

SASKATCHEWAN SUNFLOWER COMMITTEE

CO-OPERATIVE TRIALS

2010

TEST RESULTS

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SASKATCHEWAN SUNFLOWER COMMITTEE CO-OPERATIVE TRIALS

The Saskatchewan Sunflower Committee is organized under the authority of the Non-Profit Corporations Act of the Province of Saskatchewan. The Committee is voluntary and not organized for financial gain and declares no dividends.

The Saskatchewan Sunflower Committee was formed in 1983 to test varieties that may be suitable for growing conditions in the Province.

The Committee publishes an annual summary of test results. Varieties that are registered for production in Canada and that are tested in Saskatchewan Sunflower Committee Trials are entered in the Varieties of Grain Crops for Saskatchewan annual publication.

All sites were arranged in randomized complete block designs.

Oil content was done by Nuclear Magnetic Resonance (Bruker minispec) on samples that were dried to less than 4% moisture.

In 2010 the entries were grown in a single trial with a target plant population of 55,000 -60,000 plants per hectare (22,000 to 24,000 plants per acre). AC Sierra had a target population of 110,000 plants per hectare (45,000 plants per acre). 63A21 the check was grown at both target densities.

The trial at Tribune had damage from birds to 63A21 and AC Sierra. AC Sierra had poor seed germination and its yield data is not included in this report. Due to excess moisture Canora was seeded very late and is not included in this data set.

William May Agriculture & Agri-Food Canada, Indian Head, coordinated all tests.

The Committee would like to thank Craig Stevenson for statistical analyses.

CO-OPERATORS

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Swift Current

Melfort

Outlook**

Indian Head

Canora

Tribune

**** irrigated site approximately 50 mm of applied**

Table 1. Entries in the 2010 Saskatchewan Sunflower Committee Trials

Hybrid	Oil Type	Herbicide tolerance	Breeder	Distributor
63A21	Traditional		Pioneer Hi-Bred	Pioneer Hi-Bred
803 DMR NS	NuSun		Croplan Genetics	Croplan Genetics
306 DMR,NS	NuSun		Croplan Genetics	Croplan Genetics
3080 DMR,NS	NuSun		Croplan Genetics	Croplan Genetics
2930	NuSun		Syngenta	Syngenta
3433	NuSun		Syngenta	Syngenta
3480CI	NuSun	Clear field	Syngenta	Syngenta
7120 HO/DM	High Oleic		Syngenta	Syngenta
8N270 CLDM	NuSun	Clear field	Mycogen Seeds	Mycogen Seeds
Defender plus	NuSun		Seeds 2000	Seeds 2000
Cultivar				
AC Seirra	Traditional		AAFC	AAFC

Table 2: Performance of hybrids and cultivars averaged across 5 locations in Saskatchewan in 2010

	Grain Yield	Days to First Bloom	Maturity	Kernel moisture at Harvest	Kernel weight (g/ 1000 kernels)	Height	Lodge	Plant density		Test weight		Oil
	(kg/ha)	(days)	(days)	(%)		(cm)	(0-10)	Plant acre ⁻¹	plant m ⁻²	(g/0.5L)	(kg hl ⁻¹)	(%)
63A21 (11.1 plants m-2)	3032	73.0	117.1	18.8	52.3	161.7	0.7	46907	11.6	179.9	36.0	
AC Sierra	NA*	70.6	111.6	21.7	72.4	116.9	0.9	15237	3.8	188.4	37.7	
803 DMR NS	2395	79.6	119.9	19.7	49.1	159.0	1.5	26081	6.4	178.9	35.8	
306 DMR,NS	2766	83.6	125.4	26.9	54.6	167.2	1.3	25690	6.3	174.8	35.0	
3080 DMR,NS	2487	86.4	127.2	33.7	41.1	171.2	0.7	29387	7.3	166.0	33.2	
2930	2689	82.1	120.7	22.7	50.0	166.2	1.2	25962	6.4	175.7	35.1	
3433	2206	88.2	126.5	30.0	51.4	161.4	1.5	21680	5.4	182.8	36.6	
3480CI	2516	87.3	127.1	30.3	48.1	172.7	0.7	26973	6.7	165.1	33.0	
7120 HO/DM	2384	83.6	127.4	25.5	53.1	161.3	1.3	26846	6.6	173.2	34.6	
8N270 CLDM	2851	80.8	121.8	28.7	53.7	169.3	0.7	26506	6.5	189.5	37.9	
Defender plus	2754	82.9	120.2	26.0	57.3	166.2	0.9	24899	6.2	177.4	35.5	
63A21* (6 plants m-2)	2709	73.3	117.9	23.2	58.1	150.2	0.8	30599	7.6	175.4	35.1	
Isd0.05	676	2.5	2.2	7.5	5.5	10.1		6416	1.6	7.1		

*NA – not available

Table 3: Comparison of Multi-Year Entries in Saskatchewan

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2010
<u>Yield (kg/ha)</u>												
63A21	2030	1749	2271	2183	2392	1612	2169	2365	3485		3090	3032.0
AC Sierra										1882	1657	
Defender plus										3551		2753.8
<u>Oil (%)</u>												
63A21	50.2	45.4	45.4	49	46.1	48.4	48.6	43.7	45.1		45	
AC Sierra										47.7	48.3	
Defender plus										45.2		
<u>Maturity (Days)</u>												
63A21	111	111	117	116	114	113	128	116	111		110	117.1
AC Sierra										104	105	
Defender plus										120		120.2
<u>Bushl weight (lb/acre)</u>												
63A21		29.8	30.5	32.2	28	38.4	31.3	31.2	31.1		32.6	28.7
AC Sierra										34.4	33.5	30.1
Defender plus										34.3		28.4

Table 4: Seed Yield of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook**	Swift Current	Tribune
			(kg/ha)		
63A21 (11.1 plants m-2)	2049.0	3922.8	4840.6	2093.1	NA
AC Sierra	NA*	NA	NA	NA	NA
803 DMR NS	1044.9	3211.3	4430.4	1716.2	1572.1
306 DMR,NS	1481.6	3795.6	5052.2	1726.1	1775.3
3080 DMR,NS	1380.6	3138.4	4421.1	1563.7	1929.3
2930	1170.1	3811.6	4764.7	2034.4	1663.8
3433	1464.2	2031.0	4365.8	1269.7	1899.4
3480CI	1496.4	3672.7	4507.2	1003.1	1900.8
7120 HO/DM	1282.4	3170.3	4196.9	1393.9	1874.8
8N270 CLDM	1722.1	3712.0	5037.1	2079.4	1706.9
Defender plus	1595.2	3448.7	5343.5	1737.6	1643.9
63A21 (6 plants m-2)	1840.4	3315.4	4486.2	1971.7	NA
lsd0.05	633.2	633.2	633.2	633.2	633.2

* NA – not available

** irrigated

Table 5: Oil (%) content of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook**	Swift Current	Tribune
			(%)		
63A21 (11.1 plants m-2)					
AC Sierra					
803 DMR NS					
306 DMR,NS					
3080 DMR,NS					
2930					
3433					
3480CI					
7120 HO/DM					
8N270 CLDM					
Defender plus					
63A21 (6 plants m-2)					
lsd0.05					

**irrigated

Table 6 Test Weight of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook**	Swift Current	Tribune
			(g/0.5L)		
63A21 (11.1 plants m-2)	163.1	197.4	196.0	155.4	187.5
AC Sierra	171.9	205.8	196.8	174.2	NA*
803 DMR NS	160.3	191.5	201.7	156.7	184.1
306 DMR,NS	155.6	191.9	196.4	152.3	177.9
3080 DMR,NS	147.7	182.3	180.9	148.2	170.8
2930	156.2	192.5	196.0	154.2	179.4
3433	163.8	192.8	203.3	171.1	182.7
3480CI	145.8	183.2	182.9	144.3	169.5
7120 HO/DM	152.1	188.9	194.3	151.2	179.6
8N270 CLDM	168.3	204.0	203.8	174.6	197.0
Defender plus	157.8	196.0	196.2	155.2	182.0
63A21 (6 plants m-2)	156.0	192.8	192.2	155.9	180.2
lsd0.05	8.1	8.1	8.1	8.1	8.1
			(lb/bu)		
63A21 (11.1 plants m-2)	26.1	31.6	31.4	24.9	30.0
AC Sierra	27.5	32.9	31.5	27.9	NA
803 DMR NS	25.6	30.6	32.3	25.1	29.5
306 DMR,NS	24.9	30.7	31.4	24.4	28.5
3080 DMR,NS	23.6	29.2	29.0	23.7	27.3
2930	25.0	30.8	31.4	24.7	28.7
3433	26.2	30.9	32.5	27.4	29.2
3480CI	23.3	29.3	29.3	23.1	27.1
7120 HO/DM	24.3	30.2	31.1	24.2	28.7
8N270 CLDM	26.9	32.6	32.6	27.9	31.5
Defender plus	25.3	31.4	31.4	24.8	29.1
63A21 (6 plants m-2)	25.0	30.8	30.8	24.9	28.8

* NA – not available

** irrigated

Table 7: Kernel weight of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook*	Swift Current	Tribune
	(g/ 1000 kernels)				
63A21 (11.1 plants m-2)	82.6	45.0	49.0	27.9	57.2
AC Sierra	108.8	63.2	67.6	44.2	77.9
803 DMR NS	70.4	40.8	48.9	26.1	59.2
306 DMR,NS	81.3	44.4	53.4	31.5	62.3
3080 DMR,NS	65.1	33.9	39.9	24.1	42.6
2930	76.2	40.7	49.3	27.5	56.3
3433	77.5	43.8	46.2	30.6	58.8
3480CI	74.1	44.0	46.4	25.6	50.2
7120 HO/DM	80.5	44.9	49.4	30.8	60.1
8N270 CLDM	76.3	45.5	53.9	35.0	57.8
Defender plus	81.6	51.1	55.5	34.5	63.9
63A21 (6 plants m-2)	95.3	48.7	51.8	33.4	61.5
lsd0.05	4.8	4.8	4.8	4.8	4.8

* irrigated

Table 8. Maturity of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook**	Swift Current	Tribune
	(Days)				
63A21 (11.1 plants m-2)	117.6	124.7	117.0	108.8	117.2
AC Sierra	113.1	119.6	111.0	102.5	NA
803 DMR NS	122.4	126.0	119.1	113.5	118.5
306 DMR,NS	129.0	130.0	122.9	118.1	127.0
3080 DMR,NS	131.0	133.0	125.3	118.6	128.1
2930	121.7	126.1	121.1	113.2	121.2
3433	128.5	130.4	127.7	117.2	128.6
3480CI	129.0	133.8	127.8	118.2	126.4
7120 HO/DM	129.1	131.3	127.9	117.8	130.7
8N270 CLDM	125.1	127.7	122.6	114.0	119.7
Defender plus	123.3	126.4	119.6	114.2	117.5
63A21 (6 plants m-2)	120.0	124.8	117.1	110.0	117.4
lsd0.05	1.8	1.8	1.8	1.8	1.8

* NA – not available

** irrigated

Table 9. Days to First Bloom of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook** (Days)	Swift Current	Tribune
63A21 (11.1 plants m-2)	79.7	68.8	69.0	NA*	74.5
AC Sierra	75.5	67.5	66.9	NA	72.6
803 DMR NS	86.8	75.8	75.5	NA	80.4
306 DMR,NS	89.2	79.8	78.8	NA	86.4
3080 DMR,NS	95.5	81.7	82.1	NA	86.2
2930	89.5	77.8	77.8	NA	83.4
3433	96.4	83.0	83.9	NA	89.6
3480CI	95.4	81.3	83.9	NA	88.6
7120 HO/DM	89.7	79.8	79.1	NA	85.6
8N270 CLDM	90.5	75.7	76.9	NA	80.2
Defender plus	90.9	80.3	78.2	NA	82.0
63A21 (6 plants m-2)	81.7	68.5	68.9	NA	73.9
lsd0.05	2.4	2.4	2.4	NA	2.4

* NA – not available

** irrigated

Table 10. Plant Height of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook** (cm)	Swift Current	Tribune
63A21 (11.1 plants m-2)	150.5	163.5	171.2	NA*	NA
AC Sierra	105.9	118.9	126.0	NA	NA
803 DMR NS	144.8	162.3	169.9	NA	NA
306 DMR,NS	158.3	167.6	175.9	NA	NA
3080 DMR,NS	158.9	170.2	184.4	NA	NA
2930	155.8	166.7	176.2	NA	NA
3433	149.2	161.3	173.8	NA	NA
3480CI	162.9	170.0	185.1	NA	NA
7120 HO/DM	150.0	159.6	174.4	NA	NA
8N270 CLDM	161.1	167.3	179.6	NA	NA
Defender plus	156.3	167.3	175.2	NA	NA
63A21 (6 plants m-2)	141.2	148.4	160.9	NA	NA
lsd0.05	11.1	11.1	11.1	NA	NA

* NA – not available

** irrigated

Table 11. Plant density of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook	Swift Current	Tribune
	(plants acre ⁻¹)				
63A21 (11.1 plants m-2)	49844	36713	65615	61562	20800
AC Sierra	16994	12901	18443	24186	3661
803 DMR NS	27130	20465	34976	38486	9348
306 DMR,NS	27981	22428	30960	36953	10130
3080 DMR,NS	29624	22194	35106	46918	13094
2930	27510	23208	30419	38803	9867
3433	21721	14916	29775	34641	7345
3480CI	26575	21439	34629	38772	13451
7120 HO/DM	27022	22790	33616	37669	13133
8N270 CLDM	28584	20598	37959	32293	13096
Defender plus	24327	22181	31895	36003	10091
63A21 (6 plants m-2)	32784	23964	43898	40964	11387
Isd0.05	6930	6930	6930	6930	6930

Table 12. Kernel moisture at harvest of hybrids and cultivars at 5 locations in Saskatchewan in 2010

	Indian Head	Melfort	Outlook**	Swift Current	Tribune
	(%)				
63A21 (11.1 plants m-2)	11.4	36.5	8.5	NA*	NA
AC Sierra	12.0	37.4	15.8	NA	NA
803 DMR NS	10.7	39.3	9.1	NA	NA
306 DMR,NS	16.6	50.1	14.1	NA	NA
3080 DMR,NS	27.5	57.6	15.9	NA	NA
2930	14.1	44.2	9.8	NA	NA
3433	23.7	53.5	12.7	NA	NA
3480CI	21.3	54.8	14.8	NA	NA
7120 HO/DM	17.6	45.8	13.1	NA	NA
8N270 CLDM	18.2	50.4	17.6	NA	NA
Defender plus	15.4	49.4	13.2	NA	NA
63A21 (6 plants m-2)	13.9	44.0	11.8	NA	NA
Isd0.05	6.1	6.1	6.1	NA	NA

* NA – not available due to the harvest occurring well after the plants had matured and precipitation had rewetted the heads several times before harvest

** irrigated