



Introduction

In ten short years sunflowers have become an important crop in eastern Colorado with acreage surpassing a record 300,000 acres in 1999 and a crop value of over \$30 million. Statewide, sunflowers for oil accounted for over \$17 million and confection sunflower production was valued at \$13 million. Colorado acreage in 2000 planted to sunflowers is estimated to be 175,000 acres and approximately \$2.3 million was spent by Colorado sunflower producers on hybrid seed to plant this acreage. To assist Colorado sunflower producers to make the best hybrid sunflower seed decision, CSU personnel evaluate commercial sunflower hybrids at different locations in northeastern Colorado.

The results of our 2000 dryland sunflower oil and confection trials at Akron, Cheyenne Wells, and Wray are shown below. The Haxtun dryland trial was lost to poor emergence resulting from dry planting conditions and followed by mid-summer drought. The 2000 irrigated sunflower trial was moved from Bethune to four miles north of Burlington this year. The two locations are approximately 15 miles apart so the Bethune trial name was kept and results are averaged over two and three years.

A randomized complete block design with three replicates was used for all trials. The center two rows of four row plots (30" spacing between rows and 40' long) were harvested for grain yield. Oil hybrids were seeded at 19,000 seeds/acre under dryland conditions and at 24,000 seeds/acre under irrigation. Confection hybrids were seeded at 15,000 seeds/acre under dryland conditions and at 17,000 seeds/acre under irrigation. Seed yields are reported in pounds per acre adjusted to 10% moisture content. The least significant difference (LSD) value, $\alpha=0.30$, is reported for yield. Oil content has been incorporated into performance table results and confection seed size is provided in a table below each performance results table.

Dryland sunflower oil performance at Akron* in 2000

Hybrid	Yield	Test Weight	Plant Height**	Density	Lodging	Oil
-	lb/ac	bu/ac	in	plants/ac	%	%
Croplan CL385 NS	1847	21.4	35	11663	1	36.59
Interstate IS X74066	1664	20.5	39	11007	1	35.97
Mycogen 8468	1607	23.5	38	11363	0	36.55

Garst IS 4340	1457	20.9	36	12310	0	37.65
Triumph 652	1450	28.7	44	11455	0	36.83
Garst IS 6767	1446	24.3	43	12550	1	35.27
Garst Hysun 450	1419	24.4	33	12261	1	35.97
Pioneer brand 63M80	1331	23.2	42	11869	2	37.26
Mycogen 8377 NS	1323	24.6	45	12500	0	37.12
Triumph 562	1302	20.9	42	9941	2	35.80
Pioneer brand 63A70	1295	23.2	48	10818	2	38.55
DEKALB DK3900	1274	25.0	36	12155	0	37.30
Croplan CL345 NS	1242	24.8	46	11911	2	35.92
Pioneer brand 63M91	1205	25.6	44	12460	1	37.05
Interstate IS X74091	1203	22.7	38	13893	1	35.59
Garst IS 4049	1078	24.0	44	12813	0	36.77
DEKALB DKF31-01 NS	1036	26.3	46	12182	1	35.87
Pioneer brand 63A21	1028	25.3	44	14130	2	35.50
DEKALB DKF36-40 NS	1005	24.6	43	12115	5	37.02
Average	1327	23.9	41	12073	1	36.56
CV%	22.8	-	-	-	-	-
LSD(0.30)	259.7	-	-	-	-	-

*Trial conducted on Jason Shook farm; seeded 6/24 and harvested 10/18.

**Plant height to top of crook at maturity.

Dryland sunflower confection performance at Akron* in 2000

Hybrid	Yield	Grain Moisture	Test Weight	Plant Height	Density	Lodging
-	lb/ac	%	bu/ac	in	plants/ac	%
Sigco Sun EXP3993	1842	9.2	14.9	48	8943	3
Pioneer brand 63C40	1568	8.7	19.2	48	10499	2
Triumph 765C	1492	8.7	18.8	41	12211	2
Triumph 766CRT	1473	9.1	17.2	41	8969	4
Seeds 2000 X3247	1471	8.9	19.0	42	10235	0
Seeds 2000 X3988	1396	9.1	18.1	42	10142	1
Red River RRC 2582	1364	8.9	19.9	39	10696	0
Sigco Sun EXP3228	1276	8.8	19.3	42	9254	2

Agway Exp. 001	1259	9.3	16.6	43	9809	2
Sigco Sun SS-62	1181	8.4	19.3	48	11103	1
Red River RRC 2213	1176	8.7	18.3	47	11189	1
Red River RRC 2413	1126	8.8	18.0	42	11136	1
Average	1385	8.9	18.2	44	10349	2
CV%	18.6	-	-	-	-	-
LSD(0.30)	223.7	-	-	-	-	-

*Trial conducted on Jason Shook farm; seeded 6/24 and harvested 10/18.

Dryland sunflower confection at Akron in 2000, percent by seed size screen size.

Hybrid	Above 22/64	22/64 To 20/64	19/64 To 18/64	17/64 To 16/64	Below 16/64
Agway Exp. 001	32.3	27.8	22.0	11.6	6.3
Pioneer brand 63C40	16.0	33.2	29.0	13.6	8.2
Red River RRC 2582	18.6	26.3	24.6	16.6	13.9
Red River RRC 2413	20.2	22.3	25.9	20.0	11.5
Red River RRC 2213	14.7	25.0	25.6	21.1	13.2
Seeds 2000 X3247	20.6	29.8	27.2	14.7	8.0
Seeds 2000 X3988	15.2	28.8	30.1	17.1	8.7
Sigco Sun EXP3228	19.0	24.9	25.9	17.7	12.4
Sigco Sun EXP3993	14.8	20.9	29.2	21.1	13.3
Sigco Sun SS-62	7.5	17.3	26.1	28.7	20.4
Triumph 765C	20.6	29.1	24.2	14.6	11.3
Triumph 766CRT	10.4	28.2	30.3	21.1	9.6

Dryland sunflower oil performance at Cheyenne Wells* in 2000

Hybrid	Yield	Test Weight	Plant Height**	Density	Lodging	Oil
-	lb/ac	bu/ac	in	plants/ac	%	%
Seeds 2000 Bronco	1213	28.9	41	10864	7	39.20
Interstate IS X74091	1202	28.5	51	9671	13	38.73
Garst IS 4049	1191	28.8	56	12385	2	40.14

Pioneer brand 63M91	1141	28.6	48	10549	5	40.18
Triumph 562	1123	29.4	55	9962	6	39.63
Novartis NK brand 278	1113	27.1	48	12173	17	37.46
Garst Hysun 450	1105	28.6	41	11989	6	41.64
Interstate IS X74066	1089	27.7	50	9559	5	39.22
Novartis NK brand T46-R9	1088	28.3	51	10953	16	38.25
Kaystar 9404	1065	29.9	48	10606	6	37.58
Garst IS 4340	1047	28.7	46	10965	7	40.93
Croplan CL385 NS	1041	28.8	39	11995	10	39.37
Mycogen Cavalry	1036	30.5	52	10857	7	42.83
Interstate IS K41978	1036	27.0	54	11268	13	37.82
Pioneer brand 63M80	1035	28.3	51	11845	3	40.04
Seeds 2000 Mustang	975	29.0	54	12456	10	37.80
Pioneer brand 63A70	964	28.1	47	10662	12	41.28
Garst IS 6767	927	30.4	46	11017	9	39.64
DEKALB DK3900	923	29.2	46	10894	24	39.83
Kaystar 9501	902	27.6	52	11789	13	38.27
Seeds 2000 Maverick	891	28.5	47	10395	13	37.21
DEKALB DKF36-40 NS	852	29.2	45	10730	5	37.68
DEKALB DKF29-90	844	28.9	45	10323	14	41.32
Mycogen 8372	823	29.8	42	11758	14	41.50
Pioneer brand 63A21	822	27.4	35	10755	3	36.95
Triumph 540	801	28.2	46	11681	13	39.68
DEKALB DKF31-01 NS	726	28.6	53	11218	8	38.18
Average	999	28.7	48	11086	10	39.35
CV%	17.7	-	-	-	-	-
LSD(0.30)	151.2	-	-	-	-	-

*Trial conducted on Dennis Campbell farm; seeded 6/6 and harvested 10/17.

**Plant height to top of crook at maturity.

Dryland sunflower confection performance at Cheyenne Wells* in 2000

Hybrid	Yield	Grain Moisture	Test Weight	Plant Height	Density	Lodging
-	lb/ac	%	bu/ac	in	plants/ac	%
Sigco Sun EXP3993	1519	6.9	19.8	53	7006	6

Triumph 766CRT	1330	7.4	16.6	45	10025	5
Triumph 765C	1285	7.3	21.8	52	8419	3
Red River RRC 2213	1234	7.5	19.3	51	8901	3
Sigco Sun EXP3228	1193	7.3	17.3	44	9204	2
Red River RRC 2582	1153	7.5	18.3	48	8642	5
Sigco Sun SS-62	1110	7.4	18.9	53	9743	5
Pioneer brand 63C40	1031	7.4	19.7	44	7198	8
Red River RRC 2413	950	7.3	18.1	48	9654	5
Average	1201	7.3	18.9	49	8755	5
CV%	21.2	-	-	-	-	-
LSD(0.30)	223.1	-	-	-	-	-

*Trial conducted on Dennis Campbell farm; seeded 6/6 and harvested 10/17.

Dryland sunflower confection at Cheyenne Wells in 2000, percent by seed size screen size.

Hybrid	Above 22/64	22/64 To 20/64	19/64 To 18/64	17/64 To 16/64	Below 16/64
Pioneer brand 63C40	28.4	24.1	24.4	13.9	9.2
Red River RRC 2582	21.8	22.1	26.8	18.9	10.2
Red River RRC 2213	19.6	36.0	25.7	12.4	6.1
Red River RRC 2413	12.6	27.9	28.1	18.8	12.7
Sigco Sun EXP3228	17.4	25.6	26.2	16.7	14.0
Sigco Sun EXP3993	18.3	28.5	22.1	20.4	10.4
Sigco Sun SS-62	17.5	23.2	26.7	18.6	13.8
Triumph 765C	23.5	31.0	25.4	13.2	7.0
Triumph 766CRT	20.6	26.7	31.0	16.4	5.2

Dryland sunflower oil performance at Wray* in 2000

Hybrid	Yield	Test Weight	Plant Height**	Density	Lodging	Oil
-	lb/ac	bu/ac	in	plants/ac	%	%
Mycogen 8377 NS	1448	24.2	53	9983	2	39.64
DEKALB DK3900	1336	28.4	44	11359	5	38.66

Triumph 652	1322	29.2	52	11309	0	38.93
DEKALB DKF31-01 NS	1305	24.2	53	11417	0	36.53
Pioneer brand 63M80	1267	26.8	51	10896	2	39.22
Pioneer brand 63M91	1266	25.1	49	11676	1	39.59
Pioneer brand 63A70	1234	25.0	54	12318	3	38.75
Interstate IS X74066	1217	25.4	46	12274	1	38.40
Kaystar 9501	1163	27.7	51	12173	3	37.12
Garst IS 4340	1101	27.5	49	12975	4	39.71
Garst IS 6767	1067	27.1	51	11041	2	36.71
Mycogen 8468	1058	26.4	42	13224	17	38.32
Interstate IS X74091	1057	28.0	46	11920	7	38.42
DEKALB DKF29-90	1027	27.1	51	11600	1	38.63
Triumph 562	994	26.9	59	11191	3	38.92
Garst Hysun 450	978	25.0	38	11037	4	38.74
Kaystar 9404	973	21.1	53	14574	0	37.15
DEKALB DKF36-40 NS	959	28.5	55	13019	2	36.79
Pioneer brand 63A21	953	25.1	49	11862	8	37.09
Garst IS 4049	935	25.5	53	13524	2	38.54
Average	1133	26.2	50	11969	3	38.29
CV%	19.1	-	-	-	-	-
LSD(0.30)	186.1	-	-	-	-	-

*Trial conducted on Jim Roberts farm; seeded 6/21 and harvested 10/20.

**Plant height to top of crook at maturity.

Dryland sunflower confection performance at Wray* in 2000

Hybrid	Yield	Grain Moisture	Test Weight	Plant Height	Density	Lodging
-	lb/ac	%	bu/ac	in	plants/ac	%
Triumph 766CRT	1254	9.1	22.2	51	9537	4
Interstate IS 8048	1175	9.9	22.4	52	9404	2
Triumph 765C	1061	9.6	21.3	50	10760	2
Pioneer brand 63C40	1010	9.0	22.2	56	9851	3
Red River RRC 2213	1001	9.7	21.6	55	11902	1
Red River RRC 2413	835	9.1	22.4	46	10822	1

Red River RRC 2582	707	9.8	22.7	49	10811	1
Average	1006	9.5	22.1	51	10441	2
CV%	17.7	-	-	-	-	-
LSD(0.30)	158.0	-	-	-	-	-

*Trial conducted on Jim Roberts farm; seeded 6/21 and harvested 10/20.

Dryland sunflower confection at Wray in 2000, percent by seed size screen size.

Hybrid	Above 22/64	22/64 To 20/64	19/64 To 18/64	17/64 To 16/64	Below 16/64
Interstate IS 8048	7.1	23.3	30.3	24.6	14.7
Pioneer brand 63C40	5.4	19.5	33.0	27.4	14.8
Red River RRC 2582	2.7	13.9	28.6	28.0	26.7
Red River RRC 2213	6.2	12.3	28.7	35.3	19.2
Red River RRC 2413	5.2	14.7	28.8	30.7	20.7
Triumph 765C	10.7	18.3	29.8	28.1	13.0
Triumph 766CRT	2.1	10.3	24.6	38.4	24.1

Irrigated sunflower oil performance at Bethune* in 2000

Hybrid	Yield	Test Weight	Plant Height**	Density	Lodging	Oil
-	lb/ac	bu/ac	in	plants/ac	%	%
Mycogen Cavalry	2351	25.3	58	13489	4	39.03
Pioneer brand 63M91	2136	27.3	60	12563	1	38.36
Kaystar 9501	1987	28.6	63	12815	9	33.84
Kaystar 9404	1983	26.2	60	13243	8	37.74
Garst IS 4049	1958	28.9	62	13178	9	38.77
DEKALB DK3900	1948	27.9	53	13113	9	38.58
Garst IS 6767	1929	26.8	60	13699	7	37.28
Interstate IS X74091	1865	25.1	56	12776	10	38.91
Mycogen 8488 NS	1855	28.2	61	12671	8	39.34
DEKALB DKF36-40 NS	1847	26.4	59	13422	4	37.33
Novartis NK brand 278	1769	22.8	56	15171	6	37.41
DEKALB DKF29-90	1763	29.5	56	13497	7	41.65

Novartis NK brand T46-R9	1753	28.8	58	14141	12	37.03
Interstate IS X74066	1730	27.6	57	12500	8	39.38
Triumph TRX9443	1714	26.9	60	11714	7	39.66
Triumph 652	1600	27.7	59	14303	16	37.17
Pioneer brand 63M80	1592	24.3	55	13730	3	40.14
Garst Hysun 450	1587	27.0	52	12893	17	38.81
Triumph 545A	1584	27.7	60	14282	13	41.57
Seeds 2000 Mustang	1544	29.2	58	14188	25	38.33
Triumph 562	1524	28.8	64	13137	9	39.54
Pioneer brand 63A70	1504	27.7	54	12270	15	41.11
DEKALB EX9918 NS	1492	25.0	57	14101	13	37.65
DEKALB EX9915 NS	1491	29.3	56	14063	7	38.05
DEKALB DK3872 NS	1456	24.2	58	12959	11	38.73
DEKALB DKF31-01 NS	1452	26.7	59	13097	6	37.36
Interstate IS K41978	1442	24.1	61	13056	12	41.17
DEKALB EX9910 NS	1420	25.3	56	15642	13	38.63
DEKALB EX9917 NS	1405	28.6	63	12563	11	38.46
Garst IS 4340	1373	30.6	51	13573	1	38.13
Seeds 2000 Maverick	1370	25.5	60	13141	24	37.31
Seeds 2000 Bronco	1126	29.2	51	12686	13	39.32
Pioneer brand 63A21	1034	26.0	40	11349	15	36.79
Average	1654	27.1	57	13304	10	38.6
CV%	18.2	-	-	-	-	-
LSD(0.30)	256.8	-	-	-	-	-

*Trial conducted on Dale Hansen farm; seeded 5/30 and harvested 10/11. Trial irrigated two times.

**Plant height to top of crook at maturity.

Irrigated sunflower confection performance at Bethune* in 2000

Hybrid	Yield	Grain Moisture	Test Weight	Plant Height	Density	Lodging
-	lb/ac	%	bu/ac	in	plants/ac	%
Sigco Sun EXP3994	2302	6.6	20.0	68	10300	4
Sigco Sun EXP3993	2229	7.8	18.4	62	10344	6
Triumph TRX0453CRT	2029	7.8	18.9	64	9569	7

Interstate IS 8048	1996	7.4	20.9	62	10666	14
Triumph 766CRT	1926	7.2	18.4	59	8523	19
Red River RRC 2213	1910	7.4	19.8	56	15088	15
Seeds 2000 X3988	1902	7.6	20.8	62	9740	7
Red River RRC 2582	1822	7.7	19.7	61	9492	9
Triumph TRX0451CRT	1813	7.5	20.3	63	13719	9
Triumph 765C	1809	7.5	18.5	59	12985	13
Pioneer brand 63C40	1781	7.3	20.4	58	11572	9
Sigco Sun EXP3228	1755	7.3	21.9	60	14962	7
Agway Exp. 001	1720	7.5	20.6	63	13352	5
Sigco Sun SS-62	1657	7.5	18.4	53	10547	5
Seeds 2000 X3247	1561	7.4	21.7	58	11966	13
Red River RRC 2413	1335	7.3	19.8	51	12406	8
Average	1924	7.4	19.9	60	11889	9
CV%	24.3	-	-	-	-	-
LSD(0.30)	403.2	-	-	-	-	-

*Trial conducted on Dale Hansen farm; seeded 5/30 and harvested 10/11. Trial irrigated two times.
Irrigated sunflower confection at Bethune in 2000, percent by seed size screen size.

Hybrid	Above 22/64	22/64 To 20/64	19/64 To 18/64	17/64 To 16/64	Below 16/64
Agway Exp. 001	24.8	29.1	24.9	12.4	8.5
Interstate IS 8048	26.1	28.8	21.3	13.8	9.5
Pioneer brand 63C40	13.8	39.6	27.1	12.0	7.5
Red River RRC 2213	16.1	29.3	23.8	13.8	16.6
Red River RRC 2413	20.8	32.0	23.5	9.9	6.1
Red River RRC 2582	25.4	34.0	21.4	7.6	5.1
Seeds 2000 X3247	21.3	28.3	21.3	16.1	12.8
Seeds 2000 X3988	17.0	37.4	26.2	11.4	7.7
Sigco Sun EXP3228	14.4	24.2	28.5	20.3	12.6
Sigco Sun EXP3993	15.7	21.0	28.5	24.4	10.3
Sigco Sun EXP3994	23.5	22.0	16.3	23.2	10.1
Sigco Sun SS-62	13.4	31.5	22.7	22.8	9.6

Triumph 765C	25.9	30.8	12.3	19.1	6.1
Triumph 766CRT	31.5	19.7	10.7	19.8	12.5
Triumph TRX0451CRT	10.2	29.7	32.0	11.1	6.7
Triumph TRX0453CRT	32.4	31.0	21.1	9.3	6.0

