



2023 Minn-Dak Seed Approval List

Fully Approved Varieties:

- ACH 044 (CLS)
- ACH 082 (CLS)
- ACH 973 (CLS)
- Beta 7029 (CLS)
- Beta 7068 (CLS)
- Beta 7845 (RHC)
- HIL 2325
- HIL 2374
- SES/VdH 762 (CLS)

Conditionally Approved Varieties:

- None

Test Market Varieties:

- ACH 125 (CLS)
- ACH 166 (CLS & RHC)
- Beta 7114 (CLS)
- Beta 7181 (CLS)

Specialty Varieties:

- ACH 011 (CLS)
- Beta 7170 (CLS & RHC)

Varieties That Did Not Make Approval But Are Still Available For Sale:

- None

2022 Agronomic Performance 1 of 6

% EMERGENCE

Established Varieties	Percent Emergence								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
Beta 7845	55.2	73.1	65.1	»	64.1	64.4	»	96.9	‡	102.0	5	3
SES/VdH 762	53.2	67.5	73.3	»	60.3	64.6	»	97.2	‡	101.4	7	5
1-Year Mean	54.2	70.3	69.2		* Trial Years »			3 yr		3 yr		
2-Year Mean	»	62.2	69.7		Approval Mean			66.5				
3-Year Mean	»	»	64.5		2021 3-Yr Mean			70.8				

Candidate Varieties	Percent Emergence								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 011	47.7	75.1	70.8	»	61.4	64.5	»	97.0	‡	106.4	3	1
ACH 044	54.0	74.0	66.9	»	64.0	65.0	»	97.7	‡	102.8	3	1
ACH 082	52.5	74.2	74.0	»	63.3	66.9	»	100.6	‡	108.2	3	2
ACH 973	53.2	73.9	69.3	»	63.5	65.4	»	98.4	‡	104.5	4	2
Beta 7029	55.0	70.4	71.1	»	62.7	65.5	»	98.5	‡	103.3	3	2
Beta 7068	53.8	75.6	71.2	»	64.7	66.8	»	100.5	‡	107.1	3	1
Hilleshög 2325	50.3	71.9	72.1	»	61.1	64.7	»	97.3	‡	105.0	4	2
Hilleshög 2374	41.7	75.8	69.8	»	58.7	62.4	»	93.8	‡	106.3	3	1
1-Year Mean	51.0	73.8	70.6		* Trial Years »			3 yr		2 yr		
2-Year Mean	»	62.4	72.2		Approval Mean			66.5				
3-Year Mean	»	»	65.2		2021 2-Yr Mean			68.5				

Test Market Varieties	Percent Emergence								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 125	52.8	74.1	-	»	63.4	-	»	95.8	‡	102.7	2	-
ACH 166	49.9	71.1	-	»	60.5	-	»	91.4	‡	98.6	2	-
Beta 7114	54.2	77.2	-	»	65.7	-	»	99.2	‡	107.0	2	-
Beta 7170	53.0	71.8	-	»	62.4	-	»	94.2	‡	99.5	2	-
Beta 7181	52.8	75.8	-	»	64.3	-	»	97.1	‡	105.1	2	-
1-Year Mean	52.5	74.0			* Trial Years »			2 yr		1 yr		
2-Year Mean	»	63.3			Approval Mean			66.2				
					2021 1-Yr Mean			72.1				

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Established Varieties	Percent Sugar								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
Beta 7845	19.58	17.60	17.64	»	18.59	18.27	»	103.3	‡	101.9	5	3
SES/VdH 762	19.06	17.48	17.35	»	18.27	17.96	»	101.6	‡	99.6	7	5
1-Year Mean	19.32	17.54	17.50		* Trial Years »			3 yr		3 yr		
2-Year Mean	»	18.43	17.52		Approval Mean			17.68				
3-Year Mean	»	»	18.12		2021 3-Yr Mean			16.92				

Candidate Varieties	Percent Sugar								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 011	18.48	16.91	17.13	»	17.69	17.50	»	99.0	‡	97.8	3	1
ACH 044	19.84	17.55	18.25	»	18.70	18.55	»	104.9	‡	102.9	3	1
ACH 082	19.11	17.11	17.61	»	18.11	17.94	»	101.5	‡	99.8	3	2
ACH 973	18.91	17.11	16.89	»	18.01	17.64	»	99.7	‡	97.7	4	2
Beta 7029	19.44	17.31	17.82	»	18.37	18.19	»	102.9	‡	101.0	3	2
Beta 7068	18.83	17.03	17.42	»	17.93	17.76	»	100.4	‡	99.0	3	1
Hilleshög 2325	19.00	17.38	17.14	»	18.19	17.84	»	100.9	‡	99.2	4	2
Hilleshög 2374	19.03	17.33	17.64	»	18.18	18.00	»	101.8	‡	100.5	3	1
1-Year Mean	19.08	17.21	17.49		* Trial Years »			3 yr		2 yr		
2-Year Mean	»	18.15	17.35		Approval Mean			17.68				
3-Year Mean	»	»	17.93		2021 2-Yr Mean			17.40				

Test Market Varieties	Percent Sugar								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 125	19.64	17.43	-	»	18.54	-	»	102.8	‡	100.1	2	-
ACH 166	19.53	17.38	-	»	18.45	-	»	102.3	‡	99.8	2	-
Beta 7114	19.39	17.25	-	»	18.32	-	»	101.5	‡	99.1	2	-
Beta 7170	18.72	17.15	-	»	17.93	-	»	99.4	‡	98.5	2	-
Beta 7181	19.01	17.16	-	»	18.08	-	»	100.2	‡	98.5	2	-
1-Year Mean	19.26	17.27			* Trial Years »			2 yr		1 yr		
2-Year Mean	»	18.26			Approval Mean			18.04				
					2021 1-Yr Mean			17.40				

% SUGAR

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Established Varieties	Percent Purity								Years In Trials	Years Comm.	
	Trial Year			Average			% of Means *				
	2022	2021	2020	2-Yr	3-Yr	2022	2021				
Beta 7845	90.71	91.20	90.62	»	90.96	90.84	»	99.7 ‡	99.8	5	3
SES/VdH 762	91.93	92.00	91.22	»	91.96	91.72	»	100.7 ‡	100.5	7	5
1-Year Mean	91.32	91.60	90.92		* Trial Years »			3 yr	3 yr		
2-Year Mean	»	91.46	91.26		Approval Mean			91.12			
3-Year Mean	»	»	91.28		2021 3-Yr Mean			90.89			

Candidate Varieties	Percent Purity								Years In Trials	Years Comm.	
	Trial Year			Average			% of Means *				
	2022	2021	2020	2-Yr	3-Yr	2022	2021				
ACH 011	91.34	91.24	91.38	»	91.29	91.32	»	100.2 ‡	100.3	3	1
ACH 044	91.13	91.74	91.63	»	91.44	91.50	»	100.4 ‡	100.7	3	1
ACH 082	90.86	91.29	91.17	»	91.08	91.11	»	100.0 ‡	100.2	3	2
ACH 973	91.89	91.78	91.33	»	91.83	91.66	»	100.6 ‡	100.5	4	2
Beta 7029	91.28	91.49	91.67	»	91.38	91.48	»	100.4 ‡	100.5	3	2
Beta 7068	91.65	91.23	91.61	»	91.44	91.50	»	100.4 ‡	100.4	3	1
Hilleshög 2325	91.60	91.84	91.14	»	91.72	91.53	»	100.4 ‡	100.5	4	2
Hilleshög 2374	91.30	91.92	91.87	»	91.61	91.70	»	100.6 ‡	100.9	3	1
1-Year Mean	91.38	91.57	91.47		* Trial Years »			3 yr	2 yr		
2-Year Mean	»	91.47	91.52		Approval Mean			91.12			
3-Year Mean	»	»	91.47		2021 2-Yr Mean			91.08			

Test Market Varieties	Percent Purity								Years In Trials	Years Comm.	
	Trial Year			Average			% of Means *				
	2022	2021	2020	2-Yr	3-Yr	2022	2021				
ACH 125	91.48	91.82	-	»	91.65	-	»	100.2 ‡	100.3	2	-
ACH 166	91.53	91.75	-	»	91.64	-	»	100.2 ‡	100.2	2	-
Beta 7114	91.58	91.97	-	»	91.78	-	»	100.3 ‡	100.4	2	-
Beta 7170	91.32	91.07	-	»	91.20	-	»	99.7 ‡	99.4	2	-
Beta 7181	91.26	91.49	-	»	91.37	-	»	99.9 ‡	99.9	2	-
1-Year Mean	91.43	91.62			* Trial Years »			2 yr	1 yr		
2-Year Mean	»	91.53			Approval Mean			91.49			
					2021 1-Yr Mean			91.58			

% PURITY

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Established Varieties	Yield as Tons/Acre								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
Beta 7845	23.9	26.4	27.3	»	25.2	25.9	»	97.6	‡	107.7	5	3
SES/VdH 762	24.3	25.9	27.6	»	25.1	25.9	»	97.8	‡	100.9	7	5
1-Year Mean	24.1	26.2	27.4		* Trial Years »			3 yr		3 yr		
2-Year Mean	»	25.1	26.8		Approval Mean			26.5				
3-Year Mean	»	»	25.9		2021 3-Yr Mean					26.0		

Candidate Varieties	Yield as Tons/Acre								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 011	25.4	29.5	30.1	»	27.4	28.3	»	106.9	‡	110.9	3	1
ACH 044	21.6	27.2	27.4	»	24.4	25.4	»	95.9	‡	101.6	3	1
ACH 082	25.1	29.9	30.5	»	27.5	28.5	»	107.5	‡	112.2	3	2
ACH 973	25.4	29.3	27.0	»	27.3	27.2	»	102.7	‡	104.6	4	2
Beta 7029	22.6	26.8	28.0	»	24.7	25.8	»	97.4	‡	101.9	3	2
Beta 7068	25.6	30.6	32.1	»	28.1	29.4	»	111.0	‡	116.5	3	1
Hilleshög 2325	24.2	27.4	26.6	»	25.8	26.1	»	98.4	‡	100.4	4	2
Hilleshög 2374	20.9	27.1	28.9	»	24.0	25.6	»	96.7	‡	104.0	3	1
1-Year Mean	23.8	28.5	28.8		* Trial Years »			3 yr		2 yr		
2-Year Mean	»	26.2	28.6		Approval Mean			26.5				
3-Year Mean	»	»	27.0		2021 2-Yr Mean					26.9		

Test Market Varieties	Yield as Tons/Acre								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 125	24.4	26.6	-	»	25.5	-	»	99.1	‡	100.7	2	-
ACH 166	23.7	27.7	-	»	25.7	-	»	100.0	‡	104.9	2	-
Beta 7114	24.1	26.9	-	»	25.5	-	»	99.2	‡	101.9	2	-
Beta 7170	26.6	28.8	-	»	27.7	-	»	107.8	‡	109.0	2	-
Beta 7181	27.0	29.9	-	»	28.5	-	»	110.7	‡	113.4	2	-
1-Year Mean	25.2	28.0			* Trial Years »			2 yr		1 yr		
2-Year Mean	»	26.6			Approval Mean			25.7				
					2021 1-Yr Mean					26.4		

YIELD

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Established Varieties	Recoverable Sugar/Ton (RST)							RST + RSA	
	Trial Year			Average		% of Means *		% of Means *	
	2022	2021	2020	2-Yr	3-Yr	2022	2021	2022	2021
Beta 7845	338.7	305.2	303.5	» 321.9	315.8	» 103.1	‡ 101.6	203.4	210.6
SES/VdH 762	335.0	306.5	300.9	» 320.7	314.1	» 102.5	‡ 100.2	202.6	201.2
1-Year Mean	336.8	305.8	302.2	* Trial Years »		3 yr	3 yr	3 yr	3 yr
2-Year Mean	»	321.3	304.0	Approval Mean		306.3			
3-Year Mean	»	»	314.9	2021 3-Yr Mean		291.8			

Candidate Varieties	Recoverable Sugar/Ton (RST)							RST + RSA	
	Trial Year			Average		% of Means *		% of Means *	
	2022	2021	2020	2-Yr	3-Yr	2022	2021	2022	2021
ACH 011	321.7	293.0	297.6	» 307.3	304.1	» 99.3	‡ 98.0	205.2	206.7
ACH 044	345.3	306.7	318.9	» 326.0	323.6	» 105.7	‡ 103.9	206.6	209.3
ACH 082	330.9	296.8	305.5	» 313.8	311.0	» 101.5	‡ 100.0	210.3	212.2
ACH 973	332.0	298.9	292.9	» 315.4	307.9	» 100.5	‡ 98.2	203.5	201.0
Beta 7029	338.7	301.4	311.4	» 320.0	317.1	» 103.5	‡ 101.7	204.1	205.4
Beta 7068	329.5	295.1	303.9	» 312.3	309.5	» 101.0	‡ 99.4	212.8	215.2
Hilleshög 2325	332.7	304.1	296.7	» 318.4	311.2	» 101.6	‡ 99.7	201.2	199.8
Hilleshög 2374	331.4	303.4	308.9	» 317.4	314.6	» 102.7	‡ 101.7	201.5	207.5
1-Year Mean	332.8	299.9	304.5	* Trial Years »		3 yr	2 yr	3 yr	2 yr
2-Year Mean	»	316.3	302.2	Approval Mean		306.3			
3-Year Mean	»	»	312.4	2021 2-Yr Mean		301.2			

Test Market Varieties	Recoverable Sugar/Ton (RST)							RST + RSA	
	Trial Year			Average		% of Means *		% of Means *	
	2022	2021	2020	2-Yr	3-Yr	2022	2021	2022	2021
ACH 125	343.3	304.9	-	» 324.1	-	» 103.1	‡ 100.5	204.9	201.2
ACH 166	341.6	303.6	-	» 322.6	-	» 102.6	‡ 100.1	204.8	204.7
Beta 7114	339.3	302.1	-	» 320.7	-	» 102.0	‡ 99.6	202.9	200.7
Beta 7170	325.9	296.8	-	» 311.4	-	» 99.0	‡ 97.8	206.0	204.5
Beta 7181	331.0	298.5	-	» 314.8	-	» 100.1	‡ 98.4	211.0	209.8
1-Year Mean	336.2	301.2		* Trial Years »		2 yr	1 yr	2 yr	1 yr
2-Year Mean	»	318.7		Approval Mean		314.5			
				2021 1-Yr Mean		303.3			

RST

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RSA

Established Varieties	Recoverable Sugar/Acre (RSA)							RST + RSA				
	Trial Year			Average		% of Means *		% of Means *				
	2022	2021	2020	2-Yr	3-Yr	2022	2021	2022	2021			
Beta 7845	8,005	8,068	8,289	»	8,037	8,121	»	100.3	‡	109.0	203.4	210.6
SES/VdH 762	8,097	7,924	8,289	»	8,010	8,103	»	100.1	‡	101.0	202.6	201.2
1-Year Mean	8,051	7,996	8,289		* Trial Years »			3 yr		3 yr	3 yr	3 yr
2-Year Mean	»	8,024	8,142		Approval Mean			8,097				
3-Year Mean	»	»	8,112		2021 3-Yr Mean					7,605		

Candidate Varieties	Recoverable Sugar/Acre (RSA)							RST + RSA				
	Trial Year			Average		% of Means *		% of Means *				
	2022	2021	2020	2-Yr	3-Yr	2022	2021	2022	2021			
ACH 011	8,118	8,649	8,964	»	8,383	8,577	»	105.9	‡	108.7	205.2	206.7
ACH 044	7,442	8,337	8,751	»	7,889	8,177	»	101.0	‡	105.4	206.6	209.3
ACH 082	8,220	8,878	9,308	»	8,549	8,802	»	108.7	‡	112.2	210.3	212.2
ACH 973	8,368	8,737	7,916	»	8,552	8,340	»	103.0	‡	102.7	203.5	201.0
Beta 7029	7,618	8,095	8,707	»	7,856	8,140	»	100.5	‡	103.7	204.1	205.4
Beta 7068	8,389	9,011	9,749	»	8,700	9,050	»	111.8	‡	115.7	212.8	215.2
Hilleshög 2325	7,977	8,316	7,898	»	8,147	8,064	»	99.6	‡	100.0	201.2	199.8
Hilleshög 2374	6,856	8,232	8,918	»	7,544	8,002	»	98.8	‡	105.8	201.5	207.5
1-Year Mean	7,873	8,532	8,776		* Trial Years »			3 yr		2 yr	3 yr	2 yr
2-Year Mean	»	8,203	8,654		Approval Mean			8,097				
3-Year Mean	»	»	8,394		2021 2-Yr Mean					8,104		

Test Market Varieties	Recoverable Sugar/Acre (RSA)							RST + RSA				
	Trial Year			Average		% of Means *		% of Means *				
	2022	2021	2020	2-Yr	3-Yr	2022	2021	2022	2021			
ACH 125	8,275	8,078	-	»	8,176	-	»	101.8	‡	100.7	204.9	201.2
ACH 166	8,025	8,393	-	»	8,209	-	»	102.2	‡	104.7	204.8	204.7
Beta 7114	8,097	8,108	-	»	8,102	-	»	100.9	‡	101.1	202.9	200.7
Beta 7170	8,627	8,556	-	»	8,591	-	»	107.0	‡	106.7	206.0	204.5
Beta 7181	8,887	8,931	-	»	8,909	-	»	110.9	‡	111.4	211.0	209.8
1-Year Mean	8,382	8,413			* Trial Years »			2 yr		1 yr	2 yr	1 yr
2-Year Mean	»	8,397			Approval Mean			8,029				
					2021 1-Yr Mean					8,018		

2022 1st-Year Agronomic Performance

Introductory Varieties	Percent Emergence		Percent Sugar		Percent Purity		Years In Trials
	2022	% of Est.	2022	% of Est.	2022	% of Est.	
ACH 236	53.3	98.3	19.75	102.2	91.16	99.8	1
ACH 249	55.6	102.5	19.86	102.8	91.03	99.7	1
ACH 275	58.5	107.9	20.10	104.0	90.82	99.5	1
ACH 287	49.4	91.2	19.81	102.5	91.47	100.2	1
ACH 290	56.1	103.6	19.26	99.7	91.30	100.0	1
Beta 7200	55.2	101.9	19.82	102.6	90.96	99.6	1
Beta 7205	53.6	98.8	19.97	103.3	90.50	99.1	1
Beta 7231	52.9	97.5	20.22	104.6	90.83	99.5	1
Beta 7250	54.0	99.7	20.48	106.0	91.01	99.7	1
Beta 7254	46.4	85.5	20.22	104.6	91.22	99.9	1
Hilleshög 2444	53.6	98.9	19.85	102.7	91.12	99.8	1
Hilleshög 2445	47.9	88.4	19.65	101.7	91.28	100.0	1
Hilleshög 2446	44.5	82.1	19.18	99.3	90.92	99.6	1
SES/VdH 722	55.7	102.7	19.77	102.3	91.23	99.9	1
1-Year Mean	52.6		19.85		91.06		
2022 Est. Variety Means	»	54.2	»	19.32	»	91.32	

Introductory Varieties	Yield as Tons/Acre		Recoverable Sugar/Ton		Recoverable Sugar/Acre		% RST + % RSA
	2022	% of Est.	2022	% of Est.	2022	% of Est.	
ACH 236	25.1	104.3	344.1	102.2	8,515	105.8	207.9
ACH 249	25.0	103.7	345.2	102.5	8,547	106.2	208.6
ACH 275	23.4	97.2	348.4	103.4	8,060	100.1	203.5
ACH 287	21.2	87.9	346.3	102.8	7,244	90.0	192.8
ACH 290	26.3	109.1	335.7	99.7	8,742	108.6	208.3
Beta 7200	24.7	102.3	344.3	102.2	8,367	103.9	206.1
Beta 7205	22.4	93.0	344.3	102.2	7,673	95.3	197.5
Beta 7231	23.5	97.6	350.5	104.1	8,162	101.4	205.5
Beta 7250	22.1	91.5	356.4	105.8	7,768	96.5	202.3
Beta 7254	22.6	93.7	352.6	104.7	7,842	97.4	202.1
Hilleshög 2444	21.3	88.2	345.3	102.5	7,255	90.1	192.6
Hilleshög 2445	19.2	79.5	342.8	101.8	6,563	81.5	183.3
Hilleshög 2446	19.5	81.0	332.7	98.8	6,451	80.1	178.9
SES/VdH 722	22.3	92.5	344.6	102.3	7,595	94.3	196.6
1-Year Mean	22.7		345.2		7,770		
2022 Est. Variety Means	»	24.1	»	336.8	»	8,051	

1st Year AGRONOMIC

2022 Disease Performance 1 of 4

CERCOSPORA

Established Varieties	Cercospora Leaf Spot								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
Beta 7845	3.69	3.92	3.89	»	3.80	3.83	»	98.4	‡	100.0	5	3
SES/VdH 762	3.96	3.59	3.55	»	3.78	3.70	»	101.9	‡	103.7	7	5
1-Year Mean	3.83	3.75	3.72		* Trial Years »			3 yr		3 yr		
2-Year Mean	»	3.79	3.74		Established Mean			3.77				
3-Year Mean	»	»	3.77		2021 3-Yr Mean			3.79				

Candidate Varieties	Cercospora Leaf Spot								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 011	1.93	2.02	2.56	»	1.97	2.17	»	173.9	‡	168.0	3	1
ACH 044	3.34	3.30	3.69	»	3.32	3.45	»	109.4	‡	109.7	3	1
ACH 082	1.72	1.76	2.13	»	1.74	1.87	»	201.7	‡	197.3	3	2
ACH 973	1.58	1.88	1.69	»	1.73	1.71	»	220.0	‡	215.4	4	2
Beta 7029	1.53	1.35	1.75	»	1.44	1.54	»	244.4	‡	247.9	3	2
Beta 7068	2.15	1.97	2.18	»	2.06	2.10	»	179.6	‡	185.1	3	1
Hilleshög 2325	4.12	3.64	3.88	»	3.88	3.88	»	97.1	‡	102.1	4	2
Hilleshög 2374	4.12	3.71	3.85	»	3.92	3.89	»	96.8	‡	101.5	3	1
1-Year Mean	2.56	2.45	2.72		* Trial Years »			3 yr		2 yr		
2-Year Mean	»	2.51	2.59		Established Mean			3.77				
3-Year Mean	»	»	2.58		2021 2-Yr Mean			3.84				

Test Market Varieties	Cercospora Leaf Spot								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 125	1.67	1.64	-	»	1.66	-	»	228.6	‡	237.9	2	-
ACH 166	1.65	2.08	-	»	1.86	-	»	203.2	‡	188.4	2	-
Beta 7114	1.89	1.81	-	»	1.85	-	»	204.9	‡	216.1	2	-
Beta 7170	2.16	2.18	-	»	2.17	-	»	174.6	‡	179.0	2	-
Beta 7181	2.10	2.27	-	»	2.18	-	»	173.5	‡	172.5	2	-
1-Year Mean	1.90	2.00			* Trial Years »			2 yr		1 yr		
2-Year Mean	»	1.95			Established Mean			3.79				
					2021 1-Yr Mean			3.91				

2022 Disease Performance 2 of 4

RHIZOCTONIA

Established Varieties	Rhizoctonia Root Rot							Years In Trials	Years Comm.			
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
Beta 7845	3.52	3.67	3.55	»	3.60	3.58	»	105.9	‡	103.7	5	3
SES/VdH 762	4.19	3.86	3.93	»	4.02	3.99	»	95.0	‡	98.8	7	5
1-Year Mean	3.85	3.77	3.74		* Trial Years »			3 yr		3 yr		
2-Year Mean	»	3.81	3.75		Established Mean			3.79				
3-Year Mean	»	»	3.79		2021 3-Yr Mean			3.92				

Candidate Varieties	Rhizoctonia Root Rot							Years In Trials	Years Comm.			
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 011	3.95	3.79	3.39	»	3.87	3.71	»	102.1	‡	108.6	3	1
ACH 044	4.30	4.47	4.07	»	4.38	4.28	»	88.6	‡	91.3	3	1
ACH 082	4.25	4.91	4.10	»	4.58	4.42	»	85.7	‡	86.5	3	2
ACH 973	4.61	3.73	3.52	»	4.17	3.95	»	95.8	‡	107.6	4	2
Beta 7029	4.46	4.83	3.98	»	4.64	4.42	»	85.7	‡	88.5	3	2
Beta 7068	4.15	3.51	3.17	»	3.83	3.61	»	105.1	‡	116.8	3	1
Hilleshög 2325	3.99	3.69	3.89	»	3.84	3.86	»	98.3	‡	102.9	4	2
Hilleshög 2374	4.62	3.85	3.79	»	4.24	4.09	»	92.7	‡	102.0	3	1
1-Year Mean	4.29	4.10	3.74		* Trial Years »			3 yr		2 yr		
2-Year Mean	»	4.19	3.92		Established Mean			3.79				
3-Year Mean	»	»	4.04		2021 2-Yr Mean			3.90				

Test Market Varieties	Rhizoctonia Root Rot							Years In Trials	Years Comm.			
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 125	4.35	3.85	-	»	4.10	-	»	92.9	‡	101.8	2	-
ACH 166	3.72	3.12	-	»	3.42	-	»	111.5	‡	125.6	2	-
Beta 7114	4.85	3.71	-	»	4.28	-	»	89.0	‡	105.8	2	-
Beta 7170	3.62	3.19	-	»	3.40	-	»	111.9	‡	122.8	2	-
Beta 7181	4.29	4.53	-	»	4.41	-	»	86.3	‡	86.5	2	-
1-Year Mean	4.16	3.68			* Trial Years »			2 yr		1 yr		
2-Year Mean	»	3.92			Established Mean			3.81				
					2021 1-Yr Mean			3.92				

2022 Disease Performance 3 of 4

APHANOMYCES

Established Varieties	Aphanomyces Root Rot								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
Beta 7845	3.26	3.54	2.67	»	3.40	3.16	»	110.1	‡	117.5	5	3
SES/VdH 762	3.63	4.07	3.71	»	3.85	3.80	»	91.5	‡	91.7	7	5
1-Year Mean	3.45	3.81	3.19		* Trial Years »			3 yr		3 yr		
2-Year Mean	»	3.63	3.50		Established Mean			3.48				
3-Year Mean	»	»	3.48		2021 3-Yr Mean			3.60				

Candidate Varieties	Aphanomyces Root Rot								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 011	3.98	5.42	3.53	»	4.70	4.31	»	80.7	‡	79.3	3	1
ACH 044	3.61	6.05	3.48	»	4.83	4.38	»	79.5	‡	74.5	3	1
ACH 082	4.17	6.05	3.54	»	5.11	4.58	»	75.9	‡	74.1	3	2
ACH 973	3.16	4.22	3.61	»	3.69	3.66	»	95.0	‡	90.7	4	2
Beta 7029	3.68	4.26	3.80	»	3.97	3.91	»	88.9	‡	88.1	3	2
Beta 7068	3.06	4.16	3.32	»	3.61	3.51	»	99.1	‡	95.0	3	1
Hilleshög 2325	3.63	3.68	3.69	»	3.66	3.67	»	94.9	‡	96.4	4	2
Hilleshög 2374	3.64	3.97	3.78	»	3.81	3.80	»	91.6	‡	91.6	3	1
1-Year Mean	3.62	4.73	3.59		* Trial Years »			3 yr		2 yr		
2-Year Mean	»	4.17	4.16		Established Mean			3.48				
3-Year Mean	»	»	3.98		2021 2-Yr Mean			3.55				

Test Market Varieties	Aphanomyces Root Rot								Years In Trials	Years Comm.		
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 125	3.42	3.76	-	»	3.59	-	»	101.0	‡	97.5	2	-
ACH 166	3.49	4.10	-	»	3.80	-	»	95.6	‡	89.6	2	-
Beta 7114	3.46	4.12	-	»	3.79	-	»	95.8	‡	89.1	2	-
Beta 7170	3.20	3.91	-	»	3.56	-	»	102.1	‡	93.9	2	-
Beta 7181	4.24	4.38	-	»	4.31	-	»	84.2	‡	83.8	2	-
1-Year Mean	3.56	4.05			* Trial Years »			2 yr		1 yr		
2-Year Mean	»	3.81			Established Mean			3.63				
					2021 1-Yr Mean			3.67				

2022 Disease Performance 4 of 4

FUSARIUM

Established Varieties	Fusarium							Years In Trials	Years Comm.			
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
Beta 7845	3.59	4.42	2.32	»	4.01	3.44	»	137.1	‡	161.1	5	3
SES/VdH 762	5.56	8.25	4.21	»	6.90	6.00	»	78.6	‡	87.2	7	5
1-Year Mean	4.57	6.34	3.26		* Trial Years »			3 yr		2 yr		
2-Year Mean	»	5.45	4.80		Established Mean			4.72				
3-Year Mean	»	»	4.72		2021 3-Yr Mean					5.43		

Candidate Varieties	Fusarium							Years In Trials	Years Comm.			
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 011	3.53	2.50	1.30	»	3.01	2.44	»	193.3	‡	285.9	3	1
ACH 044	3.66	3.17	1.39	»	3.42	2.74	»	172.3	‡	238.2	3	1
ACH 082	2.68	1.17	0.70	»	1.93	1.52	»	311.1	‡	580.3	3	2
ACH 973	3.64	3.08	1.20	»	3.36	2.64	»	178.9	‡	253.7	4	2
Beta 7029	3.48	1.33	1.51	»	2.40	2.11	»	224.1	‡	381.9	3	2
Beta 7068	3.29	2.08	1.33	»	2.69	2.23	»	211.2	‡	318.2	3	1
Hilleshög 2325	4.83	7.67	3.97	»	6.25	5.49	»	86.0	‡	93.3	4	2
Hilleshög 2374	5.63	8.08	3.51	»	6.86	5.74	»	82.2	‡	93.7	3	1
1-Year Mean	3.84	3.64	1.86		* Trial Years »			2 yr		2 yr		
2-Year Mean	»	3.74	2.75		Established Mean			4.72				
3-Year Mean	»	»	3.11		2021 2-Yr Mean					5.43		

Test Market Varieties	Fusarium							Years In Trials	Years Comm.			
	Trial Year			Average		% of Means *						
	2022	2021	2020	2-Yr	3-Yr	2022	2021					
ACH 125	3.20	1.25	-	»	2.23	-	»	244.9	‡	580.0	2	-
ACH 166	3.49	2.25	-	»	2.87	-	»	189.9	‡	322.2	2	-
Beta 7114	2.93	2.00	-	»	2.46	-	»	221.3	‡	362.5	2	-
Beta 7170	3.58	3.17	-	»	3.38	-	»	161.5	‡	228.7	2	-
Beta 7181	2.15	1.25	-	»	1.70	-	»	320.6	‡	580.0	2	-
1-Year Mean	3.07	1.98			* Trial Years »			2 yr		1 yr		
2-Year Mean	»	2.53			Established Mean			5.45				
					2021 1-Yr Mean					7.25		

THIS IS UNADJUSTED FIELD DATA

2022 1st Year Disease Performance

Introductory Varieties	Cercospora		Rhizoctonia		Aphanomyces		Years In Trials
	2022	% of Est.	2022	% of Est.	2022	% of Est.	
ACH 236	1.82	209.8	4.49	85.8	3.64	94.7	1
ACH 249	2.01	190.6	4.45	86.6	4.11	84.0	1
ACH 275	4.26	89.9	4.28	90.0	3.30	104.6	1
ACH 287	1.42	270.0	4.23	91.1	3.33	103.6	1
ACH 290	2.10	182.4	4.01	96.2	2.91	118.6	1
Beta 7200	1.85	207.5	4.38	88.0	4.00	86.3	1
Beta 7205	1.41	271.6	3.96	97.2	3.07	112.3	1
Beta 7231	1.53	249.9	4.10	94.0	3.29	104.7	1
Beta 7250	1.16	330.7	4.24	90.9	3.64	94.8	1
Beta 7254	1.43	268.6	4.32	89.3	3.82	90.3	1
Hilleshög 2444	4.05	94.6	5.33	72.3	3.53	97.6	1
Hilleshög 2445	4.71	81.3	4.08	94.4	4.31	79.9	1
Hilleshög 2446	4.02	95.3	4.57	84.3	3.76	91.6	1
SES/VdH 722	3.53	108.4	5.84	65.9	3.89	88.6	1
1-Year Mean	2.52		4.45		3.61		
2022 Est. Variety Means	»	3.83	»	3.85	»	3.45	

1st Year DISEASE

Introductory Varieties	Fusarium	
	2022	% of Est.
ACH 236	2.76	165.7
ACH 249	2.27	201.9
ACH 275	2.96	154.7
ACH 287	4.06	112.6
ACH 290	3.54	129.3
Beta 7200	2.61	175.5
Beta 7205	2.91	157.4
Beta 7231	3.05	150.2
Beta 7250	3.67	124.8
Beta 7254	3.56	128.4
Hilleshög 2444	3.68	124.4
Hilleshög 2445	3.73	122.8
Hilleshög 2446	4.59	99.6
SES/VdH 722	3.77	121.3
1-Year Mean	3.37	
2022 Est. Variety Means	»	4.57

Established Variety for Full Approval

Variety	Beta 7845	
Company	Betaseed	
Contact	Cody Lehman	

TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	3	27.3	24	303.5	20	8,289	25 of 45	3.89	26	3.55	8	2.67	1
2021	4	26.4	22	305.2	8	8,068	22 of 36	3.92	24	3.67	6	3.54	2
2022	5	23.9	16	338.7	17	8,005	17 of 29	3.69	22	3.52	1	3.26	6
2023 Avg. for Approval		25.9		315.8		8,121	RST + RSA	3.83		3.58		3.16	

Beta 7845	103.1	<input checked="" type="checkbox"/>	100.3	<input checked="" type="checkbox"/>	203.4	<input checked="" type="checkbox"/>	3.83	<input checked="" type="checkbox"/>	3.58	<input checked="" type="checkbox"/>	3.16	<input checked="" type="checkbox"/>
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If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: **FULL** TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **RHC** ✓ Denotes Fulfilled Req

Established Variety for Full Approval

Variety	SES/VdH 762	
Company	SES/VanderHave	
Contact	Dan Bjur	

TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	5	27.6	21	300.9	27	8,289	24 of 45	3.55	15	3.93	22	3.71	31
2021	6	25.9	28	306.5	6	7,924	26 of 36	3.59	17	3.86	17	4.07	11
2022	7	24.3	13	335.0	20	8,097	13 of 29	3.96	23	4.19	11	3.63	15
2023 Avg. for Approval		25.9		314.1		8,103	RST + RSA	3.70		3.99		3.80	

SES/VdH 762	102.5	<input checked="" type="checkbox"/>	100.1	<input checked="" type="checkbox"/>	202.6	<input checked="" type="checkbox"/>	3.70	<input checked="" type="checkbox"/>	3.99	<input checked="" type="checkbox"/>	3.80	<input checked="" type="checkbox"/>
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If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: **FULL** TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Full Approval

Variety **ACH 011**
 Company *ACH Seeds*
 Contact *Jake Boersma*

TRIAL		AGRONOMY						DISEASE							
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank		
2020	1	30.1	4	297.6	37	8,964	6 of 45	2.56	6	3.39	3	3.53	23		
2021	2	29.5	4	293.0	36	8,649	8 of 36	2.02	9	3.79	13	5.42	34		
2022	3	25.4	6	321.7	29	8,118	12 of 29	1.93	14	3.95	4	3.98	24		
2023 Avg. for Approval		28.3		304.1		8,577	RST + RSA	2.17		3.71		4.31			
ACH 011				99.3		105.9	✓	205.2	✓	2.17	✓	3.71	✓	4.31	✓

If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: *FULL* TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Full Approval

Variety **ACH 044**
 Company *ACH Seeds*
 Contact *Jake Boersma*

TRIAL		AGRONOMY						DISEASE							
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank		
2020	1	27.4	22	318.9	2	8,751	11 of 45	3.69	19	4.07	31	3.48	15		
2021	2	27.2	15	306.7	4	8,337	13 of 36	3.30	14	4.47	26	6.05	35		
2022	3	21.6	25	345.3	6	7,442	24 of 29	3.34	20	4.30	17	3.61	14		
2023 Avg. for Approval		25.4		323.6		8,177	RST + RSA	3.45		4.28		4.38			
ACH 044				105.7	✓	101.0	✓	206.6	✓	3.45	✓	4.28	✓	4.38	✓

If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: *FULL* TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Full Approval

Variety **ACH 082**
 Company *ACH Seeds*
 Contact *Jake Boersma*

TRIAL		AGRONOMY						DISEASE							
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank		
2020	1	30.5	2	305.5	14	9,308	2 of 45	2.13	4	4.10	33	3.54	24		
2021	2	29.9	3	296.8	29	8,878	3 of 36	1.76	3	4.91	36	6.05	35		
2022	3	25.1	8	330.9	26	8,220	10 of 29	1.72	10	4.25	14	4.17	27		
2023 Avg. for Approval		28.5		311.0		8,802	RST + RSA	1.87		4.42		4.58			
ACH 082				101.5	✓	108.7	✓	210.3	✓	1.87	✓	4.42	✓	4.58	✓

If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: *FULL* TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Full Approval

Variety	ACH 973											
Company	ACH Seeds											
Contact	Jake Boersma											

TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	2	27.0	27	292.9	45	7,916	36 of 45	1.69	1	3.52	7	3.61	26
2021	3	29.3	6	298.9	27	8,737	5 of 36	1.88	6	3.73	9	4.22	17
2022	4	25.4	5	332.0	23	8,368	7 of 29	1.58	7	4.61	25	3.16	4
2023 Avg. for Approval		27.2		307.9		8,340	RST + RSA	1.71		3.96		3.66	

ACH 973	100.5	<input checked="" type="checkbox"/>	103.0	<input checked="" type="checkbox"/>	203.5	<input checked="" type="checkbox"/>	1.71	<input checked="" type="checkbox"/>	3.96	<input checked="" type="checkbox"/>	3.66	<input checked="" type="checkbox"/>
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If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: **FULL** TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Full Approval

Variety	Beta 7029											
Company	Betaseed											
Contact	Cody Lehman											

TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	1	28.0	15	311.4	4	8,707	12 of 45	1.75	2	3.98	28	3.80	35
2021	2	26.8	19	301.4	19	8,095	20 of 36	1.35	1	4.83	35	4.26	19
2022	3	22.6	20	338.7	18	7,618	22 of 29	1.53	5	4.46	22	3.68	20
2023 Avg. for Approval		25.8		317.1		8,140	RST + RSA	1.54		4.42		3.91	

Beta 7029	103.5	<input checked="" type="checkbox"/>	100.5	<input checked="" type="checkbox"/>	204.1	<input checked="" type="checkbox"/>	1.54	<input checked="" type="checkbox"/>	4.42	<input checked="" type="checkbox"/>	3.91	<input checked="" type="checkbox"/>
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If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: **FULL** TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Full Approval

Variety	Beta 7068											
Company	Betaseed											
Contact	Cody Lehman											

TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	1	32.1	1	303.9	16	9,749	1 of 45	2.18	5	3.17	1	3.32	10
2021	2	30.6	1	295.1	33	9,011	1 of 36	1.97	8	3.51	5	4.16	15
2022	3	25.6	4	329.5	27	8,389	6 of 29	2.15	18	4.15	10	3.06	2
2023 Avg. for Approval		29.4		309.5		9,050	RST + RSA	2.10		3.61		3.51	

Beta 7068	101.0	<input checked="" type="checkbox"/>	111.8	<input checked="" type="checkbox"/>	212.8	<input checked="" type="checkbox"/>	2.10	<input checked="" type="checkbox"/>	3.61	<input checked="" type="checkbox"/>	3.51	<input checked="" type="checkbox"/>
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If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: **FULL** TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Full Approval

Variety	Hilleshög 2325												
Company	Hilleshög												
Contact	Adam Hansen												

TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	2	26.6	35	296.7	39	7,898	38 of 45	3.88	25	3.89	19	3.69	28
2021	3	27.4	14	304.1	10	8,316	14 of 36	3.64	18	3.69	7	3.68	4
2022	4	24.2	14	332.7	21	7,977	18 of 29	4.12	27	3.99	6	3.63	16
<i>2023 Avg. for Approval</i>		26.1		311.2		8,064	RST + RSA	3.88		3.86		3.67	

Hilleshög 2325	101.6	<input checked="" type="checkbox"/>	99.6	<input checked="" type="checkbox"/>	201.2	<input checked="" type="checkbox"/>	3.88	<input checked="" type="checkbox"/>	3.86	<input checked="" type="checkbox"/>	3.67	<input checked="" type="checkbox"/>
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If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: **FULL** TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: ✓ Denotes Fulfilled Req

Candidate Variety for Full Approval

Variety	Hilleshög 2374												
Company	Hilleshög												
Contact	Adam Hansen												

TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	1	28.9	10	308.9	8	8,918	9 of 45	3.85	23	3.79	18	3.78	34
2021	2	27.1	17	303.4	13	8,232	16 of 36	3.71	21	3.85	14	3.97	9
2022	3	20.9	28	331.4	24	6,856	27 of 29	4.12	26	4.62	26	3.64	18
<i>2023 Avg. for Approval</i>		25.6		314.6		8,002	RST + RSA	3.89		4.09		3.80	

Hilleshög 2374	102.7	<input checked="" type="checkbox"/>	98.8	<input checked="" type="checkbox"/>	201.5	<input checked="" type="checkbox"/>	3.89	<input checked="" type="checkbox"/>	4.09	<input checked="" type="checkbox"/>	3.80	<input checked="" type="checkbox"/>
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If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: **FULL** TEST MARKET SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: ✓ Denotes Fulfilled Req

Candidate Variety for Test Market Approval

Variety **ACH 125**
 Company *ACH Seeds*
 Contact *Jake Boersma*

TRIAL		AGRONOMY						DISEASE							
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank		
2020	-	-	-	-	-	-	-	-	-	-	-	-	-		
2021	1	26.6	21	304.9	9	8,078	21	1.64	2	3.85	14	3.76	5		
2022	2	24.4	11	343.3	13	8,275	9	1.67	9	4.35	19	3.42	10		
2023 Avg. for Approval		25.5		324.1		8,176		RST + RSA	1.66		4.10		3.59		
ACH 125				103.1	✓	101.8	✓	204.9	✓	1.66	✓	4.10	✓	3.59	✓

If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: FULL **TEST MARKET** SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Test Market Approval

Variety **ACH 166**
 Company *ACH Seeds*
 Contact *Jake Boersma*

TRIAL		AGRONOMY						DISEASE							
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank		
2020	-	-	-	-	-	-	-	-	-	-	-	-	-		
2021	1	27.7	13	303.6	12	8,393	12	2.08	10	3.12	2	4.10	12		
2022	2	23.7	17	341.6	15	8,025	16	1.65	8	3.72	3	3.49	12		
2023 Avg. for Approval		25.7		322.6		8,209		RST + RSA	1.86		3.42		3.80		
ACH 166				102.6	✓	102.2	✓	204.8	✓	1.86	✓	3.42	✓	3.80	✓

If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: FULL **TEST MARKET** SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS & RHC** ✓ Denotes Fulfilled Req

Candidate Variety for Test Market Approval

Variety **Beta 7114**
 Company *Betaseed*
 Contact *Cody Lehman*

TRIAL		AGRONOMY						DISEASE							
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank		
2020	-	-	-	-	-	-	-	-	-	-	-	-	-		
2021	1	26.9	18	302.1	16	8,108	19	1.81	4	3.71	8	4.12	13		
2022	2	24.1	15	339.3	16	8,097	14	1.89	13	4.85	27	3.46	11		
2023 Avg. for Approval		25.5		320.7		8,102		RST + RSA	1.85		4.28		3.79		
Beta 7114				102.0	✓	100.9	✓	202.9	✓	1.85	✓	4.28	✓	3.79	✓

If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: FULL **TEST MARKET** SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** ✓ Denotes Fulfilled Req

Candidate Variety for Test Market Approval

Variety	Beta 7170											
Company	Betaseed											
Contact	Cody Lehman											

TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	-	-	-	-	-	-	-	-	-	-	-	-	-
2021	1	28.8	9	296.8	30	8,556	10	2.18	11	3.19	3	3.91	7
2022	2	26.6	2	325.9	28	8,627	3	2.16	19	3.62	2	3.20	5
2023 Avg. for Approval		27.7		311.4		8,591		RST + RSA	2.17	3.40		3.56	
Beta 7170		99.0		107.0	<input checked="" type="checkbox"/>	206.0	<input checked="" type="checkbox"/>	2.17	<input checked="" type="checkbox"/>	3.40	<input checked="" type="checkbox"/>	3.56	<input checked="" type="checkbox"/>

If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: FULL TEST MARKET **SPECIALTY** FAILED

Specialty Credential [CLS, RHC, APH]: **CLS & RHC** Denotes Fulfilled Req

Candidate Variety for Test Market Approval

Variety	Beta 7181											
Company	Betaseed											
Contact	Cody Lehman											

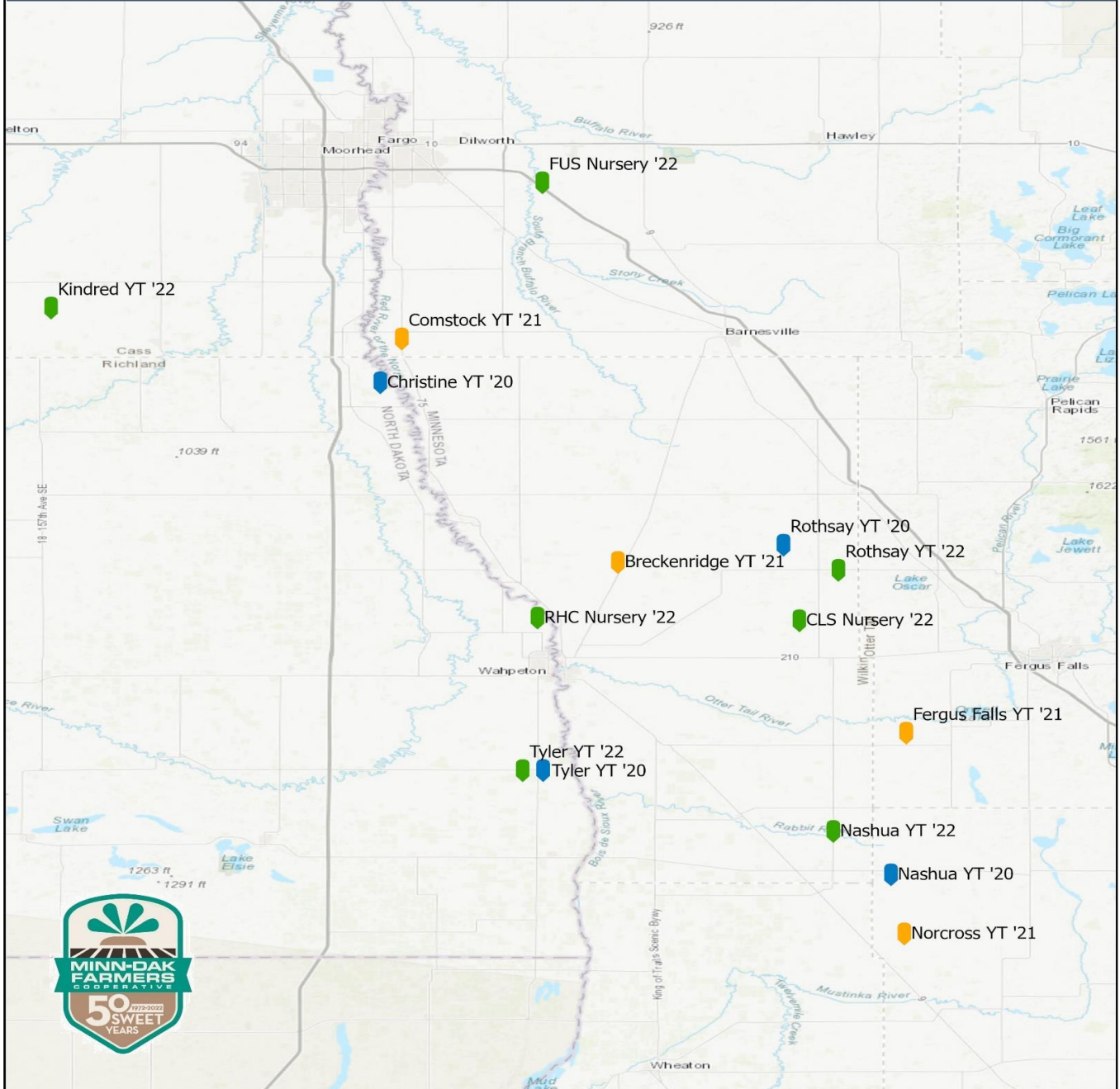
TRIAL		AGRONOMY						DISEASE					
Year	#	Yield	Rank	RST	Rank	RSA	Rank	CLS	Rank	RHC	Rank	APH	Rank
2020	-	-	-	-	-	-	-	-	-	-	-	-	-
2021	1	29.9	2	298.5	28	8,931	2	2.27	12	4.53	28	4.38	21
2022	2	27.0	1	331.0	25	8,887	1	2.10	17	4.29	16	4.24	28
2023 Avg. for Approval		28.5		314.8		8,909		RST + RSA	2.18	4.41		4.31	
Beta 7181		100.1	<input checked="" type="checkbox"/>	111.0	<input checked="" type="checkbox"/>	211.0	<input checked="" type="checkbox"/>	2.18	<input checked="" type="checkbox"/>	4.41	<input checked="" type="checkbox"/>	4.31	<input checked="" type="checkbox"/>

If the 2023 Requirements are met, VOTE to Approve: YES NO

2023 Approval Status: FULL **TEST MARKET** SPECIALTY FAILED

Specialty Credential [CLS, RHC, APH]: **CLS** Denotes Fulfilled Req

Minn-Dak Farmers Cooperative Official Variety Trial Locations 2020-2022



Kindred - Yield Trial

October Final Draft

46.6736, -97.1254

Cooperator: David Braaten
 Soil Type: Silty Clay Loam

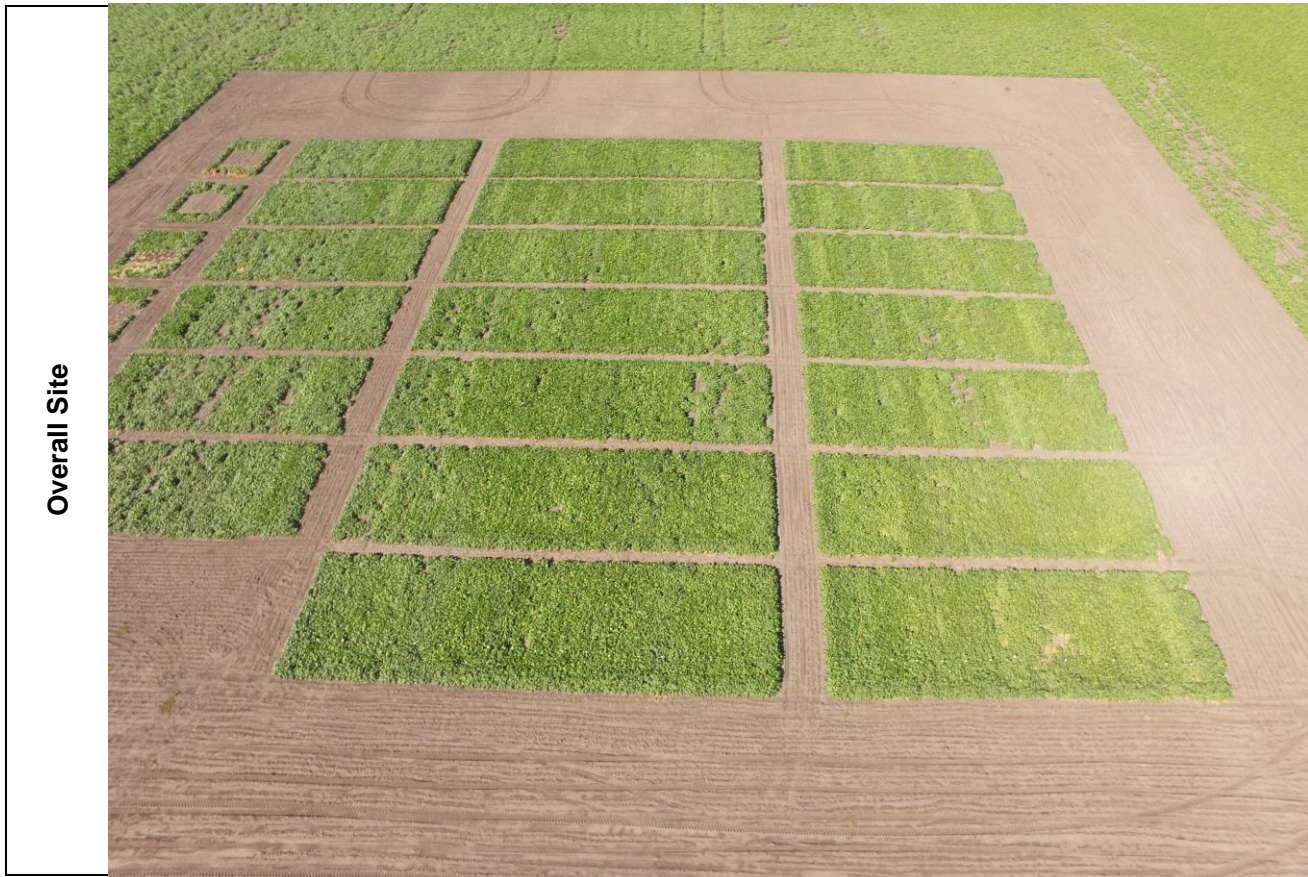
Planted: May 23rd
 Harvested: September 21st

Prev. Crop: Wheat
 Plot Size: 3 Rows
 Orientation: South/North

Date	Pest Control	Rate/Acre
27 May	S-Metolachlor + Ethofumasate	8oz + 32oz
7 July	Glyphosate + Ethofumasate	32oz + 4oz
	+ Outlook	21oz
At Plant	Counter 20G	7.5lb/ac

Date	Cercospora Control	Rate/Acre	Disease	Incidence & Severity
7 July	Manzate	52oz	APH	Low / Low
18 July	Proline + Manzate	5.7oz + 52oz	CLS	Low / Low
2 August	Agritin + Manzate	8oz + 52oz	RHC	Low / Low
11 August	Inspire XT + Badge SC	7oz + 32oz	FUS	Not Observed
23 August	Agritin + Manzate	8oz + 52oz	RZM	Not Observed
			B+	Overall Score

Comments: Our second location planted. The site received 1/4" of rain about an hour after planting giving rise to an excellent stand early. Over the next few weeks however, several wind events eroded the stand to a point of contemplating abandoning the site. With nothing to lose, the site remained and had a productive season with excellent RSA. Cercospora control was excellent throughout the season, in addition to very low weed pressure all season long.



2022 Minn-Dak Official Variety Trial
Commercial & Semi-Commercial Entries
Kindred, ND

Entry Code	Commercial Entries	Emerg. %	Bolter #/A	Tare %	Sugar %	Purity %	Yield TPA	RST		RSA	
								lbs	% Mean	lbs	% Mean
8	ACH 011	49.5	0	0.89	17.22	90.88	30.7	297.1	97.7	9,121	101.5
6	ACH 044	59.0	0	1.26	18.43	90.01	24.4	314.8	103.6	7,677	85.4
3	ACH 082	67.9	0	1.13	17.61	89.97	31.5	300.1	98.7	9,453	105.2
1	ACH 125	68.2	0	1.20	18.11	90.85	31.3	313.0	103.0	9,796	109.0
5	ACH 166	62.3	0	1.20	17.77	90.83	29.2	306.9	101.0	8,984	100.0
11	ACH 973	71.8	0	1.24	17.07	90.93	31.9	294.6	96.9	9,405	104.7
4	Beta 7029	66.4	0	1.28	18.31	90.85	27.3	316.5	104.1	8,632	96.1
12	Beta 7068	65.6	0	0.93	17.36	91.31	31.6	301.5	99.2	9,538	106.1
9	Beta 7114	67.9	0	1.48	17.95	91.10	29.5	311.1	102.3	9,171	102.1
13	Beta 7170	54.1	0	1.12	17.13	90.51	31.7	293.9	96.7	9,304	103.5
2	Beta 7181	58.2	0	1.43	17.48	90.39	31.6	299.7	98.6	9,455	105.2
14	* Beta 7845	64.9	0	0.83	17.91	90.19	28.9	306.5	100.8	8,847	98.4
10	Hilleshög 2325	60.8	0	1.07	17.26	91.04	30.2	298.5	98.2	9,025	100.4
15	Hilleshög 2374	51.3	0	0.87	17.39	90.97	26.9	300.5	98.8	8,099	90.1
7	* SES/VdH 762	65.9	0	0.93	17.61	91.17	27.2	305.4	100.5	8,291	92.3
Experiment Mean		62.3		1.12	17.64	90.73	29.6	304.0		8,987	
Coeff. of Var. (%)		17.35		34.33	2.51	0.89	9.25	3.02		9.74	
LSD (0.10)		10.4		0.37	0.43	0.78	2.6	8.8		842	
LSD (0.05)		12.4		NS	0.51	NS	3.2	10.6		1,008	

2022 Minn-Dak Official Variety Trial
1st Year Introductory Entries
Kindred, ND

Entry Code	Introductory Entries	Emerg. %	Bolter #/A	Tare %	Sugar %	Purity %	Yield TPA	RST		RSA	
								lbs	% Mean	lbs	% Mean
26	ACH 236	65.9	0	1.45	17.44	90.05	31.6	297.5	100.4	9,392	118.3
19	ACH 249	70.8	0	1.66	17.45	90.30	29.4	298.7	100.8	8,776	110.5
25	ACH 275	73.8	0	1.13	17.59	89.97	28.0	299.7	101.1	8,385	105.6
16	ACH 287	64.9	0	1.47	17.39	90.82	26.0	299.9	101.2	7,786	98.0
18	ACH 290	69.2	0	1.19	17.02	90.47	31.7	291.8	98.4	9,239	116.3
24	Beta 7200	75.4	0	1.29	17.87	89.64	31.0	303.3	102.3	9,381	118.1
22	Beta 7205	65.1	0	1.33	17.77	90.17	25.0	303.9	102.5	7,619	95.9
28	Beta 7231	67.7	0	1.08	17.61	90.05	27.4	300.4	101.3	8,242	103.8
23	Beta 7250	61.3	0	0.98	17.64	90.16	25.4	301.7	101.8	7,662	96.5
21	Beta 7254	57.7	0	1.07	17.47	90.41	28.0	299.6	101.1	8,370	105.4
20	Hilleshög 2444	63.8	0	1.26	17.14	90.63	24.8	294.6	99.4	7,310	92.1
27	Hilleshög 2445	54.9	0	1.04	16.74	89.79	18.2	283.9	95.8	5,179	65.2
29	Hilleshög 2446	52.1	0	0.87	16.61	89.63	21.8	281.1	94.8	6,138	77.3
17	SES/VdH 722	79.0	0	1.76	17.13	90.53	26.1	293.9	99.1	7,697	96.9
Experiment Mean		65.8		1.26	17.35	90.19	26.7	296.4		7,941	
Coeff. of Var. (%)		12.81		30.29	2.56	1.05	11.14	3.21		11.80	
LSD (0.10)		8.1		0.37	0.43	NS	2.9	9.2		903	
LSD (0.05)		9.7		0.44	0.51	NS	3.4	11.0		1,081	

% Mean is percent of Experiment Mean
* Established Variety

Nashua - Yield Trial

October Final Draft

46.0696, -96.3059

Cooperator: Frank & Tanner Davison
 Soil Type: Fine Sandy Loam

Planted: May 22nd
 Harvested: September 27th

Prev. Crop: Corn
 Plot Size: 3 Rows
 Orientation: West/East

Date	Pest Control	Rate/Acre
27 May	S-Metolachlor + Ethofumasate	8oz + 32oz
17 June	Glyphosate + Ethofumasate	32oz + 4oz
27 June	Outlook	21oz
At Plant	Counter 20G	7.5lb/ac

Date	Cercospora Control	Rate/Acre	Disease	Incidence & Severity
8 July	Manzate	52oz	APH	Low / Low
18 July	Proline + Manzate	5.7oz + 52oz	CLS	Low / Low
1 August	Agritin + Manzate	8oz + 52oz	RHC	Low / Mod
12 August	Inspire XT + Badge SC	7oz + 32oz	FUS	Not Observed
23 August	Agritin + Manzate	8oz + 52oz	RZM	Not Observed
4 September	Manzate + Badge SC	52oz + 32oz		
			B-	Overall Score

Comments: Our first site planted. The seedbed was quite nice having just been worked. Germination had started when a severe storm pounded several inches of rain on the site, flooding about half of the entire location for a day. Corn trash and crusting were a lingering problem for the remainder of emerging plants, ultimately leading to a patching stand as seen below. Through the rest of the summer, lack of rain was top of mind. CLS control was excellent throughout. Weed control was good as well.



2022 Minn-Dak Official Variety Trial
Commercial & Semi-Commercial Entries
Nashua, MN

Entry Code	Commercial Entries	Emerg. %	Bolter #/A	Tare %	Sugar %	Purity %	Yield TPA	RST		RSA	
								lbs	% Mean	lbs	% Mean
8	ACH 011	26.9	0	1.16	19.39	91.12	26.9	337.0	93.8	9,034	112.4
6	ACH 044	44.1	0	1.79	21.45	90.24	21.8	369.5	102.8	8,039	100.0
3	ACH 082	34.9	0	1.57	20.63	89.80	23.7	352.7	98.1	8,307	103.3
1	ACH 125	32.1	0	2.01	21.31	90.87	19.9	370.2	103.0	7,317	91.0
5	ACH 166	30.8	0	1.41	21.49	90.47	19.6	371.5	103.4	7,273	90.5
11	ACH 973	31.5	0	1.27	20.91	91.29	24.7	365.4	101.7	8,996	111.9
4	Beta 7029	40.3	0	1.53	21.05	90.20	22.6	362.3	100.8	8,130	101.1
12	Beta 7068	37.9	0	1.52	20.39	90.72	25.4	353.0	98.2	8,921	111.0
9	Beta 7114	34.6	0	1.38	21.03	90.94	20.2	365.8	101.8	7,366	91.6
13	Beta 7170	33.3	0	1.33	20.05	90.72	24.9	346.9	96.5	8,629	107.3
2	Beta 7181	36.4	0	1.76	20.66	90.39	27.0	356.3	99.1	9,616	119.6
14	* Beta 7845	39.0	0	1.32	21.39	90.12	20.8	367.9	102.4	7,654	95.2
10	Hilleshög 2325	31.8	0	1.40	20.95	91.17	21.3	365.5	101.7	7,806	97.1
15	Hilleshög 2374	25.9	0	1.28	20.33	90.09	16.3	348.8	97.1	5,665	70.5
7	* SES/VdH 762	37.7	0	1.16	20.43	91.59	21.9	358.2	99.7	7,828	97.4
Experiment Mean		34.5		1.46	20.76	90.65	22.5	359.4		8,039	
Coeff. of Var. (%)		34.66		33.82	3.07	1.14	14.63	3.35		13.91	
LSD (0.10)		NS		NS	0.61	NS	3.2	11.6		1,076	
LSD (0.05)		NS		NS	0.73	NS	3.8	13.9		1,287	

2022 Minn-Dak Official Variety Trial
1st Year Introductory Entries
Nashua, MN

Entry Code	Introductory Entries	Emerg. %	Bolter #/A	Tare %	Sugar %	Purity %	Yield TPA	RST		RSA	
								lbs	% Mean	lbs	% Mean
26	ACH 236	40.5	0	2.09	21.12	90.76	23.4	366.6	97.6	8,574	106.7
19	ACH 249	44.4	0	2.35	21.61	90.59	22.8	374.2	99.6	8,533	106.2
25	ACH 275	44.4	0	1.31	21.59	90.37	21.8	372.5	99.2	8,110	100.9
16	ACH 287	28.7	0	1.58	21.42	91.13	21.1	373.8	99.5	7,878	98.0
18	ACH 290	37.9	0	1.32	21.07	90.97	25.7	366.6	97.6	9,437	117.4
24	Beta 7200	34.4	0	3.02	21.64	91.02	20.6	377.3	100.5	7,779	96.8
22	Beta 7205	40.3	0	1.77	22.14	89.92	22.7	380.0	101.2	8,627	107.3
28	Beta 7231	34.4	0	1.47	21.82	90.70	23.3	378.5	100.8	8,821	109.7
23	Beta 7250	48.2	0	1.83	22.83	90.90	20.1	397.9	105.9	8,007	99.6
21	Beta 7254	30.0	0	1.28	22.46	90.61	20.1	389.5	103.7	7,831	97.4
20	Hilleshög 2444	41.0	0	1.15	21.81	90.19	19.5	375.7	100.0	7,294	90.7
27	Hilleshög 2445	30.3	0	1.31	21.05	91.02	18.6	366.5	97.6	6,808	84.7
29	Hilleshög 2446	35.6	0	1.19	21.25	90.72	19.5	368.6	98.1	7,191	89.5
17	SES/VdH 722	34.1	0	1.20	21.34	90.79	20.6	370.6	98.7	7,642	95.1
Experiment Mean		37.4		1.63	21.65	90.69	21.4	375.6		8,038	
Coeff. of Var. (%)		27.58		50.14	1.76	1.02	10.07	2.23		9.84	
LSD (0.10)		9.9		0.79	0.37	NS	2.1	8.1		762	
LSD (0.05)		11.9		0.94	0.44	NS	2.5	9.7		912	

% Mean is percent of Experiment Mean
* Established Variety

Rothsay - Yield Trial

October Final Draft

46.3688, -96.3018

Cooperator: Chad and Troy Larson
 Soil Type: Loam

Planted: May 24th
 Harvested: September 22nd

Prev. Crop: Soybean
 Plot Size: 3 Rows
 Orientation: North/South

Date	Pest Control	Rate/Acre
27 May	S-Metolachlor + Ethofumasate	8oz + 32oz
17 June	Glyphosate + Ethofumasate	32oz + 4oz
27 June	Outlook	21oz
At Plant	Counter 20G	7.5lb/ac

Date	Cercospora Control	Rate/Acre	Disease	Incidence & Severity
8 July	Manzate	52oz	APH	Low / Low
18 July	Proline + Manzate	5.7oz + 52oz	CLS	Low / Low
1 August	Agritin + Manzate	8oz + 52oz	RHC	Low / High
11 August	Inspire XT + Badge SC	7oz + 32oz	FUS	Not Observed
23 August	Agritin + Manzate	8oz + 52oz	RZM	Low / Low
4 September	Manzate + Badge SC	52oz + 32oz		
			A	Overall Score

Comments: Our most uniform location this year. Rothsay was planted into a good seedbed and avoided severe rains and winds which allowed an excellent stand to develop. Maintaining the stand through the year did have a challenge with pockets of root rot. Dryness was also a concern with this location near the Agassiz ridgeline and a more course soil. CLS control was good. Weed control was good. A solid location for 2022.



2022 Minn-Dak Official Variety Trial
Commercial & Semi-Commercial Entries
Rothsay, MN

Entry Code	Commercial Entries	Emerg. %	Bolter #/A	Tare %	Sugar %	Purity %	Yield TPA	RST		RSA	
								lbs	% Mean	lbs	% Mean
8	ACH 011	56.6	0	0.98	18.81	91.94	23.2	330.6	97.1	7,687	94.0
6	ACH 044	57.3	0	1.32	19.75	92.20	21.1	349.0	102.5	7,354	89.9
3	ACH 082	50.8	0	1.62	19.26	91.68	23.0	337.5	99.1	7,753	94.8
1	ACH 125	55.3	0	1.45	19.68	92.26	25.6	347.9	102.2	8,903	108.9
5	ACH 166	55.8	0	1.64	19.57	92.66	24.2	347.7	102.1	8,399	102.7
11	ACH 973	56.6	0	1.17	18.93	92.94	24.8	337.2	99.0	8,369	102.3
4	Beta 7029	56.8	0	1.58	19.21	92.19	22.9	339.0	99.6	7,758	94.9
12	Beta 7068	57.1	0	0.89	18.97	92.38	25.2	335.4	98.5	8,452	103.3
9	Beta 7114	56.3	0	1.19	19.38	92.24	24.2	342.4	100.6	8,271	101.1
13	Beta 7170	59.3	0	1.03	19.06	92.63	26.2	338.3	99.4	8,868	108.4
2	Beta 7181	59.6	0	1.33	19.23	92.57	24.8	341.2	100.2	8,452	103.3
14	* Beta 7845	56.1	0	1.14	19.59	91.68	24.4	343.6	100.9	8,357	102.2
10	Hilleshög 2325	54.8	0	0.97	19.10	92.43	22.8	339.2	99.6	7,723	94.4
15	Hilleshög 2374	46.5	0	1.02	19.34	92.08	22.6	340.9	100.1	7,672	93.8
7	* SES/VdH 762	54.3	0	1.30	19.10	92.19	25.7	337.1	99.0	8,662	105.9
Experiment Mean		55.5		1.24	19.27	92.27	24.0	340.5		8,179	
Coeff. of Var. (%)		10.34		32.77	1.45	0.53	9.16	1.84		9.12	
LSD (0.10)		5.5		0.39	0.27	0.47	2.1	6.0		718	
LSD (0.05)		6.6		0.47	0.32	0.57	2.5	7.2		859	

2022 Minn-Dak Official Variety Trial
1st Year Introductory Entries
Rothsay, MN

Entry Code	Introductory Entries	Emerg. %	Bolter #/A	Tare %	Sugar %	Purity %	Yield TPA	RST		RSA	
								lbs	% Mean	lbs	% Mean
26	ACH 236	56.8	0	1.55	19.37	91.56	24.3	339.0	99.1	8,224	104.1
19	ACH 249	55.8	0	1.22	19.70	91.41	25.1	344.2	100.6	8,651	109.5
25	ACH 275	60.4	0	0.84	19.94	90.87	23.8	345.7	101.0	8,221	104.0
16	ACH 287	55.6	0	1.27	19.53	92.07	21.7	344.3	100.6	7,478	94.6
18	ACH 290	56.3	0	0.85	18.91	91.79	25.6	331.6	96.9	8,465	107.1
24	Beta 7200	58.8	0	1.24	19.54	91.68	24.3	342.6	100.1	8,314	105.2
22	Beta 7205	57.6	0	1.86	19.33	91.49	24.2	337.8	98.7	8,127	102.9
28	Beta 7231	58.3	0	1.07	19.81	91.41	24.0	346.1	101.1	8,308	105.1
23	Beta 7250	55.6	0	1.19	20.12	90.97	22.7	349.6	102.2	7,907	100.1
21	Beta 7254	48.7	0	0.84	19.98	91.85	22.8	351.4	102.7	8,026	101.6
20	Hilleshög 2444	58.3	0	1.13	19.50	91.60	20.9	341.4	99.8	7,133	90.3
27	Hilleshög 2445	58.3	0	1.05	19.52	92.09	21.5	344.1	100.6	7,383	93.4
29	Hilleshög 2446	48.7	0	0.77	18.88	91.59	19.3	330.2	96.5	6,346	80.3
17	SES/VdH 722	53.3	0	0.97	19.41	92.25	23.4	342.8	100.2	8,034	101.7
Experiment Mean		55.9		1.13	19.54	91.62	23.1	342.2		7,901	
Coeff. of Var. (%)		7.90		53.36	2.05	0.90	7.58	2.42		7.84	
LSD (0.10)		4.3		NS	0.39	NS	1.7	8.0		597	
LSD (0.05)		5.1		NS	0.46	NS	2.0	9.6		714	

% Mean is percent of Experiment Mean
* Established Variety

Tyler - Yield Trial

October Final Draft

46.1373, -96.6324

Cooperator: Cody Miller
 Soil Type: Clay Loam

Planted: May 26th
 Harvested: September 24th

Prev. Crop: Wheat
 Plot Size: 3 Rows
 Orientation: East/West

Date	Pest Control	Rate/Acre
27 May	S-Metolachlor + Ethofumasate	8oz + 32oz
27 June	Glyphosate + Ethofumasate	32oz + 4oz
	+ Outlook	21oz
At Plant	Counter 20G	7.5lb/ac

Date	Cercospora Control	Rate/Acre	Disease	Incidence & Severity
8 July	Manzate	52oz	APH	Low / Low
18 July	Proline + Manzate	5.7oz + 52oz	CLS	Low / Low
1 August	Agritin + Manzate	8oz + 52oz	RHC	Low / Low
12 August	Inspire XT + Badge SC	7oz + 32oz	FUS	Not Observed
23 August	Agritin + Manzate	8oz + 52oz	RZM	Not Observed
4 September	Manzate + Badge SC	52oz + 32oz		
			B	Overall Score

Comments: The last Variety Trial planted. The soil at this location was pushed just a bit to get the planters rolling. A significant rain shortly after planting did little to heal the early field work, but rather crusted the entire site with the most severe in the corner shown below. As the summer progressed I was quite pleased with how many plants remained viable and filled the rows. The site did remain very dry and water was limiting to the potential of the varieties. CLS control was excellent. Weed control was excellent.



2022 Minn-Dak Official Variety Trial
Commercial & Semi-Commercial Entries
Tyler, ND

Entry Code	Commercial Entries	Emerg. %	Bolter #/A	Tare %	Sugar %	Purity %	Yield TPA	RST		RSA	
								lbs	% Mean	lbs	% Mean
8	ACH 011	57.6	0	0.66	18.48	91.40	20.6	322.1	96.5	6,629	93.9
6	ACH 044	55.6	0	0.92	19.73	92.08	19.2	347.9	104.2	6,696	94.8
3	ACH 082	56.3	0	0.81	18.94	91.99	22.1	333.1	99.7	7,368	104.3
1	ACH 125	55.6	0	1.03	19.46	91.92	20.7	342.2	102.5	7,084	100.3
5	ACH 166	50.8	0	1.40	19.29	92.14	21.9	340.1	101.8	7,444	105.4
11	ACH 973	52.8	0	0.93	18.72	92.38	20.2	330.7	99.0	6,700	94.9
4	Beta 7029	56.6	0	1.15	19.17	91.89	17.7	336.8	100.9	5,951	84.3
12	Beta 7068	54.5	0	0.80	18.60	92.19	20.2	327.9	98.2	6,645	94.1
9	Beta 7114	57.8	0	1.08	19.18	92.05	22.5	337.8	101.2	7,578	107.3
13	Beta 7170	65.4	0	1.06	18.62	91.42	23.7	324.6	97.2	7,705	109.1
2	Beta 7181	56.8	0	1.10	18.68	91.67	24.6	326.8	97.9	8,023	113.6
14	* Beta 7845	60.9	0	0.83	19.43	90.85	21.4	336.7	100.8	7,163	101.4
10	Hilleshög 2325	53.8	0	0.79	18.70	91.76	22.4	327.7	98.1	7,355	104.1
15	Hilleshög 2374	42.9	0	0.89	19.06	92.05	17.8	335.5	100.5	5,987	84.8
7	* SES/VdH 762	54.8	0	0.83	19.08	92.76	22.4	339.2	101.6	7,607	107.7
Experiment Mean		55.5		0.95	19.01	91.90	21.2	333.9		7,062	
Coeff. of Var. (%)		16.21		43.14	2.38	1.26	14.24	3.07		14.53	
LSD (0.10)		8.7		NS	0.44	NS	2.9	9.9		988	
LSD (0.05)		NS		NS	0.52	NS	3.5	11.8		1,182	

2022 Minn-Dak Official Variety Trial
1st Year Introductory Entries
Tyler, ND

Entry Code	Introductory Entries	Emerg. %	Bolter #/A	Tare %	Sugar %	Purity %	Yield TPA	RST		RSA	
								lbs	% Mean	lbs	% Mean
26	ACH 236	50.0	0	1.07	21.08	92.26	21.2	373.3	101.8	7,868	109.3
19	ACH 249	51.3	0	1.23	20.66	91.82	22.7	363.6	99.2	8,226	114.2
25	ACH 275	55.3	0	0.82	21.26	92.08	20.1	375.5	102.4	7,522	104.5
16	ACH 287	48.5	0	1.15	20.90	91.87	15.9	367.1	100.1	5,834	81.0
18	ACH 290	61.1	0	0.83	20.05	91.96	22.2	352.9	96.3	7,825	108.7
24	Beta 7200	52.3	0	1.34	20.22	91.50	22.7	353.8	96.5	7,992	111.0
22	Beta 7205	51.3	0	1.08	20.62	90.41	17.8	355.5	97.0	6,317	87.7
28	Beta 7231	51.0	0	0.88	21.62	91.15	19.4	377.1	102.9	7,277	101.1
23	Beta 7250	51.0	0	1.03	21.33	92.00	20.0	376.4	102.7	7,497	104.1
21	Beta 7254	49.0	0	0.95	20.96	92.00	19.4	369.7	100.8	7,141	99.2
20	Hilleshög 2444	51.3	0	0.90	20.93	92.07	19.8	369.5	100.8	7,283	101.2
27	Hilleshög 2445	48.2	0	0.77	21.27	92.23	18.3	376.7	102.7	6,883	95.6
29	Hilleshög 2446	41.7	0	0.55	19.98	91.72	17.5	350.7	95.7	6,129	85.1
17	SES/VdH 722	56.3	0	0.95	21.20	91.33	19.1	370.9	101.2	7,007	97.3
Experiment Mean		51.3		0.97	20.86	91.74	19.7	366.6		7,200	
Coeff. of Var. (%)		14.39		37.32	4.48	1.55	14.98	4.48		13.85	
LSD (0.10)		7.1		0.35	0.90	NS	2.9	15.8		961	
LSD (0.05)		8.5		0.42	NS	NS	3.4	18.9		1,150	

% Mean is percent of Experiment Mean
* Established Variety

Foxhome - CLS Nursery

October Final Draft

46.3108, -96.3448

Cooperator: Etzler Farms
 Soil Type: Clay loam

Planted: May 25th
 Harvested: Terminated

Prev. Crop: Wheat
 Plot Size: 3 rows
 Orientation: North/South

Date	Pest Control	Rate/Acre
27 May	S-Metolachlor + Ethofumasate	8oz + 32oz
27 June	Glyphosate + Ethofumasate	32oz + 4oz
	+ Outlook	21oz
At Plant	Counter 20G	7.5lb/ac

Date	Cercospora Rating	Score Range	Disease	Incidence & Severity
8 July	Inoculated	-	APH	Not Observed
28 July	1st Rating	1-3	CLS	High / High
4 August	2nd Rating	1-4	RHC	Low / Low
11 August	3rd Rating	1-5	FUS	Not Observed
17 August	4th Rating	1-7	RZM	Not Observed
26 August	5th Rating	1-9		
31 August	6th Rating	1-10		
			A	Overall Score

Comments: Stand was excellent early and was quite good to the end. Weed control was good throughout. To the surprise of many we had excellent infection early on and were able to finish rating well before others concluded their experiments at the co-oped site. The infection was fairly uniform, the center 5 ranges were used in analysis having been most severe and consistent. A very nice nursery for 2022.



Overall Site

Shed 8 - RHC Nursery

October Final Draft

46.3144, -96.6165

Cooperator: MDFC
Soil Type: Clay loam

Planted: June 3rd
Inoculated: July 6th & July 18th
Harvested: September 18th

Prev. Crop: Sugarbeet
Plot Size: 2 Rows
Orientation: West/East

Date	Pest Control	Rate/Acre
3 June	S-Metolachlor + Ethofumasate	8oz + 32oz
22 June	Glyphosate + S-Metolachlor + Ethofumasate	28oz + 16oz 4oz
7 July	Glyphosate + Ethofumasate + Outlook	32oz + 4oz 21oz
At Plant	Counter 20G	7.5lb/ac

Date	Cercospora Control	Rate/Acre	Disease	Incidence & Severity
15 July	Manzate	52oz	APH	Not Observed
25 July	Proline + Manzate	5.7oz + 52oz	CLS	Low / Low
2 August	Agritin + Manzate	8oz + 52oz	RHC	High / Mod
12 August	Inspire XT + Badge SC	7oz + 32oz	FUS	Not Observed
23 August	Agritin + Manzate	8oz + 52oz	RZM	Not Observed
			B+	Overall Score

Comments: As usual, the nursery was last to be planted. The soil was pushed here as well with time becoming of the essence. Gentle rains following planting did heal the wound and stand were very good early. The site was inoculated twice to encourage a more robust infection which seems to be realized based on data. Geese, fertility concerns, and water were the biggest challenged this year for the nursery. Overall, a good data set to make variety decisions.



2022 Minn-Dak Official Variety Trial
Cercospora Ratings
Betaseed (Randolph, MN) & MDFC (Foxhome, MN)

Entry Code	Commercial & Introductory Entries	Unadjusted				Adjusted				
		Randolph 8 Dates	Foxhome 6 Dates	Randolph 8 Dates	Foxhome 6 Dates	2022 2 Loc.	2021 2 Loc.	2020 2 Loc.	2 Yr.	3 Yr.
8	ACH 011	2.22	2.03	2.36	1.51	1.93	2.02	2.56	1.97	2.17
6	ACH 044	3.15	4.49	3.35	3.33	3.34	3.30	3.69	3.32	3.45
3	ACH 082	1.98	1.79	2.10	1.33	1.72	1.76	2.13	1.74	1.87
1	ACH 125	1.85	1.86	1.97	1.38	1.67	1.64	---	1.66	---
5	ACH 166	1.90	1.74	2.02	1.29	1.65	2.08	---	1.86	---
11	ACH 973	1.90	1.53	2.02	1.14	1.58	1.88	1.69	1.73	1.71
4	Beta 7029	1.67	1.73	1.77	1.28	1.53	1.35	1.75	1.44	1.54
12	Beta 7068	2.45	2.28	2.60	1.69	2.15	1.97	2.18	2.06	2.10
9	Beta 7114	2.03	2.19	2.16	1.63	1.89	1.81	---	1.85	---
13	Beta 7170	2.53	2.19	2.69	1.63	2.16	2.18	---	2.17	---
2	Beta 7181	2.33	2.33	2.47	1.73	2.10	2.27	---	2.18	---
14	* Beta 7845	3.33	5.19	3.54	3.85	3.69	3.92	3.89	3.80	3.83
10	Hilleleshög 2325	4.00	5.39	4.25	4.00	4.12	3.64	3.88	3.88	3.88
15	Hilleleshög 2374	4.23	5.04	4.49	3.74	4.12	3.71	3.85	3.92	3.89
7	* SES/VdH 762	3.88	5.13	4.12	3.81	3.96	3.59	3.55	3.78	3.70
26	ACH 236	1.92	2.17	2.04	1.61	1.82	---	---	---	---
19	ACH 249	2.10	2.41	2.23	1.79	2.01	---	---	---	---
25	ACH 275	3.82	6.01	4.06	4.46	4.26	---	---	---	---
16	ACH 287	1.65	1.46	1.75	1.08	1.42	---	---	---	---
18	ACH 290	2.52	2.05	2.68	1.52	2.10	---	---	---	---
24	Beta 7200	1.93	2.21	2.05	1.64	1.85	---	---	---	---
22	Beta 7205	1.53	1.61	1.63	1.19	1.41	---	---	---	---
28	Beta 7231	1.83	1.51	1.94	1.12	1.53	---	---	---	---
23	Beta 7250	1.30	1.26	1.38	0.94	1.16	---	---	---	---
21	Beta 7254	1.72	1.38	1.83	1.02	1.43	---	---	---	---
20	Hilleleshög 2444	4.30	4.76	4.57	3.53	4.05	---	---	---	---
27	Hilleleshög 2445	4.98	5.56	5.29	4.13	4.71	---	---	---	---
29	Hilleleshög 2446	4.73	4.06	5.02	3.01	4.02	---	---	---	---
17	SES/VdH 722	3.85	4.01	4.09	2.98	3.53	---	---	---	---
Established Mean		3.61	5.16	3.83	3.83	3.83	3.75	3.72	3.79	3.77
Exp/Trial Mean		2.68	2.94	2.84	2.18	2.51				
CV (%)		8.90	14.53							
LSD (P=0.05)		0.30	0.54							
Adjustment Factor				1.06218	0.74209					

* Established varieties used to calculate the adjustment factors

Lower disease values indicate better disease tolerance: (0)=No Disease >>>> (10)=Dead Canopy

Ratings adjusted for disease severity on the basis of the Established Varieties [4-year adjusted mean, 2018-2021]

Ratings x Adjustment Factor = Adjusted Rating

Average ratings based upon multiple rating dates and individuals

2022 Minn-Dak Official Variety Trial
Rhizoctonia Ratings
BSDF (Frankenmuth, MI) & MDFC (Wahpeton, ND)

Entry Code	Commercial & Introductory Entries	Unadjusted				Adjusted				
		BSDF	MDFC	BSDF	MDFC	2022 2 Loc.	2021 2 Loc.	2020 2 Loc.	2 Yr.	3 Yr.
8	ACH 011	3.89	3.48	3.77	4.14	3.95	3.79	3.39	3.87	3.71
6	ACH 044	4.20	3.80	4.07	4.52	4.30	4.47	4.07	4.38	4.28
3	ACH 082	4.30	3.64	4.17	4.33	4.25	4.91	4.10	4.58	4.42
1	ACH 125	4.21	3.88	4.08	4.61	4.35	3.85	---	4.10	---
5	ACH 166	3.74	3.20	3.63	3.81	3.72	3.12	---	3.42	---
11	ACH 973	4.41	4.16	4.27	4.95	4.61	3.73	3.52	4.17	3.95
4	Beta 7029	4.54	3.80	4.40	4.52	4.46	4.83	3.98	4.64	4.42
12	Beta 7068	4.43	3.36	4.29	4.00	4.15	3.51	3.17	3.83	3.61
9	Beta 7114	4.71	4.32	4.57	5.14	4.85	3.71	---	4.28	---
13	Beta 7170	3.83	2.96	3.71	3.52	3.62	3.19	---	3.40	---
2	Beta 7181	4.24	3.76	4.11	4.47	4.29	4.53	---	4.41	---
14	* Beta 7845	3.83	2.80	3.71	3.33	3.52	3.67	3.55	3.60	3.58
10	Hilleleshög 2325	3.76	3.64	3.64	4.33	3.99	3.69	3.89	3.84	3.86
15	Hilleleshög 2374	4.58	4.04	4.44	4.80	4.62	3.85	3.79	4.24	4.09
7	* SES/VdH 762	4.12	3.68	3.99	4.38	4.19	3.86	3.93	4.02	3.99
26	ACH 236	4.41	3.96	4.27	4.71	4.49	---	---	---	---
19	ACH 249	4.47	3.84	4.33	4.57	4.45	---	---	---	---
25	ACH 275	4.02	3.92	3.90	4.66	4.28	---	---	---	---
16	ACH 287	4.46	3.48	4.32	4.14	4.23	---	---	---	---
18	ACH 290	3.85	3.60	3.73	4.28	4.01	---	---	---	---
24	Beta 7200	4.86	3.40	4.71	4.04	4.38	---	---	---	---
22	Beta 7205	3.96	3.44	3.84	4.09	3.96	---	---	---	---
28	Beta 7231	4.19	3.48	4.06	4.14	4.10	---	---	---	---
23	Beta 7250	3.99	3.88	3.87	4.61	4.24	---	---	---	---
21	Beta 7254	3.90	4.08	3.78	4.85	4.32	---	---	---	---
20	Hilleleshög 2444	4.57	5.24	4.43	6.23	5.33	---	---	---	---
27	Hilleleshög 2445	4.15	3.48	4.02	4.14	4.08	---	---	---	---
29	Hilleleshög 2446	3.93	4.48	3.81	5.33	4.57	---	---	---	---
17	SES/VdH 722	4.99	5.76	4.84	6.85	5.84	---	---	---	---
Established Mean		3.98	3.24	3.85	3.85	3.85	3.77	3.74	3.81	3.79
Exp/Trial Mean		4.23	3.81	4.10	4.53	4.32				
CV (%)		15.75	18.41							
LSD (P=0.05)		NS	0.88							
Adjustment Factor				0.96938	1.18928					

* Established varieties used to calculate the adjustment factors

Lower values indicate better disease tolerance: (0)=Excellent >>>> (9)=Dead Plant

Ratings adjusted for disease severity on the basis of the Established Varieties [4-year adjusted mean, 2018-2021]

Ratings x Adjustment Factor = Adjusted Rating

Average ratings based upon multiple individual ratings

2022 Minn-Dak Official Variety Trial
Aphanomyces Ratings
Betaseed (Shakopee, MN) & Magno Seed (Glyndon, MN)

Entry Code	Commercial & Introductory Entries	Unadjusted				Adjusted				
		Shakopee	Glyndon	Shakopee	Glyndon	2022 2 Loc.	2021 1 Loc.	2020 2 Loc.	2 Yr.	3 Yr.
8	ACH 011	4.03	4.25	4.24	3.72	3.98	5.42	3.53	4.70	4.31
6	ACH 044	3.22	4.38	3.39	3.83	3.61	6.05	3.48	4.83	4.38
3	ACH 082	3.35	5.50	3.53	4.81	4.17	6.05	3.54	5.11	4.58
1	ACH 125	3.28	3.88	3.45	3.39	3.42	3.76	---	3.59	---
5	ACH 166	3.00	4.38	3.16	3.83	3.49	4.10	---	3.80	---
11	ACH 973	3.52	3.00	3.70	2.62	3.16	4.22	3.61	3.69	3.66
4	Beta 7029	3.87	3.75	4.07	3.28	3.68	4.26	3.80	3.97	3.91
12	Beta 7068	3.33	3.00	3.50	2.62	3.06	4.16	3.32	3.61	3.51
9	Beta 7114	3.25	4.00	3.42	3.50	3.46	4.12	---	3.79	---
13	Beta 7170	2.97	3.75	3.13	3.28	3.20	3.91	---	3.56	---
2	Beta 7181	3.70	5.25	3.89	4.59	4.24	4.38	---	4.31	---
14	* Beta 7845	2.77	4.13	2.92	3.61	3.26	3.54	2.67	3.40	3.16
10	Hilleshög 2325	3.68	3.88	3.87	3.39	3.63	3.68	3.69	3.66	3.67
15	Hilleshög 2374	3.48	4.13	3.66	3.61	3.64	3.97	3.78	3.81	3.80
7	* SES/VdH 762	3.78	3.75	3.98	3.28	3.63	4.07	3.71	3.85	3.80
26	ACH 236	3.80	3.75	4.00	3.28	3.64	---	---	---	---
19	ACH 249	3.23	5.50	3.40	4.81	4.11	---	---	---	---
25	ACH 275	2.83	4.13	2.98	3.61	3.30	---	---	---	---
16	ACH 287	2.68	4.38	2.82	3.83	3.33	---	---	---	---
18	ACH 290	3.03	3.00	3.19	2.62	2.91	---	---	---	---
24	Beta 7200	3.12	5.38	3.28	4.71	4.00	---	---	---	---
22	Beta 7205	3.23	3.13	3.40	2.74	3.07	---	---	---	---
28	Beta 7231	3.03	3.88	3.19	3.39	3.29	---	---	---	---
23	Beta 7250	3.38	4.25	3.56	3.72	3.64	---	---	---	---
21	Beta 7254	3.10	5.00	3.26	4.37	3.82	---	---	---	---
20	Hilleshög 2444	3.18	4.25	3.35	3.72	3.53	---	---	---	---
27	Hilleshög 2445	4.35	4.63	4.58	4.05	4.31	---	---	---	---
29	Hilleshög 2446	3.20	4.75	3.37	4.16	3.76	---	---	---	---
17	SES/VdH 722	3.75	4.38	3.95	3.83	3.89	---	---	---	---
Established Mean		3.28	3.94	3.45	3.45	3.45	3.81	3.19	3.63	3.48
Exp/Trial Mean		3.35	4.19	3.53	3.66	3.59				
CV (%)		18.81	30.80							
LSD (P=0.05)		0.74	NS							
Adjustment Factor				1.05243	0.87480					

* Established varieties used to calculate the adjustment factors

Lower values indicate better disease tolerance: (0)=Excellent >>>> (9)=Dead Plant

Ratings adjusted for disease severity on the basis of the Established Varieties [4-year adjusted mean, 2018-2021]

Ratings x Adjustment Factor = Adjusted Rating

Average ratings based upon multiple individual ratings

2022 Minn-Dak Official Variety Trial
Fusarium Ratings
ACSC (Sabin, MN) & Magno Seed (Dilworth, MN)

Entry Code	Commercial & Introductory Entries	Unadjusted		Unadjusted				
		Sabin Early	Dilworth Early	2022 2 Loc.	2021 1 Loc.	2020 1 Loc.	2 Yr.	3 Yr.
8	ACH 011	4.05	3.00	3.53	2.50	1.30	3.01	2.44
6	ACH 044	3.99	3.33	3.66	3.17	1.39	3.42	2.74
3	ACH 082	3.25	2.11	2.68	1.17	0.70	1.93	1.52
1	ACH 125	3.73	2.67	3.20	1.25	---	2.23	---
5	ACH 166	3.42	3.56	3.49	2.25	---	2.87	---
11	ACH 973	4.05	3.22	3.64	3.08	1.20	3.36	2.64
4	Beta 7029	3.95	3.00	3.48	1.33	1.51	2.40	2.11
12	Beta 7068	3.91	2.67	3.29	2.08	1.33	2.69	2.23
9	Beta 7114	3.52	2.33	2.93	2.00	---	2.46	---
13	Beta 7170	3.72	3.44	3.58	3.17	---	3.38	---
2	Beta 7181	2.86	1.44	2.15	1.25	---	1.70	---
14	* Beta 7845	4.18	3.00	3.59	4.42	2.32	4.01	3.44
10	Hilleshög 2325	5.33	4.33	4.83	7.67	3.97	6.25	5.49
15	Hilleshög 2374	6.04	5.22	5.63	8.08	3.51	6.86	5.74
7	* SES/VdH 762	5.22	5.89	5.56	8.25	4.21	6.90	6.00
26	ACH 236	3.30	2.22	2.76	---	---	---	---
19	ACH 249	3.09	1.44	2.27	---	---	---	---
25	ACH 275	3.35	2.56	2.96	---	---	---	---
16	ACH 287	4.01	4.11	4.06	---	---	---	---
18	ACH 290	4.07	3.00	3.54	---	---	---	---
24	Beta 7200	2.88	2.33	2.61	---	---	---	---
22	Beta 7205	3.59	2.22	2.91	---	---	---	---
28	Beta 7231	3.65	2.44	3.05	---	---	---	---
23	Beta 7250	3.89	3.44	3.67	---	---	---	---
21	Beta 7254	3.90	3.22	3.56	---	---	---	---
20	Hilleshög 2444	4.24	3.11	3.68	---	---	---	---
27	Hilleshög 2445	4.23	3.22	3.73	---	---	---	---
29	Hilleshög 2446	5.40	3.78	4.59	---	---	---	---
17	SES/VdH 722	3.87	3.67	3.77	---	---	---	---
Established Mean		4.70	4.45	4.57	6.34	3.26	5.45	4.72
Trial Mean		3.95	3.10	3.53				
CV (%)		10.03	20.39					
LSD (P=0.05)		0.65	1.04					

THIS IS UNADJUSTED FIELD DATA