

1998

KANSAS PERFORMANCE TESTS WITH **SUNFLOWER HYBRIDS**

REPORT OF PROGRESS 827

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service

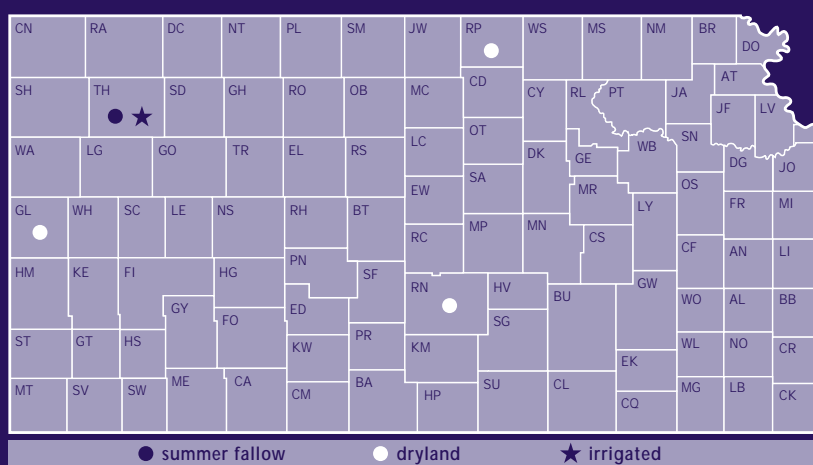


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Excerpts from the
UNIVERSITY RESEARCH POLICY AGREEMENT WITH COOPERATING SEED COMPANIES"

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.

1998 KANSAS PERFORMANCE TESTS WITH SUNFLOWER HYBRIDS

INTRODUCTION

TEST OBJECTIVES AND PROCEDURES

Sunflower performance tests were conducted in 1998 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 in 1998 included Republic County and Greeley County—dryland; Reno County—dryland, continuous crop; and Thomas County—irrigated and fallow sites. Oilseed entries were grown at all locations. Confectionary entries were included in all tests except Republic County. Oilseed and confectionary entries were planted separately in all 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. Test results for 1998, as well as period-of-years average data, are included in Tables 1-11. Entrants and entries in 1998 tests are listed at the end of the report.

DATA INTERPRETATION

Yields are reported as lbs seed/a adjusted to 10% moisture content.

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

Lodging percent is based on counts of lodged and total plants in harvested areas 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% 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/a.

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 Conducting perfect tests is virtually impossible, 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 difference would be due to chance variation only 5% of the time. So, it's 95% probable that the

difference was due to treatment. If means do not differ by as much as the LSD, then little confidence can be placed in the importance of varietal or treatment differences. The coefficient of variability

(CV) represents an estimate of the precision of replicated yield trials. CVs ranging from 10 to 15% are usually acceptable for performance comparisons. CVs greater than 15% provide only a rough guide to hybrid performance.

ACKNOWLEDGEMENTS

Cooperation of Research Center personnel who performed many of the field operations is sincerely appreciated. Technician John Jones aided in planting and harvesting the plots; Vicki Struckmeyer, secretary, assisted in preparing this report; and temporary workers Joel Kniep, Shelby Moses, and Nadia Fercha helped with seed counting and plot thinning and maintenance. Mary Knapp at the Weather Data Library provided climatological data and Bob Cochrane, agricultural technician, provided weather charts.

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**NORTHWESTERN KANSAS
FALLOW SUNFLOWER TESTS--
OILSEED AND CONFECTIONARY**

PEST CONTROL: Treflan, May 4; Asana, Aug. 17

POPULATIONS: Double-planted and thinned to desired stands:

LOCATION: Northwest Research-Extension Center, Thomas County

Oil (O) 17000 plants/a
Confectionary (C) 14900 plants/a

COOPERATOR: Pat Evans, research technologist

TEST YIELDS:

Avg. (lbs/a): (O) 2895, (C) 3181
Range: (O) 2268-3651, (C) 2660-3570
LSD (lbs/a): (O) 398, (C) 488
CV (%): (O) 12, (C) 13

TEST SITE: Keith silt loam

Grain sorghum 1996, fallow 1997

GROWING CONDITIONS: A favorable growing season produced some very good yields. Diseases did not cause problems.

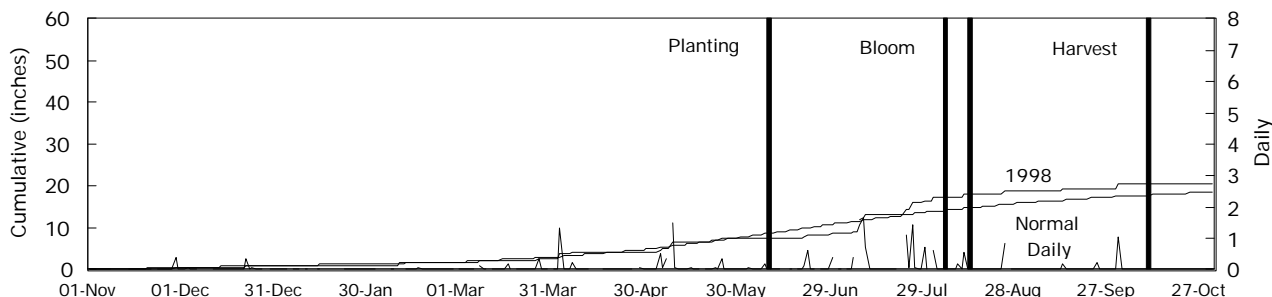
FERTILIZATION: 86 lbs N/a spring 1998

PLANTING DATE: June 10, 1998

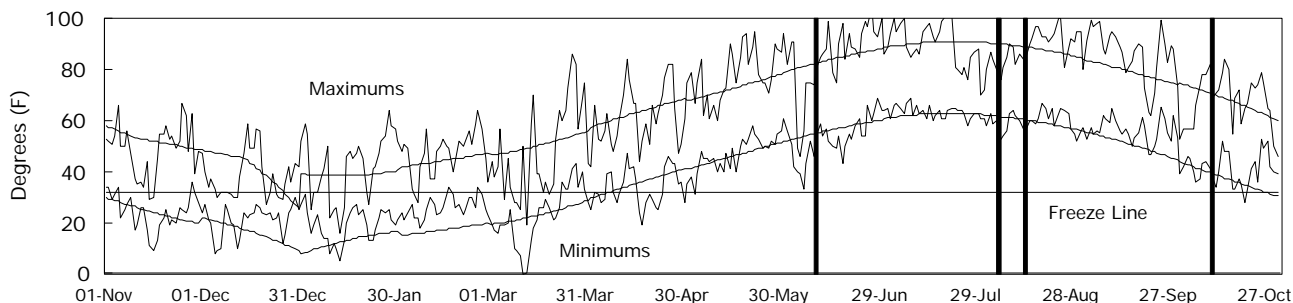
HEADING DATES: Aug. 5-13, 1998

HARVEST DATE: Oct. 9, 1998

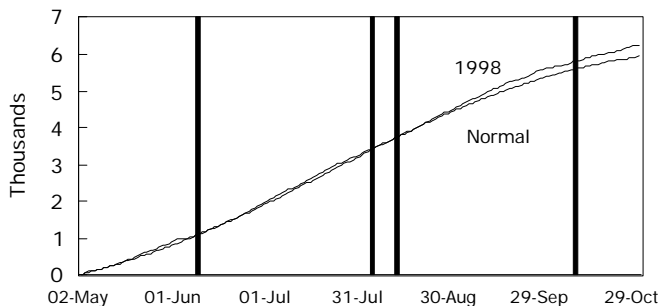
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.7	1.8	47	49	0	0
May	3.1	2.9	63	60	876	781
June	1.5	3.1	69	70	1042	1093
July	7.9	3.0	77	76	1328	1317
August	2.4	2.2	74	74	1246	1241
Sep.	0.5	1.5	71	65	1114	928
Oct.	1.1	1.1	54	53	631	574
Season Totals	18.0	15.6	65	64	6236	5934

Table 1. Thomas County Oilseed Sunflower Performance Test Results--Fallow, 1996-1998

Brand and hybrid	Yield, lbs/a					Yield as % of test average			Oil, %			Oil yield, lbs/a				
	1998		1997		1996	2-yr avg	3-yr avg	1998	1997	1996	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg
	1998	1997	1996	2-yr avg	3-yr avg	1998	1997	1996	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg		
Agripro Seeds Inc. AP3430	2374	2210	1704	2292	2096	82	85	93	39.2	38.6	39.2	931	884	819		
Agripro Seeds Inc. AP3470	3133	3004	1465	3069	2534	108	115	80	39.6	39.8	39.7	1241	1221	1007		
Agripro Seeds Inc. AP4193	2691	2391	1741	2541	2274	93	92	95	42.2	41.2	41.7	1136	1047	946		
Cargill SF187	2928	2682	2002	2805	2537	101	103	109	40.5	39.7	40.0	1186	1113	1014		
Cargill SF270	3076	2426	1689	2751	2397	106	93	92	40.4	40.4	40.6	1243	1111	972		
Cargill SF290 NL	3091	2812	2135	2952	2679	107	108	112	38.7	39.2	39.7	1196	1155	1061		
Cargill X 3210	2835	----	----	----	----	98	----	----	40.7	----	----	1154	----	----		
Cargill X 3272	2593	----	----	----	----	90	----	----	41.4	----	----	1074	----	----		
Cargill X 6007	3134	2510	----	2822	----	108	96	----	43.0	41.9	----	1348	1185	----		
Croplan Genetics CL 757	2268	2496	1848	2382	2204	78	96	101	42.0	41.7	42.2	953	992	928		
Croplan Genetics CL 810	2993	2944	1820	2969	2586	103	113	99	41.7	40.7	41.5	1248	1208	1067		
Croplan Genetics CL 815	2855	2552	----	2704	----	99	98	----	43.8	42.4	----	1250	1148	----		
Croplan Genetics CL 821	2926	2667	1891	2797	2495	101	102	103	39.2	39.3	39.7	1147	1099	987		
Dekalb DK 3790	2671	2335	1830	2503	2279	92	90	100	43.2	42.5	42.8	1154	1064	975		
Dekalb DK 3806	2647	----	----	----	----	91	----	----	43.4	----	----	1149	----	----		
Dekalb DK 3868	2388	2297	2181	2343	2289	82	88	119	41.7	40.4	40.8	996	946	934		
Dekalb DK 3875	3274	2602	----	2838	----	113	100	----	39.6	38.8	----	1297	1143	----		
Dekalb DK 3881	2790	2556	2086	2673	2477	96	98	114	41.9	40.9	41.2	1169	1093	1020		
Dekalb DK 3900	3542	----	----	----	----	122	----	----	42.0	----	----	1488	----	----		
Eureka Seeds Inc ST2115	2505	2838	----	2672	----	87	109	----	41.3	41.7	----	1035	1113	----		
Eureka Seeds Inc ST2135	2665	2787	----	2726	----	92	107	----	41.6	41.6	----	1109	1134	----		
Interstate Payco Seed Hysun 449	2630	2382	----	2506	----	91	91	----	36.5	37.5	----	960	937	----		
Interstate Payco Seed IS 6077	3197	2467	1804	2832	2489	110	95	98	41.2	40.7	40.3	1317	1153	1007		
Interstate Payco Seed IS 6767	3273	2532	1963	2903	2589	113	97	107	43.0	42.2	42.3	1407	1227	1096		
Interstate Payco Seed IS 4049	2946	----	----	----	----	102	----	----	39.8	----	----	1173	----	----		
Kaystar 9501	3336	2857	1959	3097	2717	115	110	107	35.9	36.2	37.3	1198	1119	1004		
Kaystar EX 88900	2675	----	----	----	----	92	----	----	36.3	----	----	971	----	----		
Mycogen Seeds 8372	3007	----	----	----	----	104	----	----	43.3	----	----	1302	----	----		
Mycogen Seeds 8488NS	2893	----	----	----	----	100	----	----	37.9	----	----	1096	----	----		
Novartis Seeds NK231	3379	2713	2029	3046	2707	117	104	111	37.5	37.3	39.7	1267	1135	1059		
Novartis Seeds NK278	3236	2953	1883	3095	2691	112	113	99	41.3	41.6	41.3	1336	1287	1113		
Novartis Seeds T45-L2	2298	2790	----	2544	----	79	107	----	39.4	39.5	----	905	1004	----		
Pioneer Hi-Bred International 6300	2794	----	----	----	----	97	----	----	43.4	----	----	1213	----	----		
Pioneer Hi-Bred International 6338	3154	3020	2281	3087	2818	109	116	124	41.1	40.9	41.8	1296	1261	1174		
Pioneer Hi-Bred International 63A51	2815	----	----	----	----	97	----	----	38.6	----	----	1087	----	----		
Pioneer Hi-Bred International 6451	2876	2647	1757	2762	2427	99	102	96	43.5	43.0	42.7	1251	1187	1038		
Triumph Seed 540	2961	----	----	----	----	102	----	----	42.8	----	----	1267	----	----		
Triumph Seed 562	3651	3303	----	3477	----	126	127	----	40.4	40.3	----	1475	1401	----		
Triumph Seed 573	2829	2921	----	2875	----	98	112	----	38.7	38.3	----	1095	1099	----		
Triumph Seed 642	2477	----	----	----	----	86	----	----	39.2	----	----	971	----	----		
Average	2895	2605	1835	2750	2445	100	100	100	40.7	40.4	40.9	1067	1056	960		
LSD (.05)	398	291	309	----	----	----	----	----	----	----	----	----	----	----	----	

continued

Table 1. Thomas County Oilseed Sunflower Performance Test Results--Follow, 1996-1998, continued

Brand and hybrid	Days to ½ bloom			Plant height (in)			Lodging (%)			Test wt (lbs/bu)			200 seed wt (g)		
	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr
	1998	avg	avg	1998	avg	avg	1998	avg	avg	1998	avg	avg	1998	avg	avg
Agripro Seeds Inc. AP3430	59	60	59	65	60	58	4	3	3	28.3	27.8	27.6	11.9	12.5	11.0
Agripro Seeds Inc. AP3470	60	60	59	66	60	58	4	2	4	27.8	28.1	28.1	12.6	13.1	11.0
Agripro Seeds Inc. AP4193	61	62	61	67	60	58	4	2	3	30.3	29.5	29.2	12.4	13.5	11.9
Cargill SF187	60	61	60	58	54	52	1	1	1	28.0	27.6	27.4	11.7	11.4	9.9
Cargill SF270	57	58	57	59	53	52	3	2	3	29.6	29.4	29.3	13.0	13.3	11.7
Cargill SF290 NL	60	61	60	56	54	52	2	2	1	28.2	27.4	27.1	11.8	11.9	10.5
Cargill X 3210	58	----	----	59	----	----	7	---	---	30.3	----	----	12.4	----	----
Cargill X 3272	60	----	----	61	----	----	8	---	---	28.0	----	----	12.2	----	----
Cargill X 6007	60	61	----	61	56	----	1	1	---	28.9	28.1	----	11.4	11.2	----
Croplan Genetics CL 757	60	60	59	71	63	62	9	5	4	28.6	28.6	28.6	11.2	11.2	9.3
Croplan Genetics CL 810	60	61	60	64	58	56	5	3	3	28.7	28.3	28.2	12.7	13.5	11.7
Croplan Genetics CL 815	62	63	----	67	61	----	7	4	---	28.9	28.2	----	12.5	12.1	----
Croplan Genetics CL 821	59	60	59	66	61	58	3	2	2	27.1	26.9	26.8	12.3	12.1	10.7
Dekalb DK 3790	58	58	57	66	58	56	4	3	4	30.4	29.9	29.7	10.9	11.1	9.2
Dekalb DK 3806	58	----	----	66	----	----	3	---	---	30.6	----	----	12.1	----	----
Dekalb DK 3868	59	59	58	60	53	51	6	3	4	29.8	28.5	28.0	11.2	11.5	10.3
Dekalb DK 3875	60	61	----	65	58	----	3	2	---	27.8	27.6	----	12.0	12.0	----
Dekalb DK 3881	60	61	60	62	56	54	7	4	3	27.7	27.2	27.0	11.8	12.0	10.8
Dekalb DK 3900	61	----	----	63	----	----	2	---	---	29.0	----	----	12.2	----	----
Eureka Seeds Inc ST2115	61	62	----	65	58	----	1	1	---	26.8	27.1	----	12.1	12.5	----
Eureka Seeds Inc ST2135	63	65	----	74	66	----	6	3	---	30.3	30.6	----	12.4	12.2	----
Interstate PaycoSeed Hysun 449	62	63	----	65	59	----	6	3	---	28.7	28.3	----	13.0	12.7	----
Interstate Payco Seed IS 6077	60	60	59	70	62	60	9	5	5	28.4	27.5	27.1	13.6	12.5	10.8
Interstate Payco Seed IS 6767	60	60	59	66	60	57	2	1	2	29.8	29.1	28.8	12.9	13.1	11.3
Interstate Payco Seed IS 4049	62	----	----	71	----	----	5	---	---	27.6	----	----	11.9	----	----
Kaystar 9501	62	63	62	69	63	60	1	1	1	29.4	29.6	29.6	13.5	13.1	11.8
Kaystar EX 88900	61	----	----	67	----	----	6	---	---	28.4	----	----	12.2	----	----
Mycogen Seeds 8372	58	----	----	68	----	----	9	---	---	29.2	----	----	11.9	----	----
Mycogen Seeds 8488NS	61	----	----	66	----	----	4	---	---	29.1	----	----	11.4	----	----
Novartis Seeds NK231	58	59	58	64	58	56	0	1	2	29.6	29.2	29.1	10.4	10.0	9.0
Novartis Seeds NK278	60	61	60	67	62	59	1	1	3	28.4	28.1	28.0	12.0	12.6	11.3
Novartis Seeds T45-L2	60	61	----	72	63	----	4	2	---	30.2	30.0	----	11.8	11.7	----
Pioneer Hi-Bred International 6300	58	----	----	72	----	----	3	---	---	27.6	----	----	11.2	----	----
Pioneer Hi-Bred International 6338	61	62	61	73	67	65	2	2	1	30.1	30.3	30.3	12.6	12.7	11.6
Pioneer Hi-Bred International 63A51	58	----	----	66	----	----	4	---	---	29.4	----	----	12.3	----	----
Pioneer Hi-Bred International 6451	60	61	60	60	56	55	5	3	2	28.5	28.1	27.9	11.4	11.6	11.1
Triumph Seed 540	56	----	----	63	----	----	10	---	---	30.0	----	----	12.9	----	----
Triumph Seed 562	60	60	----	71	63	----	7	4	---	28.9	29.0	----	13.4	14.1	----
Triumph Seed 573	62	63	----	72	63	----	4	3	---	28.1	28.2	----	11.9	12.4	----
Triumph Seed 642	59	----	----	62	----	----	6	---	---	29.2	----	----	11.3	----	----
Average	60	61	60	65	59	58	4	2	5	28.9	28.6	28.2	12.1	12.3	10.8
LSD (.05)	1	----	----	4	----	----	4	---	---	0.8	----	----	0.7	----	----

Table 2. Thomas County Confectionary Sunflower Performance Test Results--Fallow, 1996-1998

Brand and hybrid	Yield (lbs/a)					Yield as % of test avg			Days to 1/2 bloom		
	1998	1997	1996	2-yr avg	3-yr avg	1998	1997	1996	1998	2-yr avg	3-yr avg
Agripro Seeds Inc. RH3701	3182	2027	----	2605	----	100	98	----	60	60	----
Agripro Seeds Inc. RH3733	3281	1926	----	2604	----	103	93	----	60	60	----
Agway, Inc. RH 2073	3223	----	----	----	----	101	----	----	60	----	----
Agway, Inc. RH 2373	3250	----	----	----	----	102	----	----	61	----	----
Interstate Payco Seed IS 49097	3422	----	----	----	----	108	----	----	57	----	----
Mycogen Seeds 9490	3163	----	----	----	----	99	----	----	61	----	----
Red River Commodities 2211	3255	2167	1249	2711	2224	102	105	106	61	62	61
Red River Commodities 2213	3078	2140	----	2609	----	97	104	----	61	61	----
Red River Commodities 2331	3190	2017	1167	2604	2125	100	98	99	62	62	62
Red River Commodities 3531	2897	2103	1217	2500	2072	91	102	104	62	62	62
Red River Commodities 9490	3156	----	----	----	----	99	----	----	61	----	----
Red River Commodities EX2412	3122	----	----	----	----	98	----	----	62	----	----
Red River Commodities EX2413	3501	----	----	----	----	110	----	----	61	----	----
Seeds 2000 Kodiak	3196	1914	1208	2555	2106	100	93	103	57	60	59
Triumph Seed 520C	3159	2737	1053	2948	2316	99	133	90	61	63	62
Triumph Seed 760C	3295	2560	----	2928	----	104	124	----	61	62	----
Triumph Seed 765C	2715	1685	----	2200	----	85	82	----	61	61	----
Average	3181	2062	1174	2622	2139	100	100	100	60	60	60
LSD.05	488	355	283	----	----	----	----	----	1	----	----

	Plant height (in)			Lodging (%)			Test weight (lbs/bu)			200 seed weight (g)		
	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg
Agripro Seeds Inc. RH3701	73	63	----	5	3	--	20.6	20.6	----	24.5	25.2	----
Agripro Seeds Inc. RH3733	72	62	----	0	1	--	19.6	18.9	----	22.2	24.1	----
Agway, Inc. RH 2073	70	----	----	6	--	--	20.0	----	----	24.5	----	----
Agway, Inc. RH 2373	75	----	----	5	--	--	20.0	----	----	24.1	----	----
Interstate Payco Seed IS 49097	72	----	----	3	--	--	21.2	----	----	24.9	----	----
Mycogen Seeds 9490	70	----	----	15	--	--	20.3	----	----	27.0	----	----
Red River Commodities 2211	73	64	61	8	4	4	20.1	19.0	18.9	24.6	23.9	22.5
Red River Commodities 2213	72	64	----	15	8	--	19.6	19.2	----	24.4	22.3	----
Red River Commodities 2331	74	64	61	10	5	6	19.8	20.2	20.0	19.2	15.6	16.0
Red River Commodities 3531	76	66	63	14	7	6	19.1	18.6	18.6	22.5	21.9	20.4
Red River Commodities 9490	67	----	----	9	--	--	20.2	----	----	20.9	----	----
Red River Commodities EX2412	73	----	----	14	--	--	20.1	----	----	25.8	----	----
Red River Commodities EX2413	72	----	----	0	--	--	20.9	----	----	23.3	----	----
Seeds 2000 Kodiak	71	62	59	3	2	5	20.1	19.1	19.3	19.4	19.7	18.6
Triumph Seed 520C	74	65	63	6	3	4	19.7	19.5	19.3	23.5	23.3	21.8
Triumph Seed 760C	74	65	----	7	4	--	19.7	19.4	----	21.9	23.3	----
Triumph Seed 765C	71	61	----	17	9	--	19.0	18.6	----	23.0	22.5	----
Average	72	62	60	8	4	5	20.0	19.3	19.2	23.3	22.8	21.4
LSD (.05)	4	----	----	6	--	--	0.6	----	----	----	----	----

Table 3. Seed Size Distribution for Thomas County Confectionary Sunflower Performance Tests–Fallow, 1996-19978

Brand and hybrid	Seed size distribution (%)																				
	1998							2-year average							3-year average						
	21/64	20/64	19/64	18/64	16/64			21/64	20/64	19/64	18/64	16/64			21/64	20/64	19/64	18/64	16/64		
	Abov	to	to	to	to	to	Belo	Abov	to	to	to	to	to	Belo	Abov	to	to	to	to	to	Belo
e	22/64	21/64	20/64	19/64	19/64	w	e	22/64	21/64	20/64	19/64	19/64	w	e	22/64	21/64	20/64	19/64	19/64	w	
	22/64					16/64	22/64						16/64	22/64						16/64	
Agripro Seeds Inc. RH3701	40.0	22.3	16.0	10.8	4.4	4.7	1.8	53.4	18.7	11.5	7.5	3.1	3.3	2.4	----	----	----	----	----	----	----
Agripro Seeds Inc. RH3733	32.0	20.3	14.9	13.5	7.1	7.9	4.4	49.7	15.1	11.3	8.8	4.8	5.0	5.4	----	----	----	----	----	----	----
Agway, Inc. RH 2073	29.9	20.4	17.7	11.8	8.3	7.3	1.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Agway, Inc. RH 2373	28.7	17.7	22.3	15.6	7.2	5.2	3.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Interstate Payco Seed IS 49097	20.9	24.3	20.6	17.5	7.7	6.7	2.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mycogen Seeds 9490	12.8	15.3	15.9	22.1	10.5	17.1	6.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Red River Commodities 2211	17.7	15.6	22.2	21.6	10.8	9.8	2.2	37.8	15.6	15.0	14.2	7.3	6.7	3.4	28.5	17.2	17.8	16.7	8.7	8.0	3.2
Red River Commodities 2213	22.9	24.1	18.5	17.9	6.6	8.2	2.0	26.7	21.1	17.0	15.8	6.2	7.9	5.3	----	----	----	----	----	----	----
Red River Commodities 2331	26.2	13.3	14.2	14.8	10.7	13.2	7.8	25.4	13.0	12.7	13.9	10.4	14.1	10.7	22.4	13.3	12.4	14.4	10.4	16.1	11.0
Red River Commodities 3531	34.3	17.0	13.0	11.7	9.4	11.0	3.6	40.5	15.5	10.8	10.0	7.9	10.0	5.3	33.5	14.2	11.2	11.9	9.2	13.3	6.7
Red River Commodities 9490	11.7	15.4	17.1	17.8	11.9	18.2	8.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Red River Commodities EX2412	38.8	18.6	13.3	11.9	7.1	6.6	3.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Red River Commodities EX2413	19.3	17.6	19.5	20.0	10.7	10.4	2.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Seeds 2000 Kodiak	17.3	12.2	16.0	17.9	12.4	17.8	6.7	28.9	14.3	14.1	14.4	8.9	11.5	8.0	22.7	13.3	13.7	15.6	10.4	15.2	9.3
Triumph Seed 520C	19.1	19.6	22.8	20.4	8.3	7.1	2.8	34.0	19.3	17.7	14.5	5.7	4.6	4.3	25.3	18.1	19.7	17.7	7.9	7.2	4.2
Triumph Seed 760C	24.8	21.3	20.5	15.5	7.4	8.6	2.3	45.1	17.3	14.3	10.2	4.7	5.9	2.6	----	----	----	----	----	----	----
Triumph Seed 765C	24.6	25.5	21.4	16.2	4.5	5.2	2.4	37.9	21.3	16.3	11.2	4.2	5.1	3.9	----	----	----	----	----	----	----
Average	24.8	18.9	18.0	16.3	8.5	9.7	3.8	37.4	17.0	14.1	12.2	6.5	7.6	5.2	29.6	16.0	14.7	14.5	8.7	10.7	5.8

**NORTHWESTERN KANSAS
IRRIGATED SUNFLOWER TESTS--
OILSEED AND CONFECTIONARY**

IRRIGATIONS: (3") July 21, Aug. 18, 1998
PEST CONTROL: Treflan, May 18; Asana, Aug. 17

POPULATIONS: Double-planted and thinned to desired stands:

LOCATION: Northwest Research-Extension Center, Thomas County

Oil (O) 23000 plants/a
Confectionary (C) 17000 plants/a

COOPERATOR: Pat Evans, research technologist

TEST YIELDS:

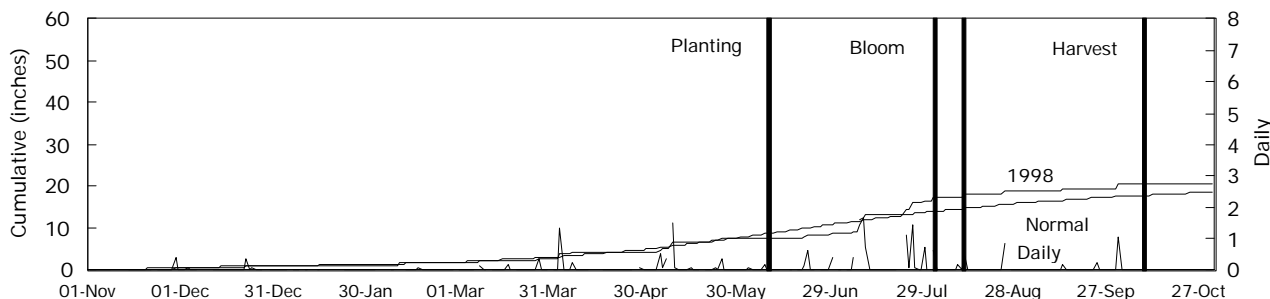
Avg. (lbs/a): (O) 2246, (C) 2836
Range: (O) 1504-2906, (C) 2177-3324
LSD (lbs/a): (O) 436, (C) 579
CV (%): (O) 17, (C) 17

TEST SITE: Keith silt loam
Soybeans 1996, Corn 1997

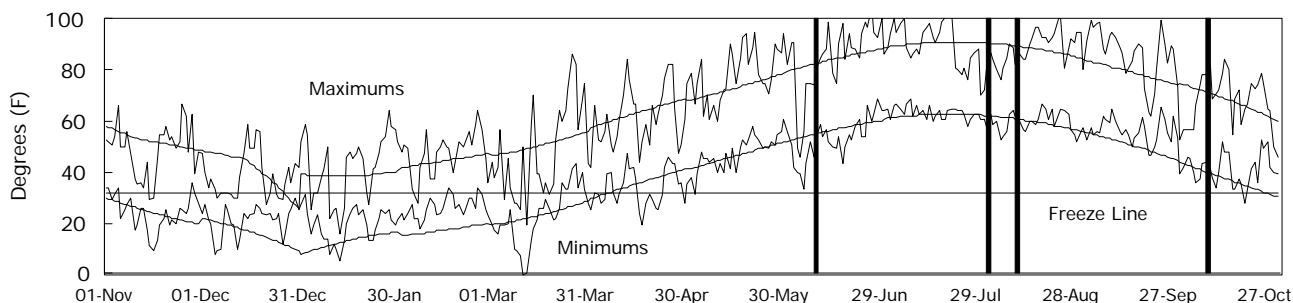
GROWING CONDITIONS: Excellent stands were established, but rabbits did damage in some plots. Insecticide seemed to control head moth, and diseases did not cause problems.

FERTILIZATION: 110 lbs N/a 4/21/98
PLANTING DATE: June 9, 1998
HEADING DATES: Aug. 2-11, 1998
HARVEST DATE: Oct. 10, 1998

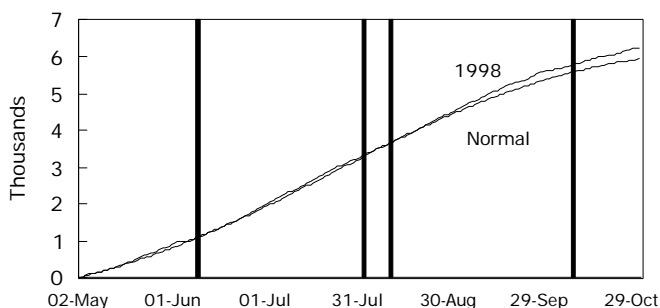
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.7	1.8	47	49	0	0
May	3.1	2.9	63	60	876	781
June	1.5	3.1	69	70	1042	1093
July	7.9	3.0	77	76	1328	1317
August	2.4	2.2	74	74	1246	1241
Sep.	0.5	1.5	71	65	1114	928
Oct.	1.1	1.1	54	53	631	574
Season Totals	18.0	15.6	65	64	6236	5934

Table 4. Thomas County Oilseed Sunflower Performance Test Results—Irrigated, 1996-1998

Brand and hybrid	Yield (lbs/a)					Yield as % of test average			Oil (%)			Oil yields (lbs/a)		
	1998	1997	1996	2-yr	3-yr	1998	1997	1996	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg
				avg	avg									
AgriPro Seeds Inc AP 3430	2029	2688	1793	2359	2170	90	93	102	39.0	40.4	40.3	791	956	878
AgriPro Seeds Inc AP 3470	1996	3020	1733	2508	2250	89	105	98	40.1	40.9	39.7	800	1030	902
AgriPro Seeds Inc AP 4193	1876	2617	1894	2247	2129	84	91	107	41.3	42.5	42.4	775	959	906
Asgrow Seed Co AS 3211	2333	2960	----	2647	----	104	102	----	40.8	41.8	----	952	----	----
Asgrow Seed Co AS 5101	2419	----	----	----	----	108	----	----	42.3	----	----	1023	----	----
Asgrow Seed Co AS 5303	1504	----	----	----	----	67	----	----	42.3	----	----	636	----	----
Asgrow Seed Co AS 6305	1576	----	----	----	----	70	----	----	41.9	----	----	660	----	----
Cargill SF187	2484	3379	1843	2932	2569	111	117	104	40.4	41.3	40.9	1004	1181	1034
Cargill SF270	2372	3001	2109	2687	2494	106	104	119	41.1	42.0	41.3	975	1088	1006
Cargill SF290 NL	2285	3048	2034	2667	2456	102	106	115	39.4	40.8	40.4	900	1055	973
Cargill SF3210	2477	----	----	----	----	110	----	----	40.5	----	----	1003	----	----
Cargill SF3272	2411	----	----	----	----	107	----	----	41.9	----	----	1010	----	----
Cargill X6007	2669	2923	----	2796	----	119	101	----	43.8	44.4	----	1169	----	----
Dekalb DK 3790	2243	2748	1242	2496	2078	100	95	70	43.0	43.8	42.7	964	1040	861
Dekalb DK 3806	2400	----	----	----	----	107	----	----	43.9	----	----	1054	----	----
Dekalb DK 3868	2355	3112	1595	2734	2354	105	108	90	42.7	43.1	42.2	1006	1130	967
Dekalb DK 3875	2471	3156	----	2814	----	110	109	----	40.6	40.7	----	1003	----	----
Dekalb DK 3881	2251	2926	1932	2589	2370	100	101	109	41.7	42.3	41.2	939	1043	948
Dekalb DK 3900	2205	----	----	----	----	98	----	----	43.3	----	----	955	----	----
Interstate Payco Seed Hysun 449	2396	2639	----	2518	----	107	91	----	35.4	38.4	----	848	----	----
Interstate Payco Seed IS 6767	2608	2761	1814	2685	2394	116	96	103	42.6	43.2	42.3	1111	1115	988
Interstate Payco Seed 4049	2410	----	----	----	----	107	----	----	40.5	----	----	976	----	----
Kaystar 9501	1960	3093	1831	2527	2295	87	107	104	35.8	37.4	36.7	702	900	817
Kaystar EX 88900	1763	----	----	----	----	78	----	----	34.8	----	----	614	----	----
Mycogen Seeds 8372	2492	----	----	----	----	111	----	----	42.8	----	----	1067	----	----
Mycogen Seeds 8488NS	2358	----	----	----	----	105	----	----	37.7	----	----	889	----	----
Pioneer Hi-Bred International 6338	2783	3462	3445	3123	3230	124	120	195	40.7	41.7	41.5	1133	1278	1324
Pioneer Hi-Bred International 63A51	2457	----	----	----	----	109	----	----	38.2	----	----	939	----	----
Pioneer Hi-Bred International 6451	2190	2862	1697	2526	2250	98	99	96	43.2	44.3	43.8	946	1086	966
Triumph Seed 540	1655	3183	----	2419	----	74	110	----	41.8	42.6	----	692	1035	----
Triumph Seed 562	2906	3196	----	3051	----	129	111	----	40.0	41.4	----	1162	1365	----
Triumph Seed 573	1876	2903	----	2390	----	84	101	----	37.7	39.4	----	707	1190	----
Triumph Seed 642	1914	----	----	----	----	85	----	----	39.3	----	----	752	----	----
Average	2246	2888	1765	2567	2300	100	100	100	40.6	41.8	41.3	914	1079	956
LSD (.05)	436	381	456	----	----	----	----	----	----	----	----	----	----	----

continued

Table 4. Thomas County Oilseed Sunflower Performance Test Results—Irrigated, 1996-1998, continued

Brand and hybrid	Days to 1/2 bloom			Plant height (in)			Lodging (%)			Test weight (lbs/bu)			200 seed weight (g)		
	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr
	1998	avg	avg	1998	avg	avg	1998	avg	avg	1998	avg	avg	1998	avg	avg
AgriPro Seeds Inc AP 3430	59	58	57	64	67	67	3	5	14	28.1	29.1	28.4	12.3	12.8	11.8
AgriPro Seeds Inc AP 3470	58	57	57	72	71	69	8	11	17	29.0	29.9	28.7	11.8	13.2	12.1
AgriPro Seeds Inc AP 4193	61	60	59	75	73	70	12	12	23	30.2	30.7	29.9	11.5	12.2	11.3
Asgrow Seed Co AS 3211	41	48	----	81	79	----	6	6	----	29.4	30.3	----	14.4	13.7	----
Asgrow Seed Co AS 5101	57	----	----	79	----	----	6	----	----	29.2	----	----	13.9	----	----
Asgrow Seed Co AS 5303	58	----	----	75	----	----	13	----	----	28.1	----	----	12.1	----	----
Asgrow Seed Co AS 6305	62	----	----	74	----	----	4	----	----	29.4	----	----	12.4	----	----
Cargill SF187	61	61	60	66	66	64	4	5	25	29.0	29.3	28.1	11.3	11.5	11.1
Cargill SF270	56	56	55	68	66	65	3	4	8	30.0	30.0	29.2	12.5	12.6	12.0
Cargill SF290 NL	59	59	58	60	63	63	7	7	8	28.4	28.6	27.4	11.9	12.1	11.2
Cargill SF3210	57	----	----	64	----	----	7	----	----	31.7	----	----	12.1	----	----
Cargill SF3272	58	----	----	63	----	----	3	----	----	29.5	----	----	11.9	----	----
Cargill X6007	60	59	----	71	70	----	5	5	----	30.1	30.2	----	11.7	11.2	----
Dekalb DK 3790	58	57	56	70	69	68	5	8	24	31.8	31.7	30.9	12.1	11.5	10.8
Dekalb DK 3806	57	----	----	72	----	----	4	----	----	31.6	----	----	12.2	----	----
Dekalb DK 3868	59	58	57	66	65	64	7	8	19	31.2	31.0	30.2	11.6	11.6	10.9
Dekalb DK 3875	62	60	----	71	69	----	8	9	----	28.9	29.3	----	12.2	12.0	----
Dekalb DK 3881	61	60	59	62	63	64	8	10	13	29.0	29.7	28.7	13.4	12.6	11.8
Dekalb DK 3900	62	----	----	65	----	----	9	----	----	30.0	----	----	12.1	----	----
Interstate Payco Seed Hysun 449	62	61	----	67	66	----	4	7	----	28.8	29.3	----	13.2	12.5	----
Interstate Payco Seed IS 6767	59	59	58	70	69	68	5	6	12	30.9	30.7	29.6	13.5	12.9	12.6
Interstate Payco Seed IS 4049	62	----	----	82	----	----	5	----	----	28.9	----	----	12.4	----	----
Kaystar 9501	62	62	61	81	78	77	5	7	10	29.3	30.1	29.6	13.1	14.3	12.6
Kaystar EX 88900	62	----	----	76	----	----	10	----	----	29.2	----	----	13.1	----	----
Mycogen Seeds 8372	57	----	----	77	----	----	12	----	----	30.6	----	----	12.6	----	----
Mycogen Seeds 8488NS	61	----	----	72	----	----	6	----	----	30.0	----	----	12.5	----	----
Pioneer Hi-Bred International 6338	62	61	60	77	77	76	2	9	7	29.7	30.2	30.1	14.0	13.0	11.6
Pioneer Hi-Bred International 63A51	57	----	----	73	----	----	8	----	----	29.8	----	----	13.4	----	----
Pioneer Hi-Bred International 6451	61	60	59	66	66	65	3	7	14	28.7	29.0	28.5	13.5	12.3	11.2
Triumph Seed 540	57	56	----	69	67	----	14	11	----	29.8	30.2	----	13.6	12.9	----
Triumph Seed 562	59	58	----	79	75	----	5	6	----	29.6	30.5	----	14.0	14.1	----
Triumph Seed 573	62	61	----	76	75	----	8	13	----	28.7	29.5	----	13.9	13.0	----
Triumph Seed 642	60	----	----	69	----	----	8	----	----	29.9	----	----	13.5	----	----
Average	59	59	58	71	70	69	6	8	16	29.6	30.0	29.6	12.7	12.4	11.6
LSD (.05)	6	----	----	5	----	----	5	----	----	1	----	----	----	----	----

Table 5. Thomas County Confectionary Sunflower Performance Test Results--Irrigated, 1996-1998

Brand and hybrid	Acre yield (lbs)					Yield as % of test avg.			Days to 1/2 bloom		
	1998	1997	1996	2-yr avg	3-yr avg	1998	1997	1996	1998	2-yr avg	3-yr avg
Agripro Seeds Inc. RH3701	3012	2557	----	2785	----	106	92	----	57	61	----
Agripro Seeds Inc. RH 3733	2825	2536	----	2681	----	100	91	----	58	62	----
Agway, Inc. RH 2073	2869	----	----	----	----	101	----	----	58	----	----
Agway, Inc. RH 2373	3324	----	----	----	----	117	----	----	58	----	----
Interstate Payco Seed IS 49097	2906	----	----	----	----	102	----	----	56	----	----
Mycogen Seeds 9490	2464	2866	----	2665	----	87	103	----	59	64	----
Red River Commodities 2211	2743	2699	1127	2721	2190	97	97	100	59	65	62
Red River Commodities 2213	3169	3080	----	3125	----	112	111	----	58	63	----
Red River Commodities 2331	2656	2717	988	2687	2120	94	98	88	58	63	61
Red River Commodities 3531	2178	2779	1104	2479	2020	77	100	98	59	65	62
Red River Commodities 9490	2465	----	----	----	----	87	----	----	58	----	----
Red River Commodities EX2412	2610	----	----	----	----	92	----	----	60	----	----
Red River Commodities EX2413	2887	----	----	----	----	102	----	----	59	----	----
Seeds 2000 Kodiak	2853	2544	1234	2699	2210	101	92	110	57	62	59
Triumph Seed 520C	2991	3185	1034	3088	2403	105	115	92	59	64	61
Triumph Seed 760C	2995	3078	----	3037	----	106	111	----	59	64	----
Triumph Seed 765C	3263	3001	----	3132	----	115	108	----	59	65	----
Average	2836	2776	1125	2806	2246	100	100	100	58	57	61
LSD (.05)	579	387	347	----	----	----	----	----	1	----	----

	Plant height (in)			Lodging (%)			Test weight (lbs/bu)			200 seed weight (g)		
	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg	1998	2-yr avg	3-yr avg
Agripro Seeds Inc. RH3701	75	73	----	3	2	----	22.3	22.0	----	23.9	22.6	----
Agripro Seeds Inc. RH 3733	78	73	----	8	5	----	21.7	20.8	----	24.5	23.5	----
Agway, Inc. RH 2073	75	----	----	10	----	----	22.5	----	----	25.1	----	----
Agway, Inc. RH 2373	77	----	----	3	----	----	21.2	----	----	23.9	----	----
Interstate Payco Seed IS 49097	74	----	----	11	----	----	22.3	----	----	26.9	----	----
Mycogen Seeds 9490	76	70	----	14	9	----	22.5	21.7	----	21.7	23.6	----
Red River Commodities 2211	76	71	70	10	9	15	21.6	20.5	20.1	26.1	24.8	22.9
Red River Commodities 2213	77	73	----	5	3	----	21.7	21.2	----	26.0	23.0	----
Red River Commodities 2331	79	74	71	12	8	23	21.4	21.2	20.2	20.9	20.5	19.5
Red River Commodities 3531	78	74	75	20	12	24	21.3	20.6	19.8	21.1	21.1	20.2
Red River Commodities 9490	74	----	----	13	----	----	22.7	----	----	21.8	----	----
Red River Commodities EX2412	75	----	----	8	----	----	21.8	----	----	24.5	----	----
Red River Commodities EX2413	77	----	----	6	----	----	22.5	----	----	24.5	----	----
Seeds 2000 Kodiak	76	72	69	8	5	18	22.1	21.2	20.8	20.7	20.4	19.4
Triumph Seed 520C	80	75	71	0	2	14	21.7	21.0	20.4	24.5	23.8	22.6
Triumph Seed 760C	79	73	----	3	2	----	21.2	20.8	----	24.2	23.9	----
Triumph Seed 765C	76	72	----	12	8	----	21.5	20.8	----	26.0	24.6	----
Average	76	72	71	9	6	14	21.9	22.0	20.4	23.9	23.1	21.7
LSD (.05)	3	----	----	6	----	----	0.6	----	----	----	----	----

Table 6. Seed Size Distribution for Thomas County Confectionary Sunflower Performance Tests—Irrigated, 1996-1998

Brand and hybrid	Seed size distribution (%)																				
	1998							2-year average							3-year average						
	Above	to	to	to	to	to	Below	Above	to	to	to	to	to	Below	Above	to	to	to	to	to	Below
	22/64	21/64	20/64	19/64	18/64	16/64	16/64	22/64	21/64	20/64	19/64	18/64	16/64	16/64	22/64	21/64	20/64	19/64	18/64	16/64	16/64
Agripro Seeds Inc. RH3701	31.4	18.4	17.4	14.1	6.0	8.6	4.5	32.7	21.0	16.4	12.9	5.5	6.7	5.1	----	----	----	----	----	----	----
Agripro Seeds Inc. RH 3733	29.1	20.4	14.4	11.2	8.7	10.0	6.5	38.7	19.1	13.8	9.8	6.9	6.8	5.2	----	----	----	----	----	----	----
Agway, Inc. RH 2073	32.3	18.3	18.4	13.0	7.5	7.1	3.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Agway, Inc. RH 2373	33.7	16.5	16.7	14.7	7.1	7.4	4.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Interstate Payco Seed 49097	30.1	19.8	18.2	16.1	6.5	6.1	3.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mycogen Seeds 9490	9.5	12.1	13.6	20.2	13.5	20.9	10.2	21.1	17.0	14.3	15.7	9.7	14.8	7.3	----	----	----	----	----	----	----
Red River Commodities 2211	22.6	21.2	20.4	15.7	7.6	10.1	2.3	33.9	20.3	16.8	11.1	5.8	8.1	3.7	26.5	17.0	15.9	15.7	9.3	11.4	3.9
Red River Commodities 2213	27.2	23.7	17.9	16.0	6.6	5.3	2.5	24.0	20.6	18.1	16.1	8.9	8.2	3.8	----	----	----	----	----	----	----
Red River Commodities 2331	24.8	15.0	14.7	15.3	8.5	12.3	9.7	20.8	14.3	14.3	15.2	9.0	15.8	10.8	20.2	13.4	13.3	15.5	9.9	16.6	11.1
Red River Commodities 3531	17.6	14.9	14.9	17.4	10.5	16.8	7.7	21.4	16.1	15.7	15.6	9.9	14.5	6.6	19.9	14.2	13.4	15.3	11.6	18.1	7.3
Red River Commodities 9490	13.5	12.4	15.3	23.6	12.7	16.6	5.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Red River Commodities EX2412	35.0	19.9	14.7	12.6	6.8	6.6	4.2	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Red River Commodities EX2413	24.5	21.6	15.4	14.4	10.2	9.9	3.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Seeds 2000 Kodiak	17.3	13.7	12.5	13.4	12.9	19.5	10.7	22.5	16.6	14.6	13.9	10.5	13.9	8.2	17.2	14.8	15.5	16.1	11.7	15.9	8.9
Triumph Seed 520C	20.4	17.3	20.6	19.3	9.4	9.3	3.1	21.6	19.5	19.8	17.9	9.2	7.9	3.9	15.9	16.8	18.7	21.7	11.3	11.2	4.0
Triumph Seed 760C	27.5	21.1	17.5	15.8	7.1	8.7	2.4	31.0	22.6	15.4	14.2	6.5	7.9	2.7	----	----	----	----	----	----	----
Triumph Seed 765C	26.4	20.6	21.5	16.5	5.6	5.9	3.0	27.5	20.2	21.2	15.0	7.4	5.5	3.0	----	----	----	----	----	----	----
Average	24.9	18.1	16.7	15.8	8.7	10.7	5.1	28.2	18.2	16.2	14.3	8.0	9.7	5.3	22.5	16.1	15.4	16.2	10.3	13.5	5.8

**NORTH CENTRAL KANSAS
DRYLAND SUNFLOWER TESTS--
OILSEED**

PEST CONTROL: Prowl, May 18, 1998
Warrior, Aug. 9 & 18

POPULATIONS: Double-planted and thinned
to desired stands:

Oil (O) 22000 plants/a

LOCATION: North Central Kansas
Experiment Field, west of Belleville in
Republic County

COOPERATOR: Barney Gordon,
agronomist

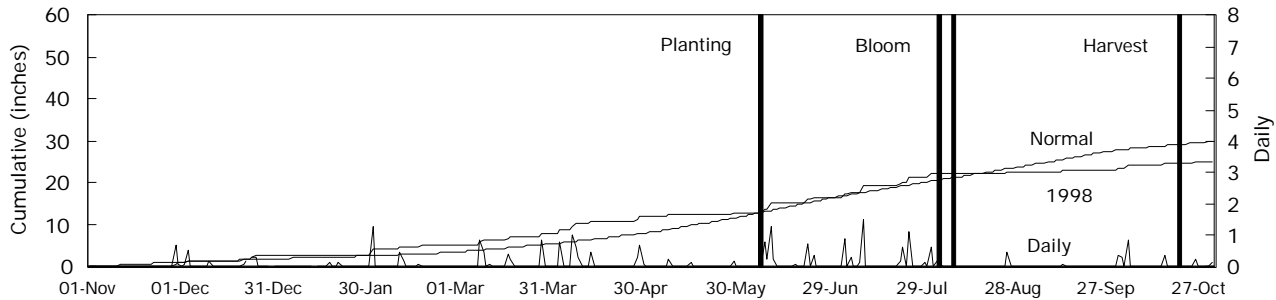
TEST SITE: Crete silt loam
Grain sorghum 1996, soybeans 1997

FERTILIZATION: 90-30-0 spring
PLANTING DATE: June 6, 1998
HEADING DATES: Aug. 3-8, 1998
HARVEST DATE: October 20, 1998

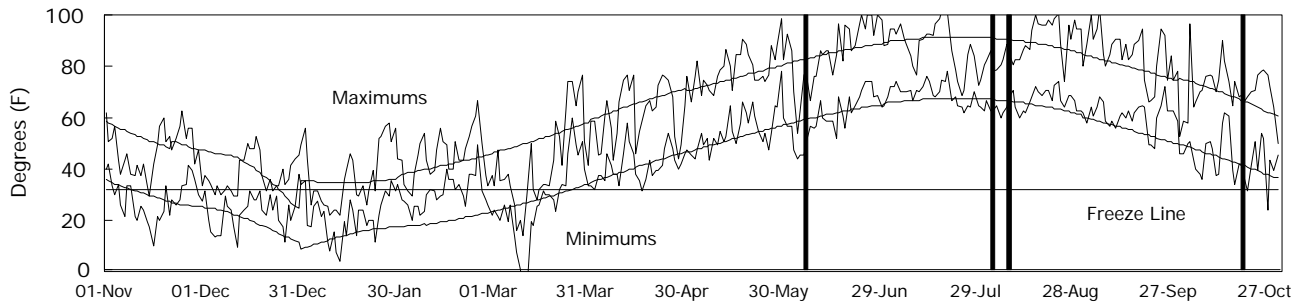
TEST YIELDS:
Avg. (lbs/a): 2036
Range: 1655-2597
LSD (lbs/a): 181
CV (%): 8

GROWING CONDITIONS: Uniform stands
were established in all plots, and growing
conditions remained favorable with nearly
ideal rainfall throughout June and July.
August and September were very hot and dry.
No significant disease outbreaks occurred.

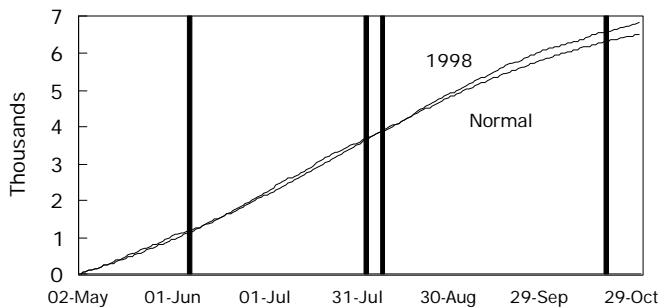
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	4.2	2.5	51	53	0	0
May	0.7	4.0	67	64	1006	902
June	3.9	4.6	73	74	1172	1188
July	4.8	3.8	79	79	1384	1398
August	1.4	3.7	78	77	1359	1335
Sep.	0.1	3.9	73	67	1167	1004
Oct.	2.3	2.0	58	56	733	678
Season Totals	17.3	24.5	68	67	6819	6505

Table 7. Republic County Oilseed Sunflower Performance Test Results–Dryland, 1996-1998

Brand and hybrid	Yield (lbs/a)					Yield as % of test average			Oil (%)			Oil yields (lbs/a)		
	1998	1997	1996	2-yr	3-yr	1998	1997	1996	1998	2-yr	3-yr	1998	2-yr	3-yr
				avg	avg					avg	avg		avg	
Cargill SF187	2380	2589	2349	2485	2439	117	109	107	38.7	40.4	40.8	921	1006	995
Cargill SF270	2323	2794	2042	2559	2386	114	117	93	41.2	41.8	41.7	957	1071	997
Cargill SF290NL	1858	2920	2548	2389	2442	91	122	117	36.9	40.0	40.7	686	972	1005
Cargill SF3210	2439	----	----	----	----	120	----	----	38.5	----	----	939	----	----
Cargill SF3272	1965	----	----	----	----	97	----	----	39.4	----	----	774	----	----
Cargill X6007	1861	1831	----	1846	----	91	77	----	40.3	41.9	----	750	772	----
Croplan Genetics CL 757	1906	1893	1919	1900	1906	94	79	88	40.1	41.6	42.0	764	789	800
Croplan Genetics CL 810	1862	2379	----	2121	----	91	100	----	40.5	41.8	----	754	889	----
Croplan Genetics CL 821	2037	2356	2104	2197	2166	100	99	96	39.2	41.3	41.1	799	911	892
Dekalb DK 3790	1721	2042	1850	1882	1871	85	86	85	40.9	42.3	42.4	704	797	795
Dekalb DK 3806	1833	----	----	----	----	90	----	----	41.3	----	----	757	----	----
Dekalb DK 3868	2064	2119	1542	2092	1908	101	89	71	39.6	41.5	41.6	817	867	794
Dekalb DK 3875	1810	2438	----	2124	----	89	102	----	38.3	40.3	----	693	861	----
Dekalb DK 3881	2130	2456	2317	2293	2301	105	103	106	38.9	41.2	41.4	829	948	955
Dekalb DK 3900	2120	----	----	----	----	104	----	----	40.4	----	----	856	----	----
Interstate Payco Seed Hysun 449	1873	2266	----	2070	----	92	95	----	36.1	39.8	----	676	831	----
Interstate Payco Seed IS 6077	1907	2085	2371	1996	2121	94	87	108	39.9	41.3	41.7	761	826	887
Interstate Payco Seed IS 6767	2439	2298	2424	2369	2387	120	96	111	40.5	41.8	42.0	988	988	1002
Interstate Payco Seed IS 4049	2010	----	----	----	----	99	----	----	39.5	----	----	794	----	----
Mycogen Seeds 8488NS	2404	----	----	----	----	118	----	----	38.0	----	----	914	----	----
Triumph Seed 540	1834	----	----	----	----	90	----	----	39.8	----	----	730	----	----
Triumph Seed 562	2597	2716	----	2657	----	128	114	----	40.4	41.4	----	1049	1100	----
Triumph Seed 573	1840	----	----	----	----	90	----	----	38.7	----	----	712	----	----
Triumph Seed 642	1655	----	----	----	----	81	----	----	37.5	----	----	621	----	----
Average	2036	2386	2187	2211	2203	100	100	100	39.3	41.1	41.4	800	912	915
LSD (.05)	181	184	584	----	----	----	----	----	39.4	----	----	----	----	----

continued

Table 7. Republic County Oilseed Sunflower Performance Test Results–Dryland, 1996-1998, continued

Brand and hybrid	Days to 1/2 bloom			Plant height (in)			Lodging (%)			Test weight (lbs/bu)			200 seed weight (g)		
	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr
	1998	avg	avg	1998	avg	avg	1998	avg	avg	1998	avg	avg	1998	avg	avg
Cargill SF187	62	61	60	61	58	56	3	4	3	29.4	29.7	29.0	14.6	14.2	12.5
Cargill SF270	58	57	56	75	65	61	11	12	9	29.8	30.8	30.3	11.8	13.0	11.7
Cargill SF290NL	60	59	58	81	68	63	10	9	7	29.1	30.0	29.3	12.3	13.4	12.1
Cargill SF3210	59	----	----	82	----	----	11	----	----	30.6	----	----	12.2	----	----
Cargill SF3272	60	----	----	74	----	----	9	----	----	29.3	----	----	11.6	----	----
Cargill X6007	61	61	----	76	67	----	10	9	----	29.1	29.9	----	11.4	12.1	----
Croplan Genetics CL 757	60	60	59	78	71	69	8	17	30	29.9	30.5	30.1	11.5	12.4	11.4
Croplan Genetics CL 810	60	60	----	85	72	----	10	12	----	30.7	30.7	----	11.0	11.9	----
Croplan Genetics CL 821	59	60	58	85	74	69	9	9	27	28.9	29.4	28.7	11.4	12.6	11.6
Dekalb DK 3790	59	58	57	86	72	67	12	21	16	31.0	31.3	30.6	10.8	12.2	11.1
Dekalb DK 3806	58	----	----	79	----	----	7	----	----	30.4	----	----	11.0	----	----
Dekalb DK 3868	59	59	58	82	69	64	10	16	31	30.9	31.2	30.4	11.3	12.3	11.2
Dekalb DK 3875	61	60	----	81	70	----	11	13	----	29.1	30.2	----	10.1	11.9	----
Dekalb DK 3881	61	61	59	78	67	64	8	12	13	29.1	30.0	29.1	10.8	12.4	11.6
Dekalb DK 3900	62	----	----	76	----	----	9	----	----	30.9	----	----	10.8	----	----
Interstate Payco Seed Hysun 449	62	60	----	85	69	----	9	11	----	30.4	30.5	----	11.3	11.7	----
Interstate Payco Seed IS 6077	60	60	59	83	70	67	8	14	15	29.2	29.9	29.6	10.9	12.0	11.1
Interstate Payco Seed IS 6767	60	59	58	76	67	65	9	11	8	30.8	31.0	30.2	11.2	12.1	11.3
Interstate Payco Seed IS 4049	62	----	----	88	----	----	10	----	----	30.0	----	----	10.3	----	----
Mycogen Seeds 8488NS	61	----	----	89	----	----	13	----	----	30.9	----	----	9.8	----	----
Triumph Seed 540	58	----	----	78	----	----	9	----	----	30.0	----	----	10.8	----	----
Triumph Seed 562	59	60	----	85	72	----	10	10	----	31.4	31.3	----	11.0	12.1	----
Triumph Seed 573	62	----	----	86	----	----	12	----	----	30.9	----	----	11.9	----	----
Triumph Seed 642	61	----	----	85	----	----	10	----	----	31.2	----	----	10.6	----	----
Average	60	59	59	80	70	66	9	14	15	30.1	30.5	29.9	11.3	12.4	11.4
LSD (.05)	1	----	----	1	----	----	3	----	----	0.9	----	----	----	----	----

**SOUTH CENTRAL KANSAS
 DRYLAND, CONTINUOUS CROP
 SUNFLOWER TEST--OILSEED AND
 CONFECTIONARY**

PEST CONTROL: Treflan 6/9, Prowl 6/30,
 Bythroid and Lorsban 8/21
POPULATIONS: Double-planted and thinned
 to desired stands:

LOCATION: South Central Kansas
 Experiment Field, Hutchinson, Reno Co.

Oil (O) 22000 plants/a
 Confectionary (C) 22000 plants/a

COOPERATOR: William Heer,
 agronomist

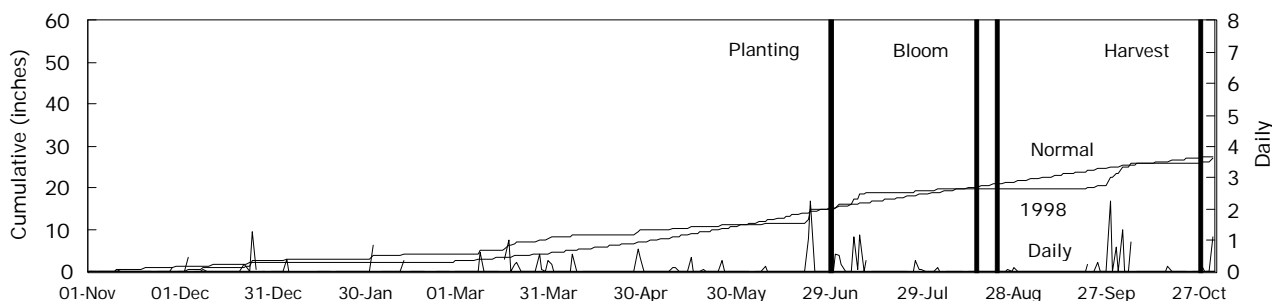
TEST YIELDS:
 Avg. (lbs/a): (O) 1606, (C) 1907
 Range: (O) 1133-2117, (C) 1755-2086
 LSD (lbs/a): (O) 235, (C) 368
 CV (%): (O) 12, (C) 14

TEST SITE: Ost silt loam
 Oats 1996, wheat 1997

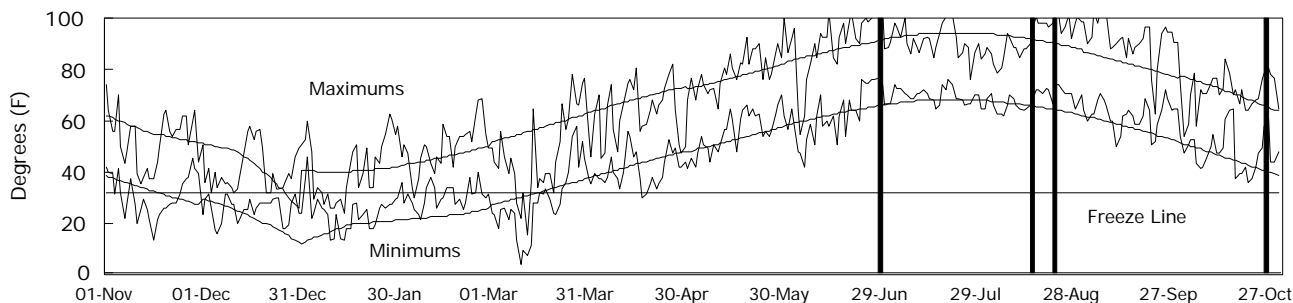
GROWING CONDITIONS: Good stands
 were established, and favorable growing
 conditions continued until flowering when the
 weather turned hot and dry. High winds (60-
 70 mph) and heavy rain caused some lodging
 in the last part of September.

FERTILIZATION: 117-40-0/a spring
PLANTING DATE: June 29, 1998
HEADING DATES: Aug. 15-22, 1998
HARVEST DATE: Oct. 26, 1998

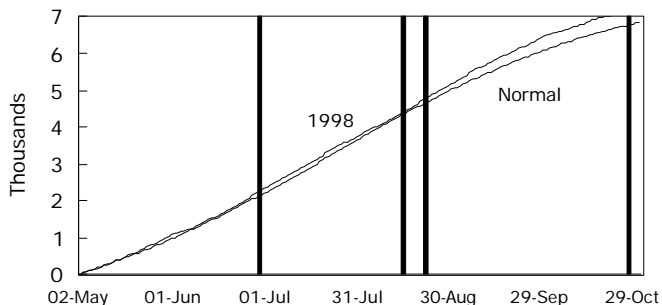
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.9	2.6	52	56	0	0
May	1.2	3.9	68	65	1033	940
June	3.6	4.3	76	75	1271	1234
July	4.7	3.4	80	81	1440	1454
August	0.3	3.1	81	79	1445	1385
Sep.	3.7	3.3	77	70	1294	1072
Oct.	3.8	2.5	60	58	798	748
Season Totals	19.1	23.1	71	69	7280	6833

Table 8. Reno County Oilseed Sunflower Performance Test Results, 1996-1998

Brand and hybrid	Yield, lbs/a					Yield as % of test average			Oil, %			Oil yield, lbs/a			
	1998		1997		1996	2-yr avg		3-yr avg	1998		1997	1996	2-yr avg		3-yr avg
	1998	1997	1996	2-yr avg	3-yr avg	1998	1997	1996	1998	1997	1996	1998	1997	1996	
Agripro Seeds Inc. AP4193	1413	----	----	----	----	88	----	----	42.6	----	----	602	----	----	
Cargill SF187	1881	1472	835	1677	1396	117	102	109	41.4	39.0	39.5	779	658	438	
Cargill SF270	2117	1381	683	1749	1394	132	95	90	44.7	42.0	41.8	946	744	413	
Cargill SF290 NL	1451	1633	809	1542	1298	90	113	106	39.5	38.6	39.7	573	594	477	
Cargill X 3210	1604	----	----	----	----	100	----	----	39.9	----	----	640	----	----	
Cargill X 3272	1662	----	----	----	----	103	----	----	42.1	----	----	700	----	----	
Cargill X 6007	1625	1326	----	1476	----	101	91	----	41.2	39.8	----	670	589	----	
Dekalb DK 3790	1488	1430	841	1459	1253	93	99	110	42.7	41.8	42.7	635	610	479	
Dekalb DK 3806	1464	----	----	----	----	91	----	----	42.7	----	----	625	----	----	
Dekalb DK 3868	1617	1289	672	1453	1193	101	89	88	42.0	40.3	40.9	679	588	390	
Dekalb DK 3875	1358	1494	----	1426	----	85	103	----	41.7	39.4	----	566	560	----	
Dekalb DK 3881	1490	1435	811	1463	1245	93	99	106	42.5	40.2	41.1	633	588	446	
Dekalb DK 3900	1738	----	----	----	----	108	----	----	43.5	----	----	756	----	----	
Interstate Payco Seed Hysun 449	1702	1060	----	1381	----	106	73	----	36.9	37.3	----	628	513	----	
Interstate Payco Seed IS 6077	1133	1126	----	1130	----	71	78	----	41.9	40.2	----	475	454	----	
Interstate Payco Seed IS 6767	1386	1669	----	1528	----	86	115	----	43.7	42.1	----	606	641	----	
Interstate Payco Seed IS 4049	1573	----	----	----	----	98	----	----	42.4	----	----	667	----	----	
Mycogen Seeds 8372	1781	----	----	----	----	111	----	----	43.4	----	----	773	----	----	
Mycogen Seeds 8488NS	1629	----	----	----	----	101	----	----	40.7	----	----	663	----	----	
Mycogen Seeds Cavalry	1614	1618	----	1616	----	100	112	----	46.7	44.3	----	754	715	----	
Triumph Seed 540	1431	----	----	----	----	89	----	----	43.5	----	----	622	----	----	
Triumph Seed 562	1986	1719	----	1853	----	124	119	----	42.8	40.5	----	850	753	----	
Triumph Seed 573	1907	----	----	----	----	119	----	----	41.7	----	----	795	----	----	
Triumph Seed 642	1505	----	----	----	----	94	----	----	39.7	----	----	597	----	----	
Average	1606	1450	763	1528	1273	100	100	100	42.1	40.4	41.0	676	616	439	
LSD (.05)	235	246	266	-----	-----	----	----	-----	----	----	----	----	----	----	

continued

Table 8. Reno County Oilseed Sunflower Performance Test Results, 1996-1998, continued

Brand and hybrid	Days to ½ bloom		Plant height (in)			Lodging (%)			Test wt (lbs/bu)			200 seed wt (g)			
	2-yr	3-yr	2-yr	3-yr	2-yr	3-yr	2-yr	3-yr	2-yr	3-yr	2-yr	3-yr			
	1998	avg	avg	1998	avg	avg	1998	avg	avg ¹	1998	avg	avg	1998	avg	avg
Agripro Seeds Inc. AP4193	52	----	----	55	----	----	7	---	---	28.5	----	----	14.0	----	----
Cargill SF187	53	53	55	55	56	54	2	5	---	29.1	28.0	28.9	11.8	12.4	11.0
Cargill SF270	51	51	52	64	62	57	6	5	---	31.0	29.5	30.0	12.5	11.6	10.7
Cargill SF290 NL	51	51	53	57	58	54	5	8	---	27.3	27.3	28.3	10.8	10.9	10.3
Cargill X 3210	48	----	----	55	----	----	3	---	---	28.7	----	----	11.0	----	----
Cargill X 3272	52	----	----	56	----	----	5	---	---	28.6	----	----	10.4	----	----
Cargill X 6007	53	52	----	54	55	----	11	---	---	27.2	27.4	----	9.7	9.7	----
Dekalb DK 3790	52	52	53	57	56	55	5	7	---	29.8	29.9	31.0	10.6	10.3	9.4
Dekalb DK 3806	51	----	----	57	----	----	3	---	---	28.3	----	----	11.0	----	----
Dekalb DK 3868	51	51	53	55	54	53	5	10	---	28.4	28.9	29.5	10.3	10.2	9.4
Dekalb DK 3875	53	52	----	56	57	----	19	---	---	29.5	29.0	----	10.4	10.4	----
Dekalb DK 3881	52	52	54	57	57	55	11	9	---	27.3	27.5	28.4	10.0	10.0	9.6
Dekalb DK 3900	53	----	----	58	----	----	7	---	---	28.2	----	----	10.7	----	----
Interstate PaycoSeed Hysun 449	54	53	----	59	57	----	5	---	---	28.1	27.9	----	12.4	11.2	----
Interstate Payco Seed IS 6077	52	52	----	63	64	----	11	---	---	27.4	27.4	----	10.1	10.2	----
Interstate Payco Seed IS 6767	53	52	----	60	60	----	10	---	---	29.6	29.4	----	11.8	11.5	----
Interstate Payco Seed IS 4049	54	----	----	67	----	----	7	---	---	27.2	----	----	10.7	----	----
Mycogen Seeds 8372	49	----	----	61	----	----	5	---	---	30.0	----	----	9.6	----	----
Mycogen Seeds 8488NS	52	----	----	63	----	----	15	---	---	29.1	----	----	9.9	----	----
Mycogen Seeds Cavalry	52	52	----	62	63	----	5	---	---	30.3	30.4	----	11.1	10.5	----
Triumph Seed 540	49	----	----	57	----	----	20	---	---	26.7	----	----	14.0	----	----
Triumph Seed 562	51	51	----	65	65	----	5	---	---	30.7	29.8	----	13.1	12.2	----
Triumph Seed 573	53	----	----	68	----	----	13	---	---	28.7	----	----	12.4	----	----
Triumph Seed 642	52	----	----	59	----	----	9	---	---	28.9	----	----	11.4	----	----
Average	51	51	53	59	59	56	8	9	---	28.7	28.6	29.4	11.2	10.9	10.1
LSD (.05)	1	----	----	3	----	----	9	---	---	1.6	----	----	----	----	----

¹Lodging data not taken in 1997.

Table 9. Reno County Confectionary Sunflower Performance Results, 1998

	Yield lbs/a	Days to ½ bloom	Height In	Lodging %	Test weight lbs/bu	200 seed weight (g)
Interstate Payco Seed IS 49097	2086	49	68	4	22.6	22.4
Triumph Seed 760C	1755	53	71	7	21.6	20.5
Triumph Seed 765C	1881	53	71	7	23.1	19.7
Average	1907	52	70	6	22.5	20.9
LSD (.05)	368	1	3	6	1.9	----

	Seed size distribution (%)						
	Above 22/64	21/64- 22/64	20/64- 21/64	19/64- 20/64	18/64- 19/64	16/64- 18/64	Below 16/64
Interstate Payco Seed IS 49097	16.3	14.1	15.5	16.8	13.7	17.4	6.1
Triumph Seed 760C	7.9	10.7	13.6	20.6	13.4	24.5	9.4
Triumph Seed 765C	6.7	13.1	14.8	17.9	15.1	23.5	8.6
Average	10.3	12.6	14.6	18.4	14.1	21.8	8.0

**WEST CENTRAL KANSAS DRYLAND
SUNFLOWER TESTS-- OILSEED
AND CONFECTIONARY**

LOCATION: Southwest Research-
Extension Center, Tribune Branch,
Greeley County
COOPERATOR: David Frickel, research
associate, Alan Schlegel, agronomist
TEST SITE: Richfield & Goshen silt loam
grain sorghum 1996, fallow 1997

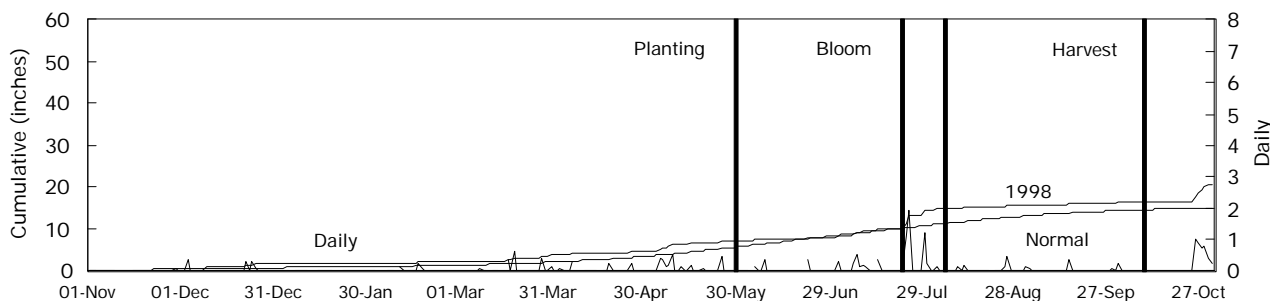
FERTILIZATION: 80 lbs N/a as UAN
PLANTING DATE May 29, 1998
HEADING DATES: (O) July 22-Aug. 5
HARVEST DATE: Oct. 8 & 9, 1998

PEST CONTROL: Prowl---3pt/a, June 10
POPULATIONS: Double-planted and thinned
to desired stands:

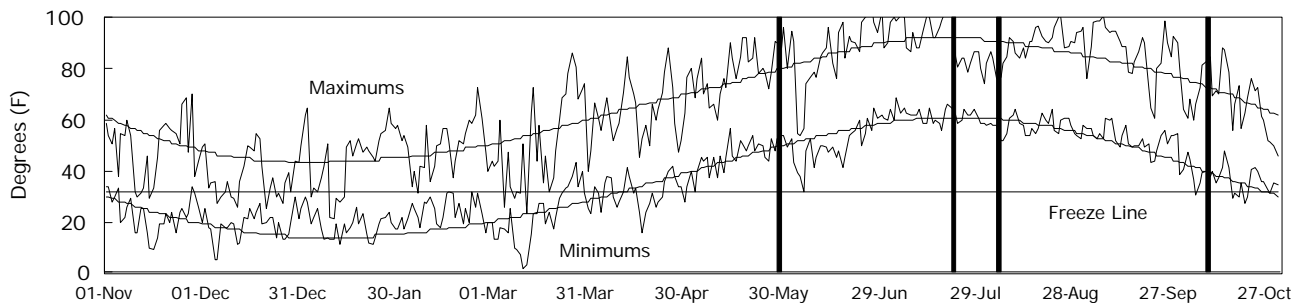
Oil (O) 17400 plants/a
Confectionary (C) 17400 plants/a
TEST YIELDS:
Avg. (lbs/a): (O) 2143, (C) 1796
Range: (O) 1448-2846, (C) 925-2876
LSD (lbs/a): (O) 549, (C) 537
CV (%): (O) 22, (C) 24

GROWING CONDITIONS: Excellent stands
were established. Conditions were drier than
normal from April through June but wetter than
normal in July.

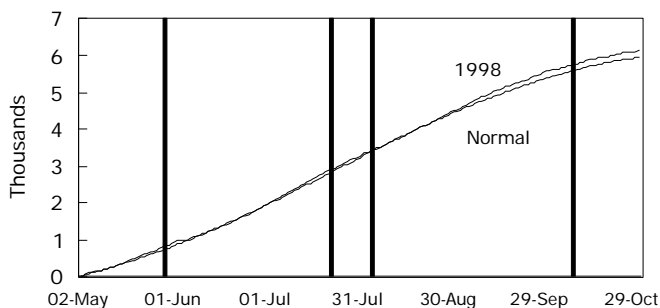
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	0.9	1.3	47	50	0	0
May	2.5	2.4	63	60	876	786
June	0.9	2.5	68	70	1024	1093
July	6.5	2.5	77	76	1335	1307
August	1.1	2.2	73	74	1220	1231
Sep.	0.6	1.3	70	65	1094	944
Oct.	4.3	0.7	53	53	574	597
Season Totals	16.9	12.9	65	64	6122	5958

Table 10. Greeley County Oilseed Sunflower Performance Test Results, 1996-1998

Brand and hybrid	Yield ,(lbs/a)					Yield as % of			Oil, (%)			Oil yields, (lbs/a)		
	1998		1997		1996	2-yr		3-yr	test average		2-yr		3-yr	
	1998	1997	1996	avg	avg	1998	1997	1996	1998	avg	avg	1998	avg	avg
Agripro Seeds Inc. AP3470	1972	----	----	----	----	92	----	----	39.9	----	----	787	----	----
Agripro Seeds Inc. AP4193	2148	----	----	----	----	100	----	----	40.9	----	----	879	----	----
Asgrow Seed Co. AS 3211	1584	1973	----	1779	----	74	107	----	40.9	40.8	----	648	724	----
Asgrow Seed Co. AS5101	2639	----	----	----	----	123	----	----	40.5	----	----	1069	----	----
Asgrow Seed Co. AS5303	2274	----	----	----	----	106	----	----	42.7	----	----	971	----	----
Asgrow Seed Co. AS6305	1633	----	----	----	----	76	----	----	42.2	----	----	689	----	----
Cargill SF187	1958	2628	1187	2293	1924	91	143	132	36.7	37.9	40.3	719	872	760
Cargill SF270	1856	1583	1024	1720	1488	87	86	114	37.3	38.6	40.9	692	661	596
Cargill SF290 NL	2642	1807	1037	2225	1829	123	98	115	37.9	39.3	41.7	1001	868	740
Cargill X3210	2019	----	----	----	----	94	----	----	38.1	----	----	769	----	----
Cargill X3272	1857	----	----	----	----	87	----	----	39.6	----	----	735	----	----
Cargill X6007	2058	1733	----	1896	----	96	94	----	41.9	42.0	----	862	795	----
Dekalb DK 3790	1929	1755	947	1842	1544	90	95	106	41.4	41.7	43.4	799	767	659
Dekalb DK 3806	1528	----	----	----	----	71	----	----	41.9	----	----	640	----	----
Dekalb DK 3868	2141	1635	823	1888	1533	100	89	92	41.0	41.4	42.9	878	781	646
Dekalb DK 3875	2290	1844	----	2067	----	107	100	----	37.6	39.1	----	861	805	----
Dekalb DK 3881	2370	2383	1085	2377	1946	111	130	121	40.1	40.7	42.8	950	966	815
Dekalb DK 3900	1900	----	----	----	----	89	----	----	42.5	----	----	808	----	----
Interstate Payco Seed Hysun 449	2288	1822	----	2055	----	107	99	----	34.9	39.7	----	799	771	----
Interstate Payco Seed IS 6077	2060	1572	665	1816	1432	96	85	74	41.4	41.2	42.8	853	748	601
Interstate Payco Seed IS 6767	2846	2127	957	2487	1977	133	116	107	39.5	40.3	42.3	1124	999	814
Interstate Payco Seed IS 4049	2206	2106	----	----	----	103	----	----	38.3	----	----	845	----	----
Kaystar 9501	2194	2642	----	2418	----	102	144	----	35.4	37.1	----	777	901	----
Kaystar EX 88900	1807	----	----	----	----	84	----	----	36.7	----	----	663	----	----
Mycogen Seeds 8488NS	2285	----	----	----	----	107	----	----	35.8	----	----	818	----	----
Mycogen Seeds Cavalry	2580	2292	1059	2436	1977	120	125	118	43.6	42.1	42.8	1125	1028	841
Novartis Seeds NK 231	2648	1709	958	2179	1772	124	93	107	38.9	38.7	39.9	1030	844	698
Novartis Seeds NK 278	2308	1871	710	2090	1630	108	102	79	39.4	40.2	41.9	909	838	666
Novartis Seeds T45-L2	1887	1904	----	1896	----	88	103	----	38.4	38.6	----	725	732	----
Pioneer Hi-Bred International 6300	2352	----	----	----	----	110	----	----	42.5	----	----	1000	----	----
Pioneer Hi-Bred International 6338	1448	----	----	----	----	68	----	----	39.4	----	----	571	----	----
Pioneer Hi-Bred International 63A51	2458	----	----	----	----	115	----	----	37.1	----	----	912	----	----
Pioneer Hi-Bred International 6451	2212	----	----	----	----	103	----	----	39.4	----	----	872	----	----
Triumph Seed 540	2439	----	----	----	----	114	----	----	40.9	----	----	998	----	----
Triumph Seed 562	2289	1932	----	2111	----	107	105	----	40.1	40.5	----	918	854	----
Triumph Seed 573	2013	----	----	----	----	94	----	----	36.2	----	----	729	----	----
Triumph Seed 642	2190	----	----	----	----	102	----	----	38.0	----	----	832	----	----
Average	2143	1840	896	1992	1626	100	100	100	39.4	40.0	41.9	845	799	670
LSD (.05)	549	451	333	----	----	----	----	----	----	----	----	----	----	----

continued

Table 10. Greeley County Oilseed Sunflower Performance Test Results, 1996-1998, continued

Brand and hybrid	Days to 1/2 bloom			Plant height (in)			Lodging (%)			Test weight (lbs/bu)			200 seed weight (g)		
	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr	2-yr		3-yr
	1998	avg	avg	1998	avg	avg	1998	avg	avg	1998	avg	avg	1998	avg	avg
Agripro Seeds Inc. AP3470	59	----	----	64	----	----	8	----	----	31.1	----	----	15.2	----	----
Agripro Seeds Inc. AP493	63	----	----	60	----	----	7	----	----	31.2	----	----	12.2	----	----
Asgrow Seed Co AS 3211	57	57	----	69	64	----	12	8	----	30.7	31.8	----	14.3	13.8	----
Agrow Seed Co AS5101	57	----	----	67	----	----	14	----	----	29.8	----	----	15.0	----	----
Asgrow Seed Co AS5303	57	----	----	65	----	----	7	----	----	30.5	----	----	15.5	----	----
Asgrow Seed Co AS6305	63	----	----	69	----	----	7	----	----	31.5	----	----	13.0	----	----
Cargill SF187	62	61	61	56	53	50	4	2	3	28.8	29.9	28.7	11.9	13.2	12.4
Cargill SF270	55	56	57	58	55	51	14	9	10	30.5	31.5	30.8	14.4	13.9	12.9
Cargill SF290 NL	61	61	61	58	53	50	3	2	4	30.3	29.8	28.9	13.8	13.9	12.8
Cargill SF3210	57	----	----	60	----	----	13	----	----	31.0	----	----	13.3	----	----
Cargill SF3272	58	----	----	60	----	----	10	----	----	30.4	----	----	15.2	----	----
Cargill X6007	60	60	----	56	50	----	9	6	----	30.6	30.5	----	12.2	12.7	----
Dekalb DK 3790	58	57	57	63	56	53	16	13	13	31.6	32.1	31.4	11.2	11.7	11.2
Dekalb DK 3806	58	----	----	63	----	----	13	----	----	31.4	----	----	13.3	----	----
Dekalb DK 3868	61	59	59	57	52	50	16	16	16	30.6	31.5	30.8	11.7	12.0	11.7
Dekalb DK 3875	62	61	----	63	55	----	9	7	----	29.7	30.2	----	13.5	13.6	----
Dekalb DK 3881	62	61	62	63	56	52	14	11	9	29.8	30.6	29.7	12.3	12.9	12.4
Dekalb DK 3900	65	----	----	60	----	----	8	----	----	30.6	----	----	14.2	----	----
Interstate Payco Seed Hysun 449	62	61	----	62	56	----	11	9	----	29.3	30.5	----	13.5	12.9	----
Interstate Payco Seed IS 6077	59	59	59	67	61	58	10	9	10	29.6	29.7	29.1	13.0	13.6	12.7
Interstate Payco Seed IS 6767	61	60	60	64	58	55	8	6	7	30.4	31.3	30.2	13.0	13.2	12.3
Interstate Payco Seed IS 4049	63	----	----	71	----	----	4	----	----	30.0	----	----	12.3	----	----
Kaystar 9501	63	63	----	71	67	----	13	7	----	30.3	31.5	----	11.8	12.7	----
Kaystar EX 88900	62	----	----	73	----	----	15	----	----	31.9	----	----	13.8	----	----
Mycogen Seeds 8488NS	62	----	----	68	----	----	11	----	----	29.7	----	----	11.6	----	----
Mycogen Seeds Cavalry	63	63	62	72	66	61	6	4	5	32.0	32.7	31.2	12.7	14.0	13.3
Novartis Seeds NK 231	57	58	59	62	55	52	4	4	6	32.1	31.9	30.7	12.2	13.1	11.7
Novartis Seeds NK 278	62	61	61	67	60	56	18	10	11	29.6	30.1	29.3	14.3	13.9	13.2
Novartis Seeds T45-L2	62	61	----	70	62	----	10	10	----	33.0	33.0	----	12.7	12.8	----
Pioneer Hi-Bred International 6300	60	----	----	65	----	----	9	----	----	29.9	----	----	12.3	----	----
Pioneer Hi-Bred International 6338	63	----	----	69	----	----	6	----	----	30.7	----	----	13.0	----	----
Pioneer Hi-Bred International 63A51	58	----	----	66	----	----	11	----	----	30.4	----	----	14.3	----	----
Pioneer Hi-Bred International 6451	63	----	----	63	----	----	5	----	----	28.2	----	----	12.1	----	----
Triumph Seed 540	57	----	----	64	----	----	11	----	----	30.1	----	----	13.9	----	----
Triumph Seed 562	60	60	----	71	64	----	13	8	----	31.9	32.4	----	16.2	15.5	----
Triumph Seed 573	63	----	----	67	----	----	16	----	----	28.9	----	----	13.0	----	----
Triumph Seed 642	68	----	----	54	----	----	9	----	----	29.2	----	----	14.7	----	----
Average	60	60	60	54	59	55	10	7	8	30.5	31.0	30.3	13.3	13.5	12.7
LSD (.05)	1	----	----	4	----	----	7	----	----	1.5	----	----	----	----	----

Table 11. Greeley County Confectionary Sunflower Performance Results, 1998

	Yield lbs/a	Days to ½ bloom	Height In	Lodging %	Test weight lbs/bu	200 seed weight (g)
Agway RH 2073	1874	62	63	6	23.8	28.8
Agway RH 2373	1308	62	67	8	22.3	27.5
Interstate Payco Seed IS 49097	1775	57	67	6	24.6	29.8
Triumph Seed 520C	1909	62	63	11	24.0	27.1
Triumph Seed 760C	1848	61	61	7	23.3	28.4
Triumph Seed 765C	2060	60	63	7	23.6	28.0
Average	1769	61	64	7	23.6	28.3
LSD (.05)	537	1	5	8	1.4	----

	Seed size distribution (%)						
	Above 22/64	21/64- 22/64	20/64- 21/64	19/64- 20/64	18/64- 19/64	16/64- 18/64	Below 16/64
Agway RH 2073	40.4	22.4	14.3	11.4	5.8	3.8	1.8
Agway RH 2373	46.0	22.4	14.4	9.5	4.0	3.0	0.8
Interstate Payco Seed IS 49097	39.5	21.4	15.7	12.9	5.4	3.5	1.8
Triumph Seed 520C	39.8	20.7	14.9	13.6	6.5	3.9	0.9
Triumph Seed 760C	45.0	24.7	13.5	9.1	4.9	2.0	1.3
Triumph Seed 765C	34.9	25.6	15.9	12.9	6.4	3.7	1.2
Average	40.9	22.9	14.8	11.6	5.5	3.3	1.3

Entrants and Entries in 1998 Sunflower Performance Tests

Entrant	Brand	Hybrid	Entrant	Brand	Hybrid
AgriPro Seeds, Inc. 23959 580 th Avenue Ames, IA 50010	AgriPro	AP 3430, 3470, 4193, 3733, RH 3701	Kaystar Seed Co PO Box 947 Huron, SD 57350	Kaystar	EX 88900, 9501
Agway, Inc. PO Box 169 Grandin, ND 58038	Agway	Royal Hybrid 2073, 2373	Mycogen Seeds 1340 Corporate Center Curve St. Paul, MN 22121	Mycogen	Cavalry, 8372, 8488NS, 9490
Asgrow Seed Company PO Box 1945 Plainview, TX 79073	Asgrow	AS 3211, 5101, 5303, 6305	Novartis Seeds 2702 Cobblestone Ct. Fargo, ND 58103	Novartis	NK 231, 278, T45-L2
Cargill Hybrid Seeds 1401 41st Street N.W. Fargo, ND 58102	Cargill	SF 187, 270, X 3210, 3272, 290NL, 6007	Pioneer Hi-Bred, International Suite C-150 1616 S. Kentucky Amarillo, TX 79102	Pioneer Brand	6338, 63A51, 6451, 6300
Croplan Genetics Box 1291 Minot, ND 58702	Croplan	CL 757, 810, 815, 821,	Red River Commodities, Inc. 1320 East College Drive Colby, KS 67701	RRC	2211, 2213, 2331, 3531, 9490, Ex 2412, 2213
Dekalb Genetics 3100 Sycamore Road DeKalb, IL 60115	Dekalb	DK 3790, 3806, 3868, 3875, 3881, 3900	Seeds 2000 Box 101 Breckenridge, MN 56520	Seeds 2000	Kodiak
Eureka Seeds RR 2 Box 186A Moorhead, MN 56560	Eureka	ST2115 (exp), 2135 (exp)	Triumph Seed Co., Inc. PO Box 1050 Ralls, TX 79357	Triumph	540, 562, 573, 642, 520C, 760C, 765C
Interstate Payco Seed Co PO Box 338 West Fargo, ND 58078	Interstate	IS 6077, 6767, IS EXP 33204, 54454MO, 49097			

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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.