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1997 Colorado Sunflower Performance Trials

Agricultural Experiment Station

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KNOW YOUR SUNFLOWER IMPROVEMENT TEAM

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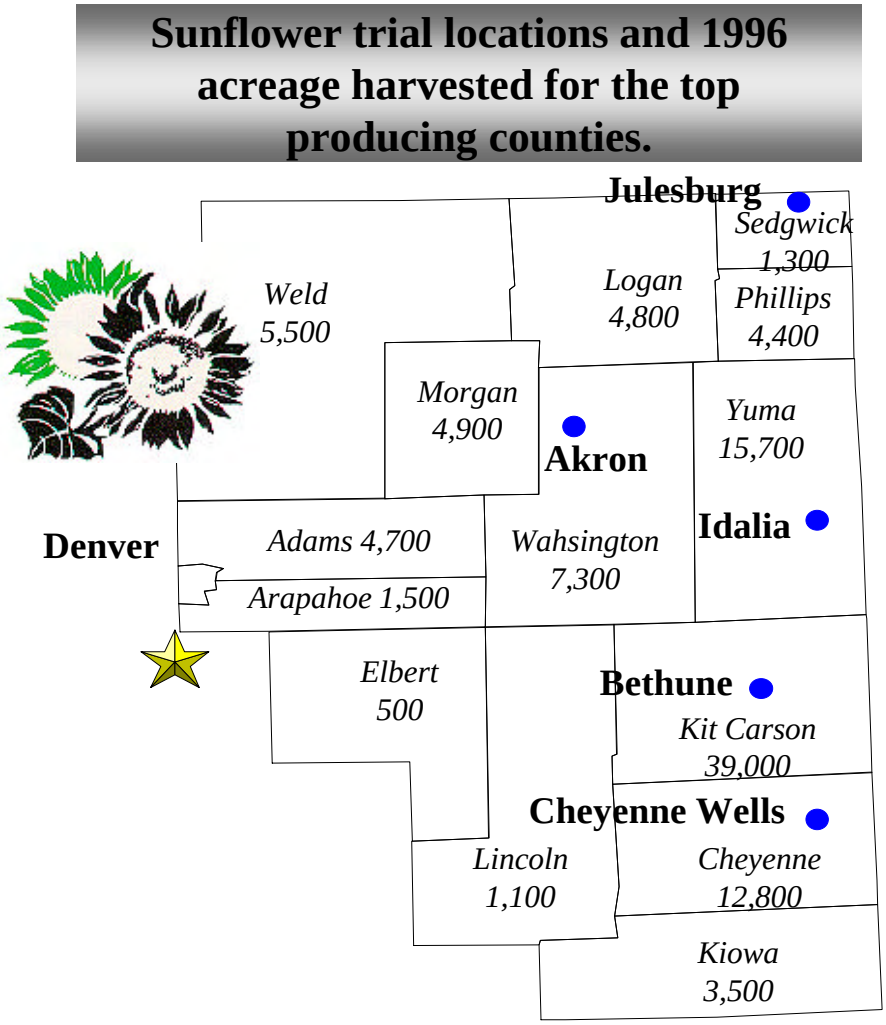

ACKNOWLEDGMENTS

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TABLE OF CONTENTS

1997 COLORADO SUNFLOWER PERFORMANCE TRIALS

Introduction

Sunflower has become an important crop in Colorado. Production rose from almost nothing in 1990 to over 126 million pounds in 1996, valued at nearly $17 million. Confection sunflowers accounted for nearly $10 million in farm receipts in 1996, and sunflower for oil totalled nearly $7 million in sales. Colorado's sunflower acreage is highest in Kit Carson, Yuma, and Cheyenne counties. The growth in Colorado sunflower acreage signifies a shift away from the predominant winter wheat/fallow cropping system to a wheat/spring crop/fallow system. Colorado State University's cropping systems research and superlative extension education in the Golden Plains area have influenced this swing toward sunflowers and other spring planted crops.

Hybrid seed is used to plant all sunflower acreage in Colorado at a cost of approximately $1.52 million. Many commercial hybrids are available to our producers. To help our sunflower growers make better hybrid decisions, CSU personnel evaluate commercial sunflower hybrids at different locations in northeastern Colorado. These trials are the only source of unbiased hybrid performance information for Colorado sunflower growers. Participation by the seed companies in the state trials is voluntary. Commercial companies were given the opportunity to enter one or more hybrids at any location. Reference to commercial companies or hybrids is made with the understanding that no discrimination is intended and no endorsement is implied by Colorado State University.

Colorado sunflower performance trials are now planted annually at four dryland locations and one irrigated location. At each trial location there are separate trials for oil and for confection hybrids. In 1997, the four dryland locations were Akron, Idalia, Julesburg, and Cheyenne Wells. The irrigated location was Bethune. The trials at Cheyenne Wells were completely destroyed by hail in July 1997.

A randomized complete block design with four 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.

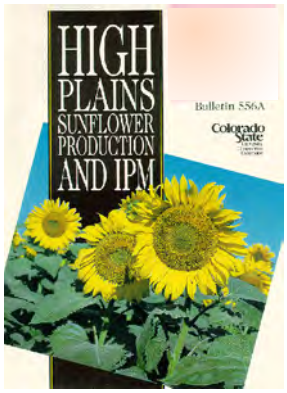
In addition to seed yields (reported in pounds per acre adjusted to 10% moisture content), test weight, moisture at harvest, plant height, lodging, plants per acre (density), oil content (for oil hybrids), and seed size (for confection hybrids) are also reported. The least significant difference (LSD) value, alpha=0.30, is reported for yield. Oil content was determined by Triumph Seed Co., Inc. using NMR analysis from bulked samples. Oil content is expressed on a 10% moisture basis.

Growing degree days (GDD) and precipitation were favorable for sunflower production in 1997. For northeastern Colorado in general, rainfall in 1997 was similar to long-term average rainfall totals and well-distributed. Trials were seeded between June 2nd and June 19th. GDD's were generally near to the long-term average GDD. Hail was not as frequent in 1997 as in 1996 but did result in the loss of the Cheyenne Wells trials.

Red leaf rust was evident during the growing season, with small, localized pockets experiencing severe outbreaks. Most oil hybrids continue to carry good resistance, but most confection types show varying degrees of rust susceptibility.

Sunflower head moth numbers were at record levels during 1997 with seed weevil numbers somewhat reduced from prior years. Spraying generally controlled seed weevil outbreaks. Numbers of sunflower stem weevil continue to increase.

Later than normal killing frost meant that frost was not a yield constraint. All CSU plots were harvested before the October 25th blizzard.



Information regarding sunflower production practices and pest control can be obtained from the following source: "High Plains Sunflower Production and IPM," Bulletin No. 556A, Colorado State University Cooperative Extension, Fort Collins, CO 80523.

Table 1. Colorado Hybrid Cultural Conditions in 1997

	Akron	Bethune	Idalia	Julesburg
Soil Type	Patner Loam	Kieth Silt Loam	Kieth Silt Loam	Rago Loam
Previous Crop	Wheat	Corn	Wheat	Wheat
Fertilization				
N acre^{-1}	0	40	0	65
P_2O_5 acre^{-1}	0	20	0	0
Zn acre^{-1}	0	.5	0	0
Herbicide	Roundup Sonalan	Sonalan Poast	Roundup	Treflan
Insecticide	None	Lorsban	Asona Parathon	None
Irrigation	None	Furrow	None	None

Table 2. Dryland Sunflower Oil Performance at Akron in 1997[1]

Hybrid	Yield	Test Weight	Plant Height	Density	Bloom[2]	Oil
	lb/ac	bu/ac	in	plants/ac	date	%
Cargill SF187	1881	22.7	43	17680	232	42.6
Triumph 573	1826	23.1	55	17900	233	43.8
Triumph 568	1802	24.2	48	16241	232	42.4
AgriPro AP 4193	1767	26.2	45	14295	233	41.8
DEKALB DK3790	1686	25.7	46	16561	229	46.5
Pioneer brand 63A51 (HO)	1676	24.5	45	18853	229	44.4
Pioneer brand 6338	1672	26.0	51	17492	232	43.6
Cargill RIGASOL	1664	24.9	53	18091	230	43.6
Pioneer brand XF468	1657	25.1	48	17832	232	42.3
AgriPro AP 3470	1652	25.0	42	16361	231	43.5
Interstate IS EXP13558	1642	24.6	52	17426	231	45.3
Pioneer brand 6472 (HO)	1599	24.6	59	16326	233	45.2
Cargill X6007	1597	25.2	42	18581	231	43.1
Cargill X6005	1583	25.4	42	18651	234	42.4
Interstate IS 6767	1572	25.4	51	17492	231	40.9
Pioneer brand 6451	1563	24.1	44	17407	232	44.1
Cargill SF128	1554	25.9	44	17703	230	42.3
DEKALB DK3868	1513	25.4	41	19073	230	42.6
DEKALB DK3875	1498	23.3	43	17933	231	42.5
Cargill SF177	1483	25.6	51	17560	232	42.8
Cargill X1221	1481	25.0	41	16673	233	43.2
DEKALB EXP6902	1456	24.0	42	17892	233	42.6
Pioneer brand XF4218 (HO)	1431	24.0	51	17628	232	42.0
Triumph 562	1420	23.1	43	16358	231	40.9
DEKALB EXP6861	1414	24.3	41	18803	231	42.1
DEKALB DK3881	1391	24.1	43	18039	231	44.7
AgriPro AP 3430	1289	24.3	52	15694	232	43.4
Pioneer brand 63A81	1288	22.4	42	16977	233	40.1
Interstate IS EXP22208	1236	24.3	49	17816	234	42.9
DEKALB DK3904	1229	25.2	44	17617	232	43.1
Cargill SF270	1116	25.2	34	17561	228	40.2
Average	**1537**	**24.6**	**46**	**17436**	**231**	**42.9**
CV%	19.6					
$LSD_{(.3)}$	222					

[1]Trial conducted on the Central Great Plains Research Center; seeded 6/16 and harvested 10/11. Negligible lodging.
[2]Julian date (231=8/19).

Table 3. Average Dryland Sunflower Oil Performance at Akron, 1996-97

Hybrid	Yield	Test Weight
	lb/ac	bu/ac
DEKALB EXP6861	1893	24.5
Cargill SF187	1871	24.7
Cargill SF128	1837	26.6
Cargill SF270	1812	24.7
DEKALB DK3904	1768	23.7
DEKALB DK3868	1759	24.8
Cargill SF177	1753	25.4
Pioneer brand 6338	1701	26.5
DEKALB EXP6902	1698	24.5
Interstate IS 6767	1677	24.0
AgriPro AP 3430	1656	24.2
DEKALB DK3790	1613	25.4
DEKALB DK3881	1611	24.7
Cargill X1221	1609	24.0
Cargill RIGASOL	1550	25.1
AgriPro AP 4193	1537	25.0
Pioneer brand 6451	1456	24.9
Average	**1694**	**24.9**

Table 4. Irrigated Sunflower Oil Performance at Bethune in 1997[1]

Hybrid	Yield	Test Weight	Lodging	Plant Height	Density	Oil
	lb/ac	bu/ac	%	in	plants/ac	%
Kaystar 9501	2936	31.2	1	74	17235	44.2
Triumph 562	2845	31.0	3	71	16142	45.9
Pioneer brand 6451	2813	29.5	1	66	17783	46.8
Pioneer brand 6338	2696	29.8	1	72	17878	45.1
DEKALB EXP6902	2640	30.1	4	62	16789	46.5
NK 278	2596	29.9	3	66	16512	48.4
DEKALB DK3875	2592	29.2	4	61	16963	46.8
Triumph 573	2586	30.1	4	73	17243	46.1
Mycogen Cavalry	2578	32.2	3	72	15693	47.6
Triumph 545	2563	29.8	5	66	16875	50.6
Pioneer brand 6340	2562	30.0	2	70	17606	49.6
Triumph 568	2548	29.4	4	65	16868	46.4
NK X11604	2539	30.9	3	70	17611	44.1
DEKALB DK3881	2506	29.9	2	65	16880	45.9
Cargill SF187	2503	28.5	1	62	17333	45.6
Interstate IS EXP22208	2476	31.2	2	81	18349	46.8
NK 231	2473	29.3	4	63	16942	43.6
AgriPro AP 4193	2456	23.8	3	59	17878	47.0
Cargill X1221	2446	30.1	4	63	17061	46.8
Pioneer brand 6472 (HO)	2434	29.3	3	75	15875	47.6
AgriPro AP 3470	2427	30.5	3	62	17057	45.8
Interstate IS 6767	2426	30.1	2	68	16878	45.9
Interstate IS EXP13558	2409	28.8	5	67	15959	47.3
Pioneer brand 63A51 (HO)	2408	29.3	7	63	18062	47.1
Cargill SF177	2396	30.4	2	73	17510	47.9
Pioneer brand XF468	2383	29.7	1	69	18627	47.3
Cargill X6005	2368	29.1	0	63	18422	46.8
Pioneer brand XF4218 (HO)	2356	29.4	1	74	14175	46.1
Mycogen 8370	2319	30.2	2	59	16325	48.3
DEKALB EXP6861	2315	30.0	3	62	16698	47.9
Cargill SF128	2291	29.9	5	62	16420	44.1
Mycogen Trisun 858	2246	29.0	3	66	16142	46.6
Pioneer brand 63A81	2239	28.8	3	69	17783	48.5
Triumph 682	2215	30.4	3	77	15651	48.7
DEKALB DK3790	2213	31.6	5	60	16325	48.6
Cargill RIGASOL	2205	30.0	4	67	17875	45.1
DEKALB DK3904	2188	29.2	5	66	17152	44.5
NK 259	2185	30.9	3	68	18422	47.4
NK 232	2124	28.3	7	65	17606	45.6
Cargill SF270	2119	29.6	5	57	16594	45.1
Triumph 540	2114	30.5	7	59	16244	47.0
DEKALB DK3868	2106	29.8	7	64	17969	47.0
Cargill X6007	2065	28.3	4	61	16789	46.5
Average	**2416**	**29.7**	**3**	**66**	**17028**	**46.7**
CV%	9.1					
$LSD_{(.3)}$	188					

[1]Trial conducted on the George Stahlecker farm; seeded 6/2 and harvested 10/6. Test weights reported here from combined plot samples, may vary from earlier draft trial results.

Table 5. Average Irrigated Sunflower Oil Performance at Bethune, 1996-97

Hybrid	Yield	Test Weight
	lb/ac	bu/ac
DEKALB EXP6902	3003	28.3
DEKALB DK3881	2925	27.4
Kaystar 9501	2921	29.1
DEKALB EXP6861	2813	27.5
Pioneer brand 6338	2705	28.1
NK 231	2659	27.9
Cargill SF128	2606	29.1
Cargill SF187	2601	27.2
Interstate IS EXP13558	2573	26.6
AgriPro AP 3470	2551	28.3
Pioneer brand 6451	2519	28.0
AgriPro AP 4193	2494	29.2
Cargill X1221	2409	25.8
Cargill SF270	2395	28.2
Cargill RIGASOL	2356	28.9
DEKALB DK3868	2340	27.2
Triumph 545	2327	28.5
NK 278	2267	27.8
DEKALB DK3904	2222	25.3
NK 259	2216	28.8
Cargill SF177	2209	26.7
Triumph 682	2199	28.2
Interstate IS 6767	2189	29.0
Mycogen Cavalry	2163	25.0
NK 232	2022	26.3
DEKALB DK3790	1941	24.9
Average	**2447**	**27.6**

Table 6. Dryland Sunflower Oil Performance at Idalia in 1997[1]

Hybrid	Yield	Test Weight	Lodging	Plant Height	Density	Oil
	lb/ac	bu/ac	%	in	plants/ac	%
Triumph 562	2600	28.8	3	49	14145	47.2
Kaystar 9501	2409	27.7	2	55	14935	43.7
Triumph 568	2349	27.2	2	50	14913	46.6
Pioneer brand 6451	2334	28.1	1	50	14576	48.4
Pioneer brand XF4218 (HO)	2321	27.8	1	58	15167	46.1
Pioneer brand 6338	2270	28.3	0	53	14902	47.0
Pioneer brand 6472 (HO)	2243	28.7	2	57	13996	47.8
DEKALB EXP6902	2201	29.4	4	45	15026	48.8
Interstate IS EXP22208	1968	27.4	2	60	15060	33.3
Cargill SF177	1939	26.5	3	52	15042	45.4
Triumph 682	1830	28.7	2	60	14926	46.7
Limagrain Genetics LGX34509	1796	28.7	2	62	13225	50.5
Mycogen Cavalry	1730	27.6	1	55	14896	47.2
LG Seeds LG5470	1723	27.1	2	52	12777	45.8
Mycogen Trisun 858	1722	28.1	0	55	14580	46.5
AgriPro AP 3470	1716	27.7	5	46	15178	45.3
Cargill SF187	1591	28.7	2	42	15170	48.1
DEKALB DK3875	1589	27.7	3	44	14894	45.8
Mycogen 8370	1576	27.5	3	48	15229	47.4
Cargill SF128	1573	27.8	3	46	15212	45.7
Cargill X1221	1564	26.1	4	43	14200	46.7
NK 259	1561	28.3	4	50	15716	47.6
NK X11604	1546	27.5	7	52	14805	45.6
DEKALB DK3904	1545	27.3	5	48	14702	46.9
NK 278	1538	27.0	5	48	14862	45.5
LG Seeds LG5640	1527	29.1	2	54	15783	47.3
Cargill X6005	1487	26.1	0	42	15178	45.6
LG Seeds LG5410	1429	26.6	15	52	14602	44.6
Pioneer brand 63A51 (HO)	1415	26.3	20	49	13398	47.1
Pioneer brand XF468	1404	26.5	1	51	15193	47.1
NK 232	1404	27.3	15	48	14379	47.5
AgriPro AP 4193	1398	27.6	5	50	14768	46.5
DEKALB EXP6861	1375	26.7	12	46	15697	46.2
Limagrain Genetics LGX24617	1335	27.3	9	50	13960	44.7
NK 231	1314	27.2	4	46	14444	44.6
Cargill RIGASOL	1313	27.1	1	52	14625	45.7
Interstate IS EXP13558	1297	25.9	8	50	14337	45.1
Cargill X6007	1292	25.8	5	40	15042	45.5
DEKALB DK3881	1277	26.7	6	42	14997	45.7
Interstate IS 6767	1277	26.6	6	47	14543	47.2
Pioneer brand 63A81	1260	26.2	1	47	14375	46.3
AgriPro AP 3430	1243	26.6	4	47	15142	45.8
Cargill SF270	1232	28.3	10	39	14497	47.3
Triumph 545	1221	26.8	6	46	15143	48.3
Limagrain Genetics LGX24611	1202	26.8	4	48	14565	47.1
DEKALB DK3790	1053	27.1	12	44	15013	46.2
DEKALB DK3868	1028	27.1	17	46	14894	48.5
Average	**1617**	**27.4**	**5**	**49**	**14739**	**46.3**
CV%	15.2					
$LSD_{(.3)}$	180					

[1]Trial conducted on the Jim Roberts farm; seeded 6/4 and harvested 10/3. Test weights reported here from combined plot samples, may vary from earlier draft trial results.

Table 7. Average Dryland Sunflower Oil Performance at Idalia, 1996-97

Hybrid	Yield	Test Weight
	lb/ac	bu/ac
DEKALB EXP6902	1825	25.8
Kaystar 9501	1822	24.9
Pioneer brand 6338	1779	25.3
Pioneer brand 6451	1751	24.7
Cargill SF128	1373	25.6
Mycogen Cavalry	1299	24.7
Cargill SF187	1281	25.1
Triumph 682	1263	25.2
DEKALB EXP6861	1221	23.9
DEKALB DK3904	1188	24.7
NK 259	1142	25.0
Cargill SF270	1117	25.3
NK 231	1085	23.5
NK 232	1054	24.8
DEKALB DK3881	1049	24.2
Cargill X1221	1043	23.2
AgriPro AP 3430	1039	23.7
Cargill RIGASOL	1031	23.8
NK 278	1026	24.0
DEKALB DK3790	967	25.0
Triumph 545	913	24.7
DEKALB DK3868	875	24.9
Interstate IS 6767	871	24.1
Average	**1218**	**24.6**

Table 8. Dryland Sunflower Oil Performance at Julesburg in 1997[1]

Hybrid	Yield	Test Weight	Lodging	Plant Height	Density	Oil
	lb/ac	bu/ac	%	in	plants/ac	%
DEKALB EXP6902	1882	22.5	1	53	13000	40.1
Triumph 540	1854	21.5	1	54	15548	38.9
DEKALB EXP6861	1807	22.1	0	52	15256	42.4
Triumph 568	1794	23.1	1	57	14534	41.8
Pioneer brand 6451	1766	22.3	0	54	14990	39.6
DEKALB DK3790	1750	22.1	2	52	14560	40.7
Kaystar 8800	1721	23.0	0	61	15465	38.9
DEKALB DK3875	1718	22.5	2	53	15438	38.0
Kaystar 9501	1698	22.2	2	63	14830	40.7
Interstate IS 6767	1677	22.1	0	58	16094	41.3
Cargill SF270	1674	21.9	0	49	16659	40.2
Interstate IS EXP13558	1642	21.6	6	58	13902	39.9
Pioneer brand 6338	1642	21.9	4	58	13987	40.0
Cargill SF177	1605	22.4	2	62	15834	43.1
Cargill SF128	1578	22.8	0	55	13560	39.4
Cargill RIGASOL	1558	22.9	0	59	16471	41.0
DEKALB DK3881	1539	22.4	1	54	15740	42.1
Cargill X1221	1539	21.6	2	51	13320	38.7
Cargill SF187	1515	23.1	2	50	14822	38.9
Pioneer brand 6472 (HO)	1514	21.5	1	61	11301	39.7
Pioneer brand XF4218 (HO)	1499	20.8	0	63	14392	38.4
Pioneer brand XF468	1471	21.1	4	59	15478	43.6
DEKALB DK3868	1465	22.4	0	48	15877	40.9
Triumph 562	1460	22.5	1	57	15425	42.0
Cargill X6007	1433	21.9	2	46	14274	38.7
Pioneer brand 63A51 (HO)	1428	22.8	3	55	15172	41.3
DEKALB DK3904	1415	21.3	0	57	15213	40.1
Pioneer brand 63A81	1382	21.1	1	52	16459	42.7
Cargill X6005	1370	21.1	0	48	14963	38.9
Interstate IS EXP22208	1328	21.2	3	64	14799	35.7
Average	**1591**	**22.1**	**1**	**55**	**14912**	**40.2**
CV%	15.4					
$LSD_{(.3)}$	181					

[1]Trial conducted on the Dick Fryrear farm; seeded 6/19 and harvested 10/15.

Table 9. Dryland Sunflower Confection Performance at Akron in 1997[1]

Hybrid	Yield	Lodging	Plant Height	Density	Bloom[2]
	lb/ac	%	in	plants/ac	date
Triumph 760C	1328	1	47	11240	233
Seeds 2000 Kodiak	1180	1	49	14824	233
Red River RRC 2331	1157	0	48	13900	234
Triumph 765C	1119	2	48	13880	233
Royal Hybrid 3703	1102	0	46	13981	231
Red River RRC EX2213	1087	0	48	13548	232
Red River RRC 4231	1030	0	54	12853	234
Red River RRC 954	1021	1	47	13736	232
AgriPro RH 3733	1006	0	47	14017	232
Red River RRC 2212	998	4	48	13124	233
Royal Hybrid 3733	994	2	47	11467	232
Red River RRC 2211	978	0	48	13114	234
Red River RRC 3531	952	0	42	13162	234
Triumph 520C	922	3	48	14216	233
AgriPro RH 3701	916	0	45	13552	232
Red River RRC EX0736	505	0	46	1974	236
Average	**1018**	**1**	**47**	**12662**	**233**
CV%	20.8				
$LSD_{(.3)}$	157				

[1]Trial conducted on the Central Great Plains Research Center; seed 6/16 and harvested 10/11.
[2]Julian date (233=8/21).

Table 10. Average Dryland Sunflower Confection Performance at Akron, 1996-97

Hybrid	Yield
	lb/ac
Red River RRC 954	1654
Royal Hybrid 3703	1462
Red River RRC 2331	1455
Royal Hybrid 3733	1396
Red River RRC 2211	1241
Red River RRC EX0736	1200
Triumph 520C	1197
Red River RRC 4231	1143
Red River RRC 3531	1131
Average	**1320**

Table 11. Seed Size of Dryland Sunflower Confection Performance at Akron in 1997

Hybrid	Above 22/64	22/64 To 20/64	20/64 To 18/64	18/64 To 16/64	16/64 To 14/64
AgriPro RH 3701	23.1	26.3	25.6	15.0	10.0
AgriPro RH 3733	29.4	25.6	21.2	15.5	8.3
Red River RRC 2212	20.2	28.5	26.2	16.7	8.4
Red River RRC 3531	27.8	24.6	22.7	15.0	9.9
Red River RRC EX2213	26.8	28.0	21.2	16.6	7.4
Red River RRC 4231	15.9	23.7	27.9	18.8	13.7
Red River RRC 954	18.7	22.0	26.9	18.5	13.9
Red River RRC EX0736	17.3	27.2	23.1	18.8	13.6
Red River RRC 2331	24.3	25.1	23.5	18.6	8.5
Red River RRC 2211	25.0	34.4	27.3	9.4	3.9
Royal Hybrid 3703	28.7	34.5	19.6	11.7	5.5
Royal Hybrid 3733	24.9	26.7	32.9	9.5	6.6
Seeds 2000 Kodiak	20.1	31.2	28.1	13.5	7.1
Triumph 520C	15.1	26.1	28.0	20.0	10.8
Triumph 760C	32.0	25.8	20.5	13.5	8.2
Triumph 765C	24.5	29.2	25.4	12.3	8.6

Table 12. Irrigated Sunflower Confection Performance at Bethune in 1997[1]

Hybrid	Yield	Test Weight	Lodging	Plant Height	Density
	lb/ac	bu/ac	%	in	plants/ac
Red River RRC EX2213	1749	17.7	3	73	14883
Triumph 765C	1708	19.9	6	72	14128
Triumph 760C	1698	20.3	6	69	14560
Mycogen 9490	1690	20.4	10	72	14013
Interstate IS 8004	1660	18.1	8	77	14066
Seeds 2000 Kodiak	1573	19.8	5	67	14601
Sigco Sun M9490 RT	1543	20.6	5	70	13229
Red River RRC 2212	1457	20.0	8	72	15041
Red River RRC 3531	1423	18.9	7	78	13999
Red River RRC 2331	1385	20.1	3	76	15390
Red River RRC 4231	1368	19.1	4	77	15043
Red River RRC 954	1348	19.0	8	71	15232
Sigco Sun SS-50	1342	18.4	1	74	15758
Triumph 520C	1342	19.5	3	76	14221
AgriPro RH 3701	1295	20.2	8	67	13834
Royal Hybrid 3733	1287	19.2	4	69	15791
Mycogen 9338	1257	18.9	3	69	14339
Royal Hybrid 3703	1220	20.3	3	68	14520
Red River RRC 2211	1211	19.5	7	71	13850
AgriPro RH 3733	1210	19.5	3	70	14066
Red River RRC EX0736	994	19.4	0	73	4538
Average	**1417**	**19.5**	**5**	**72**	**14052**
CV%	9.5				
$LSD_{(.3)}$	115				

[1]Trial conducted on the George Stahlecker farm; seeded 6/2 and harvested 10/6.

Table 13. Average Irrigated Sunflower Confection Performance at Bethune, 1996-97

Hybrid	Yield
	lb/ac
Red River RRC EX0736	2100
Red River RRC 2211	2038
Sigco Sun SS-50	1938
Red River RRC 2331	1919
Royal Hybrid 3733	1905
Triumph 520C	1748
Red River RRC 954	1733
Red River RRC 4231	1721
Red River RRC 3531	1698
Royal Hybrid 3703	1557
Average	**1836**

Table 14. Seed Size of Irrigated Sunflower Confection Performance at Bethune in 1997

Hybrid	Above 22/64	22/64 To 20/64	20/64 To 18/64	18/64 To 16/64	16/64 To 14/64
AgriPro RH 3701	37.5	36.2	19.3	4.8	2.2
AgriPro RH 3733	56.3	27.9	9.2	3.9	2.7
Interstate IS 8004	34.1	35.3	19.8	7.2	3.6
Mycogen 9338	46.9	31.4	16.4	3.2	2.1
Mycogen 9490	34.7	36.6	20.1	5.8	2.8
Red River RRC EX2213	24.9	43.3	23.4	6.1	2.3
Red River RRC 4231	40.3	28.3	19.1	7.1	5.2
Red River RRC 2212	45.4	38.8	13.1	2.0	.7
Red River RRC 3531	39.8	31.0	17.6	6.6	5.0
Red River RRC 2331	39.5	25.3	16.8	10.8	7.6
Red River RRC 954	27.2	38.5	21.3	9.0	4.0
Red River RRC 2211	44.5	31.4	17.4	4.4	2.3
Red River RRC EX0736	40.3	34.3	14.6	7.0	3.8
Royal Hybrid 3703	46.4	28.7	13.4	6.2	5.3
Royal Hybrid 3733	43.9	32.5	16.4	4.8	2.4
Seeds 2000 Kodiak	28.1	38.8	22.4	7.2	3.5
Sigco Sun M9490 RT	36.8	41.4	16.5	3.7	1.6
Sigco Sun SS-50	41.3	35.0	17.1	4.4	2.2
Triumph 520C	37.2	40.0	15.7	5.0	2.1
Triumph 760C	42.7	38.6	12.1	3.4	3.2
Triumph 765C	41.4	35.1	16.4	4.4	2.7

Table 15. Dryland Sunflower Confection Performance at Idalia in 1997[1]

Hybrid	Yield	Test Weight	Plant Height	Density
	lb/ac	bu/ac	in	plants/ac
Mycogen 9490	1326	18.1	57	10395
Sigco Sun M9490 RT	1236	17.4	54	10850
Triumph 760C	1069	16.7	57	11225
Triumph 765C	894	17.1	59	11228
Mycogen 9338	861	17.5	56	12115
Triumph 520C	861	17.4	61	11322
Seeds 2000 Kodiak	842	18.5	56	11843
AgriPro RH 3701	708	18.2	53	11294
Sigco Sun SS-50	661	16.5	57	11775
AgriPro RH 3733	607	16.0	57	11304
Average	**907**	**17.3**	**57**	**11335**
CV%	21.0			
$LSD_{(.3)}$	142			

[1]Trial conducted on the Jim Roberts farm; seeded 6/4 and harvested 10/4. Negligible lodging.

Table 16. Seed Size of Dryland Sunflower Confection Performance at Idalia in 1997

Hybrid	Above 22/64	22/64 To 20/64	20/64 To 18/64	18/64 To 16/64	16/64 To 14/64
AgriPro RH 3701	47.9	35.1	10.9	3.8	2.3
AgriPro RH 3733	53.0	31.4	9.6	2.3	3.7
Mycogen 9338	44.7	35.2	13.6	3.6	2.9
Mycogen 9490	37.6	37.0	13.7	5.4	6.3
Seeds 2000 Kodiak	31.4	39.3	14.0	4.7	10.6
Sigco Sun M9490 RT	44.5	34.7	14.3	4.5	2.0
Sigco Sun SS-50	53.0	32.5	9.4	2.7	2.4
Triumph 520C	34.2	38.2	19.1	4.0	4.5
Triumph 760C	41.2	38.7	13.0	3.0	4.1
Triumph 765C	45.7	34.8	10.5	5.3	3.7

Table 17. Dryland Sunflower Confection Performance at Julesburg in 1997[1]

Hybrid	Yield	Test Weight	Lodging	Plant Height	Density
	lb/ac	bu/ac	%	in	plants/ac
Red River RRC 954	1442	16.7	4	66	12316
Interstate IS 8004	1396	17.2	6	65	12107
Red River RRC 2331	1363	17.1	4	64	12183
Red River RRC 2212	1351	16.2	9	63	9342
Red River RRC 2211	1318	16.0	17	64	10916
Red River RRC 3531	1291	16.4	11	67	11733
Red River RRC	1238	15.8	6	64	11919
Red River RRC 4231	1218	16.8	10	68	10664
Red River RRC	987	16.8	0	64	2859
Average	**1289**	**16.6**	**7**	**65**	**10449**
CV%	16.4				
$LSD_{(.3)}$	158				

[1]Trial conducted on the Dick Fryrear farm; seeded 6/19 and harvested 10/15.

Table 18. Seed Size of Dryland Sunflower Confection Performance at Julesburg in 1997

Hybrid	Above 22/64	22/64 To 20/64	20/64 To 18/64	18/64 To 16/64	16/64 To 14/64
Interstate IS 8004	56.6	24.1	9.3	3.7	6.3
Red River RRC 2331	47.8	22.6	17.7	7.6	4.3
Red River RRC 2212	52.0	24.9	14.8	4.3	4.0
Red River RRC 954	36.0	29.5	20.7	9.3	4.5
Red River RRC 2211	37.6	32.0	17.1	7.4	5.9
Red River RRC 3531	47.7	25.0	15.8	6.8	4.7
Red River RRC	45.6	26.8	14.2	6.5	47.7
Red River RRC 4231	45.4	25.8	16.2	7.4	5.2
Red River RRC	54.3	21.7	13.0	5.7	5.3

Seed Company Entrants in the 1997 Colorado Sunflower Performance Trials

BRAND/HYBRID	ENTRANT	ADDRESS	TELEPHONE
AgriPro	AgriPro Seeds, Inc.	23959 580th Ave., Ames, IA 50010	(800) 373-1741
Royal Hybrids	Agway, Inc.	PO Box 169, Grandin, ND 58038	(701) 484-5313
Cargill	Cargill Hybrid Seeds	1401 41st Street NW, Fargo, ND 58102	(701) 282-8787
DEKALB	DEKALB Genetics Corp.	3100 Sycamore Rd., DeKalb, IL 60115	(815) 758-3461
Interstate	Interstate Payco Seed Co.	1215 Prairie Pkwy, PO Box 338, West Fargo, ND 58078	(701) 282-3373
Kaystar	Kaystar Seed	702 3rd Street SW, PO Box 947, Huron, SD 57350	(605) 352-8791
LG Seeds	LG Seeds	3551 County Road F, PO Box 88, Tekamah, NE 68061	(800) 752-6574
Limagrain Genetics	Limagrain Genetics	PO Box 278, Kirland, IL 60146	(815) 522-3241
Mycogen	Mycogen Seeds	RR 1 Box 22A, York, NE 68467	(402) 362-3094
Northrup King	Novartis Seeds	Box 959, Minneaplois, MN 55440	(612) 593-7333
Pioneer	Pioneer Hi-Bred Int'l., Inc.	210 Gateway Mall Suite-300, Lincoln, NE 68505-2449	(402) 467-5458
Pioneer	Pioneer Hi-Bred Int'l., Inc.	1616 S. Kentucky, Suite C-150, Amarillo, TX 79102	(806) 356-0160
Red River	Red River Commodities, Inc.	1320 East College Drive, Colby, KS 67701	(913) 462-3911
SEEDS 2000	SEEDS 2000	Box 101, Breckenridge, MN 56520	(218) 643-2410
SIGCO	SIGCO Sun Products, Inc.	90 North 8th St., PO Box 331, Breckenridge, MN 56520	(218) 643-8467
Triumph	Triumph Seed Co., Inc.	PO Box 1050, Hwy 62 Bypass, Ralls, TX 79357	(806) 253-2584

Entry Forms for 1998 Trials

Entry forms for 1998 trials may be obtained from the Department of Soil and Crop Sciences, Colorado State University, by contacting Cynthia Johnson, Research Associate, C-4 Plant Science Building, Fort Collins, CO 80523; Telephone (970) 491-1914; FAX number (970) 491-2758; or e-mail *cjohnson@ceres.agsci.colostate.edu.*

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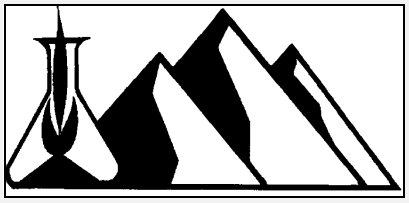

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