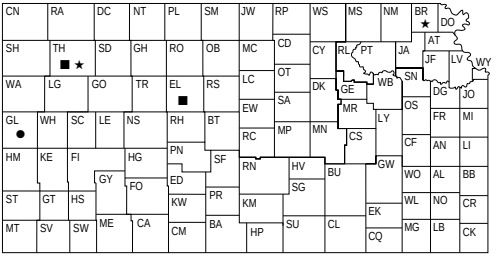
1994

KANSAS PERFORMANCE TESTS WITH

SUNFLOWER HYBRIDS



Report of Progress 725
Agricultural Experiment Station • Kansas State University, Manhattan • Marc A. Johnson, Director

CONTENTS

Excerpts from the

UNIVERSITY RESEARCH POLICY AGREEMENT
WITH COOPERATING SEED COMPANIES*

Permission is hereby given to Kansas State University to test our varieties and/or hybrids designated on the attached entry forms in the manner indicated on the test announcement. I understand that all results from Kansas crop performance tests belong to the University and to the public and shall be controlled by the University so as to produce the greatest benefit to the public. It is further agreed that the name of the University shall not be used by the company in any commercial advertising either in regard to this agreement or any other related matter.

*This agreement must be signed by an authorized individual before results involving the company's entries can be published by the Experiment Station. Except for the limitation that the name "KANSAS STATE UNIVERSITY" cannot be used in advertising (you may use something like "official state tests" or "state yield trials"), this does not preclude the use of data for advertising, if done in a fair manner.

Contribution No. 95-294-S from the Kansas Agricultural Experiment Station.

1994 KANSAS PERFORMANCE TESTS WITH SUNFLOWER HYBRIDS

INTRODUCTION

TEST OBJECTIVES AND PROCEDURES

Sunflower performance tests were conducted in 1994 by the Kansas Agricultural Experiment Station to provide farmers, extension workers, and private industry with unbiased agronomic information on many of the sunflower hybrids marketed in the state. Tests were financed in part by entry fees from private companies. Companies known to be developing and marketing sunflowers were invited to participate and enter hybrids on a voluntary fee-entry basis. So, not all hybrids grown in the state were included in tests, and hybrids were not grown uniformly at all locations.

Five test locations established in 1994 included Brown County--double crop; Ellis County--continuous crop; Greeley County--dryland, no till; Thomas County--irrigated and fallow sites. Oilseed entries were grown at all locations. Confectionary entries were included in both Thomas County tests and in Greeley County. Oilseed and confectionary entries were planted together at the Greeley County site but planted separately in both Thomas County tests. Entries were planted in four-row, replicated plots at all locations. To ensure uniform and adequate stands, all tests were planted at a high seeding rate and hand thinned after emergence to desired stands.

Environmental factors affecting test results and cultural practices are discussed individually for each of the test sites. Results from tests harvested in 1994, as well as period-of-years average data, are included in Tables 1-6. Entrants and entries in 1994 tests are listed in Table 7.

Dry conditions after wheat harvest in Brown County resulted in low germination and very poor stands. The dry weather persisted throughout the season; yields were highly variable, so the test was abandoned.

DATA INTERPRETATION

Yields are reported as lbs. seed per acre adjusted to 10 percent moisture content.

Days to half bloom is number of days from date of planting to date when 50 percent of plants were in bloom.

Lodging percent is based on counts of lodged and total plants in harvested area at all locations.

Oil percent was obtained from samples submitted under code number to the Kansas State Grain Inspection Department for analysis and is reported on a 10 percent moisture basis. Samples for all tests were derived by compositing replications by entry for each location and subsampling.

Oil yields are reported as net lbs. oil per acre.

Seed size percent analysis for confectionary-type entries was performed at the Northwest Research-Extension

Center on cleaned samples submitted from each of the tests. Separation by seed size was made by screening a weighed sample through a series of six sieves (22/64, 21/64, 20/64, 19/64, 18/64, and 16/64-round holes) secured on a Ro-Tap mechanical shaker.

Statistical analysis It is virtually impossible to conduct perfect tests, because soil fertility, moisture, and other environmental factors vary. Therefore, small differences in results may have no real meaning. To help interpret data, we applied a statistical technique, analysis of variance, wherever possible. Such analysis requires repeating whole sets of varieties or treatments several times and placing individual varieties or treatments as they would be placed by chance alone. Results of the analyses are reported in terms of least significant differences (LSD). If two means differ by more than the LSD (.05), such a differ-ence would be due to chance variation only 5 percent of the time. So, it's 95 percent probable that the difference was due to treatment. If means do not differ by as much as the LSD, then little confi-dence can be placed in the importance of varietal or treatment differences.

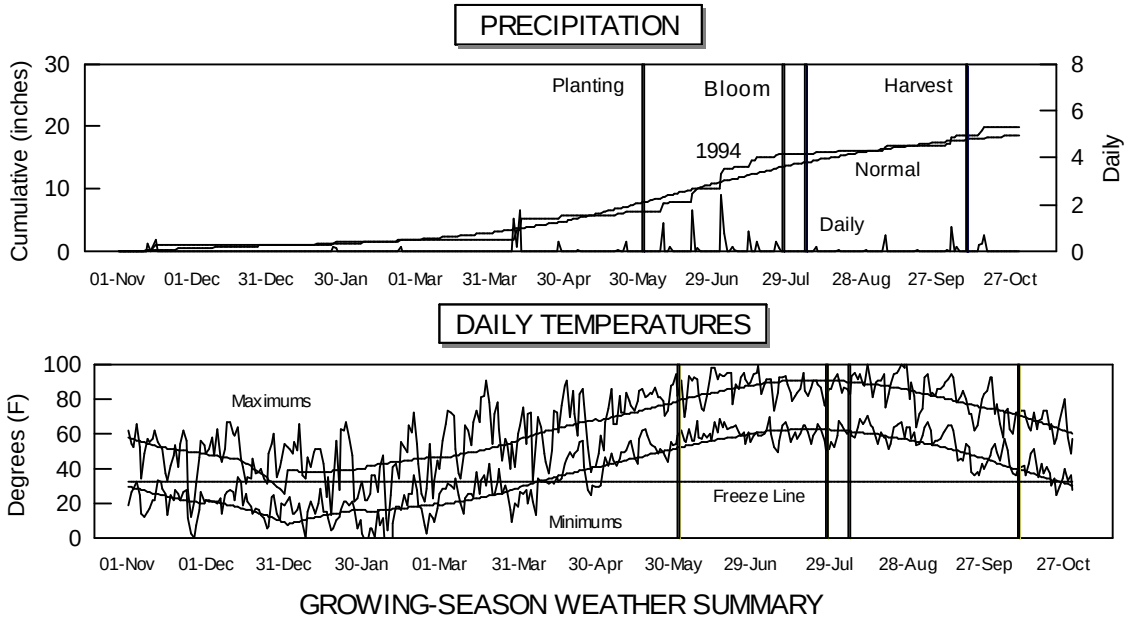
NORTHWESTERN KANSAS
FALLOW SUNFLOWER TESTS--
OILSEED AND CONFECTIONARY

LOCATION: Northwest Research-Extension Center, Thomas County
COOPERATOR: Pat Evans, research technologist
TEST SITE: Keith silt loam
Sunflowers 1992, fallow 1993
FERTILIZATION: 90 lbs N/acre spring '94
15 lbs P_2O_5/acre spring '94
PLANTING DATE: June 3, 1994
HEADING DATES: July 28-Aug. 8, 1994
HARVEST DATES: Sept. 27 and 28, 1994
PEST CONTROL: Treflan, May 7, 1994
Asana, Aug. 6, 1994
Parathion, Aug. 19, '94
POPULATION: Double-planted and thinned to desired stands:
Oil (O) 17,000
Confectionary (C) 14,900
TEST YIELDS:
Avg. (lbs/acre): (O) 2653, (C) 2294
Range: (O) 2217-3187, (C) 2061-2516
LSD (lbs/acre): (O) 585, (C) 339
CV: (O) 13.6, (C) 8.3
GROWING CONDITIONS: Surface soil moisture was excellent at planting. Initial stands and early growth were excellent. Precipitation was above normal from June through July, but below normal from August through September. Considerable drought stress was noted in the fallow test in late August and September. Temperatures also were above normal from August through September. Both tests were harvested in late September to early October before the first killing freeze.

NORTHWESTERN KANSAS
IRRIGATED SUNFLOWER TESTS--
OILSEED AND CONFECTIONARY

LOCATION: Northwest Research-Extension Center, Thomas County
COOPERATOR: Pat Evans, research technologist
TEST SITE: Keith silt loam
Soybeans 1992, grain sorghum 1993
FERTILIZATION: 120 lbs N/acre spring '94
20 lbs P_2O_5/acre spring '94
PLANTING DATE: June 1, 1994
HEADING DATES: July 28-Aug. 6, 1994
HARVEST DATES: Oct. 10 and 11, 1994
PEST CONTROL: Treflan, May 7, 1994
Asana, Aug. 6, 1994
Parathion, Aug. 19, '94
IRRIGATIONS: (3") July 13, 29; Aug. 9, 22, 31

POPULATION: Double-planted and thinned to desired stands:
Oil (O) 23,000
Confectionary (C) 17,000
TEST YIELDS:
Avg. (lbs/acre): (O) 3070, (C) 2910
Range: (O) 2512-3624, (C) 2601-3235
LSD (lbs/acre): (O) 439, (C) 306
CV: (O) 10.2, (C) 7.2
GROWING CONDITIONS: Surface soil moisture was excellent at planting. Initial stands and early growth were excellent. Precipitation was above normal from June through July, but below normal from August through September. Considerable drought stress was noted in the fallow test in late August and September. Temperatures also were above normal from August through September. Both tests were harvested in late September to early October before the first killing freeze.



GROWING-SEASON WEATHER SUMMARY

	Precipitation		Average Temp.	
Month	1994	Normal	1994	Normal
April	3.9	1.8	49	50
May	0.7	3.0	64	60
June	3.5	3.1	75	71
July	5.6	2.9	73	77
August	0.5	2.2	76	74
Sep.	0.9	1.4	67	65
Oct.	2.9	1.0	54	52
Season Totals	18.0	15.5	65	64

Table 1. Thomas County Oilseed Sunflower Performance Test Results--Fallow, 1992-1994

Brand and Hybrid	Acre yield lbs. 1994	1993	2-yr 1992 avg.	3-yr avg.	Yield as % of test average 1994	1993	1992	Oil % 2-yr 1994 avg.	3-yr avg.	Oil yield lbs./acre 2-yr 1994 avg.	3-yr avg.
Cargill SF100	2682	2440	2889	2561 2670	101	110	106	36.7	38.9 38.0	984	992 1012
Cargill SF128	2831	2584	----	2708 ----	107	117	----	37.6	39.6 ----	1064	1068 ----
Cargill SF177	3098	2131	----	2615 ----	117	96	----	41.5	42.0 ----	1286	1096 ----
Cargill SF187	2945	2744	2997	2845 2895	111	124	109	37.9	40.1 38.9	1116	1137 1123
Cargill SF270	2728	2239	2600	2484 2522	103	101	95	39.7	41.2 40.5	1083	1018 1018
Cenex Land O Lakes C/LOL 745	2296	----	----	---- ----	87	----	----	38.7	---- ----	889	---- ----
Cenex Land O Lakes C/LOL 808	2532	----	----	---- ----	95	----	----	39.8	---- ----	1008	---- ----
Dekalb DK 3790	2707	2313	2905	2510 2642	102	104	106	42.4	42.8 42.5	1148	1072 1123
Dekalb DK 3868	2522	2499	----	2511 ----	95	113	----	40.7	42.2 ----	1026	1059 ----
Dekalb DK 3881	2649	2752	3109	2701 2837	100	124	114	40.0	41.7 41.1	1060	1126 1166
Dekalb DK 3904	2658	2699	3131	2679 2829	100	122	114	39.0	40.3 39.6	1037	1078 1119
Dekalb Exp 5646	2293	----	----	---- ----	86	----	----	39.0	---- ----	894	---- ----
Interstate IS 3311	2472	2269	2774	2371 2505	93	102	101	38.6	40.2 39.8	954	951 994
Interstate IS 6363	2975	2748	----	2862 ----	112	124	----	38.5	39.7 ----	1145	1135 ----
Interstate IS X01480	2631	----	----	---- ----	99	----	----	39.1	---- ----	1029	---- ----
Interstate IS X73307	2566	----	----	---- ----	97	----	----	41.8	---- ----	1073	---- ----
Interstate IS X83324	2598	----	----	---- ----	98	----	----	40.2	---- ----	1044	---- ----
Kaystar Hysun 354	2524	1929	2520	2227 2324	95	87	92	38.8	40.9 40.1	979	903 927
Kaystar 8807	2306	2473	3032	2390 2604	87	112	111	38.8	40.6 40.0	895	972 1039
Kaystar 9101	2950	2671	2989	2811 2870	111	121	109	35.7	36.7 36.5	1053	1029 1045
Kaystar X-2657	2655	2514	----	2585 ----	100	113	----	40.0	41.9 ----	1062	1080 ----
Kaystar X-2863	2663	----	----	---- ----	100	----	----	39.9	---- ----	1063	---- ----
Kaystar X-27004	2622	2633	----	2628 ----	99	119	----	39.3	41.4 ----	1030	1088 ----
Mycogen Plant Sciences Cavalry	2597	2282	2623	2440 2501	98	103	96	41.9	43.2 42.2	1088	1052 1053
Mycogen Plant Sciences 675	2797	2232	2735	2515 2588	105	101	100	42.3	42.5 41.9	1183	1068 1084
Pioneer 6339	3160	1783	2839	2472 2594	119	80	104	43.2	43.5 42.8	1365	1072 1107
Pioneer 6451	2724	2228	2767	2476 2573	103	101	101	42.4	43.0 42.0	1155	1062 1077
Pioneer 6470	2434	----	----	---- ----	92	----	----	38.7	---- ----	942	---- ----
Pioneer XF426	2440	----	----	---- ----	92	----	----	40.1	---- ----	978	---- ----
Pioneer XF435	2656	2437	----	2547 ----	100	110	----	40.6	41.2 ----	1078	1049 ----
Pioneer XF443	3033	----	----	---- ----	114	----	----	39.4	---- ----	1195	---- ----
Pioneer XF444	2489	----	----	---- ----	94	----	----	39.0	---- ----	971	---- ----
Pioneer 6415HO	2716	1907	----	2312 ----	102	86	----	39.4	40.9 ----	1070	938 ----
Pioneer 6661HO	2867	2303	----	2585 ----	108	104	----	37.7	38.5 ----	1081	993 ----
Pioneer XF4217HO	2308	----	----	---- ----	87	----	----	39.6	---- ----	914	---- ----
Proseed 107	2654	----	----	---- ----	100	----	----	38.0	---- ----	1009	---- ----
Proseed 109	2319	2212	----	2266 ----	87	100	----	38.1	39.4 ----	884	892 ----
Proseed 121	2425	----	----	---- ----	91	----	----	39.8	---- ----	965	---- ----
Proseed 141	2601	----	----	---- ----	98	----	----	40.3	---- ----	1048	---- ----
Proseed 143	2269	----	----	---- ----	86	----	----	37.0	---- ----	840	---- ----
Seeds 2000 Waldo	2217	----	----	---- ----	84	----	----	40.0	---- ----	887	---- ----
Seeds 2000 Wrangler	2583	2302	----	2443 ----	97	104	----	37.4	39.2 ----	966	954 ----
Seedtec ST 2116 Exp	2928	2022	----	2475 ----	110	91	----	39.6	40.7 ----	1159	1002 ----
Seedtec ST 2124 Exp	3187	----	----	---- ----	120	----	----	38.2	---- ----	1217	---- ----
Seedtec ST 2132 Exp	3046	2794	----	2920 ----	115	126	----	35.7	37.3 ----	1087	1087 ----
Seedtec ST 2250 Exp	2484	2492	2929	2488 2635	94	113	107	35.1	37.2 36.7	872	924 967
Triumph Seed 546	2677	2272	2680	2475 2543	101	103	98	42.8	43.4 42.9	1146	1073 1089
Triumph Seed 565	2606	2251	2644	2429 2500	98	102	97	40.3	41.9 41.5	1050	1015 1035
Triumph Seed 571	2942	----	----	---- ----	111	----	----	43.2	---- ----	1271	---- ----
Triumph Seed TRX 1202	2595	----	----	---- ----	98	----	----	44.6	---- ----	1157	---- ----
Average	2653	2215	2737	2434 2535	100	100	100	39.6	40.8 40.2	1050	991 1015
LSD (.05)	585	450	265	---- ----	----	----	----	----	---- ----	----	---- ----

Table 1. Thomas County Oilseed Sunflower Performance Test Results--Fallow, 1992-1994, continued

Brand and Hybrid	Days to half bloom			Height inches			Lodging %			Test weight lbs./bu.			200-seed weight, grams		
	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.
Cargill SF100	60	63	62	54	50	49	1	1	1	26.7	27.7	27.2	11.2	11.1	11.0
Cargill SF128	57	59	--	58	51	--	0	2	-	27.5	29.5	----	13.4	13.1	----
Cargill SF177	59	63	--	59	54	--	0	3	-	28.7	29.5	----	12.9	13.4	----
Cargill SF187	60	63	61	52	46	47	1	2	1	27.7	28.4	27.5	11.8	12.3	11.7
Cargill SF270	56	59	58	50	44	44	0	4	4	28.2	29.4	28.9	13.5	13.1	13.0
Cenex Land O Lakes C/LOL 745	55	--	--	56	--	--	0	-	-	27.4	----	----	11.6	----	----
Cenex Land O Lakes C/LOL 808	59	--	--	57	--	--	1	-	-	27.5	----	----	12.2	----	----
Dekalb DK 3790	57	61	59	58	52	52	2	3	2	31.0	30.6	30.4	12.6	11.6	11.5
Dekalb DK 3868	57	60	--	55	51	--	0	1	-	27.9	28.8	----	11.1	11.2	----
Dekalb DK 3881	60	63	62	57	52	52	4	3	2	25.7	27.4	27.0	11.8	12.4	12.2
Dekalb DK 3904	59	63	61	56	49	50	2	3	3	25.0	27.0	27.1	13.1	13.4	13.4
Dekalb Exp 5646	59	--	--	59	--	--	2	-	-	27.5	----	----	12.3	----	----
Interstate IS 3311	58	61	60	57	51	51	3	4	3	27.6	28.8	28.5	12.4	12.3	12.1
Interstate IS 6363	62	65	--	66	63	--	0	2	-	30.7	30.8	----	13.8	13.8	----
Interstate IS X01480	62	--	--	66	--	--	1	-	-	28.4	----	----	11.9	----	----
Interstate IS X73307	59	--	--	61	--	--	0	-	-	28.6	----	----	13.1	----	----
Interstate IS X83324	57	--	--	60	--	--	1	-	-	28.6	----	----	12.9	----	----
Kaystar Hysun 354	59	62	61	53	49	50	1	4	3	26.5	26.4	26.0	10.7	10.6	10.4
Kaystar 8807	62	66	65	70	65	64	3	6	4	28.6	29.2	28.3	11.8	12.3	12.1
Kaystar 9101	66	69	66	63	58	58	1	6	4	27.2	28.1	27.2	13.9	13.8	13.4
Kaystar X-2657	64	67	--	67	62	--	2	3	-	28.6	28.9	----	12.1	12.1	----
Kaystar X-2863	60	--	--	63	--	--	1	-	-	29.4	----	----	12.5	----	----
Kaystar X-27004	62	66	--	65	61	--	4	3	-	29.1	29.6	----	11.3	11.6	----
Mycogen Plant Sciences Cavalry	59	63	62	60	56	56	0	6	4	29.7	30.3	29.6	11.8	12.6	12.2
Mycogen Plant Sciences 675	59	63	62	57	51	51	1	4	3	25.9	28.0	28.1	12.8	12.9	12.5
Pioneer 6339	59	62	61	61	55	56	0	5	5	25.7	26.2	26.1	14.2	13.6	13.3
Pioneer 6451	60	63	61	55	49	50	2	5	4	26.9	27.5	26.9	12.2	12.0	11.6
Pioneer 6470	61	--	--	62	--	--	1	-	-	29.1	----	----	12.0	----	----
Pioneer XF426	58	--	--	57	--	--	0	-	-	26.7	----	----	10.9	----	----
Pioneer XF435	60	65	--	65	60	--	1	6	-	26.6	27.2	----	10.7	12.0	----
Pioneer XF443	59	--	--	63	--	--	0	-	-	31.1	----	----	14.3	----	----
Pioneer XF444	60	--	--	66	--	--	2	-	-	30.2	----	----	12.5	----	----
Pioneer 6415HO	61	64	--	57	50	--	1	3	-	28.2	29.0	----	12.7	12.3	----
Pioneer 6661HO	63	67	--	65	59	--	0	2	-	25.8	26.0	----	13.3	13.6	----
Pioneer XF4217HO	60	--	--	63	--	--	2	-	-	24.6	----	----	12.0	----	----
Proseed 107	59	--	--	61	--	--	1	-	-	26.6	----	----	12.6	----	----
Proseed 109	61	63	--	61	56	--	0	2	-	26.4	26.5	----	11.0	10.7	----
Proseed 121	60	--	--	58	--	--	1	-	-	26.3	----	----	10.9	----	----
Proseed 141	58	--	--	59	--	--	1	-	-	26.7	----	----	13.6	----	----
Proseed 143	60	--	--	60	--	--	0	-	-	28.1	----	----	14.4	----	----
Seeds 2000 Waldo	59	--	--	61	--	--	2	-	-	28.1	----	----	11.5	----	----
Seeds 2000 Wrangler	57	60	--	56	51	--	3	6	-	26.9	28.1	----	11.4	11.1	----
Seedtec ST 2116 Exp	59	62	--	58	51	--	0	4	-	26.8	27.3	----	12.1	12.1	----
Seedtec ST 2124 Exp	59	--	--	59	--	--	0	-	-	26.4	----	----	12.7	----	----
Seedtec ST 2132 Exp	60	64	--	65	59	--	0	7	-	28.2	28.7	----	12.6	13.1	----
Seedtec ST 2250 Exp	59	62	61	62	57	57	1	8	6	27.7	28.4	28.1	12.5	12.8	12.7
Triumph Seed 546	59	62	61	61	53	54	1	6	5	28.4	30.0	30.0	12.0	11.7	11.7
Triumph Seed 565	59	62	61	57	52	52	5	10	7	29.2	30.1	29.7	12.4	12.8	12.3
Triumph Seed 571	61	--	--	55	--	--	1	-	-	28.8	----	----	12.1	----	----
Triumph Seed TRX 1202	58	--	--	56	--	--	0	-	-	27.7	----	----	12.0	----	----
Average	60	63	62	60	54	55	1	4	3	28.0	28.6	28.1	12.4	12.2	11.9
LSD (.05)	1	--	--	3	--	--	3	-	-	2	----	----	1	----	----

Table 2. Thomas County Confectionary Sunflower Performance Test Results--Fallow, 1992-199

Brand and Hybrid	Acre yield lbs. 1994	1993	1992	2-yr avg.	3-yr avg.	Yield as % of test avg. 1994	1993	1992	Test weight lbs./bu. 1994	2-yr avg.	3-yr avg.	200 seed weight, grams 1994	2-yr avg.	3-yr avg.	Lodging % 1994	2-yr avg.	3-yr avg.	Plant height, inches 1994	2-yr avg.	3-yr avg.	Days to 1/2 bloom 1994	2-yr avg.	3-yr avg.
Agway Royal HBD 408	2166	1486	----	1826	----	94	82	---	20.6	21.1	----	25.4	23.6	----	2	4	--	52	46	--	55	58	--
Red River Commodities 954	2292	1700	2651	1996	2214	100	94	106	20.1	20.1	20.0	20.7	21.7	21.9	0	7	7	61	53	52	60	62	61
Red River Commodities 2211	2281	2123	----	2202	----	99	118	---	20.8	20.9	----	20.8	21.8	----	1	4	--	63	56	--	61	64	--
Red River Commodities 2331EX	2333	2158	----	2246	----	102	120	---	21.8	21.6	----	19.5	20.2	----	1	4	--	62	55	--	62	64	--
Red River Commodities 9111EX	2061	----	----	----	----	90	---	---	20.2	----	----	20.3	----	----	4	--	--	60	--	--	59	--	--
Triumph Seed 505C+	2516	1608	----	2062	----	110	89	---	20.7	20.8	----	20.8	21.3	----	1	7	--	61	54	--	58	62	--
Triumph Seed 520C	2406	1907	----	2157	----	105	106	---	20.4	20.6	----	22.0	22.6	----	1	5	--	62	54	--	61	64	--
Average	2294	1804	2507	2049	2202	100	100	100	20.6	20.8	20.2	21.3	21.6	21.9	1	6	7	60	53	55	59	62	61
LSD (.05)	339	263	----	----	----	---	---	---	2.0	----	----	2.9	----	----	5	--	--	4	--	--	1	--	--

	Seed size distribution (percent) 1994							2-yr average							3-yr average						
	Above 22/64	21/64 to 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 18/64	Below 16/64	Above 22/64	21/64 to 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 18/64	Below 16/64	Above 22/64	21/64 to 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 18/64	Below 16/64
Agway Royal HBD 408	48	26	15	8	3	2	1	33	22	18	14	6	5	2	--	--	--	--	--	--	--
Red River Commodities 954	32	21	17	15	7	6	2	27	20	18	16	8	8	3	26	19	18	17	9	8	3
Red River Commodities 2211	42	20	14	12	5	5	2	32	22	17	15	6	6	2	--	--	--	--	--	--	--
Red River Commodities 2331Ex	40	11	10	12	8	12	7	38	14	11	12	7	11	7	--	--	--	--	--	--	--
Red River Commodities 9111Ex	27	19	15	13	8	13	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Triumph Seed 505C+	24	17	17	15	12	13	3	24	19	17	16	11	11	3	--	--	--	--	--	--	--
Triumph Seed 520C	48	19	14	9	4	5	2	35	22	18	12	6	5	2	--	--	--	--	--	--	--
Average	37	19	15	12	7	8	3	31	20	17	15	8	9	4	35	18	16	13	7	8	4
LSD (.05)	14	4	4	6	3	5	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 3. Thomas County Oilseed Sunflower Performance Test Results--Irrigated, 1992-1994

Brand and Hybrid	Acre yield lbs.					Yield as % of test average			Oil %			Oil yield lbs./acre		
	1994	1993	1992	2-yr avg.	3-yr avg.	1994	1993	1992	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.
Cargill SF100	3287	2399	3149	2843	2945	107	108	110	42.4	41.7	40.6	1394	1189	1196
Cargill SF128	3325	2328	----	2827	----	108	105	----	42.3	41.5	----	1406	1176	----
Cargill SF177	3373	2275	----	2824	----	110	103	----	43.0	42.9	----	1450	1212	----
Cargill SF187	3383	2449	3249	2916	3027	110	111	113	41.9	42.7	41.5	1417	1241	1252
Cargill SF270	3316	2289	2849	2803	2818	108	103	99	43.0	42.9	42.2	1426	1203	1190
Dekalb DK 3790	2822	2050	2950	2436	2607	92	93	103	45.4	44.9	44.3	1281	1096	1155
Dekalb DK 3868	3125	2385	----	2755	----	102	108	----	43.8	43.2	----	1369	1191	----
Dekalb DK 3881	3349	2363	3392	2856	3034	109	107	118	43.1	43.8	42.8	1443	1246	1294
Dekalb DK 3904	3260	2006	3297	2633	2854	106	91	115	42.6	42.1	41.2	1389	1112	1176
Dekalb Exp 5646	2936	----	----	----	----	96	----	----	43.2	----	----	1268	----	----
Genetic Resources, Inc GRI 7382	2702	----	----	----	----	88	----	----	42.4	----	----	1146	----	----
Genetic Resources, Inc GRI 7392	3283	----	----	----	----	107	----	----	42.2	----	----	1385	----	----
Genetic Resources, Inc GRI 94341	3081	----	----	----	----	100	----	----	40.8	----	----	1257	----	----
Genetic Resources, Inc GRI 94342	2388	----	----	----	----	78	----	----	43.3	----	----	1034	----	----
Genetic Resources, Inc GRI 94392	3086	----	----	----	----	101	----	----	42.7	----	----	1318	----	----
Interstate IS 3311	3105	2497	2846	2801	2816	101	113	99	43.0	42.4	41.4	1335	1188	1166
Interstate IS 6363	3079	2268	----	2674	----	100	102	----	40.6	40.7	----	1250	1088	----
Interstate IS X01480	3510	----	----	----	----	114	----	----	42.5	----	----	1492	----	----
Interstate IS X73307	3223	----	----	----	----	105	----	----	45.4	----	----	1463	----	----
Interstate IS X83324	2838	----	----	----	----	92	----	----	44.5	----	----	1263	----	----
Kaystar 9101	3480	2366	3179	2923	3008	113	107	111	36.1	35.9	36.4	1256	1050	1097
Kaystar X-2657	2614	2350	----	2482	----	85	106	----	43.4	43.1	----	1134	1070	----
Kaystar X-2863	2706	----	----	----	----	88	----	----	43.5	----	----	1177	----	----
Kaystar X-27004	2747	2411	----	2579	----	89	109	----	42.7	42.4	----	1173	1093	----
Mycogen Plant Sciences Cavalry	3418	2708	3027	3063	3051	111	122	106	46.0	45.1	44.3	1572	1383	1354
Mycogen Plant Sciences 675	3368	----	----	----	----	110	----	----	45.6	----	----	1536	----	----
Pioneer 6339	2962	2307	----	2635	----	96	104	----	45.1	44.1	----	1336	1165	----
Pioneer 6451	3405	2267	----	2836	----	111	102	----	45.4	44.6	----	1546	1268	----
Pioneer 6470	3098	----	----	----	----	101	----	----	43.8	----	----	1357	----	----
Pioneer XF426	3108	----	----	----	----	101	----	----	45.3	----	----	1408	----	----
Pioneer XF435	3073	----	----	----	----	100	----	----	44.5	----	----	1367	----	----
Pioneer XF443	3462	----	----	----	----	113	----	----	41.9	----	----	1451	----	----
Pioneer XF444	3274	----	----	----	----	107	----	----	41.3	----	----	1352	----	----
Pioneer 6415HO	2871	2436	----	2654	----	94	110	----	43.2	43.2	----	1240	1145	----
Pioneer 6661HO	3361	----	----	----	----	109	----	----	41.7	----	----	1402	----	----
Pioneer XF4217HO	2931	----	----	----	----	95	----	----	43.2	----	----	1266	----	----
Proseed 107	2861	----	----	----	----	93	----	----	41.0	----	----	1173	----	----
Proseed 109	2779	----	----	----	----	91	----	----	41.6	----	----	1156	----	----
Proseed 121	2512	----	----	----	----	82	----	----	44.0	----	----	1105	----	----
Proseed 141	2600	----	----	----	----	85	----	----	44.6	----	----	1160	----	----
Proseed 227	2717	----	----	----	----	89	----	----	42.5	----	----	1155	----	----
Seedtec St 2116 Exp	3219	2535	----	2877	----	105	114	----	43.3	43.2	----	1394	1242	----
Seedtec St 2124 Exp	2823	----	----	----	----	92	----	----	41.3	----	----	1166	----	----
Seedtec St 2132 Exp	2961	2228	----	2595	----	96	101	----	39.8	39.8	----	1178	1033	----
Seedtec St 2250 Exp	3064	2345	3131	2705	2847	100	106	109	40.2	39.7	39.0	1232	1075	1109
Triumph Seed 546	3065	2202	2947	2634	2738	100	99	103	44.9	43.7	43.1	1376	1156	1184
Triumph Seed 565	3287	2038	3021	2663	2782	107	92	105	44.6	43.9	43.4	1466	1173	1210
Triumph Seed 571	2876	----	----	----	----	94	----	----	45.2	----	----	1300	----	----
Triumph Seed 575	2762	----	----	----	----	90	----	----	44.3	----	----	1224	----	----
Triumph Seed TRX 1202	3297	----	----	----	----	107	----	----	46.2	----	----	1523	----	----
Triumph Seed TRX 4421	3624	----	----	----	----	118	----	----	44.2	----	----	1602	----	----
Triumph Seed HO680	2861	----	----	----	----	93	----	----	44.7	----	----	1279	----	----
Average	3070	2344	2867	2707	2760	100	100	100	43.1	42.7	41.9	1329	1161	1159
LSD (.05)	439	450	265	----	----	----	----	----	----	----	----	----	----	----

Table 3. Thomas County Oilseed Sunflower Performance Test Results--Irrigated, 1992-1994, continued

Brand and Hybrid	Days to half bloom			Height inches			Lodging %			Test weight lbs/bu			200 seed weight, grams		
	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.
Cargill SF100	62	63	62	66	57	58	4	2	2	31.9	30.4	30.2	13.1	12.8	12.1
Cargill SF128	58	60	--	68	58	--	4	4	--	32.6	30.4	----	15.4	14.7	----
Cargill SF177	62	63	--	70	59	--	5	5	--	32.1	30.3	----	14.0	14.1	----
Cargill SF187	62	63	62	66	55	56	6	3	4	31.3	29.7	29.4	13.1	13.0	12.0
Cargill SF270	60	61	59	65	52	53	2	1	3	31.4	30.0	30.2	14.4	13.9	13.0
Dekalb DK 3790	58	60	58	67	58	58	10	6	6	32.6	31.0	31.2	13.4	12.8	11.8
Dekalb DK 3868	59	62	--	60	53	--	2	4	--	30.7	30.0	----	13.7	13.7	----
Dekalb DK 3881	61	63	62	63	54	56	8	5	5	30.3	29.6	29.5	13.8	13.9	13.1
Dekalb DK 3904	62	63	61	67	56	57	7	6	5	31.5	30.0	29.8	14.7	14.6	13.7
Dekalb Exp 5646	62	--	--	67	--	--	13	--	--	31.3	----	----	14.2	----	----
Genetic Resources, Inc GRI 7382	62	--	--	76	--	--	30	--	--	29.6	----	----	12.6	----	----
Genetic Resources, Inc GRI 7392	63	--	--	81	--	--	13	--	--	31.2	----	----	13.5	----	----
Genetic Resources, Inc GRI 94341	62	--	--	71	--	--	9	--	--	31.7	----	----	13.5	----	----
Genetic Resources, Inc GRI 94342	60	--	--	75	--	--	9	--	--	30.2	----	----	13.4	----	----
Genetic Resources, Inc GRI 94392	62	--	--	80	--	--	13	--	--	30.0	----	----	12.6	----	----
Interstate IS 3311	60	62	60	65	55	58	9	5	6	32.1	30.8	30.6	14.4	13.6	12.7
Interstate IS 6363	63	64	--	79	69	--	9	8	--	33.3	31.4	----	15.6	14.9	----
Interstate IS X01480	63	--	--	83	--	--	5	--	--	31.7	----	----	14.4	----	----
Interstate IS X73307	60	--	--	72	--	--	4	--	--	32.3	----	----	14.4	----	----
Interstate IS X83324	58	--	--	71	--	--	5	--	--	32.1	----	----	15.1	----	----
Kaystar 9101	65	67	65	71	60	62	7	6	5	31.7	30.6	29.6	15.7	15.4	14.3
Kaystar X-2657	64	66	--	77	67	--	7	5	--	31.6	29.8	----	14.5	13.5	----
Kaystar X-2863	61	--	--	71	--	--	3	--	--	32.7	----	----	13.9	----	----
Kaystar X-27004	63	65	--	76	67	--	14	10	--	32.0	30.4	----	13.7	12.8	----
Mycogen Plant Sciences Cavalry	61	63	62	72	61	63	9	7	7	33.0	31.0	31.2	14.3	13.9	13.1
Mycogen Plant Sciences 675	61	64	--	66	56	--	4	6	--	32.8	31.4	----	14.4	----	----
Pioneer 6339	61	63	--	74	63	--	2	7	--	29.5	28.7	----	15.4	15.3	----
Pioneer 6451	61	63	--	66	57	--	6	4	--	30.8	29.4	----	12.9	12.8	----
Pioneer 6470	62	--	--	71	--	--	1	--	--	32.9	----	----	14.7	----	----
Pioneer XF426	60	--	--	69	--	--	5	--	--	29.9	----	----	12.9	----	----
Pioneer XF435	62	--	--	78	--	--	10	--	--	29.9	----	----	12.2	----	----
Pioneer XF443	61	--	--	73	--	--	3	--	--	31.9	----	----	14.0	----	----
Pioneer XF444	62	--	--	82	--	--	5	--	--	33.3	----	----	13.0	----	----
Pioneer 6415HO	62	64	--	67	56	--	6	4	--	32.3	30.3	----	13.8	13.7	----
Pioneer 6661HO	63	--	--	79	--	--	4	--	--	30.1	----	----	15.1	----	----
Pioneer XF4217HO	62	--	--	78	--	--	3	--	--	29.8	----	----	14.9	----	----
Proseed 107	59	--	--	71	--	--	6	--	--	28.6	----	----	13.4	----	----
Proseed 109	62	--	--	69	--	--	8	--	--	29.4	----	----	12.6	----	----
Proseed 121	61	--	--	67	--	--	15	--	--	30.9	----	----	12.9	----	----
Proseed 141	59	--	--	72	--	--	8	--	--	30.3	----	----	13.8	----	----
Proseed 227	60	--	--	74	--	--	8	--	--	30.3	----	----	14.0	----	----
Seedtec ST 2116 Exp	59	61	--	68	58	--	2	2	--	30.8	29.8	----	14.8	13.7	----
Seedtec ST 2132 Exp	61	63	--	78	65	--	4	4	--	31.9	29.8	----	14.0	14.3	----
Seedtec ST 2250 Exp	61	63	62	73	62	63	10	7	8	32.1	30.1	30.0	14.4	14.4	13.6
Seedtec ST 2524 Exp	60	--	--	68	--	--	3	--	--	29.5	----	----	13.1	----	----
Triumph Seed 546	60	62	61	66	57	59	15	12	11	32.5	30.6	31.2	13.2	12.9	12.2
Triumph Seed 565	61	62	61	69	57	59	8	7	6	33.2	30.4	30.8	14.5	13.9	13.0
Triumph Seed 571	62	--	--	71	--	--	4	--	--	32.6	----	----	13.4	----	----
Triumph Seed 575	64	--	--	71	--	--	6	--	--	32.4	----	----	12.4	----	----
Triumph Seed TRX 1202	60	--	--	66	--	--	7	--	--	31.8	----	----	14.3	----	----
Triumph Seed TRX 4421	64	--	--	45	--	--	60	--	--	31.2	----	----	14.3	----	----
Triumph Seed HO680	67	--	--	82	--	--	4	--	--	31.3	----	----	13.1	----	----
Average	61	63	61	71	60	61	8	6	7	31.4	29.9	29.9	13.9	13.4	12.6
LSD (.05)	1.3	--	--	3.0	--	--	6.2	--	--	1.0	----	----	0.8	----	----

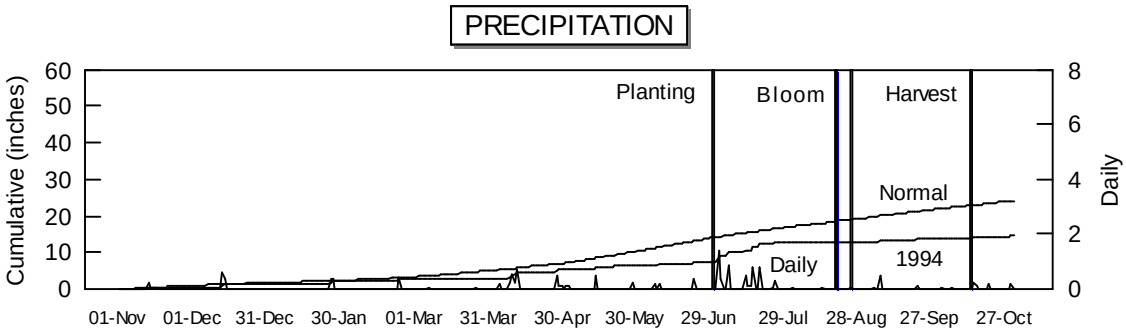
Table 4. Thomas County Confectionary Sunflower Performance Test Results--Irrigated, 1992-1994

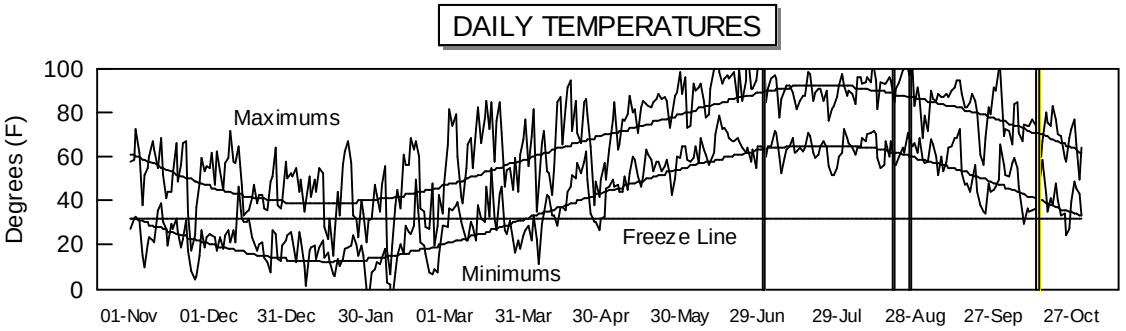
Brand and Hybrid	Acre yield lbs.					Yield as % of test avg.			Test weight lbs./bu.			200 seed weight, grams			Lodging %			Plant height, inches			Days to 1/2 bloom		
	1994	1993	1992	2-yr avg.	3-yr avg.	1994	1993	1992	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.
Agway Royal HBD 408	3218	1994	----	2606	----	111	84	---	21.6	20.7	----	26.7	25.5	----	10	9	--	61	51	--	57	59	--
Cenex Land O Lakes C/LOL 119	2777	----	----	----	----	95	---	---	21.3	----	----	23.0	----	----	12	--	--	69	--	--	59	--	--
Interstate 8004	2601	2050	2612	2326	2421	89	86	92	22.6	21.2	21.2	22.1	21.6	21.2	11	13	10	73	59	60	61	63	61
Red River Commodities 954	2987	2426	2766	2707	2726	103	102	98	21.9	20.8	20.9	25.3	23.7	23.6	8	8	7	66	56	57	59	61	59
Red River Commodities 2211	3065	2625	2971	2845	2887	105	111	105	21.3	20.3	20.2	25.5	25.4	24.8	9	7	6	71	58	60	61	63	61
Red River Commodities 2331EX	3235	2716	----	2976	----	111	115	---	21.6	20.6	----	22.8	21.8	----	9	6	--	71	60	--	60	63	--
Red River Commodities 9111EX	2607	----	----	----	----	90	---	---	21.6	----	----	22.5	----	----	14	--	--	68	--	--	59	--	--
Triumph Seed 505C+	2832	2229	2992	2531	2684	97	94	106	22.4	21.0	21.2	22.4	22.6	23.1	12	11	9	70	58	58	58	61	59
Triumph Seed 520C	2869	2684	2775	2777	2776	99	113	98	21.6	20.6	20.5	26.3	25.7	25.0	2	6	5	72	68	66	61	63	61
Average	2910	2372	2835	2681	2699	100	100	100	21.8	20.6	20.6	24.1	23.6	22.9	10	9	7	69	58	60	60	62	60
LSD (.05)	306	366	298	----	----	---	---	---	1.0	----	----	2.0	----	----	7	--	--	4	--	--	1	--	--

	Seed size distribution (percent)																						
	1994							2-yr average							3-yr average								
	Above 22/64	21/64 to 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 18/64	Below 16/64	Above 22/64	21/64 to 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 18/64	Below 16/64	Above 22/64	21/64 to 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 18/64	Below 16/64		
Agway Royal HBD 408	34	22	15	11	6	8	2	38	24	14	10	4	6	3	--	--	--	--	--	--	--		
Cenex Land O Lakes C/LOL 119	30	16	11	12	7	14	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Interstate 8004	25	15	13	14	9	13	10	37	15	12	12	7	10	7	38	15	12	11	7	10	7		
Red River Commodities 954	27	17	17	15	8	9	6	32	18	16	14	7	8	5	29	17	16	16	8	9	4		
Red River Commodities 2211	35	19	16	14	7	7	3	36	22	16	12	6	6	2	34	22	17	13	6	5	2		
Red River Commodities 2331Ex	33	16	14	13	8	10	7	46	15	11	10	5	7	5	--	--	--	--	--	--	--		
Red River Commodities 9111Ex	22	14	13	14	11	17	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Triumph Seed 505C+	17	15	14	17	12	18	7	28	17	14	14	9	13	5	26	17	15	16	10	12	4		
Triumph Seed 520C	31	23	16	10	7	8	4	36	23	16	11	6	6	3	36	23	15	11	6	6	3		
Average	28	17	15	13	12	11	6	37	19	14	12	6	8	4	33	19	15	13	7	8	4		
LSD (.05)	12	5	3	3	3	6	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--		

NORTH CENTRAL KANSAS
DRYLAND SUNFLOWER TESTS--
OILSEED

LOCATION: Agricultural Research Center--
Hays, Ellis County
COOPERATOR: William Stegmeier, agronomist
TEST SITE: Crete silty clay loam
Pearl millet 1993, wheat 1992, fallow 1991
FERTILIZATION: 40 lbs N/acre
PLANTING DATE: July 1, 1994
HEADING DATES: August 20-26, 1994
HARVEST DATE: October 14, 1994
PEST CONTROL: Treflan, Nov. 1993
Pydrin, Aug. 23, 1994 for control of head clipper weevil
POPULATION:
Desired stand: 19,000 plants/acre
TEST YIELDS: Variable yields appeared to be related to dry conditions during flowering and seed fill.
Average: 1433 lbs/acre
Range: 988-1844 lbs/acre
LSD: 447 lbs/acre
CV: 22.1
GROWING CONDITIONS: Surface soil moisture at planting was adequate, but rains recorded on July 3 and 7 provided good conditions for germination, and emergence was very good. Following the above-normal rainfall of July, the remainder of the growing season to harvest received only 1.14 inches of precipitation (19% of the long-time average for this period). Moisture stress became apparent by August 20 as lower leaves began to wilt. As the plants entered the seed-fill stage, the lower leaves started to dry. Leaf loss continued until only two or three of the upper leaves remained green at physiological maturity.





GROWING-SEASON WEATHER SUMMARY

	Precipitation		Average Temp.	
Month	1994	Normal	1994	Normal
April	2.7	2.0	52	51
May	1.0	3.4	67	62
June	0.7	3.6	78	72
July	5.5	2.9	76	78
August	0.3	2.5	78	76
Sep.	0.7	2.5	69	67
Oct.	0.9	2.1	56	54
Season Totals	11.8	19.0	68	66

Table 5. Ellis County Oilseed Sunflower Performance Test Results--Fallow, 1992-1994[1]

Brand	Hybrid	Acre yield lbs.					Yield as % of test average			Oil %			Oil yield lbs./acre		
		1994	1993	2-yr 1992	3-yr avg.	avg.	1994	1993	1992	2-yr 1994	3-yr avg.	avg.	2-yr 1994	3-yr avg.	avg.
Cargill	SF187	1632	2253	2275	1943	2053	114	117	113	40.5	39.6	38.9	661	766	796
Cargill	SF270	1777	1942	2442	1860	2054	124	100	122	41.5	39.8	39.5	737	739	810
Cargill	SF128	1350	2151	----	1751	----	94	111	----	38.9	38.7	38.1	525	676	674
Cargill	SF177	1589	2519	----	2054	----	111	130	----	42.6	41.0	----	677	833	----
Cargill	SF100	1624	1785	1819	1705	1743	113	92	91	39.1	39.7	----	635	677	----
Dekalb	DK 3790	1501	1885	----	1693	----	105	98	----	42.4	42.0	----	636	709	----
Dekalb	DK 3868	1340	2503	----	1922	----	94	129	----	41.3	41.5	----	553	799	----
Dekalb	DK 3904	1563	1740	----	1652	----	109	90	----	41.4	40.1	----	647	660	----
Dekalb	DK 3881	1491	2528	----	2010	----	104	131	----	43.1	41.8	----	643	832	----
Dekalb	EXP5646	1320	----	----	----	----	92	----	----	41.2	----	----	544	----	----
Interstate	IS 3311	1262	1524	----	1393	----	88	79	----	42.2	41.3	----	533	573	----
Interstate	IS 6111	1293	2164	2128	1729	1862	90	112	106	41.1	40.3	39.7	531	692	735
Interstate	IS X01480	1220	----	----	----	----	85	----	----	41.1	----	----	501	----	----
Interstate	IS 6363	1193	1531	----	1362	----	83	79	----	40.1	39.3	----	478	534	----
Interstate	IS X83324	1222	----	----	----	----	85	----	----	41.6	----	----	508	----	----
Interstate	IS X73307	1477	----	----	----	----	103	----	----	43.0	----	----	635	----	----
Kaystar	9101	1803	----	----	----	----	126	----	----	37.2	----	----	671	----	----
Kaystar	8806	1844	1828	----	1836	----	129	95	----	42.6	40.1	----	786	736	----
Mycogen Plant Sciences	Cavalry	1643	2431	2136	2037	2070	115	126	107	43.9	42.3	41.8	721	855	860
Mycogen Plant Sciences	Sigco 675	1592	2209	2603	1901	2135	111	114	130	43.7	42.7	41.9	696	807	890
Mycogen Plant Sciences	Sigco 475	1821	2586	2275	2204	2227	127	134	113	41.6	40.2	39.5	758	880	877
Pioneer	6339	1614	2129	2087	1872	1943	113	110	104	44.5	42.8	42.1	718	797	815
Pioneer	6451	1579	1626	1726	1603	1644	110	84	86	42.1	41.8	41.4	665	669	680
Pioneer	6470	1337	----	----	----	----	93	----	----	42.9	----	----	574	----	----
Pioneer	XF443	1600	----	----	----	----	112	----	----	41.8	----	----	669	----	----
Pioneer	XF444	1443	----	----	----	----	101	----	----	41.1	----	----	593	----	----
Pioneer	XF426	1033	----	----	----	----	72	----	----	43.7	----	----	451	----	----
Pioneer	XF435	988	----	----	----	----	69	----	----	42.7	----	----	422	----	----
Pioneer	6415HO	1099	1940	----	1520	----	77	100	----	42.0	41.1	----	462	621	----
Pioneer	6661HO	1708	2349	----	2029	----	119	122	----	42.1	40.8	----	719	822	----
Pioneer	XF4217HO	1366	----	----	----	----	95	----	----	42.7	----	----	583	----	----
Proseed	107	1259	----	----	----	----	88	----	----	41.3	----	----	520	----	----
Proseed	141	1294	----	----	----	----	90	----	----	43.0	----	----	556	----	----
Proseed	109	1470	1908	----	1689	----	103	99	----	42.2	41.2	----	620	694	----
Proseed	121	1093	----	----	----	----	76	----	----	42.6	----	----	466	----	----
Proseed	227	1350	----	----	----	----	94	----	----	41.1	----	----	555	----	----
Triumph Seed	546	1292	2018	1869	1655	1726	90	104	93	42.8	42.2	41.7	553	696	718
Triumph Seed	571	1622	----	----	----	----	113	----	----	43.7	----	----	709	----	----
Triumph Seed	565	1546	2258	2356	1902	2053	108	117	118	44.8	42.9	42.4	693	809	864
Average		1442	1966	2005	1704	1804	100	100	100	42.0	41.0	40.4	605	696	727
LSD (.05)		447	----	----	----	----	----	----	----	----	----	----	----	----	----

[1]Tests in 199 and 1994 conducted under continuous crop conditions; 1992 test after 1 year fallow.

Table 5. Ellis County Oilseed Sunflower Performance Test Results--Fallow, 1992-94, continued

Brand	Hybrid	Days to half bloom			Lodging %			Height inches			Test weight lbs./bu.			200-seed weight, grams		
		1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.	1994	2-yr avg.	3-yr avg.
Cargill	SF187	56	56	56	2	2	5	52	59	61	28.8	29.3	28.7	9.6	10.3	10.2
Cargill	SF270	53	54	54	5	5	7	54	60	64	30.5	30.2	30.0	10.7	11.2	11.3
Cargill	SF128	52	52	--	5	3	--	54	61	--	30.6	31.5	----	11.3	12.1	----
Cargill	SF177	56	56	--	2	1	--	62	68	--	29.9	30.5	----	10.6	10.8	----
Cargill	SF100	54	55	55	2	5	7	49	55	57	29.6	29.6	29.1	8.6	9.5	9.5
Dekalb	DK 3790	52	53	--	7	5	--	51	58	--	31.2	31.6	----	9.3	9.9	----
Dekalb	DK 3868	53	53	--	4	3	--	52	58	--	30.8	30.8	----	8.8	9.5	----
Dekalb	DK 3904	53	53	--	5	6	--	54	64	--	29.3	29.2	----	10.7	11.1	----
Dekalb	DK 3881	53	54	--	12	9	--	52	61	--	29.8	29.5	----	10.1	10.8	----
Dekalb	EXP 5646	52	--	--	3	--	--	51	--	--	30.4	----	----	10.4	----	----
Interstate	IS 3311	53	54	--	6	4	--	57	64	--	30.3	29.5	----	9.9	9.9	----
Interstate	IS 6111	51	52	52	7	7	8	56	64	66	30.7	31.3	30.7	9.6	10.6	10.7
Interstate	IS X01480	56	--	--	6	--	--	58	--	--	30.8	----	----	9.5	----	----
Interstate	IS 6363	56	56	--	6	9	--	56	64	--	30.4	29.6	----	10.1	12.2	----
Interstate	IS X83324	52	--	--	6	--	--	54	--	--	29.9	----	----	11.5	----	----
Interstate	IS X73307	54	--	--	3	--	--	53	--	--	29.6	----	----	10.5	----	----
Kaystar	9101	57	--	--	0	--	--	55	--	--	29.7	----	----	13.3	----	----
Kaystar	8806	56	57	--	5	4	--	58	67	--	30.7	29.9	----	9.6	9.9	----
Mycogen Plant Sciences	Cavalry	55	55	55	3	2	6	61	71	72	30.7	31.1	30.3	10.4	10.9	10.7
Mycogen Plant Sciences	675	54	55	55	7	9	10	60	70	72	30.8	31.4	30.7	9.8	10.6	10.7
Mycogen Plant Sciences	475	56	56	56	3	8	11	58	68	71	30.7	30.8	30.4	9.9	10.2	10.0
Pioneer	6339	54	55	55	6	7	13	60	67	69	29.6	29.1	28.2	10.8	11.0	11.0
Pioneer	6451	54	54	54	3	3	5	54	60	62	30.5	29.7	29.2	9.7	10.0	9.9
Pioneer	6470	55	--	--	3	--	--	56	--	--	31.2	----	----	10.0	----	----
Pioneer	XF443	55	--	--	2	--	--	59	--	--	31.3	----	----	10.3	----	----
Pioneer	XF444	56	--	--	5	--	--	58	--	--	32.8	----	----	9.9	----	----
Pioneer	XF426	53	--	--	5	--	--	53	--	--	29.4	----	----	9.7	----	----
Pioneer	XF435	55	--	--	11	--	--	62	--	--	29.6	----	----	8.9	----	----
Pioneer	6415HO	54	55	--	7	7	--	60	68	--	31.2	31.4	----	10.1	10.7	----
Pioneer	6661HO	57	58	--	4	4	--	66	76	--	28.8	29.7	----	9.9	10.5	----
Pioneer	XF4217HO	54	--	--	4	--	--	62	--	--	29.2	----	----	10.3	----	----
Proseed	107	54	--	--	3	--	--	57	--	--	29.4	----	----	10.4	----	----
Proseed	141	53	--	--	2	--	--	56	--	--	28.2	----	----	11.6	----	----
Proseed	109	55	56	--	6	7	--	59	69	--	28.8	28.9	----	8.5	9.3	----
Proseed	121	54	--	--	5	--	--	56	--	--	28.5	----	----	9.2	----	----
Proseed	227	54	--	--	4	--	--	57	--	--	28.6	----	----	10.1	----	----
Triumph Seed	546	53	53	53	7	10	13	59	66	68	31.9	31.7	31.3	9.9	10.0	10.1
Triumph Seed	571	56	--	--	2	--	--	58	--	--	30.8	----	----	9.5	----	----
Triumph Seed	565	54	55	55	4	4	10	60	70	72	31.2	31.5	30.9	9.8	10.4	10.5
Average		54	55	55	5	5	10	57	65	68	30.1	30.7	29.9	10.1	10.5	10.4
LSD (.05)		1	--	--	6.3	--	--	3.8	--	--	1	----	----	1.1	----	----

[1]Tests in 1993 and 1994 conducted under continuous crop conditions; 1992 test after 1 year fallow.

WEST CENTRAL KANSAS
DRYLAND SUNFLOWER TESTS--
OILSEED AND CONFECTIONARY

LOCATION: Southwest Research-Extension Center, Tribune Branch, Greeley County
COOPERATOR: Alan Schlegel, agronomist
TEST SITE: Ulysses silt loam
Planted no-till in wheat stubble
FERTILIZATION: 60 lbs N sidedressed
PLANTING DATE: May 24, 1994
HEADING DATES: July 24-Aug 6, 1994
HARVEST DATE: Setember 16, 1994

PEST CONTROL: Prowl, May 23, 1994
POPULATION: Double-planted, thinned to 17,000 plants/acre with 12-inch spacing.
TEST YIELDS: The lower yields of some plots appeared to be related to dry conditions and thin stands in confectionary hybrids.
Average: 909 lbs/acre
Range: 473-1317 lbs/acre
LSD: 322 lbs/acre
CV: 25.3
GROWING CONDITIONS: Drier than normal weather from August through September resulted in variable drought stress within the test. Mechanical planter problems resulted in poor stands for the two confectionary types.

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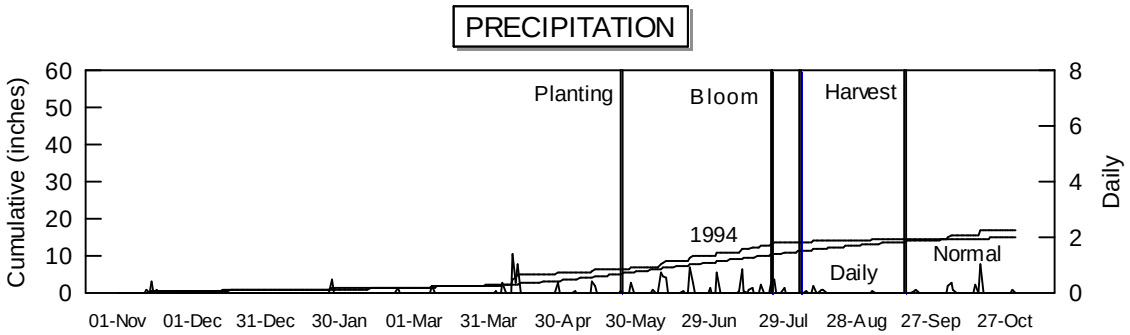

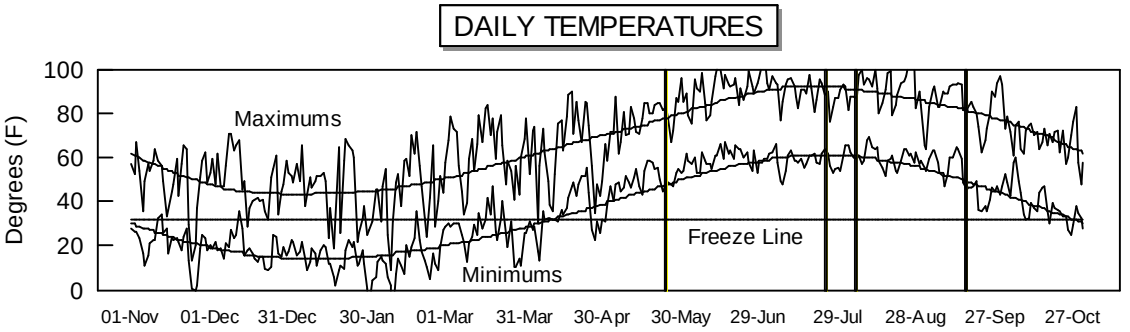

GROWING-SEASON WEATHER SUMMARY

	Precipitation		Average Temp.	
Month	1994	Normal	1994	Normal
April	3.7	1.4	49	50
May	1.3	2.4	64	60
June	3.6	2.5	76	71
July	3.4	2.5	74	76
August	0.7	2.2	75	74
Sep.	0.3	1.2	68	65
Oct.	2.3	0.7	53	53
Season Totals	15.2	12.9	66	64

Table 6. Greeley County Sunflower Performance Test Results[1]--No-Till in Wheat Stubble, 1994

Brand and Hybrid	Acre yield lbs	Yield as % of test avg	Oil %	Oil yield lbs/acre	Days to ½ bloom	Plant height inches	Lodging %	Test weight lbs/bu	200-seed weight grams
Cargill SF187	825	91	37.2	307	64	51	1	30.0	14.4
Cargill SF270	586	64	41.2	241	62	50	9	29.8	14.4
Cargill SF128	524	58	37.6	197	63	56	3	32.6	14.0
Cargill SF177	647	71	41.8	270	66	57	2	29.8	13.4
Cargill SF100	799	88	37.3	298	66	47	1	31.4	13.8
Dekalb DK 3790	473	52	40.8	193	62	52	6	31.5	13.0
Dekalb DK 3868	820	90	41.7	342	63	50	11	29.9	11.7
Dekalb DK 3904	1082	119	39.8	431	65	54	2	30.1	14.1
Dekalb DK3881	1086	119	42.1	457	65	50	7	31.1	13.7
Dekalb DK 5646	775	85	38.1	295	64	51	6	28.6	14.2
Kaystar Hysun 341	852	94	38.9	331	66	52	1	31.0	13.5
Kaystar 9101	951	105	35.1	334	74	61	0	27.4	14.1
Kaystar 8806	1217	134	40.3	490	64	54	2	30.2	12.4
Mycogen Plant Sciences Cavalry	1287	142	45.7	588	66	59	1	30.0	13.3
Mycogen Plant Sciences 675	1317	145	43.8	577	65	54	1	30.4	13.4
Proseed 107	778	86	39.1	304	65	58	2	29.9	13.9
Proseed 141	524	58	40.1	210	64	54	3	30.7	13.1
Proseed 109	902	99	40.1	362	65	54	3	29.6	11.8
Proseed 121	891	98	41.6	371	65	57	3	29.6	12.2
Proseed 229	821	90	40.6	333	66	53	4	28.9	11.9
Seedtec ST 2250 EXP	911	100	38.6	352	65	59	4	30.5	12.5
Seedtec ST2132 EXP	1005	111	36.1	363	66	55	1	31.1	13.8
Seedtec ST 2116 EXP	950	105	39.1	371	64	49	1	29.4	12.0
Seedtec ST 2124 EXp	686	75	38.7	265	64	53	1	29.7	12.8
Triumph Seed 546	963	106	42.3	407	63	53	3	31.0	14.7
Triumph Seed 571	1181	130	44.5	526	67	57	2	31.2	12.7
Triumph Seed 575	1230	135	44.7	550	69	55	2	29.6	12.5
Triumph Seed565	1128	124	43.0	485	65	51	1	30.5	13.7
Triumph Seed TRX 1202	855	94	44.5	380	65	51	6	30.3	12.7
Triumph Seed TRX 4421	1178	130	41.8	492	68	42	1	29.6	12.9
Triumph Seed HO 680	1181	130	40.9	483	73	68	0	26.0	11.3
Triumph Seed 505C+	644	71	----	---	64	60	2	28.5	21.7
Triumph Seed 520C	907	100	----	---	68	66	1	26.9	20.4
Average	909	100	40.6	374	65	54	3	29.9	13.3
LSD (.05)	322				1	4	5	2	1

	Seed Size distribution (%)						
	Above 22/64	21/64 to 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 18/64	Below 16/64
Triumph Seed 505C+	6.0	8.8	12.4	20.5	17.3	26.8	8.3
Triumph Seed 520C	11.0	14.4	14.0	19.1	15.7	20.3	5.5

[1]Triumph 505C+ and 520C are confectionary hybrids. All others are oil type.

Table 7. Entrants and Entries in 1994 Sunflower Performance Tests

Entrant	Brand	Hybrid
Agway, Inc. PO Box 169 Grandin, ND 58038	Agway	Royal HBD 408
Cargill Hybrid Seeds 1401 41st Street, N.W. Fargo, ND 58102	Cargill	SF100, SF128, SF177, SF187, SF270,
Cenex Land O' Lakes Box 489 Mentor, MN 56716	C/LOL	119, 745, 808
Dekalb Plant Genetics 3100 Sycamore Road Dekalb, IL 60115	Dekalb	DK3790, DK3868, DK3881, DK3904, Exp 5646
Genetic Resources, Inc. PO Box 229 Philo, IL 61864	GRI	7382, 7392, 94341, 94342, 94392
Interstate Payco Seed Co. P.O. Box 338 West Fargo, ND 58078	Interstate	IS 3311, IS 6111, IS 6363, IS 8004 IS X01480, IS X73307, IS X83324
Kaystar Seed P.O. Box 947 Huron, SD 57350	Kaystar	8806, 8807, 9101, HYSUN 341, HYSUN 354, X-2657, X-2863, X-27004,
Mycogen Plant Sciences 720 St. Croix Street Prescott, WI 54021	Mycogen	475, 675, Cavalry
Pioneer Hi-Bred, Int'l. 1616 S. Kentucky, Suite C-150 Amarillo, TX 79102	Pioneer	6339, 6451, 6470, 6415HO, 6661HO, XF426, XF435, XF443, XF444, XF4217HO
Proseed, Inc. P.O. Box 145 Arthur, ND 58006	Proseed	107, 109, 121, 141, 143, 229, 235
Red River Commodities, Inc. 1320 East College Drive Colby, KS 67701	RRC	954, 2211EX, 2331EX, 9111EX
Seeds 2000 Box 101 Breckenridge, MN 56520	Seeds 2000	Waldo, Wrangler
Seedtec International, Inc. RR 2 Box 186A Moorhead, MN 56560	Seedtec	ST2116 Exp, ST2124 Exp, ST2132 Exp, ST2250 Exp
Triumph Seed Co., Inc. P.O. Box 1050 Ralls, TX 79357	Triumph	505C+, 520C, 546, 565, 571, 575, TRX1202, TRX4421, HO680

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Note: Trade names are used to identify products. No endorsement is intended, nor is any criticism implied of similar products not named.

KSU KANSAS STATE UNIVERSITY

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