

Saskatchewan Sunflower Regional Trial Report 2017

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The regional trial was conducted at 4 locations in 2017 and data from all locations is available. The locations were Indian Head, Redvers, Swift Current, and Melfort. The currently available data is presented for each site Tables 1 to 4. The commercially available hybrids are 63A21, 8N270, and Honeycomb NS. AC Sierra is an open pollinated cultivar. The hybrid Honeycomb NS (X713) was developed by Brent Hulke with USDA at Fargo ND and selected in Saskatchewan evaluation trials. A limited amount of Honeycomb NS seed will be available in 2018. The check was 63A21. The grain yield of the check ranged from 576 to 866 kg ha⁻¹ at Redvers and Melfort. In 2017 the grain yield compared to the check, 63A21 for AC Sierra was 68%, 106% for 8N270, 117% for Honeycomb NS at 11.1 plants/m², and 123% for Honeycomb NS at 8 plants/m². Grain yield was not used from Indian Head due to insect damage causing massive lodging and from Swift Current due to high variation caused by variable emergence and poor environmental conditions. Grain yields were lower at Melfort due to late seeding and poor emergence. In 2017 Honeycomb NS (11.1 plants/m²) matured in 106 days, AC Sierra matured in 107 days, 63A21 matured in 110 days and 8N270 matured in 113 days when average over the four locations. Changing the population density in Honeycomb NS from 8 plants/m² to 11.1 plants/m² did not consistently increase or decrease maturation. In addition, the kernel moisture at harvest followed a similar trend to data from 2016; kernel moisture averaged 11.7% for AC Sierra, 12.0-12.2% for Honeycomb NS (11.1 plants/m² to 8 plants/m² respectively), 14.2% for 63A21 and 16.4% for 8N270. Melfort harvest moisture followed the same trend as the other sites, but data was not used from Melfort since it was harvested before any of the lines reached a seed moisture below 20%. Kernel moisture at harvest is the best indicator we have of earliness and suitability of the hybrid for production in Saskatchewan. Producers will be able to harvest Honeycomb NS earlier in the fall than the current check, 63A21. The tables for the varieties of grain crops are shown after Table 4. I would like to change the check to 8N270. Seed of 63A21 will no longer be available and 8N270 is the hybrid that has been in the trial the longest and has a consistent supply of seed for sunflower growers.

Table 1. Saskatchewan Sunflower Hybrid Trial at Melfort in 2017

	Plant Density /m ²	Plant Density /acre	First Bloom days	Height cm	Lodging 0-10	Maturity days	Harv Moisture %	Grain Yield kg/ha	Grain Yield lbs/ac	Kernel Weight g/1000k	Test Weight g/0.5L
63A21 (11.1 plants/m ²)	2.6 c	10557 c	66 c	152.0 a	1.0 -	108.8 b	45.47 b	576.65 ab	513.40 ab	46.71 a	191.78 b
AC Sierra (11.1 plants/m ²)	2.0 c	8149 c	62 d	112.5 b	1.0 -	105.3 c	38.38 b	427.91 b	380.98 b	46.53 a	200.94 a
8N 270CL DM (11.1 plants/m ²)	2.5 c	10001 c	73 a	160.5 a	1.0 -	111.5 a	54.51 a	453.08 ab	403.39 ab	35.56 b	180.61 c
Honeycomb NS (X713) (8 plants/m ²)	4.5 b	18057 b	70 b	162.0 a	1.0 -	104.8 c	41.50 b	645.29 a	574.52 a	35.51 b	188.21 b
Honeycomb NS (X713) (11.1 plants/m ²)	6.5 a	26484 a	69 b	161.3 a	1.0 -	102.5 d	41.26 b	510.29 ab	454.32 ab	33.93 b	186.86 b
LSD (P=.05)	1.08	4367.9	2.2	10.72		2.13	5.401-6.695	144.941	129.05	6.648	5.5216-5.7382
CV	19.35	19.35	2.07	4.65		1.3	2.19t	18.0	18.0	10.88	0.96t
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001	1.0000	0.0001	0.0001	0.0375	0.0375	0.002	0.0001

Table 2. Saskatchewan Sunflower Hybrid Trial at Indian Head in 2017

	Plant Density /m ²	Plant Density /acre	First Bloom days	Height cm	Lodging 0-10	Maturity days	Harv Moisture %	Grain Yield* kg/ha	Grain Yield* lbs/ac	Kernel Weight g/1000k	Test Weight g/0.5L
63A21 (11.1 plants/m ²)	7.5 a	30242 a	70 b	131.9 a	4.5 bc	110.0 ab	12.86 -	1374.41 a	1223.2 a	53.83 bc	198.61 c
AC Sierra (11.1 plants/m ²)	6.4 a	25711 a	69 b	106.7 b	3.5 c	108.0 bc	12.87 -	666.63 b	593.3 b	66.45 ab	217.19 a
8N 270CL DM (11.1 plants/m ²)	7.1 a	28714 a	79 a	132.6 a	6 ab	112.5 a	17.86 -	479.79 bc	426.74 bc	45.35 c	207.82 b
Honeycomb NS (X713) (8 plants/m ²)	5 b	20337 b	71 b	135.3 a	7.5 a	106.0 bc	12.95 -	369.81 bc	329.13 bc	74.54 a	200.27 c
Honeycomb NS (X713) (11.1 plants/m ²)	7.6 a	30769 a	71 b	133.4 a	7.8 a	105.0 c	13.67 -	193.43 c	172.15 c	54.26 bc	204.37 bc
LSD (P=.05)	1.04	4217.4	2.10	7.06	1.69	3.38	4.533-4.648	323.702	288.1	11.51	5.9742-6.1565
CV	10.08	10.08	1.89	3.58	18.73	2.02	6.79t	34.07	34.07	12.68	0.95t
Treatment Prob(F)	0.0009	0.0009	0.0001	0.0001	0.0005	0.0026	0.1451	0.0001	0.0001	0.0010	0.0002

* Grain yield will not be used.

Table 3. Saskatchewan Sunflower Hybrid Trial at Redvers in 2017

	Plant Density /m ²	Plant Density /acre	First Bloom days	Height cm	Lodging 0-10	Maturity days	Harv Moisture %	Grain Yield kg/ha	Grain Yield lbs/ac	Kernel Weight g/1000k	Test Weight g/0.5L
63A21 (11.1 plants/m ²)	6.6 a	26513 a	62 bc	147.3 c	2.00 -	107.0 b	10.60 b	866.56 a	771.52 a	47.53 a	180.65 ab
AC Sierra (11.1 plants/m ²)	7.3 a	29560 a	61 c	133.3 d	2.00 -	104.8 b	8.71 bc	558.06 b	496.85 b	48.96 a	191.96 a
8N 270CL DM (11.1 plants/m ²)	7.1 a	28847 a	67 a	176.5 a	2.13 -	112.8 a	12.79 a	1082.80 a	964.05 a	40.35 b	174.75 b
Honeycomb NS (X713) (8 plants/m ²)	4.7 b	18929 b	63 b	160.8 b	1.50 -	105.3 b	8.18 c	1137.26 a	1012.5 a	54.57 a	183.98 ab
Honeycomb NS (X713) (11.1 plants/m ²)	6.6 a	26773 a	63 b	163.4 b	1.50 -	106.3 b	9.21 bc	1183.71 a	1053.9 a	49.33 a	183.52 ab
LSD (P=.05)	1.02	4128.6	1.3	10.00	0.789	1.92	1.580-2.024	305.382	271.9	6.143	9.9838-10.1795
CV	10.26	10.26	1.29	4.16	28.07	1.16	4.33t	20.53	20.53	8.28	1.78t
Treatment Prob(F)	0.0009	0.0009	0.0001	0.0001	0.2981	0.0001	0.0009	0.0043	0.0043	0.005	0.0370

Table 4. Saskatchewan Sunflower Hybrid Trial at Swift Current in 2017

	Plant Density /m ²	Plant Density /acre	First Bloom days	Height cm	Lodging 0-10	Maturity days	Harv Moisture %	Grain Yield* kg/ha	Grain Yield* lbs/ac	Kernel Weight g/1000k	Test Weight g/0.5L
63A21 (11.1 plants/m ²)	5.3 -	21377 -	58 c	86.0 b	0.8 -	116.3 -	19.331 -	2315.35 -	2060.7 -	53.61 -	178.36 -
AC Sierra (11.1 plants/m ²)	4.4 -	17948 -	57 d	72.1 c	2.0 -	113.0 -	13.692 -	1289.20 -	1147.4 -	45.78 -	188.63 -
8N 270CL DM (11.1 plants/m ²)	4.3 -	17545 -	64 a	104.8 a	1.5 -	116.3 -	18.839 -	2002.98 -	1782.7 -	48.61 -	189.50 -
Honeycomb NS (X713) (8 plants/m ²)	2.9 -	11697 -	63 ab	98.3 ab	1.3 -	111.8 -	15.762 -	1618.52 -	1440.5 -	53.17 -	177.94 -
Honeycomb NS (X713) (11.1 plants/m ²)	3.9 -	15730 -	62 b	102.0 a	1.5 -	110.8 -	13.266 -	1990.91 -	1771.9 -	53.08 -	188.86 -
LSD (P=.05)	1.59	6432.79	1.30	12.82	0.92	3.68	5.1683-5.4068	769.213	684.000	14.61	21.8195-22.454
CV	24.77	24.77	1.38	8.99	42.76	2.10	7.08t	27.08	27.08	18.65	0.5294t
Treatment Prob(F)	0.0703	0.0703	0.0001	0.0007	0.1183	0.0183	0.0828	0.0965	0.0965	0.7090	0.6146

* Grain yield will not be used.