	SV RR746	4.24	4.39	4.32	4.11	4.28	3.90	4.62	3
	601	SV RR747	4.19	4.24	4.22	4.15	4.32	4.08	4.67	3
	606	SV RR761	3.96	4.83	4.40	--	--	--	--	1
	506	SV RR762	3.61	4.10	3.85	--	--	--	--	1
	594	SV RR763	4.04	4.33	4.18	--	--	--	--	1
1	1001	Aph Ck-32 CRY5981RR	4.40	3.02	3.71	3.48	3.59	3.25	3.79	8
1	1002	AP CK-33 CRY5768RR	4.87	4.56	4.71	4.79	4.73	4.86	4.62	10
1	1003	AP CK-34 HILL4000RR	5.81	5.16	5.49	5.61	5.55	5.73	5.42	10
1	1004	AP CK-35 BETA87RR58	5.21	5.19	5.20	5.50	5.36	5.79	5.10	10
1	1005	AP CK-41 CRY5765RR	5.86	5.77	5.81	6.27	6.17	6.73	5.96	6
1	1006	AP CK-43 BTS80RR32	4.34	4.98	4.66	4.96	5.03	5.26	5.16	7

Table 36. 2016 Aphanomyces Ratings for Official Trial Entries
Betaseed Nursery - Shakopee, MN & ACSC - RRV

Chk++	Code	Description	Adjusted ^^						Trial Yrs \$\$	
			Perley 10/17	Shak 8/30	2016	2 Yr	3 Yr	2015 ^^		2014 ^^
1	1007	AP CK-44 SX VISION RR	4.88	5.06	4.97	5.15	5.28	5.33	5.54	8
1	1008	AP CK-45 CRY5986RR	4.27	4.93	4.60	4.37	4.46	4.14	4.63	8
1	1009	AP CK-47 CRY5101RR	4.12	2.71	3.41	3.28	3.33	3.14	3.45	6
1	1010	AP CK-49 BTS82RR33	5.68	5.58	5.63	5.86	5.77	6.09	5.59	5
1	1011	AP CK-51 CRY5246RR	4.34	5.44	4.89	4.94	4.80	4.99	4.51	5
1	1012	AP CK-52 HILL4094RR	4.60	5.19	4.90	4.75	4.65	4.60	4.47	9
1	1013	AP CK-53 CRY5093RR	4.31	4.78	4.55	4.21	4.37	3.86	4.69	7
1	1014	AP CK-54 SES36273RR	4.51	4.41	4.46	4.42	4.81	4.38	5.59	5
1	1015	AP CK-55 CRY5247RR	4.99	5.38	5.19	5.06	5.06	4.94	5.05	5
	1016	AP CHK SUS HYB#3	5.59	5.87	5.73	6.38	6.29	7.03	6.10	10
0	1017	AP CHK MOD RES RR	4.64	4.87	4.76	4.49	4.68	4.22	5.05	10
0	1018	AP CHK RES RR	3.60	4.27	3.93	3.76	3.83	3.59	3.97	11
0	1019	AP CHK SUS HYB#3	5.42	5.91	5.66	6.35	6.26	7.03	6.10	10
0	1020	AP CHK SUS HYB#4	5.62	6.02	5.82	6.69	6.28	7.56	5.46	10
	1021	AP CHK MOD RES RR#2	4.77	4.72	4.74	4.62	4.88	4.51	5.39	10
	1022	AP CHK MOD RES RR#3	4.72	5.34	5.03	5.23	5.33	5.42	5.54	8
	1023	AC CHK RES RR#3	3.33	2.72	3.02	2.70	2.84	2.38	3.11	9
	1024	AP CHK SUS HYB#3	5.77	5.96	5.87	6.45	6.33	7.03	6.10	10
	1025	AP CHK SUS HYB#4	6.10	5.68	5.89	6.72	6.30	7.56	5.46	10
Conventional										
908	BETA EXP 676		5.01	4.89	4.95	--	--	--	--	1
909	BETA EXP 687		5.00	4.76	4.88	--	--	--	--	1
910	BETA EXP 698		3.90	3.48	3.69	--	--	--	--	1
911	Crystal 620		4.43	4.12	4.28	--	--	--	--	1
907	Crystal 622		4.75	3.97	4.36	--	--	--	--	1
902	Crystal 624		5.26	5.70	5.48	--	--	--	--	1
903	Crystal R761		4.47	2.68	3.57	--	--	--	--	10
913	Hilleshög 3035Rz		4.53	4.27	4.40	--	--	--	--	12
906	Hilleshög 9890Rz		4.65	4.87	4.76	--	--	--	--	1
901	Hilleshög 9891Rz		4.33	4.57	4.45	--	--	--	--	1
912	Maribo MA614Rz		4.69	4.07	4.38	--	--	--	--	1
905	Maribo MA615Rz		4.43	5.16	4.80	--	--	--	--	1
916	Seedex 8869 Cnv		4.66	4.75	4.70	--	--	--	--	1
914	Seedex Deuce (SX0873TT)		4.77	6.63	5.70	--	--	--	--	9
915	SV 48611		4.18	4.77	4.47	--	--	--	--	1
904	SV 48612		4.80	3.64	4.22	--	--	--	--	1
1001	Aph Ck-32 CRY5981RR		4.40	3.02	3.71	3.48	3.59	3.25	3.79	8
1002	AP CK-33 CRY5768RR		4.87	4.56	4.71	4.79	4.73	4.86	4.62	10
1003	AP CK-34 HILL4000RR		5.81	5.16	5.49	5.61	5.55	5.73	5.42	10
1004	AP CK-35 BETA87RR58		5.21	5.19	5.20	5.50	5.36	5.79	5.10	10
	Check Mean		4.81	4.81	4.81					
15	Trial Mean		4.35	4.39						
	Coeff. of Var. (%)		11.0	11.2						
	F Value		5.9	12.8						
	Mean LSD (0.05)		0.60	0.61						
	Mean LSD (0.01)		0.80	0.80						
	Sig Lvl		**	**						
	Adjustment Factor		1.020094	0.9948						

^^ 2016 Root Rating was taken in early fall (1=healthy, 9+=severe damage).

++ Ratings adjusted to 2003 basis. (2000-2002 Aph nurseries). Ratings adjusted on the basis of checks.

Table 37. 2016 Cercospora Ratings for Official Trial Entries
Betaseed (Randolph MN), BSDF (Frankenmuth MI) & NDSU (Foxhome MN)

Chk	Code	Description	Adjusted to 1982 Basis ++								Trial Yrs \$\$
			Randolph Avg	BSDF Avg	Foxhome Avg	2016***	2 Yr	3 Yr	2015	2014	
			6 Dates+	4 Dates+	8 Dates+	3 loc					
	530	BTS 70RR99	3.71	4.74	4.63	4.36	4.35	4.30	4.34	4.20	7
	608	BTS 7373	4.88	4.79	4.86	4.84	4.75	4.69	4.66	4.58	4
	535	BTS 73MN	4.65	4.77	4.50	4.64	4.63	4.54	4.61	4.37	4
	544	BTS 7540	3.84	4.24	4.32	4.13	3.99	--	3.85	--	2
	563	BTS 7550	4.20	4.65	4.59	4.48	4.52	--	4.57	--	2
	605	BTS 7600	4.89	4.70	4.84	4.81	--	--	--	--	1
	614	BTS 7607	5.00	4.62	4.53	4.72	--	--	--	--	1
	547	BTS 7618	5.05	4.74	4.93	4.91	--	--	--	--	1
	569	BTS 7629	3.84	4.53	4.55	4.31	--	--	--	--	1
	609	BTS 80RR52	3.64	4.61	4.59	4.28	4.20	4.20	4.11	4.22	7
	519	BTS 82RR28	5.27	4.75	4.41	4.81	4.85	4.78	4.89	4.62	5
	582	BTS 82RR33	5.46	4.76	4.93	5.05	4.82	4.78	4.58	4.70	5
	568	BTS 8337	4.77	4.41	4.68	4.62	4.56	4.54	4.49	4.52	4
	522	BTS 8363	4.34	4.34	4.29	4.33	4.08	4.00	3.83	3.85	4
	610	BTS 83CN	4.78	4.68	4.48	4.65	4.65	4.63	4.65	4.60	4
	540	BTS 8500	4.62	4.65	4.35	4.54	4.50	--	4.45	--	2
	514	BTS 8512	3.61	4.24	4.28	4.04	4.08	--	4.12	--	2
	518	BTS 8524	4.74	4.83	4.66	4.74	4.57	--	4.40	--	2
	542	BTS 8572	4.19	4.52	4.51	4.41	4.50	--	4.60	--	2
	607	BTS 8603	5.00	5.00	4.88	4.96	--	--	--	--	1
	549	BTS 8606	5.44	4.93	4.97	5.12	--	--	--	--	1
	562	BTS 8610	4.79	4.72	4.81	4.77	--	--	--	--	1
	528	BTS 8614	4.83	4.64	4.52	4.66	--	--	--	--	1
	555	BTS 8629	4.77	4.45	4.55	4.59	--	--	--	--	1
	571	BTS 8634	4.21	4.65	4.70	4.52	--	--	--	--	1
	526	BTS 8642	4.68	4.77	4.78	4.74	--	--	--	--	1
	545	BTS 8682	3.74	4.60	4.61	4.32	--	--	--	--	1
	508	Crystal 093RR	5.00	4.86	5.00	4.95	4.86	4.87	4.76	4.88	7
	602	Crystal 101RR	4.39	4.70	4.67	4.59	4.62	4.50	4.65	4.26	6
	596	Crystal 246RR	5.18	4.64	4.61	4.81	4.65	4.61	4.49	4.52	5
	554	Crystal 247RR	4.79	4.52	4.65	4.65	4.42	4.35	4.19	4.20	5
	585	Crystal 355RR	4.20	4.75	4.86	4.60	4.52	4.54	4.43	4.58	4
	595	Crystal 467RR	4.88	4.63	4.55	4.69	4.51	4.47	4.34	4.40	3
	584	Crystal 572RR	4.26	4.66	4.80	4.57	4.61	--	4.65	--	2
	552	Crystal 573RR	3.93	4.67	4.46	4.35	4.25	--	4.15	--	2
	521	Crystal 574RR	4.53	4.65	4.37	4.51	4.41	--	4.30	--	2
	588	Crystal 575RR	3.95	4.81	4.82	4.53	4.53	--	4.53	--	2
	533	Crystal 576RR	4.28	4.66	4.67	4.54	4.55	--	4.55	--	2
	579	Crystal 578RR	5.04	4.73	4.86	4.87	4.90	--	4.93	--	2
	527	Crystal 684RR	4.81	4.56	4.33	4.57	--	--	--	--	1
	590	Crystal 685RR	4.65	4.70	4.67	4.67	--	--	--	--	1
	567	Crystal 686RR	4.50	4.88	4.72	4.70	--	--	--	--	1
	573	Crystal 687RR	5.15	4.66	4.77	4.86	--	--	--	--	1
	548	Crystal 981RR	4.88	5.36	4.94	5.06	5.06	5.00	5.05	4.89	8
	517	Crystal 986RR	4.76	4.73	4.77	4.75	4.86	4.78	4.97	4.61	8
	598	Crystal D352	4.70	4.89	4.60	4.73	4.77	4.74	4.81	4.67	4
	592	Crystal D508	4.59	4.72	4.59	4.63	4.63	--	4.63	--	2
	501	Crystal D609	4.13	4.58	4.60	4.44	--	--	--	--	1
	583	Crystal D659	3.54	4.37	4.44	4.12	--	--	--	--	1
	553	Crystal D678	4.46	4.45	4.47	4.46	--	--	--	--	1
	574	Crystal RR012	4.10	4.76	4.77	4.54	4.58	4.58	4.61	4.59	7
	546	Crystal RR228	4.15	4.44	4.37	4.32	4.28	4.25	4.24	4.19	5
	575	Crystal RR260	5.08	4.63	4.59	4.77	4.37	4.36	3.98	4.34	5
	550	Crystal RR830	5.12	4.63	4.95	4.90	4.98	4.88	5.06	4.69	9
	534	Hilleshög 4062RR	3.93	4.58	4.54	4.35	4.37	4.44	4.39	4.58	9
	565	Hilleshög 4094RR	3.93	4.45	4.51	4.30	4.30	4.35	4.30	4.46	9
	577	Hilleshög 4302RR	3.86	4.35	4.16	4.13	4.13	4.26	4.13	4.52	6
	511	Hilleshög 4448RR	5.72	4.98	4.92	5.21	5.25	5.26	5.29	5.28	5
	539	Hilleshög 9517RR	3.89	4.79	4.08	4.26	4.14	4.22	4.03	4.39	4
	612	Hilleshög 9528RR	5.01	4.69	4.49	4.73	4.94	4.95	5.16	4.97	4

Table 37. 2016 Cercospora Ratings for Official Trial Entries
Betaseed (Randolph MN), BSDF (Frankenmuth MI) & NDSU (Foxhome MN)

Chk	Code	Description	Adjusted to 1982 Basis ++								
			Randolph Avg	BSDF Avg	Foxhome Avg	2016***	2 Yr	3 Yr	2015	2014	Trial Yrs \$\$
			6 Dates+	4 Dates+	8 Dates+	3 loc					
	532	Hilleshög 9602RR	4.93	4.63	4.43	4.67	4.66	4.67	4.66	4.67	3
	580	Hilleshög HIL9707	4.63	4.48	4.49	4.53	4.56	--	4.60	--	2
	559	Hilleshög HIL9708	4.97	4.47	4.78	4.74	4.89	--	5.04	--	2
	599	Hilleshög HIL9711	4.72	4.71	4.38	4.60	4.83	--	5.06	--	2
	509	Hilleshög HIL9880	4.42	5.24	4.42	4.70	--	--	--	--	1
	578	Hilleshög HIL9881	3.87	4.45	3.96	4.10	--	--	--	--	1
	611	Hilleshög HIL9882	4.69	4.78	4.76	4.74	--	--	--	--	1
	538	Hilleshög HIL9883	4.54	4.56	4.55	4.55	--	--	--	--	1
	600	Hilleshög HIL9884	4.81	4.54	4.54	4.63	--	--	--	--	1
	593	Hilleshög HIL9892	3.66	4.42	3.78	3.95	--	--	--	--	1
	525	Hilleshög HIL9893	5.27	4.91	4.90	5.03	--	--	--	--	1
	502	Hilleshög HIL9894	4.26	4.67	4.37	4.44	--	--	--	--	1
	510	Hilleshög HIL9895	4.23	4.73	4.52	4.49	--	--	--	--	1
	560	Hilleshög HIL9896	4.51	4.36	4.58	4.48	--	--	--	--	1
	558	Hilleshög HIL9897	4.59	4.55	4.43	4.52	--	--	--	--	1
	529	Maribo 102	5.80	5.25	4.86	5.30	5.54	5.54	5.77	5.54	6
	541	Maribo 109	4.18	4.00	4.24	4.14	4.35	4.46	4.56	4.68	3
	603	Maribo MA305	4.96	4.57	4.63	4.72	4.74	4.77	4.76	4.83	4
	561	Maribo MA502	4.51	5.18	4.68	4.79	4.91	--	5.04	--	2
	572	Maribo MA504	5.34	5.00	4.78	5.04	5.14	--	5.25	--	2
	504	Maribo MA605	4.20	4.72	4.55	4.49	--	--	--	--	1
	576	Maribo MA606	4.69	4.68	4.34	4.57	--	--	--	--	1
	512	Maribo MA607	5.40	4.75	4.90	5.02	--	--	--	--	1
	520	Maribo MA611	4.12	4.74	4.55	4.47	--	--	--	--	1
	537	Maribo MA612	4.67	4.61	4.50	4.59	--	--	--	--	1
	536	Maribo MA613	4.79	4.72	5.03	4.85	--	--	--	--	1
	551	SX Canyon RR(844TT)	4.98	4.59	4.71	4.76	4.39	4.75	4.02	5.46	3
	516	SX Cruze RR(846)	4.68	4.59	4.69	4.65	4.61	4.69	4.57	4.83	3
	524	Seedex RR1861	4.44	4.48	4.65	4.52	--	--	--	--	1
	604	Seedex RR1862	4.18	4.73	4.65	4.52	--	--	--	--	1
	587	Seedex RR1863	3.97	4.54	4.55	4.35	--	--	--	--	1
	566	Seedex RR1864	3.34	4.34	3.88	3.86	--	--	--	--	1
	503	Seedex RR1964	4.15	4.61	4.29	4.35	--	--	--	--	1
	591	Seedex RR1965	5.34	4.97	5.03	5.11	--	--	--	--	1
	513	Seedex RR0856(Marathon)	4.09	4.60	4.64	4.44	4.91	--	5.37	--	2
	597	Seedex RR0858(Avalanche)	5.02	4.73	4.47	4.74	4.45	--	4.15	--	2
	557	SX Terrain RR(848)	4.88	4.68	4.44	4.67	4.73	4.73	4.80	4.71	3
	615	SX Winchester RR	3.57	4.28	4.06	3.97	3.82	4.18	3.67	4.89	4
	507	SV RR241	4.29	4.58	4.73	4.53	4.18	4.24	3.83	4.35	3
	613	SV RR244TT	4.44	4.42	4.53	4.46	4.31	4.71	4.17	5.51	3
	523	SV RR265	5.06	4.98	4.95	5.00	--	--	--	--	1
	586	SV RR266	4.72	4.78	4.72	4.74	--	--	--	--	1
	515	SV RR267	4.72	4.54	4.41	4.56	--	--	--	--	1
	505	SV RR268	5.53	4.80	5.06	5.13	--	--	--	--	1
	564	SV RR333	5.00	4.83	4.72	4.85	4.69	4.73	4.54	4.81	4
	531	SV RR336	4.81	4.61	4.44	4.62	4.28	4.36	3.94	4.53	4
	589	SV RR351	4.39	4.59	4.53	4.50	4.56	--	4.62	--	2
	556	SV RR353	3.90	4.54	4.14	4.20	3.96	--	3.72	--	2
	581	SV RR655	3.75	4.52	4.06	4.11	3.97	--	3.83	--	2
	543	SV RR656	4.53	4.72	4.68	4.64	4.48	--	4.32	--	2
	570	SV RR746	4.69	4.60	4.64	4.64	4.74	4.79	4.84	4.87	3
	601	SV RR747	3.98	4.18	4.28	4.14	4.11	4.31	4.07	4.73	3
	606	SV RR761	5.02	5.07	5.05	5.05	--	--	--	--	1
	506	SV RR762	3.83	4.29	3.92	4.02	--	--	--	--	1
	594	SV RR763	4.58	4.58	4.82	4.66	--	--	--	--	1
1	1101	CR CK-19 CRY5539RR	5.59	5.06	5.24	5.30	5.31	5.26	5.31	5.17	12
1	1102	CR CK-24 HILL4012RR	5.31	5.37	5.25	5.31	5.28	5.27	5.24	5.27	11
1	1103	CR CK-28 HILL4010RR	5.62	5.36	5.30	5.43	5.31	5.27	5.20	5.19	11
1	1104	CR CK-33 HILL4043RR	4.89	4.42	4.88	4.73	4.91	4.88	5.09	4.82	10
1	1105	CR CK-34 HILL4000RR	4.88	4.82	4.60	4.77	4.70	4.75	4.64	4.84	10

Table 37. 2016 Cercospora Ratings for Official Trial Entries
Betaseed (Randolph MN), BSDF (Frankenmuth MI) & NDSU (Foxhome MN)

		Adjusted to 1982 Basis ++									
Chk	Code	Description	Randolph	BSDF	Foxhome	2016***	2 Yr	3 Yr	2015	2014	Trial Yrs \$\$
			Avg	Avg	Avg						
			6 Dates+	4 Dates+	8 Dates+	3 loc					
1	1106	CR CK-41 CRY5981RR	4.53	5.15	4.98	4.89	5.00	4.97	5.12	4.89	8
1	1107	CR CK-42 CRY5985RR	4.01	4.29	4.41	4.23	4.34	4.30	4.45	4.22	8
1	1108	CR CK-43 CRY5246RR	4.94	4.72	4.65	4.77	4.63	4.60	4.49	4.52	5
1	1109	CR CK-44 BETA80RR32	5.30	4.92	4.89	5.04	4.98	4.88	4.92	4.69	7
1	1110	CR CK-45 HILL4448RR	5.06	5.13	4.82	5.00	5.15	5.19	5.29	5.28	5
1	1111	CR CK-46 HILL4062RR	4.10	4.50	4.50	4.37	4.38	4.44	4.39	4.58	9
1	1112	CR CK-47 HILL4094RR	3.88	4.35	4.60	4.28	4.29	4.35	4.30	4.46	9
	1113	CR CK MOD SUS HYB#3	5.67	5.26	5.17	5.37	5.21	5.22	5.05	5.23	12
	1114	CR CK MOD SUS HYB#3	5.53	5.07	5.28	5.29	5.17	5.19	5.05	5.23	12
	1115	CR CK MOD RES HYB#4	3.88	4.55	4.28	4.24	4.38	4.35	4.52	4.27	9
	1116	CR CK MOD RES HYB#4	3.77	4.55	4.41	4.25	4.38	4.35	4.52	4.27	9
	1117	CR CK MOD SUS HYB#5	5.20	4.59	5.12	4.97	5.09	5.01	5.21	4.84	10
	908	BETA EXP 676	3.81	4.94	4.50	4.42	NA	NA	NA	NA	1
	909	BETA EXP 687	3.50	4.57	4.36	4.14	NA	NA	NA	NA	1
	910	BETA EXP 698	3.74	4.94	4.13	4.27	NA	NA	NA	NA	1
	911	Crystal 620	3.73	4.68	4.18	4.19	NA	NA	NA	NA	1
	907	Crystal 622	3.24	4.57	4.08	3.96	NA	NA	NA	NA	1
	902	Crystal 624	3.71	5.00	4.35	4.35	NA	NA	NA	NA	1
	903	Crystal R761	4.79	5.06	5.10	4.99	NA	NA	NA	NA	10
	913	Hilleshög 3035Rz	3.79	5.27	4.51	4.53	NA	NA	NA	NA	12
	906	Hilleshög 9890Rz	4.93	5.06	4.97	4.99	NA	NA	NA	NA	1
	901	Hilleshög 9891Rz	3.81	4.89	4.55	4.42	NA	NA	NA	NA	1
	912	Maribo MA614Rz	4.46	4.73	4.65	4.61	NA	NA	NA	NA	1
	905	Maribo MA615Rz	5.09	5.17	4.85	5.04	NA	NA	NA	NA	1
	916	Seedex 8869 Cnv	4.40	5.00	4.88	4.76	NA	NA	NA	NA	1
	914	Seedex Deuce (SX0873TT)	4.49	4.84	4.71	4.68	NA	NA	NA	NA	9
	915	SV 48611	4.84	4.78	4.91	4.85	NA	NA	NA	NA	1
	904	SV 48612	5.06	5.06	5.14	5.09	NA	NA	NA	NA	1
	1101	CR CK-19 CRY5539RR	5.28	4.89	5.29	5.16	5.23	5.21	5.31	5.17	12
	1102	CR CK-24 HILL4012RR	5.39	5.55	5.31	5.42	5.33	5.31	5.24	5.27	11
	1103	CR CK-28 HILL4010RR	5.80	5.33	5.28	5.47	5.33	5.28	5.20	5.19	11
	1104	CR CK-33 HILL4043RR	4.94	4.78	4.78	4.84	4.96	4.92	5.09	4.82	10
12		Check Mean	4.84	4.84	4.84	4.84	4.96	4.94	4.98	4.89	
		Trial Mean	4.50	4.66	5.65	4.94					
		Coeff. of Var. (%)	7.19	4.43	4.18						
		F Value	13.22	4.76	11.21						
		Mean LSD (0.05)	0.43	0.31	0.24						
		Mean LSD (0.01)	0.56	0.41	0.31						
		Sig Mkr	**	**	**						
		Adj Factor	1.01958	1.00460	0.81750						

* Lower numbers indicate better Cercospora resistance (1-Ex,9=Poor).

++ Ratings adjusted to 1982 basis (5.5 equivalent in 1978-81 CR nurseries). Ratings adjusted on the basis of checks.

Chk = varieties used to adjust CR readings to 1982 basis. Ratings * (Adj. factor) = Adj Rating.

\$\$ Trial years indicates how many years the entry has been in the official trials.

+ Average rating based upon multiple rating dates.

Created 10-28-2016

Table 38. 2016 Rhizoctonia Ratings for OVT Entries
Rhizoctonia Nursery - BSDF, NWROC & Two ACSC Sites

Sus Chk Chk ^ @	Code	Description	Adjusted @									
			BSDF 8/10	TSC-E 7/29	TSC-W 8/9	NWROC 8/30	2016	2 Yr	3 Yr	2015	2014	Years
	530	BTS 70RR99	4.42	4.17	3.98	4.03	4.15	4.01	3.97	3.86	3.90	7
	608	BTS 7373	4.44	4.20	3.83	4.29	4.19	4.00	4.17	3.81	4.50	4
	535	BTS 73MN	4.33	4.17	4.18	4.03	4.18	4.00	4.02	3.81	4.06	4
	544	BTS 7540	4.20	4.24	4.19	4.30	4.23	4.10	--	3.96	--	2
	563	BTS 7550	4.43	4.20	4.11	4.19	4.23	4.12	--	4.01	--	2
	605	BTS 7600	4.30	4.46	4.50	3.91	4.29	--	--	--	--	1
	614	BTS 7607	4.43	4.29	4.55	3.83	4.28	--	--	--	--	1
	547	BTS 7618	3.95	3.87	3.65	3.62	3.77	--	--	--	--	1
	569	BTS 7629	4.35	3.78	4.04	3.81	3.99	--	--	--	--	1
	609	BTS 80RR52	4.65	4.21	4.63	4.14	4.41	4.18	4.24	3.95	4.36	7
	519	BTS 82RR28	4.10	4.39	4.55	4.40	4.36	4.19	4.16	4.01	4.11	5
	582	BTS 82RR33	4.55	3.78	3.60	4.23	4.04	4.11	4.14	4.18	4.20	5
	568	BTS 8337	4.23	4.40	3.80	3.88	4.08	3.97	4.00	3.87	4.06	4
	522	BTS 8363	4.65	4.03	4.34	4.33	4.34	4.23	4.23	4.12	4.24	4
	610	BTS 83CN	4.51	4.12	3.89	4.14	4.16	4.01	4.01	3.86	4.01	4
	540	BTS 8500	4.46	4.77	4.09	4.41	4.43	4.31	--	4.19	--	2
	514	BTS 8512	4.17	4.47	4.70	4.39	4.44	4.36	--	4.28	--	2
	518	BTS 8524	4.55	3.89	4.03	4.35	4.20	4.17	--	4.14	--	2
	542	BTS 8572	4.79	4.56	4.59	4.21	4.54	4.20	--	3.85	--	2
	607	BTS 8603	4.65	4.39	4.75	4.78	4.64	--	--	--	--	1
	549	BTS 8606	4.62	4.29	4.34	4.68	4.48	--	--	--	--	1
	562	BTS 8610	4.32	3.88	3.52	3.82	3.88	--	--	--	--	1
	528	BTS 8614	4.66	4.43	3.85	4.28	4.31	--	--	--	--	1
	555	BTS 8629	4.20	3.55	3.63	3.53	3.73	--	--	--	--	1
	571	BTS 8634	4.45	3.72	3.78	3.84	3.95	--	--	--	--	1
	526	BTS 8642	4.55	4.08	4.19	4.19	4.25	--	--	--	--	1
	545	BTS 8682	4.04	3.95	3.57	3.83	3.85	--	--	--	--	1
	508	Crystal 093RR	4.73	4.72	4.31	3.72	4.37	4.16	4.26	3.96	4.46	7
	602	Crystal 101RR	4.53	4.82	5.10	4.68	4.78	4.71	4.75	4.64	4.84	6
	596	Crystal 246RR	4.73	4.00	4.33	4.21	4.32	4.25	4.17	4.19	4.01	5
	554	Crystal 247RR	4.57	4.52	4.09	4.10	4.32	4.32	4.35	4.33	4.41	5
	585	Crystal 355RR	4.34	3.91	3.55	4.04	3.96	NE	NE	NE	4.07	4
	595	Crystal 467RR	4.46	4.35	4.10	4.14	4.26	4.12	4.09	3.97	4.03	3
	584	Crystal 572RR	4.37	4.23	4.14	4.08	4.21	4.05	--	3.89	--	2
	552	Crystal 573RR	4.43	4.71	4.65	4.39	4.55	4.40	--	4.25	--	2
	521	Crystal 574RR	4.69	4.58	4.26	4.34	4.47	4.32	--	4.16	--	2
	588	Crystal 575RR	4.72	4.38	3.94	4.28	4.33	4.26	--	4.18	--	2
	533	Crystal 576RR	4.16	4.12	3.80	3.97	4.01	3.85	--	3.68	--	2
	579	Crystal 578RR	4.49	4.21	4.33	4.25	4.32	4.18	--	4.03	--	2
	527	Crystal 684RR	4.25	4.17	5.03	4.21	4.41	--	--	--	--	1
	590	Crystal 685RR	4.56	4.33	4.74	4.26	4.47	--	--	--	--	1
	567	Crystal 686RR	4.58	4.56	5.02	4.69	4.71	--	--	--	--	1
	573	Crystal 687RR	4.42	3.84	3.86	3.47	3.90	--	--	--	--	1
	548	Crystal 981RR	4.66	4.37	4.86	4.47	4.59	4.49	4.61	4.40	4.85	8
	517	Crystal 986RR	4.28	4.54	4.50	4.20	4.38	4.22	4.19	4.06	4.12	8
	598	Crystal D352	4.39	3.45	3.50	3.56	3.72	3.63	3.73	3.54	3.91	4
	592	Crystal D508	4.61	4.62	4.85	3.83	4.48	4.29	--	4.11	--	2
	501	Crystal D609	4.33	4.07	3.86	4.17	4.11	--	--	--	--	1
	583	Crystal D659	4.27	4.05	4.11	3.96	4.10	--	--	--	--	1
	553	Crystal D678	4.79	4.37	4.20	4.03	4.35	--	--	--	--	1
	574	Crystal RR012	3.88	3.84	3.82	3.99	3.88	3.93	3.99	3.99	4.09	7
	546	Crystal RR228	4.17	4.64	4.85	4.52	4.54	4.26	4.34	3.98	4.48	5
	575	Crystal RR260	4.72	4.05	4.41	4.33	4.38	4.21	4.31	4.04	4.51	5
	550	Crystal RR830	4.08	3.80	3.25	4.06	3.80	3.75	3.74	3.71	3.72	9
	534	Hilleshög 4062RR	4.29	4.25	3.64	4.18	4.09	3.76	3.64	3.44	3.40	9
	565	Hilleshög 4094RR	4.16	3.67	3.94	3.95	3.93	3.69	3.63	3.44	3.52	9
	577	Hilleshög 4302RR	4.05	3.57	3.40	3.60	3.65	3.68	3.64	3.70	3.58	6
	511	Hilleshög 4448RR	4.61	4.59	4.68	4.15	4.51	4.21	4.38	3.92	4.73	5
	539	Hilleshög 9517RR	4.50	4.37	3.64	4.26	4.19	3.92	3.96	3.66	4.04	4
	612	Hilleshög 9528RR	4.53	4.25	3.88	4.19	4.21	4.16	4.05	4.10	3.83	4
	532	Hilleshög 9602RR	4.61	3.90	4.08	4.24	4.21	4.06	4.08	3.91	4.12	3
	580	Hilleshög HIL9707	4.33	4.49	4.58	4.19	4.40	4.31	--	4.21	--	2
	559	Hilleshög HIL9708	4.28	4.45	4.27	4.13	4.28	4.16	--	4.04	--	2
	599	Hilleshög HIL9711	4.38	4.41	4.42	4.63	4.46	4.28	--	4.11	--	2
	509	Hilleshög HIL9880	4.56	4.16	4.51	4.79	4.51	--	--	--	--	1
	578	Hilleshög HIL9881	4.35	4.08	4.26	4.53	4.31	--	--	--	--	1
	611	Hilleshög HIL9882	4.55	4.39	4.27	4.49	4.42	--	--	--	--	1
	538	Hilleshög HIL9883	4.51	3.99	3.85	4.32	4.17	--	--	--	--	1
	600	Hilleshög HIL9884	4.26	4.48	4.28	4.10	4.28	--	--	--	--	1
	593	Hilleshög HIL9892	4.42	3.93	4.37	4.28	4.25	--	--	--	--	1
	525	Hilleshög HIL9893	4.63	4.26	4.45	4.26	4.40	--	--	--	--	1
	502	Hilleshög HIL9894	4.62	4.71	4.05	4.29	4.42	--	--	--	--	1
	510	Hilleshög HIL9895	4.46	4.31	4.67	4.81	4.56	--	--	--	--	1
	560	Hilleshög HIL9896	4.39	4.28	3.90	4.24	4.20	--	--	--	--	1
	558	Hilleshög HIL9897	4.56	4.19	3.78	4.04	4.14	--	--	--	--	1

Table 38. 2016 Rhizoctonia Ratings for OVT Entries
Rhizoctonia Nursery - BSDF, NWROC & Two ACSC Sites

Sus Chk Chk ^ @	Code	Description	Adjusted @									
			BSDF 8/10	TSC-E 7/29	TSC-W 8/9	NWROC 8/30	2016	2 Yr	3 Yr	2015	2014	Years
	529	Maribo 102	4.60	4.45	4.50	4.45	4.50	4.29	4.29	4.07	4.30	6
	541	Maribo 109	3.91	3.96	3.33	3.54	3.69	3.68	3.56	3.67	3.33	3
	603	Maribo MA305	4.22	4.21	4.63	4.51	4.40	4.11	4.28	3.83	4.62	4
	561	Maribo MA502	4.80	4.41	4.91	4.82	4.73	4.43	--	4.14	--	2
	572	Maribo MA504	4.66	4.50	4.74	4.39	4.58	4.28	--	3.98	--	2
	504	Maribo MA605	4.49	4.48	4.45	4.44	4.47	--	--	--	--	1
	576	Maribo MA606	4.18	4.23	4.06	4.18	4.16	--	--	--	--	1
	512	Maribo MA607	4.51	4.46	4.39	4.14	4.37	--	--	--	--	1
	520	Maribo MA611	4.76	4.79	4.21	4.74	4.63	--	--	--	--	1
	537	Maribo MA612	3.77	4.53	4.19	4.25	4.19	--	--	--	--	1
	536	Maribo MA613	4.61	4.71	4.72	4.81	4.71	--	--	--	--	1
	551	SX Canyon RR(844TT)	4.25	4.63	4.30	4.41	4.40	4.31	4.26	4.22	4.15	3
	516	SX Cruze RR(846)	4.60	4.68	5.00	4.49	4.69	4.43	4.51	4.18	4.67	3
	524	Seedex RR1861	4.58	4.62	4.80	4.36	4.59	--	--	--	--	1
	604	Seedex RR1862	4.43	4.38	4.66	4.51	4.50	--	--	--	--	1
	587	Seedex RR1863	4.24	4.69	4.44	4.79	4.54	--	--	--	--	1
	566	Seedex RR1864	4.63	4.47	4.57	4.65	4.58	--	--	--	--	1
	503	Seedex RR1964	4.58	4.79	4.53	4.79	4.67	--	--	--	--	1
	591	Seedex RR1965	4.74	4.37	4.26	4.19	4.39	--	--	--	--	1
	513	Seedex RR0856(Marathon)	4.51	4.73	4.16	4.47	4.47	4.31	--	4.16	--	2
	597	Seedex RR0858(Avalanche)	4.53	4.59	4.63	4.31	4.52	4.36	--	4.21	--	2
	557	SX Terrain RR(848)	4.44	4.89	4.22	4.26	4.45	4.35	4.38	4.24	4.43	3
	615	SX Winchester RR	4.78	4.50	4.92	4.33	4.63	4.46	4.42	4.28	4.35	4
	507	SV RR241	4.31	4.23	4.54	4.38	4.37	4.17	4.25	3.97	4.43	3
	613	SV RR244TT	4.23	4.65	4.25	4.67	4.45	4.31	4.16	4.18	3.84	3
	523	SV RR265	4.48	4.53	4.22	4.51	4.44	--	--	--	--	1
	586	SV RR266	4.18	4.07	3.98	4.59	4.20	--	--	--	--	1
	515	SV RR267	4.38	4.74	4.85	4.35	4.58	--	--	--	--	1
	505	SV RR268	4.83	4.61	4.70	4.63	4.70	--	--	--	--	1
	564	SV RR333	4.63	4.73	3.98	4.41	4.44	4.27	4.31	4.11	4.39	4
	531	SV RR336	4.49	4.60	4.97	4.56	4.65	4.52	4.44	4.38	4.29	4
	589	SV RR351	4.22	4.14	3.85	4.46	4.17	NE	NE	NE	--	2
	556	SV RR353	4.31	4.61	4.32	4.26	4.38	4.17	--	3.96	--	2
	581	SV RR655	4.38	4.46	4.69	4.69	4.55	4.21	--	3.86	--	2
	543	SV RR656	4.17	4.40	4.87	4.58	4.50	4.26	--	4.02	--	2
	570	SV RR746	4.55	4.44	4.26	4.52	4.44	4.28	4.25	4.12	4.20	3
	601	SV RR747	4.60	3.85	3.93	4.27	4.16	4.17	4.15	4.18	4.10	3
	606	SV RR761	4.51	4.20	4.27	4.62	4.40	--	--	--	--	1
	506	SV RR762	4.56	4.96	4.59	4.65	4.69	--	--	--	--	1
	594	SV RR763	4.55	4.49	4.87	4.38	4.57	--	--	--	--	1
1	1	1301 RH CK#08 CRY539RR	4.62	5.03	4.67	5.05	4.84	4.75	4.74	4.65	4.73	8
1	1	1302 RH CK#20 CRY5765RR	4.22	4.68	4.11	4.41	4.35	4.29	4.35	4.22	4.48	8
1	1	1303 RH CK#21 CRY5768RR	4.27	4.15	4.29	4.56	4.32	4.28	4.40	4.25	4.63	8
1	1	1304 RH CK#25 HILL4043RR	4.72	4.76	4.62	4.93	4.76	4.55	4.59	4.35	4.66	8
1	1	1305 RH CK#28 CRY5658RR	4.45	4.38	4.93	4.53	4.57	4.33	4.24	4.09	4.06	11
1	1	1306 RH CK#29 BETA87RR58	4.80	4.53	4.63	4.73	4.67	4.72	4.66	4.77	4.53	10
1	1	1307 RH CK#31 HILL4000RR	4.91	4.66	4.83	4.79	4.80	4.92	4.86	5.03	4.76	10
1	1	1308 RH CK#35 SES36812RR	4.42	4.82	4.51	4.45	4.55	4.46	4.52	4.37	4.63	9
1	1	1309 RH CK#36 BETA85RR02	4.35	4.65	4.60	4.22	4.45	4.58	4.55	4.71	4.50	12
1	1	1310 RH CK#37 SES36918RR	4.68	4.83	4.61	4.56	4.67	4.51	4.54	4.34	4.61	8
1	1	1311 RH CK#40 CRY5101RR	4.66	4.25	5.06	4.63	4.65	4.60	4.68	4.55	4.84	6
1	1	1312 RH CK#45 BTS82RR33	4.63	4.13	4.15	3.87	4.19	4.19	4.19	4.18	4.20	5
1	1	1313 RH CK#47 SES36272RR	4.65	4.50	4.35	4.48	4.50	4.44	4.40	4.39	4.31	5
1	1	1314 RH CK#48 HILL4094RR	3.65	3.68	4.18	4.07	3.90	3.67	3.62	3.44	3.52	9
1	1	1315 RH CK#49 CRY5247RR	4.58	4.56	4.06	4.33	4.38	4.36	4.38	4.33	4.41	5
		1316 RES RHC #1	3.71	4.17	3.53	3.91	3.83	3.65	3.58	3.47	3.43	11
		1317 MOD RHC #6	4.53	4.04	4.20	4.52	4.32	4.21	4.23	4.09	4.27	11
		1318 SUS RHC #3	4.30	5.04	4.77	4.87	4.74	4.71	4.73	4.69	4.75	12
		1319 SUS RHC #9	4.35	4.57	4.69	4.65	4.57	4.45	4.59	4.34	4.85	8
		1320 MOD RHC #5	4.76	4.80	4.51	4.77	4.71	4.49	4.46	4.27	4.39	11
		1321 RES RHC #2	3.77	3.80	4.40	4.07	4.01	3.85	3.78	3.68	3.64	9
		1322 SUS RHC #3	4.48	4.56	4.89	4.88	4.70	4.69	4.71	4.69	4.75	12
		1323 SUS RHC #9	4.75	4.32	4.90	4.62	4.65	4.49	4.61	4.34	4.85	8
		1324 MOD RHC #6	4.48	4.43	4.03	4.43	4.34	4.22	4.24	4.09	4.27	11
		1325 SUS RHC #10	4.53	4.56	4.94	4.98	4.75	4.76	4.94	4.77	5.31	8

Table 38. 2016 Rhizoctonia Ratings for OVT Entries
Rhizoctonia Nursery - BSDF, NWROC & Two ACSC Sites

Sus Chk Chk ^ @	Code	Description	Adjusted @												
			BSDF 8/10	TSC-E 7/29	TSC-W 8/9	NWROC 8/30	2016	2 Yr	3 Yr	2015	2014	Years			
		Conventional													
	908	BETA EXP 676	4.46	4.24	3.99	4.60	4.32	--	--	--	--	--	--	--	1
	909	BETA EXP 687	3.84	4.22	4.19	4.38	4.16	--	--	--	--	--	--	--	1
	910	BETA EXP 698	4.00	4.37	4.43	4.60	4.35	--	--	--	--	--	--	--	1
	911	Crystal 620	4.44	4.52	4.38	4.80	4.54	--	--	--	--	--	--	--	1
	907	Crystal 622	3.90	4.16	4.02	4.47	4.14	--	--	--	--	--	--	--	1
	902	Crystal 624	4.19	4.27	4.12	4.51	4.27	--	--	--	--	--	--	--	1
	903	Crystal R761	4.13	4.62	4.61	4.92	4.57	--	--	--	--	--	--	--	10
	913	Hilleshög 3035Rz	3.72	3.88	3.56	4.57	3.93	--	--	--	--	--	--	--	12
	906	Hilleshög 9890Rz	4.56	4.37	4.61	4.83	4.59	--	--	--	--	--	--	--	1
	901	Hilleshög 9891Rz	3.91	4.02	4.06	4.88	4.22	--	--	--	--	--	--	--	1
	912	Maribo MA614Rz	3.77	4.45	4.24	4.53	4.25	--	--	--	--	--	--	--	1
	905	Maribo MA615Rz	4.32	4.56	4.61	4.67	4.54	--	--	--	--	--	--	--	1
	916	Seedex 8869 Cnv	4.76	4.37	4.91	4.65	4.67	--	--	--	--	--	--	--	1
	914	Seedex Deuce (SX0873TT)	4.33	4.67	4.85	4.77	4.66	--	--	--	--	--	--	--	9
	915	SV 48611	4.50	4.58	4.76	4.80	4.66	--	--	--	--	--	--	--	1
	904	SV 48612	4.44	4.67	4.87	5.02	4.75	--	--	--	--	--	--	--	1
	1301	RH CK#08 CRYSS539RR	4.62	5.03	4.67	5.05	4.84	4.75	4.74	4.65	4.73	4.73	4.73	8	
	1302	RH CK#20 CRYST765RR	4.22	4.68	4.11	4.41	4.35	4.29	4.35	4.22	4.48	4.48	4.48	8	
	1303	RH CK#21 CRYST768RR	4.27	4.15	4.29	4.56	4.32	4.28	4.40	4.25	4.63	4.63	4.63	8	
	1304	RH CK#25 HILL4043RR	4.72	4.76	4.62	4.93	4.76	4.55	4.59	4.35	4.66	4.66	4.66	8	
15		Mean of Check Varieties	4.507	4.507	4.507	4.507	4.507	4.443	4.448	4.379	4.457	4.457	4.457		
10		Mean of Susc Checks	4.649	4.633	4.628	4.648	4.639	4.563	4.560	4.487	4.553	4.553	4.553		
		Trial Mean	4.44	4.34	4.31	4.32									
		Coeff. of Var. (%)	7.9	9.4	9.1	7.8									
		F Value	2.2	3.2	2.7	4.3									
		Mean LSD (0.05)	0.44	0.51	0.75	0.43									
		Mean LSD (0.01)	0.58	0.68	0.98	0.57									
		Sig Lvl	**	**	**	**									
		Adjustment Factor	0.7162	0.9664	1.0073	0.9232									
		Approval Limit	3.72	3.71	3.70	3.72	3.82	3.793	3.721	3.813	3.518	3.518	3.518		

@ Ratings adjusted for disease severity on basis of 15 RR varieties (2016, 2015 & 2014.).

Lower numbers indicate better tolerance (0=Ex, 7=Poor).

^ Approval criteria is based upon mean of 12 susc varieties * 80% (approval option 1) or 3.82 (approval option 2).

++ Adjustment is based upon check varieties.

Table 39. 2016 Fusarium Ratings for Official Trial Entries
ACSC Nurseries - (Two Moorhead, MN Sites)

Chk @	Code	Description	Adjusted							Years
			N Mhd 3 Dates+	S Mhd 4 Dates+	2016	2 Yr	3 Yr	2015	2014	
530	BTS 70RR99		3.37	3.11	3.24	3.01	3.16	2.79	3.46	7
608	BTS 7373		3.54	3.76	3.65	3.54	3.65	3.43	3.87	4
535	BTS 73MN		5.08	4.83	4.95	3.90	3.65	2.84	3.16	4
544	BTS 7540		2.58	3.11	2.84	2.74	--	2.64	--	2
563	BTS 7550		2.42	2.52	2.47	2.54	--	2.62	--	2
605	BTS 7600		2.93	3.32	3.12	--	--	--	--	1
614	BTS 7607		2.79	3.11	2.95	--	--	--	--	1
547	BTS 7618		3.21	3.03	3.12	--	--	--	--	1
569	BTS 7629		2.30	2.26	2.28	--	--	--	--	1
609	BTS 80RR52		2.69	2.93	2.81	2.82	2.82	2.83	2.84	7
519	BTS 82RR28		1.90	2.13	2.02	2.28	2.33	2.55	2.44	5
582	BTS 82RR33		2.68	2.85	2.77	2.73	2.78	2.70	2.86	5
568	BTS 8337		4.04	3.98	4.01	3.86	3.83	3.72	3.78	4
522	BTS 8363		3.03	3.18	3.11	2.98	3.11	2.85	3.39	4
610	BTS 83CN		2.50	3.00	2.75	2.72	2.85	2.68	3.13	4
540	BTS 8500		1.89	1.91	1.90	2.16	--	2.41	--	2
514	BTS 8512		2.77	2.66	2.71	2.71	--	2.70	--	2
518	BTS 8524		3.28	3.49	3.38	3.13	--	2.88	--	2
542	BTS 8572		2.22	2.25	2.23	2.39	--	2.54	--	2
607	BTS 8603		1.80	2.06	1.93	--	--	--	--	1
549	BTS 8606		2.74	2.64	2.69	--	--	--	--	1
562	BTS 8610		2.90	2.84	2.87	--	--	--	--	1
528	BTS 8614		1.46	1.85	1.65	--	--	--	--	1
555	BTS 8629		4.13	3.95	4.04	--	--	--	--	1
571	BTS 8634		2.00	2.30	2.15	--	--	--	--	1
526	BTS 8642		2.72	3.05	2.89	--	--	--	--	1
545	BTS 8682		1.95	2.35	2.15	--	--	--	--	1
508	Crystal 093RR		3.21	3.50	3.35	3.29	3.39	3.22	3.59	7
602	Crystal 101RR		2.22	2.59	2.40	2.52	2.59	2.64	2.73	6
596	Crystal 246RR		3.13	3.07	3.10	3.05	3.03	3.00	2.99	5
554	Crystal 247RR		2.73	2.88	2.80	2.66	2.72	2.51	2.84	5
585	Crystal 355RR		2.55	2.76	2.65	NE	NE	NE	3.14	4
595	Crystal 467RR		1.64	2.04	1.84	2.15	2.30	2.46	2.61	3
584	Crystal 572RR		1.74	1.89	1.82	2.09	--	2.36	--	2
552	Crystal 573RR		3.78	3.19	3.49	3.25	--	3.02	--	2
521	Crystal 574RR		1.82	1.81	1.82	1.91	--	2.00	--	2
588	Crystal 575RR		2.99	2.95	2.97	2.94	--	2.90	--	2
533	Crystal 576RR		2.08	1.95	2.02	2.24	--	2.46	--	2
579	Crystal 578RR		1.71	2.27	1.99	2.21	--	2.42	--	2
527	Crystal 684RR		1.70	1.83	1.76	--	--	--	--	1
590	Crystal 685RR		2.61	2.70	2.65	--	--	--	--	1
567	Crystal 686RR		1.58	1.86	1.72	--	--	--	--	1
573	Crystal 687RR		2.40	2.57	2.49	--	--	--	--	1
548	Crystal 981RR		2.32	2.72	2.52	2.47	2.55	2.43	2.70	8
517	Crystal 986RR		4.88	4.83	4.86	4.37	4.30	3.89	4.16	8
598	Crystal D352		2.16	1.98	2.07	2.25	2.33	2.42	2.49	4
592	Crystal D508		2.41	2.53	2.47	2.58	--	2.70	--	2
501	Crystal D609		2.40	2.30	2.35	--	--	--	--	1
583	Crystal D659		2.51	2.77	2.64	--	--	--	--	1
553	Crystal D678		2.56	3.21	2.89	--	--	--	--	1
574	Crystal RR012		2.91	2.94	2.93	2.94	3.09	2.96	3.38	7

Table 39. 2016 Fusarium Ratings for Official Trial Entries
ACSC Nurseries - (Two Moorhead, MN Sites)

Chk @	Code	Description	Adjusted							Years
			N Mhd 3 Dates+	S Mhd 4 Dates+	2016	2 Yr	3 Yr	2015	2014	
546	Crystal RR228		3.80	4.51	4.16	3.80	4.00	3.44	4.40	5
575	Crystal RR260		2.41	2.84	2.62	2.68	2.70	2.73	2.75	5
550	Crystal RR830		4.09	3.35	3.72	3.35	3.60	2.98	4.10	9
534	Hilleshög 4062RR		4.99	5.17	5.08	4.56	4.70	4.04	4.97	9
565	Hilleshög 4094RR		4.82	4.51	4.67	4.24	4.44	3.82	4.83	9
577	Hilleshög 4302RR		5.02	5.17	5.09	4.57	4.73	4.05	5.05	6
511	Hilleshög 4448RR		5.22	5.31	5.26	NE	NE	NE	4.71	5
539	Hilleshög 9517RR		2.90	2.58	2.74	2.77	2.98	2.79	3.40	4
612	Hilleshög 9528RR		4.49	4.56	4.52	4.26	4.44	4.00	4.80	4
532	Hilleshög 9602RR		4.80	4.72	4.76	4.53	--	4.29	--	3
580	Hilleshög HIL9707		5.09	4.67	4.88	4.28	--	3.68	--	2
559	Hilleshög HIL9708		4.45	4.13	4.29	3.99	--	3.69	--	2
599	Hilleshög HIL9711		4.70	4.58	4.64	4.24	--	3.85	--	2
509	Hilleshög HIL9880		2.45	2.28	2.36	--	--	--	--	1
578	Hilleshög HIL9881		5.22	5.28	5.25	--	--	--	--	1
611	Hilleshög HIL9882		4.46	4.41	4.43	--	--	--	--	1
538	Hilleshög HIL9883		4.98	5.29	5.13	--	--	--	--	1
600	Hilleshög HIL9884		4.77	4.69	4.73	--	--	--	--	1
593	Hilleshög HIL9892		5.40	5.09	5.24	--	--	--	--	1
525	Hilleshög HIL9893		4.70	4.43	4.56	--	--	--	--	1
502	Hilleshög HIL9894		5.05	4.71	4.88	--	--	--	--	1
510	Hilleshög HIL9895		2.48	2.32	2.40	--	--	--	--	1
560	Hilleshög HIL9896		4.96	4.55	4.75	--	--	--	--	1
558	Hilleshög HIL9897		4.99	4.99	4.99	--	--	--	--	1
529	Maribo 102		5.21	4.86	5.03	4.79	4.98	4.55	5.37	6
541	Maribo 109		4.47	4.53	4.50	4.04	--	3.58	--	3
603	Maribo MA305		5.84	5.94	5.89	5.45	5.34	5.02	5.12	4
561	Maribo MA502		1.88	1.97	1.92	2.13	--	2.33	--	2
572	Maribo MA504		4.80	4.40	4.60	4.35	--	4.11	--	2
504	Maribo MA605		1.71	2.11	1.91	--	--	--	--	1
576	Maribo MA606		5.54	5.69	5.61	--	--	--	--	1
512	Maribo MA607		4.82	4.77	4.80	--	--	--	--	1
520	Maribo MA611		1.96	1.95	1.96	--	--	--	--	1
537	Maribo MA612		5.60	5.46	5.53	--	--	--	--	1
536	Maribo MA613		5.82	5.71	5.77	--	--	--	--	1
551	SX Canyon RR(844TT)		5.21	5.31	5.26	4.56	--	3.85	--	3
516	SX Cruze RR(846)		2.75	2.84	2.80	NE	--	NE	--	3
524	Seedex RR1861		4.69	4.82	4.75	--	--	--	--	1
604	Seedex RR1862		4.13	3.96	4.04	--	--	--	--	1
587	Seedex RR1863		6.01	5.58	5.80	--	--	--	--	1
566	Seedex RR1864		5.74	5.82	5.78	--	--	--	--	1
503	Seedex RR1964		5.02	4.88	4.95	--	--	--	--	1
591	Seedex RR1965		5.27	4.99	5.13	--	--	--	--	1
513	Seedex RR0856(Marathon)		4.84	4.96	4.90	4.88	--	4.87	--	2
597	Seedex RR0858(Avalanche)		5.49	5.28	5.38	5.25	--	5.12	--	2
557	SX Terrain RR(848)		4.74	4.72	4.73	4.54	4.34	4.35	3.95	3
615	SX Winchester RR		4.14	4.09	4.11	4.03	4.34	3.95	4.97	4
507	SV RR241		5.46	5.54	5.50	5.31	4.96	5.12	4.26	3
613	SV RR244TT		4.26	4.02	4.14	4.00	4.19	3.86	4.56	3
523	SV RR265		5.54	4.99	5.26	--	--	--	--	1
586	SV RR266		4.88	5.48	5.18	--	--	--	--	1
515	SV RR267		4.26	4.56	4.41	--	--	--	--	1
505	SV RR268		5.22	5.19	5.20	--	--	--	--	1
564	SV RR333		4.78	4.91	4.84	NE	NE	NE	4.10	4
531	SV RR336		2.38	2.86	2.62	2.97	3.41	3.32	4.29	4
589	SV RR351		4.81	4.70	4.75	NE	--	NE	--	2
556	SV RR353		5.78	5.30	5.54	5.19	--	4.84	--	2
581	SV RR655		5.65	5.45	5.55	5.43	--	5.31	--	2
543	SV RR656		5.02	5.23	5.12	4.33	--	3.53	--	2
570	SV RR746		5.00	4.99	4.99	NE	--	NE	--	3
601	SV RR747		4.60	4.83	4.71	4.77	--	4.82	--	3
606	SV RR761		4.96	5.30	5.13	--	--	--	--	1

Table 39. 2016 Fusarium Ratings for Official Trial Entries
ACSC Nurseries - (Two Moorhead, MN Sites)

Chk @	Code	Description	Adjusted							Years
			N Mhd 3 Dates+	S Mhd 4 Dates+	2016	2 Yr	3 Yr	2015	2014	
	506	SV RR762	5.62	5.63	5.63	--	--	--	--	1
	594	SV RR763	5.34	5.05	5.19	--	--	--	--	1
1	1201	FS CK #07 CRY5658RR	2.62	2.69	2.66	2.67	2.75	2.67	2.92	11
1	1202	FS CK #08 HILL4000RR	6.30	6.00	6.15	6.16	6.20	6.16	6.28	10
1	1203	FS CK #09 HILL4010RR	6.30	6.54	6.42	6.39	6.21	6.35	5.86	11
1	1204	FS CK #12 HILL4012RR	6.30	6.01	6.15	6.06	6.03	5.96	5.98	11
1	1205	FS CK #13 HILL4043RR	6.08	6.01	6.05	6.03	6.02	6.01	6.00	10
1	1206	FS CK #17 CRY5765RR	4.08	4.12	4.10	4.18	4.11	4.26	3.98	8
1	1207	FS CK #18 CRY5768RR	4.37	4.42	4.40	4.24	4.47	4.09	4.91	8
1	1208	FS CK #26 BETA87RR68	4.50	4.51	4.51	4.52	4.50	4.53	4.44	7
1	1209	FS CK #28 SES36918RR	4.99	5.27	5.13	5.19	5.30	5.25	5.52	8
1	1210	FS CK #29 CRY5875RR	4.70	4.67	4.68	4.52	4.52	4.35	4.51	9
	1211	FS CHK RES RR #1	2.29	2.45	2.37	2.57	2.71	2.77	2.98	6
	1212	FS CHK SUS RR #2	6.16	6.09	6.12	6.33	6.16	6.53	5.83	6
	1213	FS CHK MOD RR RES #2	4.02	4.32	4.17	4.15	4.15	4.14	4.15	10
	1214	FS CHK MOD RR SUS #1	5.46	5.01	5.23	5.02	5.09	4.81	5.23	10
	1215	FS CHK RES RR #2	1.86	2.22	2.04	2.10	2.21	2.15	2.44	5
	1216	FS CHK SUS RR#10	5.34	5.30	5.32	5.21	5.32	5.11	5.52	3
	1217	FS CHK SUS RR#10	5.33	5.42	5.38	5.24	5.33	5.11	5.52	3
		Conventional								
	908	BETA EXP 676	3.63	4.44	4.04	--	--	--	--	1
	909	BETA EXP 687	3.05	3.76	3.41	--	--	--	--	1
	910	BETA EXP 698	2.71	2.77	2.74	--	--	--	--	1
	911	Crystal 620	2.90	2.56	2.73	--	--	--	--	1
	907	Crystal 622	3.12	4.01	3.57	--	--	--	--	1
	902	Crystal 624	3.01	3.84	3.42	--	--	--	--	1
	903	Crystal R761	2.94	3.56	3.25	--	--	--	--	10
	913	Hilleshög 3035Rz	3.70	3.59	3.65	--	--	--	--	12
	906	Hilleshög 9890Rz	3.87	4.56	4.22	--	--	--	--	1
	901	Hilleshög 9891Rz	3.60	3.92	3.76	--	--	--	--	1
	912	Maribo MA614Rz	2.85	2.64	2.75	--	--	--	--	1
	905	Maribo MA615Rz	5.10	5.13	5.11	--	--	--	--	1
	916	Seedex 8869 Cnv	2.87	2.98	2.92	--	--	--	--	1
	914	Seedex Deuce (SX0873TT)	4.72	4.63	4.68	--	--	--	--	9
	915	SV 48611	4.95	5.53	5.24	--	--	--	--	1
	904	SV 48612	4.14	4.61	4.38	--	--	--	--	1
	1201	FS CK #07 CRY5658RR	2.84	2.92	2.88	2.78	2.83	2.67	2.92	11
	1202	FS CK #08 HILL4000RR	6.32	6.29	6.31	6.23	6.25	6.16	6.28	10
	1203	FS CK #09 HILL4010RR	6.71	6.29	6.50	6.43	6.24	6.35	5.86	11
	1204	FS CK #12 HILL4012RR	5.65	5.73	5.69	5.82	5.88	5.96	5.98	11
10		Mean of 10 Check Varieties	5.02	5.02	5.02	4.99	5.01	4.96	5.04	
		Trial Mean	3.87	3.90	3.89					
		Coeff. of Var. (%)	10.88	10.43						
		F Value	50.75	53.63						
		Mean LSD (0.05)	0.54	0.50						
		Mean LSD (0.01)	0.72	0.65						
		Sig Lvl	**	**						
		Adjustment Factor	0.8001	0.8407						

@ Adjustment is based upon 10 RR varieties.

+ Average rating based upon multiple rating dates. Lower numbers indicate better tolerance (1=Ex, 9=Poor).

NE indicates variety was not evaluated in disease nursery.

Table 40. Herbicides and Fungicides Applied to ACSC & MDFC Official Trials

Area	Location	Herbicide/Insecticide			Fungicide		
		Herbicide & Rate	Spray Dates	Method	Fungicide Used	Spray Dates	Method
ACSC	Casselton	RU1+	5/17,6/7	Ground	Quadris*	5/23(2lf),6/7(4-6lf)	Ground
		RU2	6/22	Ground	CR.1/CR.2/CR.3/CR.4	7/18,8/3,8/16,8/31	Ground
		Conventional	5/17,6/2,6/9,6/16	Ground			
ACSC	Averill	RU1*	6/2	Ground	Quadris*	5/23(2lf),6/7(4-6lf)	Ground
		RU2	6/21	Ground	CR.1/CR.2/CR.3/CR.4	7/20,8/3,8/17,9/1	Ground
ACSC	Perley	RU1	6/11	Ground	Quadris	6/16 (6 Leaf)	Ground
		RU2	6/29	Ground	CR.2/CR.3/CR.4	8/3,8/19,9/2	Ground
ACSC	Ada	RU1	6/2	Ground	Quadris*	5/25(2lf),6/8(4-6lf)	Ground
		RU2	6/22	Ground	CR.1/CR.2/CR.3/CR.4	7/18,8/3,8/17,9/1	Ground
		Conventional	5/17,6/2,6/9	Ground			
ACSC	Hillsboro	RU1	6/2	Ground	Quadris	6/9 (6 Leaf)	Ground
		RU2	6/21	Ground	CR.1/CR.2/CR.3/CR.4	7/18,8/3,8/19,9/1	Ground
ACSC	Fisher	RU1+	5/24,6/16	Ground	Quadris	6/9 (8 Leaf)	Ground
		RU2	6/28	Ground	CR.1/CR.2/CR.3/CR.4	7/18,8/3,8/19,8/30	Ground
ACSC	Crookston	RU1	6/3	Ground	Quadris	6/8 (4-6 Leaf)	Ground
		RU2	6/21	Ground	CR.1/CR.2/CR.3/CR.4	7/26,8/9,8/22,9/2	Ground
		Conventional	6/3,6/23	Ground			
ACSC	Grand Forks +	RU1	6/3	Ground	Quadris*	5/25(2lf),6/13(4-6lf)	Ground
		RU2	6/21	Ground	CR.1/CR.2/CR.3/CR.4	7/26,8/9,8/22,9/2	Ground
		Conventional	6/9,6/21	Ground			
ACSC	St. Thomas + ^	RU1	6/13	Ground	Quadris	6/14 (6 Leaf)	Ground
		RU2	6/28	Ground	CR.1/CR.2/CR.3/CR.4	7/19,8/2,8/17,8/30	Ground
		Conventional	6/11,6/16	Ground			
ACSC	Stephen	RU1	6/7	Ground	Quadris	6/14(4-6 Leaf)	Ground
		RU2	6/28	Ground	CR.1/CR.2/CR.3/CR.4	7/19,8/2,8/17,8/30	Ground
ACSC	Cavalier	RU1+	5/24,6/16	Ground	Quadris	6/16 (6 Leaf)	Ground
		RU2	6/28	Ground	Proline,Supertin,Priaxor	7/27,8/17,9/6	By Air
MNDAK	Barnesville	RU1+	5/17,6/8	Ground	Quadris*	5/23(2lf),6/7(4-6lf)	Ground
		RU2	6/22	Ground	CR.1/CR.2/CR.3/CR.4	7/18,8/2,8/16,8/31	Ground
MNDAK	Foxhome	RU1+	5/17,6/8	Ground	Quadris*	5/16(2lf),6/2(4-6lf)	Ground
		RU2	6/22	Ground	CR.1/CR.2/CR.3/CR.4	7/18,8/2,8/16,8/31	Ground
MNDAK	Mooreton	RU1+	5/17,6/8	Ground	Quadris*	5/16(2lf),6/2(4-6lf)	Ground
		RU2	6/22	Ground	CR.1/CR.2/CR.3/CR.4	7/18,8/2,8/16,8/31	Ground
MNDAK	Norcross	RU1	5/26	Ground	Quadris*	5/16(2lf),6/2(4-6lf)	Ground
		RU2	6/22	Ground	CR.1/CR.2/CR.3/CR.4	7/18,8/2,8/16,8/31	Ground

Ground applications made by beet seed personnel from Crystal Technical Services Center.

RU1 = Roundup Powermax (32 oz./A), Event (1 gal./100 gal water).

RU1+= Early application of 22oz to control cover crop.

RU2 = Roundup Powermax (22 oz./A), Event (1 gal./100 gal water).

RU1*=Stinger added

+ Counter 20G applied at 9.0 lbs./A at Grand Forks, Ada, St Thomas & Cavalier.

+ Thimet applied at St Thomas near peak root maggot fly in early June.

^ Lorsban 4E applied near peak root maggot fly in early June.

CR.1=Agritin/Incognito

CR.2=Proline

CR.3=Agritin

CR.4=Headline