

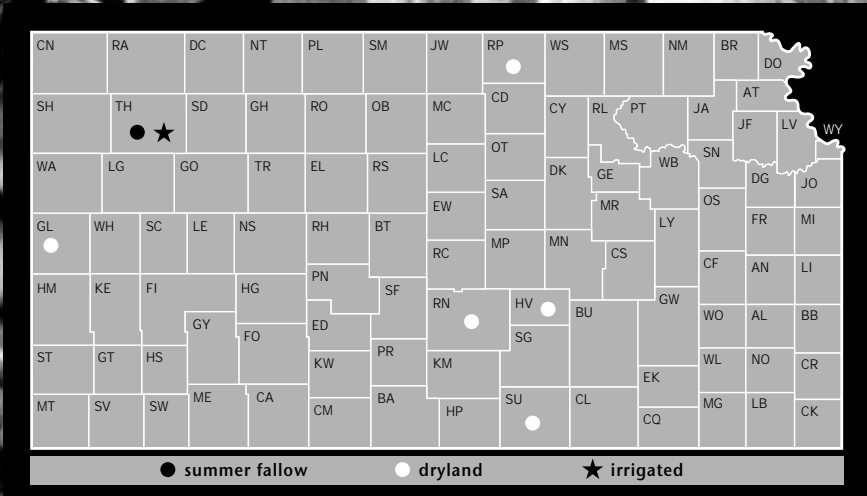


2001

KANSAS PERFORMANCE TESTS WITH SUNFLOWER HYBRIDS

REPORT OF PROGRESS 888

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.

Contribution No. 02-243-S from the Kansas Agricultural Experiment Station.

2001 KANSAS PERFORMANCE TESTS WITH SUNFLOWER HYBRIDS

INTRODUCTION

TEST OBJECTIVES AND PROCEDURES

Sunflower performance tests were conducted in 2001 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.

Seven test locations in 2001 included Republic County and Greeley County—dryland; Reno County, Harvey County and Sumner County—dryland, continuous crop; and Thomas County—irrigated and fallow sites. Oilseed entries were grown at all locations. Confectionary entries were included only in tests in Thomas and Greeley Counties. 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.

Two additional tests are included in this report. One was conducted by Rob Aiken at Northern Sun Industries in Goodland, Kansas. A NuSun hybrid test, sponsored by The National Sunflower Association, was located in Thomas County.

Environmental factors affecting test results and cultural practices are discussed individually for each of the test sites. Test results for 2001, as well as period-of-years

average data, are included in Tables 1-16. Entrants and entries in 2001 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 Grain Inspection Service 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. Vicki Brown, secretary, assisted in preparing this report; and temporary workers Samantha Wolf, Cade 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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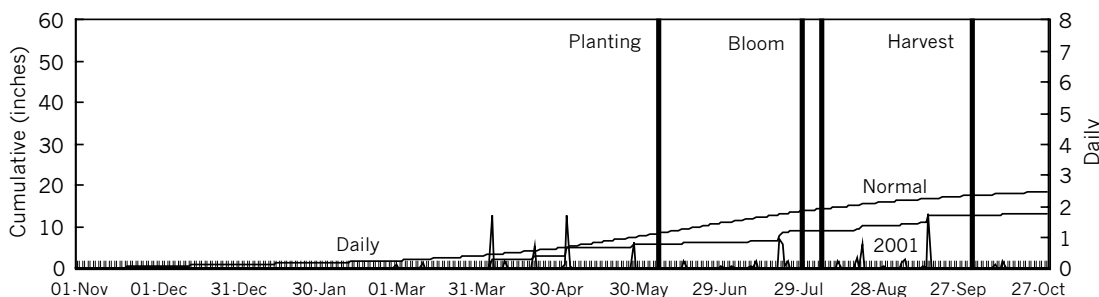
Publications from K-State Research and Extension are available on the World Wide Web at <http://www.oznet.ksu.edu>.

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

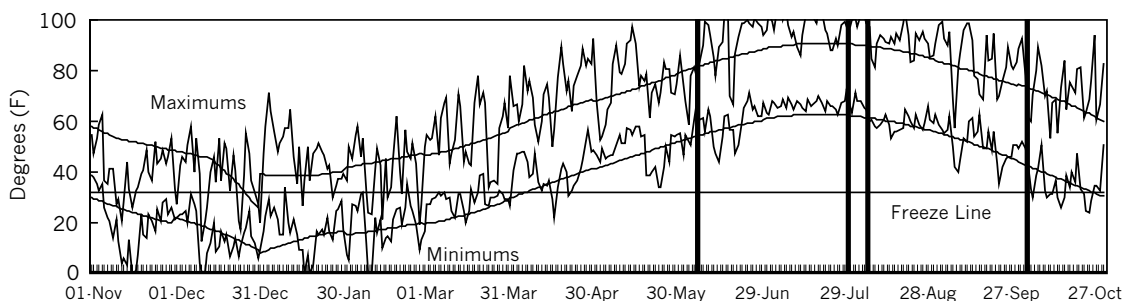
LOCATION: Northwest Research-Extension Center, Thomas County
COOPERATOR: Pat Evans, research technologist
TEST SITE: Keith silt loam
 Grain sorghum 1999, fallow 2000
FERTILIZATION: 100-30-0 spring 2001
PLANTING DATE: June 7, 2001
HEADING DATES: July 31-Aug.7 2001
HARVEST DATES: Oct. 2, 2001

PEST CONTROL: Treflan, May 10, '01
POPULATIONS: Double-planted and thinned to desired stands:
 Oil (O) 17,000 plants/a
 Confectionary (C) 14,900 plants/a
TEST YIELDS:
 Avg. (lbs/a): (O) 1515, (C) 1554
 Range: (O) 916-1876, (C) 1264-1817
 LSD (lbs/a): (O) 282, (C) 332
 CV (%): (O) 16, (C) 18
GROWING CONDITIONS: A wet spring provided good planting conditions, and good stands were established. The remainder of the growing season was hot and dry.

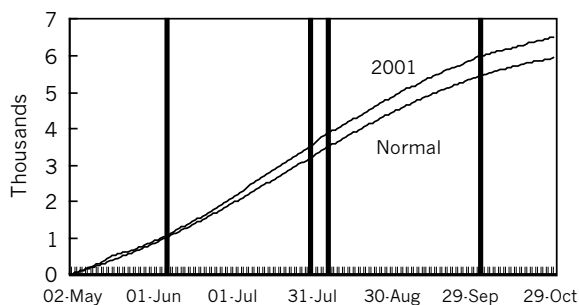
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	2.8	1.8	56	49	0	0
May	2.9	2.9	62	60	840	781
June	0.3	3.1	73	70	1177	1093
July	2.7	3.0	82	76	1496	1317
August	1.5	2.2	77	74	1342	1241
Sep.	2.4	1.5	68	65	1021	928
Oct.	0.4	1.1	55	53	647	574
Season Totals	12.9	15.6	68	64	6523	5934

Table 1. Thomas County Oilseed Sunflower Performance Test Results—Fallow, 1999-2001

Brand and hybrid	Yield (lbs/a)					Yield as % of test average			Oil (%)			Oil yield (lbs/a)		
	2001	2000	1999	2-yr avg	3-yr avg	2001	2000	1999	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg
Croplan Genetics 322NS	1391	-----	-----	-----	-----	92	-----	-----	38.9	-----	-----	541	-----	-----
Croplan Genetics 345NS	1472	1725	-----	1599	-----	97	149	-----	42.3	39.5	-----	623	628	-----
Croplan Genetics 380NS	1759	1390	-----	1575	-----	116	120	-----	40.3	38.4	-----	709	608	-----
Croplan Genetics 385NS	1499	1231	-----	1365	-----	99	106	-----	40.9	38.4	-----	613	527	-----
Dekalb DK3900	1202	1030	2765	1116	1666	79	89	105	42.0	39.1	40.4	505	439	690
Dekalb DKF31-01NS	1135	-----	-----	-----	-----	75	-----	-----	38.5	-----	-----	437	-----	-----
Dekalb DKF36-40NS	1119	-----	-----	-----	-----	74	-----	-----	36.6	-----	-----	410	-----	-----
Kaystar 2020NS	1714	-----	-----	-----	-----	113	-----	-----	40.0	-----	-----	685	-----	-----
Kaystar 9404	1676	1154	-----	1415	-----	111	100	-----	45.4	40.4	-----	761	584	-----
Kaystar 9501	1768	1295	2866	1532	1976	117	112	109	36.0	35.3	35.9	636	542	717
Monsanto Ex3804NS	915	-----	-----	-----	-----	60	-----	-----	34.6	-----	-----	317	-----	-----
Mycogen Seeds 8377NS	1323	1128	2550	1225	1667	87	97	97	40.5	39.3	39.8	536	482	668
Mycogen Seeds 8488NS	1752	986	3011	1369	1917	116	85	114	39.3	37.5	38.3	689	520	746
Mycogen Seeds Calvary	1534	1478	-----	1506	-----	101	128	-----	43.3	41.2	-----	664	621	-----
Mycogen Seeds SF187	1670	1331	2849	1500	1950	110	115	108	37.8	36.7	37.8	631	552	749
Mycogen Seeds SF260	1680	1422	2627	1551	1910	111	123	99	41.4	39.1	39.6	696	610	762
Pioneer® Brand 63A70	1392	1338	-----	1365	-----	92	115	-----	41.7	41.0	-----	580	559	-----
Pioneer® Brand 63M80	1392	871	-----	1132	-----	92	75	-----	39.4	38.0	-----	549	433	-----
Pioneer® Brand 63M91	1549	1107	2693	1328	1783	102	95	102	40.5	39.1	40.0	627	522	722
Seeds 2000 Blazer	1513	-----	-----	-----	-----	100	-----	-----	39.7	-----	-----	601	-----	-----
Seeds 2000 Bronco	1618	1220	2400	1419	1746	107	105	91	39.7	38.4	38.9	642	547	683
Seeds 2000 Maverick	1413	1236	2685	1324	1778	93	107	102	37.8	36.2	37.3	534	480	674
Seeds 2000 Ranger	1448	-----	-----	-----	-----	96	-----	-----	37.9	-----	-----	549	-----	-----
Syngenta 278	1504	1063	3220	1283	1929	99	92	122	38.5	37.3	39.2	579	481	784
Syngenta NX30002	1444	-----	-----	-----	-----	95	-----	-----	38.3	-----	-----	553	-----	-----
Syngenta T46-R9	1678	1053	-----	1365	-----	111	91	-----	36.5	35.9	-----	612	491	-----
Triumph 636	1427	-----	-----	-----	-----	94	-----	-----	41.9	-----	-----	598	-----	-----
Triumph 658	1614	-----	-----	-----	-----	107	-----	-----	41.7	-----	-----	673	-----	-----
Triumph 665	1873	-----	-----	-----	-----	124	-----	-----	41.5	-----	-----	777	-----	-----
Triumph TRX0345	1626	-----	-----	-----	-----	107	-----	-----	38.9	-----	-----	633	-----	-----
Triumph TRX1442	1876	-----	-----	-----	-----	124	-----	-----	43.1	-----	-----	809	-----	-----
Average	1515	1159	2641	1337	1772	100	100	100	39.8	38.2	39.0	605	527	726
LSD (.05)	281	414	400	407	404	-----	-----	-----	-----	-----	-----	-----	-----	-----

continued

Table 1. Thomas County Oilseed Sunflower Performance Test Results–Fallow, 1999-2001, 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	
	2001	avg	avg	2001	avg	avg	2001	avg	avg	2001	avg	avg	2001	avg	avg
Croplan Genetics 322NS	56	----	----	52	----	----	18	----	----	27.0	----	----	8.6	-----	-----
Croplan Genetics 345NS	55	59	----	52	50	----	19	12	----	25.5	25.6	----	8.9	9.7	-----
Croplan Genetics 380NS	57	61	----	50	49	----	4	6	----	29.0	27.4	----	8.2	9.6	-----
Croplan Genetics 385NS	59	62	----	46	42	----	10	9	----	26.5	25.5	----	8.7	9.9	-----
Dekalb DK3900	59	62	63	51	46	54	32	23	15	28.0	26.5	27.5	10.2	10.2	10.1
Dekalb DKF31-01NS	56	----	----	56	----	----	13	----	----	26.0	----	----	8.8	-----	-----
Dekalb DKF36-40NS	55	----	----	56	----	----	18	----	----	27.5	----	----	10.4	-----	-----
Kaystar 2020NS	59	----	----	49	----	----	10	----	----	27.0	----	----	8.5	-----	-----
Kaystar 9404	57	60	----	51	47	----	10	8	----	27.0	26.1	----	9.1	10.3	-----
Kaystar 9501	59	61	63	55	52	58	22	15	11	28.3	27.5	27.5	8.6	10.7	10.2
Monsanto Ex3804NS	54	----	----	56	----	----	7	----	----	25.3	----	----	9.2	-----	-----
Mycogen Seeds 8377NS	55	59	60	53	49	54	11	9	7	26.8	26.1	26.8	9.4	9.6	9.4
Mycogen Seeds 8488NS	57	60	62	52	49	54	13	10	7	28.0	26.9	27.4	7.5	8.9	8.8
Mycogen Seeds Calvary	59	61	----	53	52	----	12	7	----	27.8	27.6	----	9.4	10.7	-----
Mycogen Seeds SF187	57	61	62	47	45	51	13	12	8	26.5	25.8	25.8	8.7	9.6	9.5
Mycogen Seeds SF260	57	61	62	50	45	51	12	10	8	25.3	24.9	25.9	9.4	9.9	9.6
Pioneer® Brand 63A70	55	58	----	50	47	----	14	12	----	25.3	24.9	----	10.1	11.3	-----
Pioneer® Brand 63M80	57	60	----	52	48	----	18	12	----	25.0	25.0	----	9.7	11.5	-----
Pioneer® Brand 63M91	57	60	62	53	51	58	10	7	5	26.5	26.5	27.4	10.1	11.2	10.7
Seeds 2000 Blazer	58	----	----	47	----	----	10	----	----	26.0	----	----	8.1	-----	-----
Seeds 2000 Bronco	59	62	63	46	43	50	6	6	5	26.3	25.8	26.1	9.0	10.2	9.7
Seeds 2000 Maverick	57	60	61	51	47	52	16	14	10	19.5	21.6	23.8	8.8	9.7	9.6
Seeds 2000 Ranger	57	----	----	48	----	----	8	----	----	26.0	----	----	9.2	-----	-----
Syngenta 278	57	61	62	52	48	54	17	14	9	25.5	24.6	25.9	9.1	10.3	10.2
Syngenta NX30002	56	----	----	52	----	----	12	----	----	26.5	----	----	9.7	-----	-----
Syngenta T46-R9	56	59	----	53	49	----	15	13	----	26.5	25.8	----	10.2	11.2	-----
Triumph 636	59	----	----	52	----	----	21	----	----	24.3	----	----	10.0	-----	-----
Triumph 658	59	----	----	53	----	----	17	----	----	25.8	----	----	9.4	-----	-----
Triumph 665	59	----	----	53	----	----	12	----	----	28.3	----	----	9.2	-----	-----
Triumph TRX0345	58	----	----	49	----	----	4	----	----	25.5	----	----	13.0	-----	-----
Triumph TRX1442	58	----	----	52	----	----	7	----	----	26.0	----	----	10.7	-----	-----
Average	57	60	62	51	48	54	13	11	8	26.3	25.8	26.2	9.1	10.2	9.9
LSD (.05)	.5	2.6	2.1	2.6	2.5	3.0	9.4	5.6	5.1	3.2	3.0	2.3	-----	-----	-----

Table 2. Thomas County Confectionary Sunflower Performance Test Results--Fallow, 1999-2001

Brand and hybrid	Yield (lbs/a)					Yield as % of test avg			Days to 1/2 bloom		
	2001	2000	1999	2-yr avg	3-yr avg	2001	2000	1999	2001	2-yr avg	3-yr avg
Agway Royal Hybrid RH118	1817	-----	-----	-----	-----	117	----	----	62	---	---
Agway Royal Hybrid RH3708	1400	-----	-----	-----	-----	90	----	----	59	---	---
Agway Royal Hybrid RH3738	1533	-----	-----	-----	-----	99	----	----	60	---	---
Red River Commodities RRC2213	1425	1742	2246	1583	1804	92	109	95	58	61	60
Red River Commodities RRC2413	1351	1435	2041	1393	1609	87	89	87	59	61	61
Red River Commodities RRC2582	1473	1742	2533	1608	1916	95	109	108	59	61	60
Seeds 2000 Grizzly	1476	-----	-----	-----	-----	95	----	----	61	---	---
Seeds 2000 X3987	1777	-----	-----	-----	-----	114	----	----	62	---	---
Sigco Sun Products Rustler	1655	-----	-----	-----	-----	106	----	----	59	---	---
Triumph TRX0451CRT	1671	1272	-----	1471	-----	108	79	----	61	62	---
Triumph 777C	1809	-----	-----	-----	-----	116	----	----	62	---	---
Triumph 700CLS	1264	-----	-----	-----	-----	81	----	----	64	---	---
Average	1554	1605	2352	1580	1837	100	100	100	60	62	61
LSD (.05)	332	424	337	378	364	----	----	----	1	---	---

	Plant height (in)			Lodging (%)			Test weight (lbs/bu)			200 seed weight (g)		
	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg
Agway Royal Hybrid RH118	54	----	----	5	---	---	21.9	-----	-----	21.0	-----	-----
Agway Royal Hybrid RH3708	52	----	----	5	---	---	21.8	-----	-----	20.4	-----	-----
Agway Royal Hybrid RH3738	54	----	----	5	---	---	21.7	-----	-----	18.4	-----	-----
Red River Commodities 2213	56	55	59	13	9	7	20.7	19.7	20.2	20.3	20.6	20.4
Red River Commodities 2413	53	52	57	10	8	9	21.4	20.1	20.6	20.6	22.0	21.3
Red River Commodities 2582	53	52	57	8	5	3	21.7	20.7	21.3	18.1	20.6	21.3
Seeds 2000 Grizzly	53	----	----	10	---	---	22.0	-----	-----	21.4	-----	-----
Seeds 2000 X3987	55	----	----	4	---	---	21.6	-----	-----	21.1	-----	-----
Sigco Sun Products Rustler	54	----	----	4	---	---	21.5	-----	-----	18.7	-----	-----
Triumph TRX0451CRT	57	53	----	7	5	---	19.8	19.4	-----	20.0	23.0	-----
Triumph 777C	55	----	----	8	---	---	19.5	-----	-----	19.3	-----	-----
Triumph 700CLS	55	----	----	2	---	---	20.4	-----	-----	20.3	-----	-----
Average	54	52	57	7	4	4	21.2	20.0	20.6	20.0	21.7	21.4
LSD (.05)	2.1	----	----	6.2	---	---	1.4	-----	-----	-----	-----	-----

Table 3. Seed Size Distribution for Thomas County Confectionary Sunflower Performance Tests—Fallow, 1999-2001

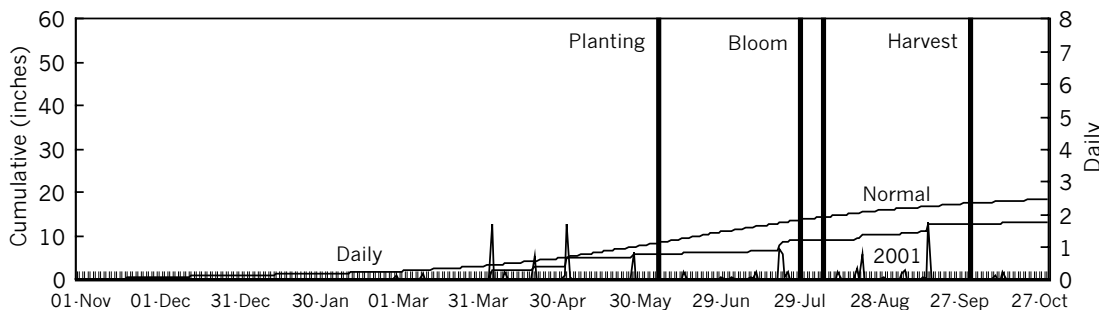
Brand and hybrid	Seed size distribution (%)																				
	2001						2-year average						3-year average								
	21/64 Above	20/64 to	19/64 to	18/64 to	16/64 to	16/64 Below	21/64 Above	20/64 to	19/64 to	18/64 to	16/64 to	16/64 Below	21/64 Above	20/64 to	19/64 to	18/64 to	16/64 to	16/64 Below			
RH118	11.8	11.3	11.5	21.0	15.9	22.0	6.1	---	---	---	---	---	---	---	---	---	---	---			
RH3708	15.2	16.6	12.5	16.2	13.0	16.7	9.5	---	---	---	---	---	---	---	---	---	---	---			
RH3738	9.9	10.7	14.8	19.4	14.5	21.6	8.7	---	---	---	---	---	---	---	---	---	---	---			
RRC 2213	8.6	11.9	13.3	15.8	17.6	24.0	8.8	11.8	14.0	13.8	16.9	14.8	20.8	8.6	10.3	13.0	14.2	17.2	14.8	21.9	8.8
RRC 2413	8.1	10.1	11.5	16.1	12.8	24.1	17.3	11.7	14.6	14.8	16.3	12.1	19.7	11.1	12.5	15.2	15.4	15.6	12.0	18.7	10.4
RRC 2582	13.1	15.2	13.1	11.3	8.2	22.8	16.3	10.7	14.0	16.3	17.8	11.3	19.5	11.1	11.6	13.5	15.9	19.1	12.8	18.0	8.9
Seeds 2000 Grizzly	7.4	10.7	16.1	24.5	16.2	17.8	6.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Seeds 2000 X3987	10.5	8.8	11.1	21.3	17.0	25.2	5.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Sigco Rustler	10.2	8.6	12.4	15.1	11.0	27.3	15.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Triumph TRX0451 CRT	5.6	5.7	11.3	15.1	15.3	32.2	14.6	10.0	11.8	16.2	20.8	11.8	20.9	9.1	---	---	---	---	---	---	---
Triumph 777C	24.7	13.7	14.3	13.5	10.4	14.2	8.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Triumph 700CLS	12.2	7.3	11.5	22.5	16.0	21.7	8.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Average	11.4	10.9	12.8	17.7	14.0	22.5	10.5	12.3	13.7	15.5	19.5	12.7	18.5	8.1	12.1	13.6	15.5	19.0	13.2	18.6	7.9

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

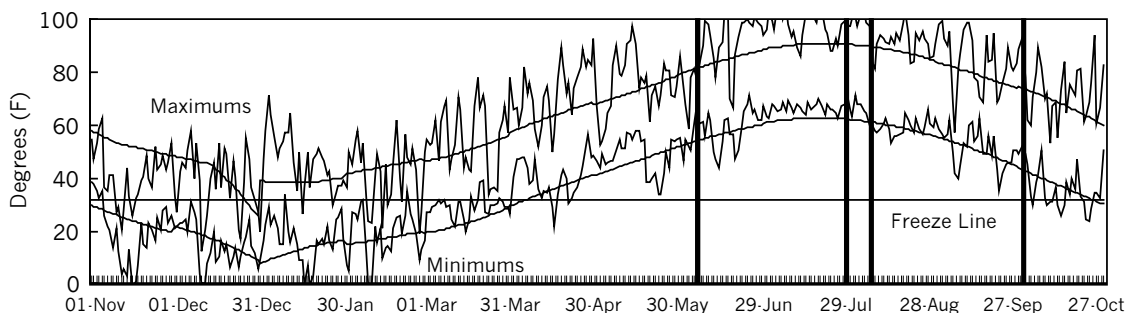
LOCATION: Northwest Research-Extension Center, Thomas County
COOPERATOR: Pat Evans, research technologist
TEST SITE: Keith silt loam
 Sunflower, 1999, milo 2000
FERTILIZATION: 110-25-0 spring
PLANTING DATE: June 7, 2001
HEADING DATES: July 30-Aug.8, 2001
HARVEST DATES: Oct. 3 2001
PEST CONTROL: Treflan, June 5; Warrior, Aug. 11

IRRIGATIONS: (3") July 12, July 23, Aug. 14, Aug. 27, 2001
POPULATIONS: Double-planted and thinned to desired stands:
 Oil (O) 23,000 plants/a
 Confectionary (C) 17,000 plants/a
TEST YIELDS:
 Avg. (lbs/a): (O) 1696, (C) 2168
 Range: (O) 864-2225, (C) 1427-3031
 LSD (lbs/a): (O) 397, (C) 403
 CV (%): (O) 19.8, (C) 16.0
GROWING CONDITIONS: Good stands were established, but higher-than-normal temperatures occurred throughout the growing season. Stem weevils and head moths did more damage than usual.

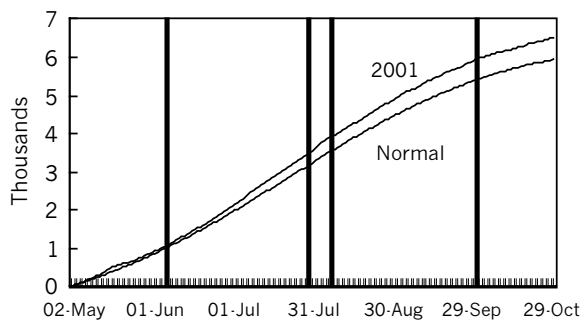
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	2.8	1.8	56	49	0	0
May	2.9	2.9	62	60	840	781
June	0.3	3.1	73	70	1177	1093
July	2.7	3.0	82	76	1496	1317
August	1.5	2.2	77	74	1342	1241
Sep.	2.4	1.5	68	65	1021	928
Oct.	0.4	1.1	55	53	647	574
Season Totals	12.9	15.6	68	64	6523	5934

Table 4. Thomas County Oilseed Sunflower Performance Test Results—Irrigated, 1999-2001

Brand and hybrid	Yield (lbs/a)					Yield as % of test average			Oil (%)			Oil yields (lbs/a)		
	2001	2000	1999	2-yr avg	3-yr avg	2001	2000	1999	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg
	Dekalb DK3900	1625	2362	2720	1993	2236	96	106	107	41.6	43.2	43.2	676	867
Dekalb DKF31-01NS	864	1336	----	1100	----	51	60	----	37.1	38.2	----	320	422	----
Dekalb DKF36-40NS	1002	1458	----	1230	----	59	65	----	34.9	36.7	----	350	456	----
Garst/Interstate Hysun 450	1555	2203	----	1879	----	92	98	----	39.6	40.1	----	616	755	----
Garst/Interstate 4049	1946	2540	2768	2243	2418	115	113	109	38.4	40.5	40.9	747	915	995
Garst/Interstate 4340	1934	2331	----	2132	----	114	104	----	42.3	43.1	----	818	921	----
Garst/Interstate IS 6767	2092	----	----	----	----	123	----	----	37.8	----	----	791	----	----
Garst/Interstate IS 84021	1715	2142	2552	1929	2136	101	96	101	40.7	41.8	42.5	698	807	913
Kaystar 2020NS	1570	----	----	----	----	93	----	----	39.6	----	----	622	----	----
Kaystar 9501	1843	2731	3078	2287	2551	109	122	121	34.7	36.2	36.5	639	833	938
Monsanto Ex3804NS	1041	----	----	----	----	61	----	----	34.2	----	----	356	----	----
Mycogen Seeds 8377NS	1891	----	----	----	----	111	----	----	40.1	----	----	758	----	----
Mycogen Seeds 8488NS	1991	2338	2527	2164	2285	117	104	100	39.3	39.9	40.2	782	865	920
Mycogen Seeds Cavalry	2225	----	----	----	----	131	----	----	43.8	----	----	975	----	----
Mycogen Seeds SF187	2202	2327	2957	2265	2495	130	104	116	38.9	40.0	40.7	857	906	1018
Mycogen Seeds SF260	1828	2687	2495	2257	2336	108	120	98	42.0	43.2	43.4	768	979	1019
Pioneer® Brand 63A70	1319	2127	----	1723	----	78	95	----	40.7	43.1	----	537	751	----
Pioneer® Brand 63M80	1741	2010	----	1876	----	103	90	----	40.1	41.6	----	698	781	----
Pioneer® Brand 63M91	1440	2747	2573	2094	2253	85	123	101	39.2	40.6	41.6	565	859	948
Triumph TRX0345	2102	----	----	----	----	124	----	----	39.0	----	----	820	----	----
Average	1696	2238	2539	2389	2341	100	100	106	39.2	40.7	41.2	670	808	915
LSD (.05)	397	372	396	384	401	----	----	----	----	----	----	----	----	----

Brand and hybrid	Days to 1/2 bloom			Plant height (in)			Lodging (%)			Test weight (lbs/bu)			200 seed weight (g)		
	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg
	Dekalb DK3900	58	61	62	56	60	64	31	22	----	29.3	28.4	28.4	10.1	10.9
Dekalb DKF31-01NS	55	58	----	68	70	----	19	14	----	20.8	23.9	----	10.7	11.1	----
Dekalb DKF36-40NS	55	58	----	66	66	----	25	17	----	23.0	24.6	----	11.8	11.7	----
Garst/Interstate Hysun 450	59	62	----	60	63	----	14	11	----	29.0	26.8	----	10.0	10.0	----
Garst/Interstate 4049	58	61	61	59	64	69	16	10	8	29.3	28.6	28.1	10.9	10.6	10.3
Garst/Interstate 4340	60	63	----	59	63	----	15	10	----	30.5	29.3	----	10.4	10.2	----
Garst/Interstate IS 6767	56	----	----	48	----	----	8	----	----	28.3	----	----	11.8	----	----
Garst/Interstate IS 84021	56	59	59	56	60	64	20	15	11	29.0	28.5	28.6	12.5	12.5	11.9
Kaystar 2020NS	59	----	----	51	----	----	21	----	----	27.5	----	----	9.8	----	----
Kaystar 9501	59	61	62	61	66	70	20	14	10	29.8	29.3	28.6	11.4	11.6	11.3
Monsanto Ex3804NS	53	----	----	61	----	----	17	----	----	24.5	----	----	11.0	----	----
Mycogen Seeds 8377NS	54	----	----	58	----	----	11	----	----	29.5	----	----	10.5	----	----
Mycogen Seeds 8488NS	56	59	60	57	62	66	20	13	9	29.0	28.3	28.1	9.4	9.8	9.5
Mycogen Seeds Cavalry	58	----	----	59	----	----	11	----	----	31.0	----	----	10.2	----	----
Mycogen Seeds SF187	57	60	61	52	57	60	15	11	8	28.8	27.5	27.8	9.8	10.0	9.5
Mycogen Seeds SF260	57	60	60	56	59	62	20	12	9	28.8	27.8	27.9	9.8	10.1	9.7
Pioneer® Brand 63A70	54	57	----	54	57	----	14	8	----	25.5	25.3	----	11.0	11.1	----
Pioneer® Brand 63M80	56	59	----	58	61	----	13	9	----	29.0	27.9	----	13.7	13.4	----
Pioneer® Brand 63M91	56	59	60	62	66	71	21	13	11	28.5	28.0	28.3	11.1	11.8	10.9
Triumph TRX0345	58	----	----	53	----	----	4	----	----	25.5	----	----	11.9	----	----
Average	57	60	60	58	61	65	17	12	10	27.8	27.2	27.5	10.9	11.1	10.6
LSD (.05)	1	0.6	2.4	3.7	2.5	3.3	----	4.7	4.7	2.3	1.6	1.4	----	----	----

Table 5. Thomas County Confectionary Sunflower Performance Test Results–Irrigated, 1999-2001

Brand and hybrid	Yield (lbs/a)					Yield as % of test avg.			Days to 1/2 bloom		
	2001	2000	1999	2-yr avg	3-yr avg	2001	2000	1999	2001	2-yr avg	3-yr avg
Agway Royal Hybrid RH118	1936	-----	-----	-----	-----	89	----	----	60	---	---
Agway Royal Hybrid RH3708	1820	-----	-----	-----	-----	84	----	----	58	---	---
Agway Royal Hybrid RH3738	1940	-----	-----	-----	-----	89	----	----	59	---	---
Garst/Interstate Expf89008	1427	-----	-----	-----	-----	66	----	----	58	---	---
Garst/Interstate IS 8048	2278	1933	2193	2106	2135	105	93	91	54	58	58
Red River Commodities RRC2213	2031	2174	2535	2103	2247	94	105	105	56	59	59
Red River Commodities RRC2413	2165	2377	1971	2271	2171	100	114	82	58	60	61
Red River Commodities RRC2582	2175	2329	2338	2252	2280	100	112	97	57	59	60
Seeds 2000 Grizzly	2022	-----	-----	-----	-----	93	----	----	60	---	---
Seeds 2000 Kodiak	2623	-----	-----	-----	-----	121	----	----	56	---	---
Seeds 2000 X3983	2302	-----	-----	-----	-----	106	----	----	63	---	---
Seeds 2000 X3987	3031	-----	-----	-----	-----	140	----	----	61	---	---
Sigco Sun Products Exp392	2349	-----	-----	-----	-----	108	----	----	59	---	---
Sigco Sun Products Rustler	2125	-----	-----	-----	-----	98	----	----	57	---	---
Triumph TRX0451CRT	2014	2144	-----	2079	-----	93	103	----	59	62	---
Triumph 777C	2691	-----	-----	-----	-----	124	----	----	61	---	---
Triumph 700CLS	1926	-----	-----	-----	-----	89	----	----	63	---	---
Average	2168	2080	2415	2124	2221	100	100	100	59	61	61
LSD (.05)	403	-----	484	-----	-----	----	----	----	1	1	1

	Plant height (in)			Lodging (%)			Test weight (lbs/bu)			200 seed weight (g)		
	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg
Agway Royal Hybrid RH118	58	---	---	3.5	---	---	21.2	-----	-----	27.9	-----	-----
Agway Royal Hybrid RH3708	56	---	---	8.8	---	---	22.1	-----	-----	24.6	-----	-----
Agway Royal Hybrid RH3738	58	---	---	10.3	---	---	21.4	-----	-----	21.2	-----	-----
Garst/Interstate Expf89008	58	---	---	15.8	---	---	22.8	-----	-----	21.4	-----	-----
Garst/Interstate IS 8048	55	57	61	6.8	5	5	22.7	21.3	21.6	26.6	26.3	26.3
Red River Commodities RRC2213	59	61	66	16.3	13	11	22.3	21.1	21.9	23.1	23.4	22.7
Red River Commodities RRC2413	58	60	64	13.5	11	10	21.6	19.7	20.8	24.5	24.6	24.1
Red River Commodities RRC2582	57	58	63	9.3	8	6	22.8	20.2	21.6	20.2	22.8	22.6
Seeds 2000 Grizzly	55	---	---	6.5	---	---	21.6	-----	-----	24.6	-----	-----
Seeds 2000 Kodiak	57	---	---	8.0	---	---	20.8	-----	-----	23.7	-----	-----
Seeds 2000 X3983	63	---	---	7.3	---	---	19.9	-----	-----	24.3	-----	-----
Seeds 2000 X3987	59	---	---	2.8	---	---	20.6	-----	-----	23.8	-----	-----
Sigco Sun Products Exp392	57	---	---	7.5	---	---	22.9	-----	-----	22.7	-----	-----
Sigco Sun Products Rustler	57	---	---	5.8	---	---	22.7	-----	-----	23.4	-----	-----
Triumph TRX0451CRT	60	62	---	13.0	9	---	22.8	20.6	-----	22.8	24.3	-----
Triumph 777C	56	---	---	7.5	---	---	17.8	-----	-----	28.0	-----	-----
Triumph 700CLS	59	---	---	4.0	---	---	19.0	-----	-----	26.1	-----	-----
Average	58	68	70	8.6	7	6	21.5	20.2	21.0	24.1	24.6	24.1
LSD (.05)	3	2	2.4	6.1	5	5	1.6	3.0	2.0	-----	-----	-----

Table 6. Seed Size Distribution for Thomas County Confectionary Sunflower Performance Tests—Irrigated, 1999-2001

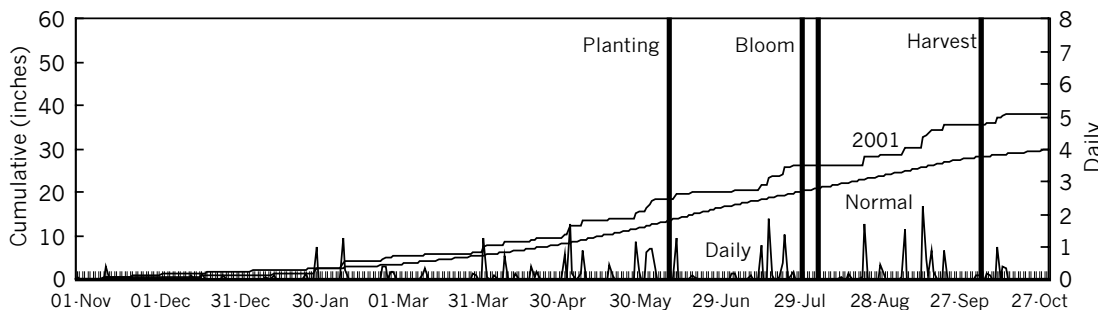
Brand and hybrid	Seed size distribution (%)																				
	2001						2-year average						3-year average								
	21/64 Above 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 16/64	Below 16/64	21/64 Above 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 16/64	Below 16/64	21/64 Above 22/64	20/64 to 21/64	19/64 to 20/64	18/64 to 19/64	16/64 to 16/64	Below 16/64			
RH118	31.9	21.2	12.9	11.9	7.9	8.0	5.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
RH3708	31.9	17.5	14.1	11.2	8.5	10.2	5.8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
RH3738	25.4	14.1	11.3	12.0	10.4	15.1	11.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
Garst/Interstate Exf89008	10.0	8.9	12.6	19.6	14.5	18.4	15.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			
Garst/Interstate IS 8048	24.1	16.2	12.9	13.1	12.0	15.1	6.4	30.1	17.0	14.2	13.3	9.7	10.7	5.1	31.6	18.3	14.8	12.3	8.3	9.2	5.2
RRC 2213	8.0	8.1	12.7	16.3	17.8	28.0	9.3	21.0	12.4	14.3	14.7	12.8	17.9	7.3	17.2	12.7	14.8	16.1	12.3	18.8	8.2
RRC 2413	18.7	15.5	16.4	15.1	11.0	15.8	6.9	24.0	18.0	15.5	15.0	10.2	12.0	5.1	20.7	16.2	16.4	15.3	10.1	13.5	7.4
RRC 2582	14.5	11.0	10.6	14.3	12.6	21.4	15.0	19.8	14.7	12.9	15.6	10.7	16.5	9.6	18.4	13.1	12.9	17.0	11.8	16.7	9.7
Seeds 2000 Grizzly	26.0	18.8	15.9	17.9	10.2	8.3	2.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Seeds 2000 Kodiak	18.2	13.2	16.1	19.6	11.8	13.8	6.7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Seeds 2000 X3983	16.2	11.8	14.6	19.5	14.0	19.4	4.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Seeds 2000 X3987	21.6	19.0	14.9	18.0	10.2	9.4	6.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Sigco Exp 392	8.9	9.7	14.8	22.3	14.7	17.7	11.8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Sigco Rustler	15.0	14.0	17.7	18.4	9.6	15.0	10.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Triumph TRX0451CRT	14.1	10.2	11.2	18.2	14.5	24.2	7.0	19.9	14.3	14.4	17.2	11.3	17.6	5.2	-----	-----	-----	-----	-----	-----	-----
Triumph 777C	56.2	14.1	11.9	9.0	3.1	3.5	1.8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Triumph 700CLS	36.7	15.2	15.7	12.4	6.7	8.9	4.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Average	22.2	14.0	13.9	15.8	11.1	14.8	7.7	26.1	16.2	14.8	15.3	9.7	11.9	5.8	22.9	15.7	15.3	16.0	10.0	13.0	6.8

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

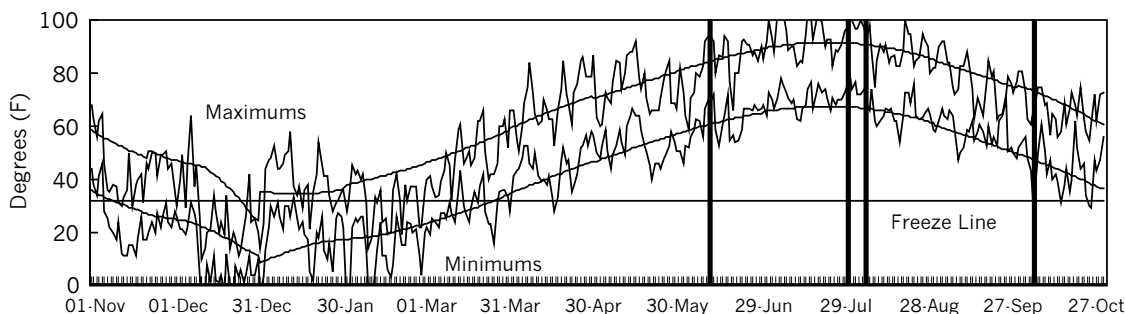
LOCATION: North Central Kansas Exp.
Field, west of Belleville in Republic County
COOPERATOR: Barney Gordon,
agronomist
TEST SITE: Crete silt loam
Soybean 1999, grain sorghum 2000
FERTILIZATION: 70-30-0 spring
PLANTING DATE: June 11, 2001
HEADING DATES: July 31-Aug.6, 2001
HARVEST DATE: Oct. 6, 2001

PEST CONTROL: Prowl, April 25, 2001;
Warrior, July 28, Aug. 7, Aug. 13
POPULATION: 22,000 plants/a
TEST YIELDS:
Avg. (lbs/a): 829
Range(lbs/a): 435-1153
CV (%): 10
GROWING CONDITIONS: May was much
wetter than normal, and uniform stands
were established in all plots. No rain fell
from mid-June to mid-July. Good rains
were received in late July, but August was
drier than normal. In spite of spraying,
head moth control was not good. Rhizopus
head rot and stalk rot were also present.

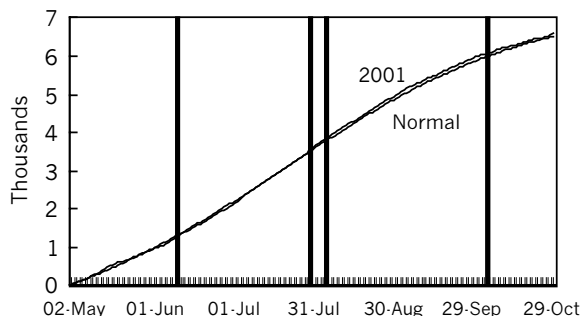
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	3.3	2.5	57	53	0	0
May	5.9	4.0	64	64	892	902
June	4.6	4.6	72	74	1144	1188
July	6.0	3.8	82	79	1490	1398
August	2.7	3.7	79	77	1386	1335
Sep.	6.7	3.9	68	67	1005	1004
Oct.	2.4	2.0	56	56	672	678
Season Totals	31.6	24.5	68	67	6589	6505

Table 7. Republic County Oilseed Sunflower Performance Test Results–Dryland, Continuous Crop, 1999-2001

Brand and hybrid	Yield (lbs/a)					Yield as % of test average			Oil (%)		Oil yields (lbs/a)			
	2001	2000	1999	2-yr	3-yr	2001	2000	1999	2-yr	3-yr	2001	2-yr	3-yr	
				avg	avg				avg	avg				
Croplan Genetics CL345NS	744	-----	-----	-----	-----	90	-----	-----	37.7	-----	-----	280	-----	-----
Croplan Genetics CL385NS	1026	-----	-----	-----	-----	124	-----	-----	36.1	-----	-----	370	-----	-----
Dekalb DK3900	885	1760	3247	1323	1964	107	107	119	37.3	40.3	40.6	330	545	810
Dekalb DK3101NS	634	-----	-----	-----	-----	77	-----	-----	37.4	-----	-----	237	-----	-----
Dekalb DK36-40NS	435	-----	-----	-----	-----	52	-----	-----	36.8	-----	-----	160	-----	-----
Garst/Interstate IS971136NS	995	1800	-----	1397	-----	120	109	-----	37.7	40.1	-----	375	570	-----
Garst/Interstate Exp f84021	769	1284	-----	1027	-----	93	78	-----	36.9	39.3	-----	284	410	-----
Garst/Interstate Hysun 450	626	1325	2278	975	1410	76	80	83	37.7	39.9	41.1	236	396	596
Garst/Interstate Hysun 521	1119	-----	-----	-----	-----	135	-----	-----	36.8	-----	-----	412	-----	-----
Garst/Interstate Hysun 530	827	-----	-----	-----	-----	100	-----	-----	37.3	-----	-----	308	-----	-----
Garst/Interstate IS 4049	969	2164	2879	1566	2004	117	131	105	37.3	40.4	41.5	361	650	854
Garst/Interstate IS 4340	910	1976	-----	1443	-----	110	120	-----	37.9	40.6	-----	345	599	-----
Garst/Interstate IS 5331	1153	1658	-----	1405	-----	139	101	-----	37.0	41.1	-----	427	588	-----
Garst/Interstate IS 6767	793	1404	2635	1098	1611	96	85	96	37.2	40.8	41.8	295	458	690
Kaystar 2020NS	693	-----	-----	-----	-----	84	-----	-----	37.6	-----	-----	261	-----	-----
Kaystar 9501	886	1983	3050	1434	1973	107	120	111	37.3	39.9	40.9	330	587	828
Monsanto Ex3804NS	651	-----	-----	-----	-----	79	-----	-----	36.8	-----	-----	240	-----	-----
Mycogen Seeds 8377NS	659	-----	-----	-----	-----	80	-----	-----	37.5	-----	-----	247	-----	-----
Mycogen Seeds 8488NS	1028	1661	-----	1345	-----	124	101	-----	37.1	39.5	-----	381	539	-----
Mycogen Seeds SF260	752	-----	-----	-----	-----	91	-----	-----	36.4	-----	-----	274	-----	-----
Pioneer® Brand 63A70	717	1396	-----	1057	-----	87	85	-----	37.0	41.4	-----	265	452	-----
Pioneer® Brand 63M80	667	-----	-----	-----	-----	80	-----	-----	37.2	-----	-----	248	-----	-----
Pioneer® Brand 63M91	825	1535	-----	1180	-----	100	93	-----	37.0	40.3	-----	305	487	-----
Syngenta 278	936	-----	-----	-----	-----	113	-----	-----	37.6	-----	-----	352	-----	-----
Syngenta NX30002	1011	-----	-----	-----	-----	122	-----	-----	37.1	-----	-----	375	-----	-----
Syngenta T46-R9	643	-----	-----	-----	-----	78	-----	-----	36.4	-----	-----	234	-----	-----
Triumph 636	884	-----	-----	-----	-----	107	-----	-----	37.4	-----	-----	330	-----	-----
Triumph 658	892	-----	-----	-----	-----	108	-----	-----	37.1	-----	-----	331	-----	-----
Triumph 665	901	-----	-----	-----	-----	109	-----	-----	37.4	-----	-----	337	-----	-----
Average	828	1649	2737	1239	1738	100	100	103	37.2	39.5	40.7	308	499	737
LSD (.05)	84	210	219	-----	-----	10.1	-----	-----	-----	-----	-----	-----	-----	-----

continued

Table 7. Republic County Oilseed Sunflower Performance Test Results–Dryland, Continuous Crop, 1999-2001, continued

Brand and hybrid	Days to ½ bloom			Plant height (in)			Lodging (%)			Test weight (lbs/)			200 seed weight (g)		
	2001	2-yr	3-yr	2001	2-yr	3-yr	2001	2-yr	3-yr	2001	2-yr	3-yr	2001	2-yr	3-yr
		avg	avg		avg	avg		avg	avg		avg	avg		avg	avg
Croplan Genetics CL345NS	51	----	----	42	----	----	19	----	----	31.4	-----	-----	9.6	-----	-----
Croplan Genetics CL385NS	54	----	----	50	----	----	23	----	----	31.2	-----	-----	8.7	-----	-----
Dekalb DK3900	55	58	59	56	45	47	14	9	6	31.3	30.2	29.9	9.7	8.3	8.5
Dekalb DK3101NS	51	----	----	59	----	----	42	----	----	30.9	-----	-----	9.6	-----	-----
Dekalb DK36-40NS	51	----	----	54	----	----	29	----	----	31.4	-----	-----	9.7	-----	-----
Garst/Interstate IS971136NS	54	56	----	61	50	----	12	7	----	31.2	31.0	-----	8.9	8.1	-----
Garst/Interstate Exp f84021	55	58	----	51	40	----	17	10	----	31.1	30.4	-----	10.5	8.7	-----
Garst/Interstate Hysun 450	55	58	59	56	44	49	25	14	10	31.5	30.4	29.9	9.7	8.8	9.0
Garst/Interstate Hysun 521	51	----	----	42	----	----	23	----	----	31.3	-----	-----	9.4	-----	-----
Garst/Interstate Hysun 530	52	----	----	45	----	----	17	----	----	31.5	-----	-----	9.4	-----	-----
Garst/Interstate IS 4049	54	56	58	63	51	54	16	10	8	31.4	30.8	30.7	9.1	9.0	9.1
Garst/Interstate IS 4340	55	58	----	53	43	----	26	14	----	31.3	30.6	-----	9.2	8.7	-----
Garst/Interstate IS 5331	53	57	----	49	44	----	25	14	----	31.3	30.3	-----	9.1	8.3	-----
Garst/Interstate IS 6767	52	56	57	46	40	45	33	18	12	31.2	30.5	30.7	9.6	8.4	8.8
Kaystar 2020NS	55	----	----	59	----	----	29	----	----	31.2	-----	-----	8.9	-----	-----
Kaystar 9501	56	58	59	43	42	48	19	10	7	31.4	30.6	30.5	9.6	8.2	8.4
Monsanto Ex3804NS	50	----	----	55	----	----	26	----	----	31.2	-----	-----	8.7	-----	-----
Mycogen Seeds 8377NS	51	----	----	46	----	----	27	----	----	31.0	-----	-----	9.8	-----	-----
Mycogen Seeds 8488NS	53	58	----	54	45	----	17	9	----	31.5	30.8	-----	8.6	7.9	-----
Mycogen Seeds SF260	53	----	----	47	----	----	13	----	----	31.2	-----	-----	8.7	-----	-----
Pioneer® Brand 63A70	51	54	----	57	46	----	31	16	----	31.6	30.6	-----	10.7	9.1	-----
Pioneer® Brand 63M80	52	----	----	42	----	----	39	----	----	31.3	-----	-----	8.8	-----	-----
Pioneer® Brand 63M91	52	55	----	43	38	----	29	16	----	31.5	30.7	-----	9.0	8.1	-----
Syngenta 278	53	----	----	49	----	----	10	----	----	31.2	-----	-----	9.8	-----	-----
Syngenta NX30002	52	----	----	49	----	----	23	----	----	31.1	-----	-----	9.3	-----	-----
Syngenta T46-R9	51	----	----	54	----	----	30	----	----	31.5	-----	-----	8.8	-----	-----
Triumph 636	54	----	----	56	----	----	21	----	----	31.0	-----	-----	8.8	-----	-----
Triumph 658	55	----	----	42	----	----	27	----	----	31.1	-----	-----	9.9	-----	-----
Triumph 665	55	----	----	58	----	----	24	----	----	31.4	-----	-----	10.3	-----	-----
Average	53	57	57	51	44	48	23	13	9	31.3	30.6	30.5	9.4	8.4	8.7
LSD (.05)	1	----	----	1.1	----	----	20.4	----	----	.4	-----	-----	-----	-----	-----

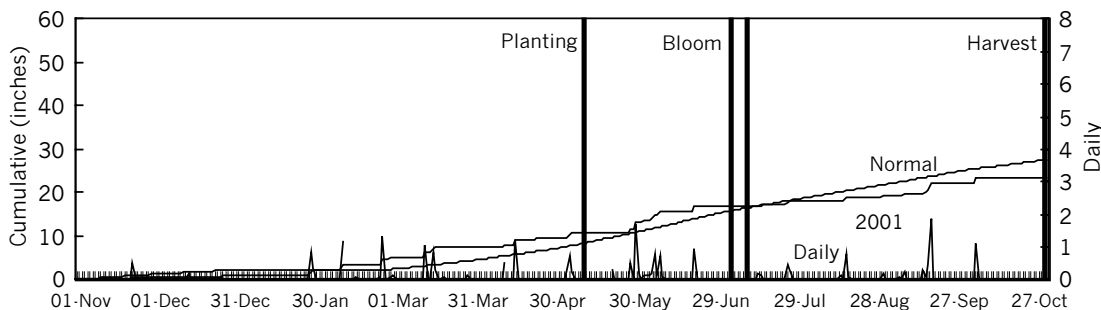
**SOUTH CENTRAL KANSAS
 DRYLAND, CONTINUOUS CROP
 SUNFLOWER TEST-OILSEED**

PEST CONTROL: Treflan, Prowl; May10
 Baythroid; July 2
POPULATION: 22,000 plants/a
TEST YIELDS:

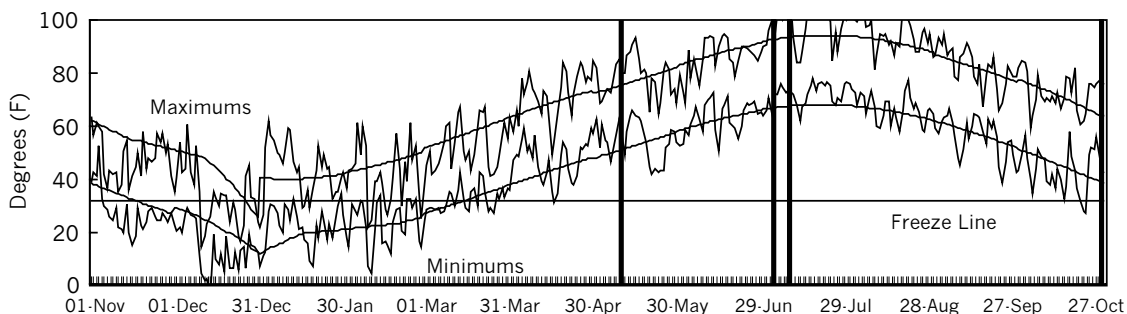
LOCATION: South Central Kansas
 Experiment Field, Hutchinson, Reno Co.
COOPERATOR: William Heer, agronomist
TEST SITE: Ost silt loam
 Fallow 2000, Wheat 1999
FERTILIZATION: 116-40-0/a spring 2001
PLANTING DATE: May 10, 2001
HEADING DATES: July 4-10, 2001
HARVEST DATE: Nov. 2, 2001

Avg. (lbs/a): (O) 613,
 Range (lbs/a): (O) 448-784,
 LSD (lbs/a): (O) 163,
 CV (%): (O) 22.4,
GROWING CONDITIONS: Good stands
 were established. July was much hotter and
 drier than normal with 18 days over 100°F.
 The hot, dry conditions severely limited
 yield.

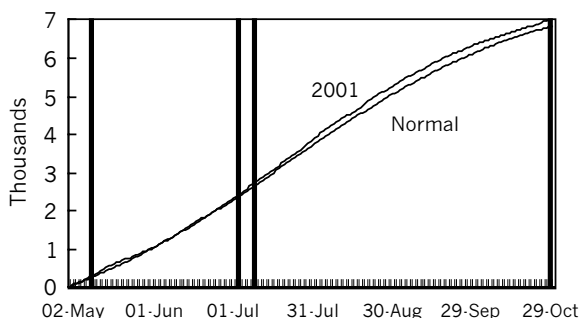
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	1.8	2.6	59	56	0	0
May	4.1	3.9	67	65	971	940
June	3.4	4.3	75	75	1224	1234
July	1.3	3.4	85	81	1573	1454
August	1.3	3.1	81	79	1463	1385
Sep.	3.1	3.3	69	70	1060	1072
Oct.	1.2	2.5	58	58	748	748
Season Totals	16.0	23.1	71	69	7040	6833

Table 8. Reno County Oilseed Sunflower Performance Test Results–Dryland, Continuous Crop, 1999-2001

Brand and hybrid	Yield (lbs/a)					Yield as % of test average			Oil (%)			Oil yields (lbs/a)		
	2001	2000	1999	2-yr avg	3-yr avg	2001	2000	1999	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg
Croplan Genetics 380NS	623	-----	-----	-----	-----	102	---	---	34.0	-----	-----	212	-----	-----
Croplan Genetics 385NS	458	-----	-----	-----	-----	75	---	---	36.4	-----	-----	167	-----	-----
Dekalb DK3900	752	1980	1683	1366	1472	123	121	108	35.8	35.6	37.9	269	485	561
Dekalb DKF31-01NS	506	-----	-----	-----	-----	83	---	---	32.2	-----	-----	163	-----	-----
Dekalb DKF36-40NS	583	-----	-----	-----	-----	95	---	---	32.4	-----	-----	189	-----	-----
Kaystar 2020NS	590	-----	-----	-----	-----	96	---	---	33.1	-----	-----	195	-----	-----
Kaystar 9404	590	2011	-----	1301	-----	96	123	---	34.7	35.5	-----	205	467	-----
Monsanto Ex3804NS	625	-----	-----	-----	-----	102	---	---	34.0	-----	-----	212	-----	-----
Mycogen Seeds 8377NS	781	-----	-----	-----	-----	127	---	---	37.1	-----	-----	290	-----	-----
Mycogen Seeds 8488NS	784	1875	-----	1330	-----	128	115	---	34.6	35.7	-----	271	480	-----
Pioneer® Brand 63A70	698	1630	1649	1164	1326	114	100	106	37.8	38.0	39.0	264	443	522
Pioneer® Brand 63M80	518	2009	-----	1263	-----	84	123	---	33.5	35.3	-----	173	459	-----
Pioneer® Brand 63M91	772	2204	1537	1488	1504	126	135	99	36.6	36.8	37.7	282	549	568
Triumph 636	448	-----	-----	-----	-----	73	---	---	36.2	-----	-----	162	-----	-----
Triumph 658	565	-----	-----	-----	-----	92	---	---	32.5	-----	-----	183	-----	-----
Triumph 665	518	-----	-----	-----	-----	85	---	---	34.9	-----	-----	181	-----	-----
Average	613	1631	1552	1122	1265	100	100	103	34.7	35.9	37.4	213	409	487
LSD (.05)	163	333	313	248	270	---	---	---	-----	-----	-----	-----	-----	-----

Brand and hybrid	Days to 1/2 bloom			Plant height (in)			Test weight (lbs/bu)			200 seed weight (g)		
	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg
Croplan Genetics 380NS	58	---	---	63	---	---	25.2	-----	-----	7.3	---	---
Croplan Genetics 385NS	60	---	---	56	---	---	23.9	-----	-----	6.9	---	---
Dekalb DK3900	60	58	57	59	59	60	25.4	25.8	27.4	7.3	8.5	9.0
Dekalb DKF31-01NS	56	---	---	65	---	---	25.6	-----	-----	7.3	---	---
Dekalb DKF36-40NS	55	---	---	65	---	---	25.5	-----	-----	7.1	---	---
Kaystar 2020NS	61	---	---	52	---	---	25.4	-----	-----	8.0	---	---
Kaystar 9404	56	54	---	61	58	---	23.9	25.8	-----	7.9	9.4	---
Monsanto Ex3804NS	55	---	---	60	---	---	25.7	-----	-----	8.0	---	---
Mycogen Seeds 8377NS	55	---	---	58	---	---	26.9	-----	-----	7.8	---	---
Mycogen Seeds 8488NS	58	56	---	62	63	---	25.7	27.2	-----	7.1	8.1	---
Pioneer® Brand 63A70	55	53	53	58	56	55	25.9	27.2	28.5	7.3	8.4	9.5
Pioneer® Brand 63M80	55	54	---	57	56	---	24.9	26.4	-----	8.2	9.7	---
Pioneer® Brand 63M91	56	54	55	63	62	64	24.8	26.4	27.9	7.5	8.8	9.6
Triumph 636	60	---	---	66	---	---	24.0	-----	-----	6.8	---	---
Triumph 658	59	---	---	63	---	---	24.2	-----	-----	7.1	---	---
Triumph 665	59	---	---	60	---	---	25.1	-----	-----	8.9	---	---
Average	57	56	56	60	59	60	25.1	26.0	27.7	7.5	8.8	9.7
LSD (.05)	1	1	1	3	4	5	2	1	11	---	---	---

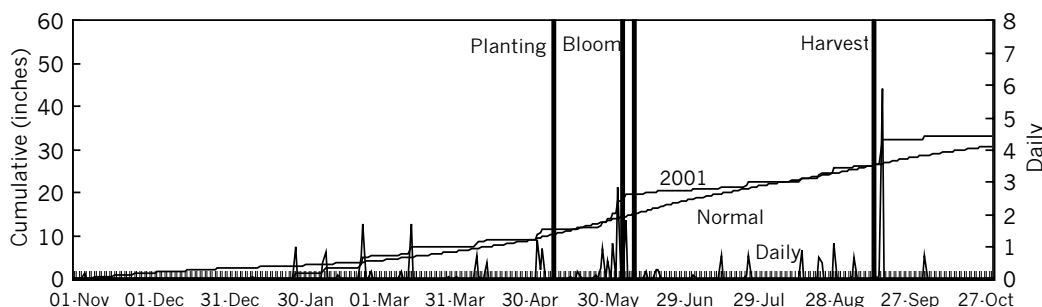
**SOUTH CENTRAL KANSAS
 DRYLAND, CONTINUOUS CROP
 SUNFLOWER TEST-OILSEED**

TEST YIELDS:
 Avg. (lbs/a): (O) 1235,
 Range (lbs/a): (O) 985-1459
 LSD (lbs/a): (O) 226
 CV (%): (O) 12.7

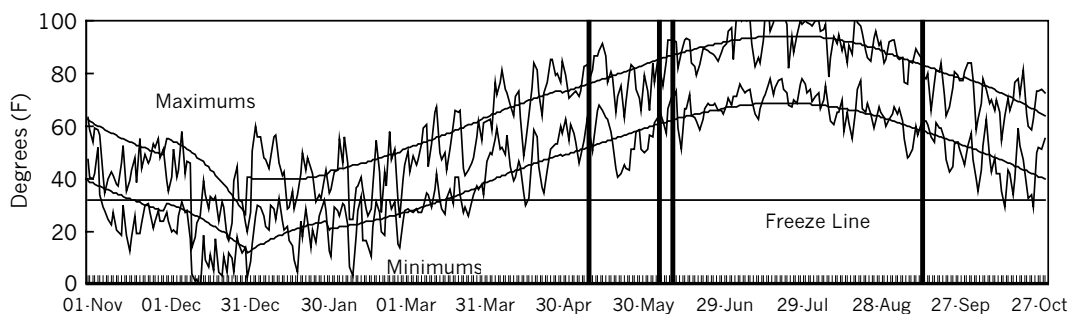
LOCATION: Harvey County Experiment Field, Hesston
COOPERATOR: Mark Claassen, agronomist
TEST SITE: Ladysmith silty clay loam
 Sorghum 1999, Soybean 2000
FERTILIZATION: 80-37-0lb/a spring 2001
PLANTING DATE: May 10, 2001
HEADING DATES: July 6-July 11, 2001
HARVEST DATE: Sept. 14, 2001
PEST CONTROL: Treflan 5/3,
 Bythroid 7/9,7/21
Defoliation: 1.5 pt/ac Gramoxone Extra
POPULATION: 22,000 plants/a

GROWING CONDITIONS: Stand establishment was good. Precipitation was below normal in May, but above average in June. Temperatures were above normal in July and Aug., exceeding 100°F on 19 days, and rainfall was below normal. Some of the highest temperatures coincided with half-bloom. Head moth infestation was heavy. Lodging occurred early in Sept., due to weak brace roots, black stem disease, and stem weevil. Lodged plant yields were included with standing plants; however, lodged plants had significant seed loss.

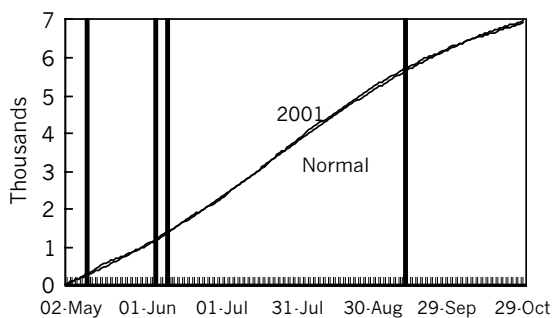
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	1.5	2.6	59	56	0	0
May	4.4	4.5	66	66	958	963
June	7.2	4.7	75	76	1215	1251
July	1.8	3.6	84	81	1552	1460
August	3.2	3.0	80	79	1436	1407
Sep.	6.9	3.7	69	71	1044	1098
Oct.	0.8	2.6	58	59	730	780
Season Totals	25.7	24.6	70	70	6936	6959

Table 9. Harvey County Oilseed Sunflower Performance Test Results—Dryland, Continuous Crop, 2000-2001

Brand and hybrid	Yield (lbs/a)			Yield as % of test avg		Oil (%)		Oil yields (lbs/a)	
	2001	2000	2-yr avg	2001	2000	2001	2-yr avg	2001	2-yr avg
	Croplan Genetics CL322NS	1187	-----	-----	96	----	36.0	----	427
Croplan Genetics CL345NS	1374	-----	-----	111	----	37.5	----	515	----
Croplan Genetics CL380NS	1159	-----	-----	94	----	37.0	----	429	----
Croplan Genetics CL385NS	1294	-----	-----	105	----	36.6	----	474	----
Dekalb DK3900	1459	1734	1596	118	103	37.9	36.4	553	605
Dekalb DKF31-01NS	985	-----	-----	80	----	35.0	----	345	----
Dekalb DKF36-40NS	1126	-----	-----	91	----	36.2	----	408	----
Kaystar 9404	1355	1753	1554	110	104	36.1	33.9	489	554
Monsanto Ex3804NS	1257	-----	-----	102	----	35.9	----	451	----
Pioneer® Brand 63A70	1304	1612	1458	106	96	37.9	36.5	494	564
Pioneer® Brand 63M80	1096	1452	1274	89	86	37.1	35.4	407	491
Pioneer® Brand 63M91	1223	1700	1462	99	101	37.6	35.4	460	564
Average	1235	1684	1459	100	100	36.7	35.5	454	556
LSD (.05)	226	182	204	-----	-----	-----	-----	-----	-----

Brand and hybrid	Days to ½ bloom		Lodging (%)		Plant ht. (in)		Test wt. (lbs/bu)		200-seed weight (g)	
	2001	2-yr avg	2001	2-yr avg	2001	2-yr avg	2001	2-yr avg	2001	2-yr avg
	Croplan Genetics CL322NS	57	---	37	--	60	---	24.7	---	6.3
Croplan Genetics CL345NS	56	---	48	--	61	---	25.6	---	6.5	----
Croplan Genetics CL380NS	60	---	21	--	64	---	24.3	---	7.2	----
Croplan Genetics CL385NS	62	---	22	--	58	---	23.7	---	6.3	----
Dekalb DK3900	62	60	16	2	60	46	24.8	25	6.4	6.6
Dekalb DKF31-01NS	58	---	54	--	65	---	26.2	---	6.4	----
Dekalb DKF36-40NS	58	---	49	--	64	---	26.6	---	6.7	----
Kaystar 9404	59	57	33	4	65	49	24.8	24	6.2	6.1
Monsanto Ex3804NS	56	---	37	--	61	---	25.6	---	6.5	----
Pioneer® Brand 63A70	56	54	28	4	60	48	25.6	24	7.3	7.5
Pioneer® Brand 63M80	57	56	27	2	62	47	25.3	25	6.3	6.9
Pioneer® Brand 63M91	58	56	49	3	63	50	26.0	26	6.5	6.4
Average	0.5	1	12	2	2	3	ns	1	----	----
LSD (.05)										

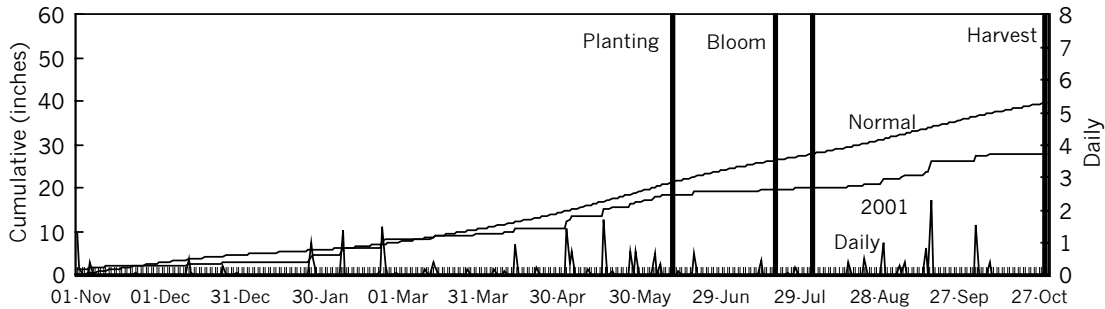
**SOUTH CENTRAL KANSAS
 DRYLAND, CONTINUOUS CROP
 SUNFLOWER TEST-OILSEED**

PEST CONTROL: Bythroid 8/9
POPULATION: 23,000 plants/a
TEST YIELDS:

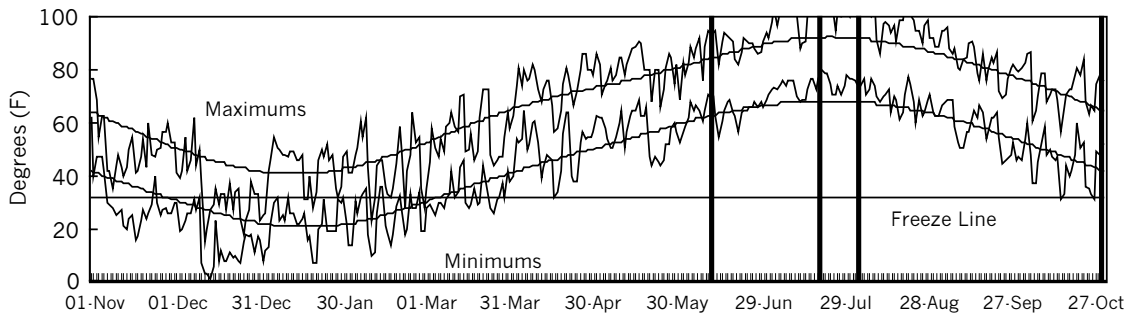
LOCATION: One mile east of Wellington
COOPERATOR: William Heer, agronomist
TEST SITE: Tabler silty clay loam
 Corn 2000, soybean 1999
FERTILIZATION: 116-40-0/ spring
PLANTING DATE: June 12, 2001
HARVEST DATE: Nov. 2, 2001

Avg. (lbs/a): 65.2
 Range (lbs/a): 34.8-85
 LSD (lbs/a): 20.8
 CV (%): 26.6
GROWING CONDITIONS: Wet, cool conditions delayed planting but good stands were established. Weather turned hot after planting, with 21 days in July over 100°F.

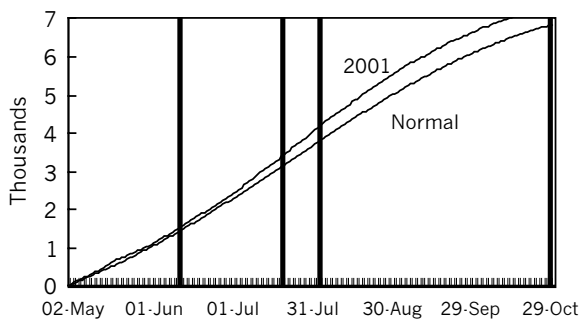
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	1.6	3.7	62	58	0	0
May	6.1	5.0	68	66	1035	965
June	2.2	4.7	76	75	1258	1215
July	0.8	3.5	87	80	1644	1418
August	2.0	3.9	84	78	1559	1371
Sep.	4.1	4.5	71	70	1112	1095
Oct.	2.0	3.8	59	60	790	791
Season Totals	18.7	29.2	73	69	7398	6853

Table 10. Sumner County Oilseed Sunflower Performance Test Results—Dryland, Continuous Crop, 2000-2001

Brand and hybrid	Yield (lbs/a)			Yield as % of test avg.		Lodging (%)	Plant height (in)	
	2001	2000	2-yr avg	2001	2-yr avg	2001	2001	2-yr avg
Dekalb DK3900	83	257	170	127	127	3	33	40
Dekalb DKF31-01NS	35	----	----	53	----	5	45	---
Dekalb DKF36-40NS	52	----	----	80	----	20	42	---
Kaystar 9404	85	157	121	131	77	0	37	41
Kaystar 9501	71	205	138	110	102	1	34	41
Monsanto Ex3804NS	48	----	----	74	----	8	42	---
Pioneer® Brand 63A70	67	174	121	103	86	1	40	43
Pioneer® Brand 63M80	72	241	157	110	120	23	39	44
Pioneer® Brand 63M91	65	236	150	100	117	2	37	42
Triumph 658	59	----	----	91	----	1	33	---
Triumph 665	80	----	----	123	----	2	39	---
Average	65	202	134	100	100	6	38	---
LSD (.05)	21	64.9	----	----	----	--	6	---

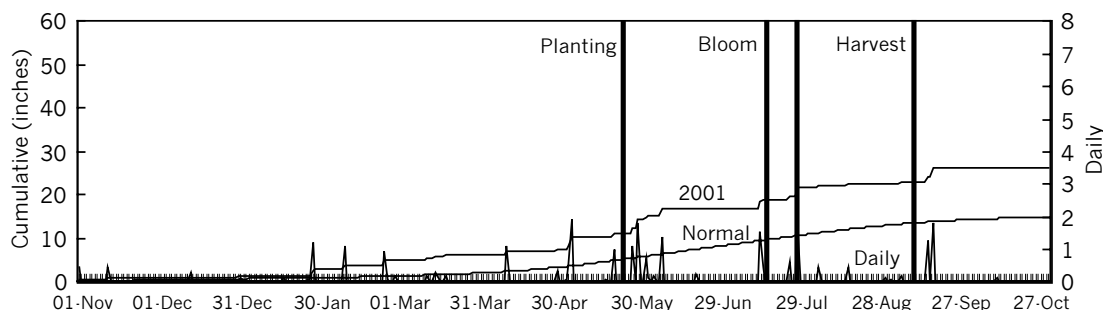
Oil, days to half bloom, and test weight data not taken in 2001.

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

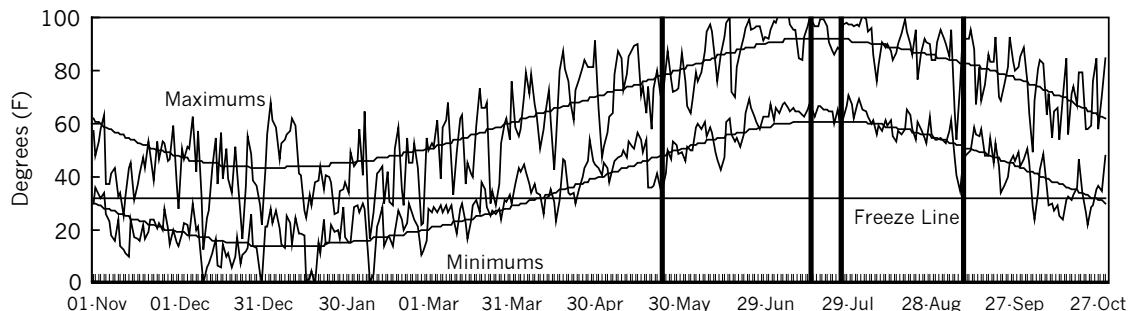
LOCATION: Southwest Research-Extension Center, Tribune Branch, Greeley County
COOPERATOR: Alan Schlegel, agronomist
TEST SITE: Richfield & Goshen silt loam
 Fallow 1999, wheat 2000
FERTILIZATION: 80 lbs N/a as UAN
PLANTING DATE: May 24, 2001
HEADING DATES: 7/17-7/28
HARVEST DATES: Sept. 10, 2001

PEST CONTROL: Spartan, 2.66 oz./a;
 Lorsban, 7/19,7/30
POPULATION: 17,400 plants/a (O and C)
TEST YIELDS:
 Avg. (lbs/a): (O) 126, (C) 454
 Range (lbs/a): (O) 59-240, (C) 210-789
 LSD (lbs/a): (O) 107, (C) 271
 CV (%): (O) 72.4, (C) 49.6
GROWING CONDITIONS: Good stands were established, but hot, dry conditions in July and Aug. seriously affected the test, causing very poor yields. Lodging caused by soybean stem borer also affected yield.

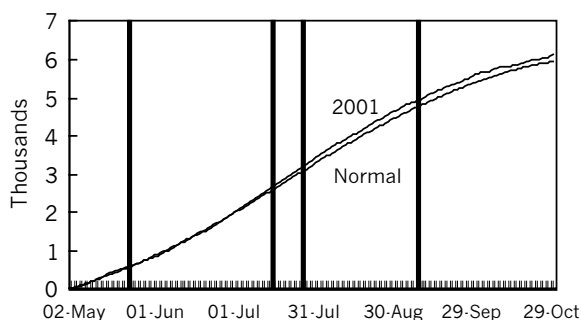
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	1.5	1.3	54	50	0	0
May	6.7	2.4	60	60	769	786
June	2.7	2.5	71	70	1114	1093
July	4.6	2.5	80	76	1435	1307
August	1.1	2.2	75	74	1280	1231
Sep.	3.4	1.3	66	65	948	944
Oct.	0.1	0.7	53	53	575	597
Season Totals	20.1	12.9	65	64	6122	5958

Table 11. Greeley County Oilseed Sunflower Performance Test Results—Fallow, 1998, 1999, and 2001

Brand and hybrid	Yield, lbs/a					Yield as % of test average			Oil (%)			Oil yield (lbs/a)		
	2001	1999	1998	2-yr	3-yr	2001	1999	1998	2001	2-yr avg	3-yr avg	2001	2-yr avg	3-yr avg
				avg	avg									
Croplan Genetics 385NS	120	-----	-----	-----	-----	95	---	---	33.8	-----	-----	41	-----	-----
Dekalb DK3900	131	2482	1900	1306	1504	104	105	89	31.5	38.1	39.6	41	575	653
Dekalb DKF31-01NS	59	-----	-----	-----	-----	47	---	---	33.6	-----	-----	20	-----	-----
Dekalb DKF36-40NS	136	-----	-----	-----	-----	108	---	---	32.1	-----	-----	44	-----	-----
Garst/Interstate Exp971136NS	128	1766	-----	947	-----	102	75	---	35.6	38.9	-----	46	395	-----
Garst/Interstate Expf84021	65	-----	-----	-----	-----	52	---	---	33.3	-----	-----	22	-----	-----
Garst/Interstate Hysun 450	89	2231	-----	1160	-----	71	94	---	32.6	37.1	-----	29	479	-----
Garst/Interstate Hysun 521	142	-----	-----	-----	-----	112	---	---	31.6	-----	-----	45	-----	-----
Garst/Interstate Hysun 530	86	-----	-----	-----	-----	68	---	---	32.7	-----	-----	28	-----	-----
Garst/Interstate IS 4049	128	2657	-----	1392	-----	102	112	---	34.4	38.2	-----	44	579	-----
Garst/Interstate IS 4340	127	-----	-----	-----	-----	101	---	---	33.9	-----	-----	43	-----	-----
Garst/Interstate IS 5331	157	-----	-----	-----	-----	124	---	---	30.7	-----	-----	48	-----	-----
Garst/Interstate IS 6767	88	2829	2846	1458	1921	70	120	133	32.0	38.7	39.0	28	656	812
Kaystar 9404	167	2918	-----	1542	-----	132	123	---	32.6	36.9	-----	54	628	-----
Kaystar 9501	81	2369	2194	1225	1548	64	100	102	34.0	36.5	36.1	28	476	576
Monsanto Ex3804NS	185	-----	-----	-----	-----	147	---	---	30.8	-----	-----	57	-----	-----
Mycogen Seeds 8377NS	232	2409	-----	1321	-----	184	102	---	31.6	37.4	-----	73	556	-----
Mycogen Seeds 8488NS	188	2153	2285	1170	1542	149	91	107	33.7	37.3	36.8	63	472	587
Mycogen Seeds Calvary	112	-----	-----	-----	-----	89	---	---	34.4	-----	-----	38	-----	-----
Mycogen Seeds SF187	123	2610	1958	1366	1563	97	110	91	32.5	36.8	36.8	40	556	610
Mycogen Seeds SF260	138	2359	-----	1248	-----	110	100	---	33.6	39.1	-----	46	548	-----
Pioneer® Brand 63A70	93	-----	-----	-----	-----	73	---	---	32.3	-----	-----	30	-----	-----
Pioneer® Brand 63M80	160	-----	-----	-----	-----	127	---	---	31.6	-----	-----	51	-----	-----
Pioneer® Brand 63M91	84	1808	-----	946	-----	67	77	---	33.5	38.2	-----	28	401	-----
Seeds 2000 Blazer	115	-----	-----	-----	-----	91	---	---	32.9	-----	-----	38	-----	-----
Seeds 2000 Bronco	112	2399	-----	1255	-----	88	102	---	34.3	37.8	-----	38	513	-----
Seeds 2000 Maverick	168	1831	-----	999	-----	133	77	---	33.7	37.6	-----	56	408	-----
Seeds 2000 Ranger	240	-----	-----	-----	-----	191	---	---	33.0	-----	-----	79	-----	-----
Triumph 636	107	-----	-----	-----	-----	85	---	---	34.7	-----	-----	37	-----	-----
Triumph 658	66	-----	-----	-----	-----	53	---	---	32.9	-----	-----	22	-----	-----
Triumph 665	75	-----	-----	-----	-----	59	---	---	33.9	-----	-----	25	-----	-----
Average	126	2363	2143	1992	2253	100	100	104	33.0	37.6	37.7	41	516	634
LSD (.05)	107	522	549	-----	-----	85	---	---	-----	-----	-----	---	-----	-----

continued

Table 11. Greeley County Oilseed Sunflower Performance Test Results—Fallow, 1998, 1999, and 2001, continued

Brand and hybrid	Days to ½ bloom			Plant height (in)			Lodging (%)			Test wt (lbs/bu)			200 seed weight (g)		
	2001	2-yr	3-yr	2001	2-yr	3-yr	2001	2-yr	3-yr	2001	2-yr	3-yr	2001	2-yr	3-yr
		avg	avg		avg	avg		avg	avg		avg	avg		avg	avg
Croplan Genetics 385NS	60	----	----	49	----	----	19	----	----	25.5	----	----	6.7	----	----
Dekalb DK3900	61	61	63	52	57	58	40	23	16	29.3	29.0	29.5	6.9	9.2	10.9
Dekalb DKF31-01NS	58	----	----	60	----	----	33	----	----	25.6	----	----	7.0	----	----
Dekalb DKF36-40NS	57	----	----	58	----	----	38	----	----	25.9	----	----	7.0	----	----
Garst/Interstate Ex971136NS	59	59	----	55	61	----	30	23	----	27.2	27.8	27.8	8.0	9.4	9.4
Garst/Interstate Expf84021	62	----	----	54	----	----	32	----	----	27.6	----	----	7.1	----	----
Garst/Interstate Hysun 450	60	61	----	50	54	----	10	23	----	26.7	28.2	28.2	6.8	8.3	8.3
Garst/Interstate Hysun 521	55	----	----	48	----	----	23	----	----	27.0	----	----	7.0	----	----
Garst/Interstate Hysun 530	57	----	----	51	----	----	43	----	----	26.3	----	----	6.7	----	----
Garst/Interstate IS 4049	61	61	----	57	63	----	35	23	----	27.2	28.4	28.4	7.8	9.4	9.4
Garst/Interstate IS 4340	62	----	----	50	----	----	15	----	----	27.0	----	----	6.9	----	----
Garst/Interstate IS 5331	56	----	----	49	----	----	26	----	----	24.7	----	----	8.0	----	----
Garst/Interstate IS 6767	59	59	60	54	61	62	54	24	21	26.7	28.7	29.3	7.6	9.6	10.8
Kaystar 9404	59	58	----	56	62	----	35	23	----	25.9	28.3	28.3	7.2	8.8	8.8
Kaystar 9501	61	62	62	57	62	65	51	24	21	27.1	28.9	29.4	7.1	9.0	10.0
Monsanto Ex3804NS	55	----	----	57	----	----	19	----	----	24.5	----	----	6.9	----	----
Mycogen Seeds 8377NS	55	56	----	56	62	----	30	24	----	24.9	27.1	27.1	6.7	8.8	8.8
Mycogen Seeds 8488NS	58	59	60	54	61	64	41	25	17	26.3	27.3	28.1	6.9	8.7	9.7
Mycogen Seeds Calvary	60	----	----	56	----	----	27	----	----	25.9	----	----	6.8	----	----
Mycogen Seeds SF187	59	60	61	51	54	55	36	25	13	26.2	27.6	28.0	6.7	8.8	9.9
Mycogen Seeds SF260	58	59	----	48	56	----	28	26	----	26.1	26.7	26.7	7.3	8.9	8.9
Pioneer® Brand 63A70	55	----	----	53	----	----	46	----	----	24.3	----	----	7.6	----	----
Pioneer® Brand 63M80	55	----	----	49	----	----	42	----	----	24.2	----	----	7.5	----	----
Pioneer® Brand 63M91	57	58	----	53	60	----	38	25	----	26.2	27.3	27.3	7.1	9.3	9.3
Seeds 2000 Blazer	57	----	----	47	----	----	33	----	----	23.5	----	----	7.2	----	----
Seeds 2000 Bronco	60	61	----	46	55	----	26	26	----	26.7	28.0	28.0	6.6	8.6	8.6
Seeds 2000 Maverick	59	59	----	56	62	----	28	28	----	25.9	27.4	27.4	7.5	8.9	8.9
Seeds 2000 Ranger	56	----	----	53	----	----	41	----	----	25.4	----	----	6.9	----	----
Triumph 636	60	----	----	52	----	----	46	----	----	25.4	----	----	7.5	----	----
Triumph 658	61	----	----	55	----	----	42	----	----	25.7	----	----	7.4	----	----
Triumph 665	60	----	----	48	----	----	45	----	----	27.7	----	----	6.6	----	----
Average	58	59	59	53	60	61	34	16	15	26.1	27.9	28.8	7.1	9.0	10.1
LSD (.05)	1	1	1	6	6	5	13	----	10	1.6	1.5	1.5	----	----	----

Table 12. Greeley County Confectionary Sunflower Performance Test Results, 1999 and 2001

Brand and hybrid	Yield (lbs/a)		Yield as % of test average		Days to 1/2 bloom		Height (in)		Lodging (%)		Test weight (lbs/bu)		200 seed weight (g)		
	2001	1999	2-yr avg	2001	2-yr avg	2001	2-yr avg	2001	2-yr avg	2001	2-yr avg	2001	2-yr avg	2001	2-yr avg
Agway RH118	302	-----	-----	66	-----	61	---	59	---	40	---	17.0	---	12.2	-----
Agway RH3708	789	-----	-----	174	-----	58	---	59	---	25	---	19.2	---	14.2	-----
Agway RH3738	373	-----	-----	82	-----	59	---	62	---	38	---	17.1	---	13.6	-----
Garst/Interstate Exf89008	416	-----	-----	92	-----	59	---	58	---	41	---	17.4	---	10.2	-----
Garst/Interstate IS 8048	547	2263	1405	120	105	56	57	56	66	38	19	16.7	20.0	14.6	19.9
Red River Commodities 2213	322	-----	-----	71	-----	58	---	58	---	48	---	17.9	---	12.2	-----
Red River Commodities 2413	499	-----	-----	110	-----	59	---	59	---	32	---	18.2	---	13.6	-----
Red River Commodities 2582	493	-----	-----	108	-----	58	---	58	---	38	---	17.7	---	14.0	-----
Triumph TRX0451CRT	510	-----	-----	112	-----	59	---	63	---	48	---	16.9	---	14.5	-----
Triumph 777C	539	-----	-----	119	-----	60	---	61	---	39	---	18.7	---	15.1	-----
Triumph 700CLS	210	-----	-----	46	-----	65	---	53	---	21	---	15.9	---	12.5	-----
Average	454	2162	1308	100	100	59	59	59	66	37	18	17.5	20.8	13.3	19.3
LSD (.05)	271	563	-----	-----	-----	1	1	7	6	15	8	2.5	2.3	-----	-----

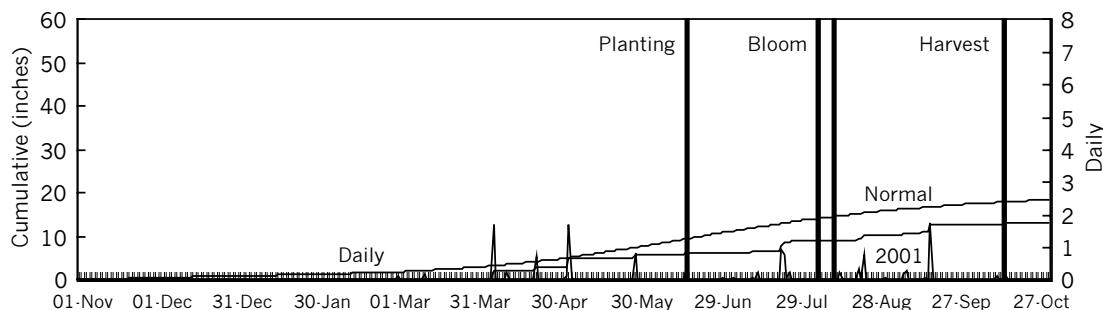
	Seed size distribution													
	2001						2-year average							
	Above 22/64	21/64	20/64	19/64	18/64	Below 16/64	Above 22/64	21/64	20/64	19/64	18/64	Below 16/64		
Agway RH118	0.2	0.8	2.5	4.9	6.8	37.6	47.5	-----	-----	-----	-----	-----		
Agway RH3708	5.3	9.8	12.9	11.9	13.7	22.2	24.7	-----	-----	-----	-----	-----		
Agway RH3738	2.5	5.0	10.1	15.4	15.1	30.1	22.4	-----	-----	-----	-----	-----		
Garst/Interstate Exf89008	0.5	3.5	5.6	8.5	12.4	28.1	42.0	-----	-----	-----	-----	-----		
Garst/Interstate IS 8048	4.4	4.8	11.8	20.2	14.3	25.6	19.5	7.8	12.3	15.5	20.4	12.7	19.0	13.2
Red River Commodities 2213	0.8	1.6	4.3	8.5	8.3	36.5	40.6	-----	-----	-----	-----	-----		
Red River Commodities 2413	4.7	7.7	10.7	18.2	11.4	22.6	25.6	-----	-----	-----	-----	-----		
Red River Commodities 2582	6.0	9.0	11.9	18.5	13.3	22.2	19.5	-----	-----	-----	-----	-----		
Triumph TRX0451CRT	1.9	5.9	11.8	16.3	14.6	27.6	23.1	-----	-----	-----	-----	-----		
Triumph 777C	3.8	12.2	17.3	21.4	14.2	20.3	11.2	-----	-----	-----	-----	-----		
Triumph 700CLS	2.0	4.5	10.7	13.1	11.2	24.8	33.9	-----	-----	-----	-----	-----		
Average	2.9	5.9	10.0	14.3	12.3	27.1	28.2	7.0	12.9	14.6	17.4	11.7	19.8	17.5

**NORTHWESTERN KANSAS
IRRIGATED NUSUN SUNFLOWER TESTS-
OILSEED**

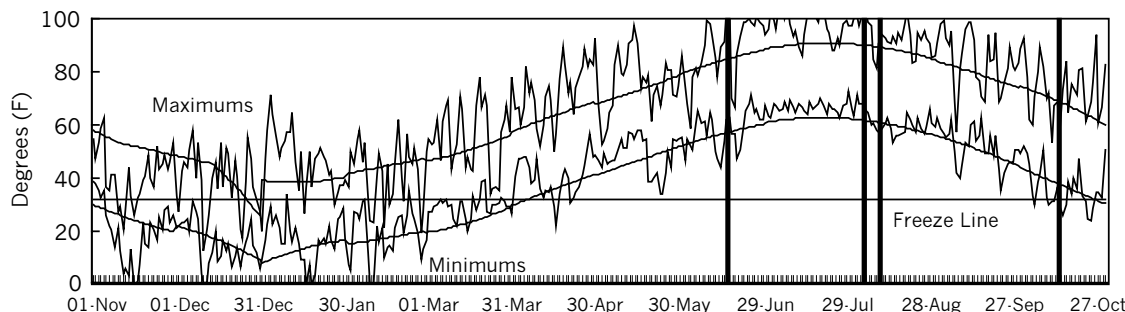
LOCATION: Northwest Research-Extension Center, Thomas County
COOPERATOR: Pat Evans, research technologist
TEST SITE: Keith silt loam Sunflower, 1999, corn, 2000
FERTILIZATION: 110-25-0 spring
PLANTING DATE: June 17, 2001
HEADING DATES: Aug.5-11, 2001
HARVEST DATES: Oct. 9, 2001

PEST CONTROL: Treflan, June 5; Warrior, Aug. 11
IRRIGATIONS: (3") July 23, Aug. 14, Aug. 27, 2001
POPULATIONS: Double-planted and thinned to desired stands: 23,000 plants/a
TEST YIELDS:
 Avg. (lbs/a): 3340
 Range: 2808-3769
 LSD (lbs/a): 381
 CV (%): 8
GROWING CONDITIONS: Good stands were established, but higher-than-normal temperatures occurred throughout the growing season. Stem weevils and head moths did more damage than usual.

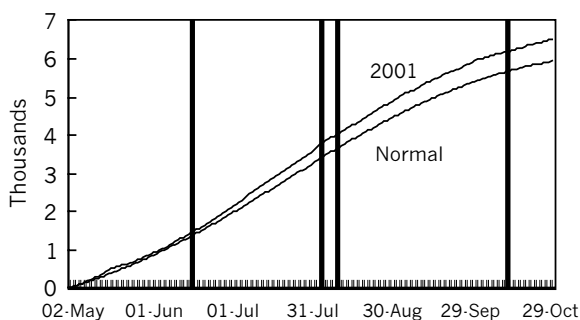
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	2.8	1.8	56	49	0	0
May	2.9	2.9	62	60	840	781
June	0.3	3.1	73	70	1177	1093
July	2.7	3.0	82	76	1496	1317
August	1.5	2.2	77	74	1342	1241
Sep.	2.4	1.5	68	65	1021	928
Oct.	0.4	1.1	55	53	647	574
Season Totals	12.9	15.6	68	64	6523	5934

Table 13. NuSun Hybrid Sunflower Yield Trial, Colby, Kansas, 2001

	Yield (lbs/a)	Oil (%)	Days to ½ bloom	Days to maturity	Height (in)	Head diam. (in)	Lodging (%)	Moisture (%)	Test weight (lbs/bu)
NuSun hybrids									
Croplan Genetics CL322	2808	46.7	53	92	58	8.0	3.7	9.0	28.7
Croplan Genetics CL345	3272	48.0	53	91	64	7.1	1.4	10.8	27.6
Croplan Genetics CL380	3624	47.8	55	95	65	7.8	0.9	10.8	29.7
Croplan Genetics CL385	3324	46.8	57	97	57	7.6	4.9	12.3	29.0
Dekalb DKF31-01NS	2901	45.3	54	96	69	7.3	4.7	10.1	30.5
DekalbDKF36-40NS	3025	44.1	53	95	66	6.9	4.8	10.5	30.0
Dekalb Ex3804NS	2943	41.7	52	93	62	7.4	0.5	9.2	28.3
Den Beston 840	3108	45.9	53	91	60	7.9	4.3	10.1	27.9
Integra 541NS	3386	46.6	56	93	58	7.0	0.0	9.2	28.8
Integra 550NS	3448	47.2	56	96	61	7.5	2.8	9.7	28.8
Garst/Interstate 971136NS	3448	44.9	56	97	63	8.0	0.0	12.5	26.5
Garst/Interstate 982719NS	3262	46.3	56	92	61	7.7	0.9	9.4	28.4
Garst/Interstate 982727NS	3128	46.7	56	93	60	7.7	1.1	8.4	28.7
Garst/Interstate 990213NS	3696	46.5	57	93	64	7.6	2.8	8.1	28.5
Garst/Interstate Hysun 450	3706	47.0	57	97	59	7.7	0.5	10.0	28.7
Garst/Interstate Hysun 521	3226	48.1	52	90	51	7.4	2.8	9.2	29.7
Garst/Interstate Hysun 530	3299	45.6	54	92	60	8.3	7.0	8.2	28.2
Kaystar 2020NS	3438	47.0	57	97	60	7.6	1.4	10.5	29.0
Kings X80321	3500	48.9	53	92	62	7.3	2.3	9.1	28.2
Mycogen Seeds 8377NS	3460	47.6	53	92	63	7.8	1.4	10.4	28.6
Mycogen Seeds 8488NS	3510	47.4	55	95	63	7.4	0.5	12.8	29.8
Mycogen Seeds X80452	3273	48.4	56	93	56	7.7	4.6	10.1	29.6
Mycogen Seeds X80454	3417	49.0	55	95	63	8.4	0.5	12.0	29.9
Mycogen Seeds X80455	3644	49.8	55	94	62	7.1	1.9	13.0	30.9
Nidera S.A. EN2178	3252	47.4	56	95	64	7.8	1.4	10.4	27.3
Pioneer® Brand 63M80	3479	51.8	55	94	64	7.6	1.9	9.1	27.8
Pioneer® Brand 63M91	3464	48.9	54	93	69	6.9	0.9	9.2	29.4
Proseed 9441	2922	46.5	55	92	63	8.0	2.0	7.9	27.5
Proseed 99-14	3128	46.3	56	93	61	7.9	4.2	8.2	26.7
Proseed 99-746	3487	46.4	56	91	63	8.4	2.9	8.9	29.3
Seeds 2000 Blazer	3138	47.6	56	94	57	7.5	0.5	9.5	27.5
Seeds 2000 Bronco	3333	47.2	57	97	57	7.4	1.4	11.0	28.3
Seeds 2000 Ranger	2952	45.2	55	94	59	8.0	4.2	10.1	25.9
Triumph 636	3758	48.6	57	97	59	9.7	2.4	11.1	24.8
Triumph 658	3603	48.8	56	95	63	8.4	4.7	12.0	25.6
Triumph 665	3769	48.3	57	94	63	7.7	2.4	13.9	27.3
Triumph TRX1442	3665	48.8	56	96	59	7.7	3.6	13.9	24.9
Traditional hybrids									
Cargill 270	3334	45.0	53	92	59	7.2	0.0	9.9	28.5
Croplan Genetics CL803	3200	49.1	52	90	63	8.3	3.7	8.8	29.5
Garst/Interstate 4049	3297	43.9	58	96	68	7.9	0.5	11.1	26.9
Mycogen Seeds 8372	3388	49.7	53	91	61	7.5	4.2	10.0	29.0
Pioneer® Brand 63A81	3283	46.2	57	95	64	8.7	0.5	8.5	24.8
Average	3340	47.1	55	94	61	7.7	2.3	10.2	28.2
LSD (.05)	381	1.7	1	2	5	1.0	3.3	2.2	1.3

Table 14. Fatty Acid Percentage of Randomly Selected Heads from the NuSun Hybrid Sunflower Yield Trial, Colby, Kansas, 2001

	Fatty Acids (%)			
	Palmitic	Stearic	Oleic	Linoleic
NuSun hybrids				
Croplan Genetics CL322	4.27	4.77	64.89	24.03
Croplan Genetics CL345	4.15	3.10	63.41	27.23
Croplan Genetics CL380	4.21	3.76	62.79	27.38
Croplan Genetics CL385	3.66	6.18	66.75	21.21
Dekalb DKF31-01NS	4.23	5.08	68.51	19.73
Dekalb DKF36-40NS	3.91	4.80	65.52	24.00
Dekalb Ex3804NS	4.28	6.03	57.03	30.56
Den Beston 840	4.06	4.70	69.69	19.42
Integra 541NS	4.17	4.63	61.01	28.06
Integra 550NS	3.57	6.31	69.53	18.27
Garst/Interstate 971136NS	3.98	5.12	69.07	19.44
Garst/Interstate 982719NS	4.59	4.24	59.74	29.25
Garst/Interstate 982727NS	3.89	4.68	70.01	19.29
Garst/Interstate 990213NS	3.72	6.98	70.88	16.82
Garst/Interstate Hysun 450	3.89	6.65	57.90	29.34
Garst/Interstate Hysun 521	4.03	4.21	63.79	26.10
Garst/Interstate Hysun 530	4.46	5.06	57.82	30.47
Kaystar 2020NS	3.91	6.31	60.94	26.59
Kings X80321	3.24	2.50	90.18	2.24
Mycogen Seeds 8377NS	4.19	2.94	64.34	26.75
Mycogen Seeds 8488NS	3.84	3.87	73.91	16.21
Mycogen Seeds X80452	4.33	4.09	57.82	31.92
Mycogen Seeds X80454	3.81	3.76	71.30	19.72
Mycogen Seeds X80455	3.85	3.18	71.74	19.23
Nidera S.A. EN2178	4.66	2.48	58.80	31.85
Pioneer® Brand 63M80	4.05	4.15	66.52	23.37
Pioneer® Brand 63M91	4.02	3.28	67.92	23.40
Proseed 9441	3.95	4.03	66.86	23.52
Proseed 99-14	4.11	4.66	54.89	34.32
Proseed 99-746	4.00	3.95	66.16	23.40
Seeds 2000 Blazer	4.22	3.97	53.44	36.39
Seeds 2000 Bronco	3.82	6.25	59.72	28.01
Seeds 2000 Ranger	3.88	4.10	66.15	23.76
Triumph 636	3.41	3.88	76.92	13.76
Triumph 658	3.55	3.99	73.31	17.01
Triumph 665	4.05	3.10	67.78	23.11
Triumph TRX1442	3.21	4.20	68.97	21.57
Traditional hybrids				
Cargill 270	4.91	4.96	29.13	58.85
Croplan Genetics CL803	5.01	5.27	32.69	55.25
Garst/Interstate 4049	4.54	6.92	24.62	62.79
Mycogen Seeds 8372	5.59	4.93	28.18	59.08
Pioneer® Brand 63A81	5.96	4.40	19.43	68.44

**NSI VARIETY TRIAL
FALLOW SUNFLOWER TESTS—
OILSEED AND CONFECTIONARY**

POPULATIONS:

Oil (O) 18,000 seeds/a

Confectionary (C) 14,000 seeds/a

TEST YIELDS:

Avg. (lbs/a): (O) 1097, (C) 945

Range: (O) 684-1439, (C) 685-1056

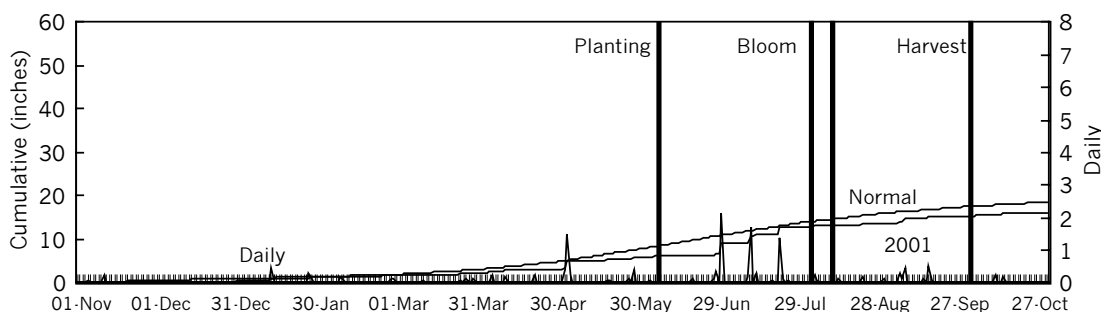
LSD (lbs/a): (O) 316, (C) 355

CV (%): (O) 20, (C) 26

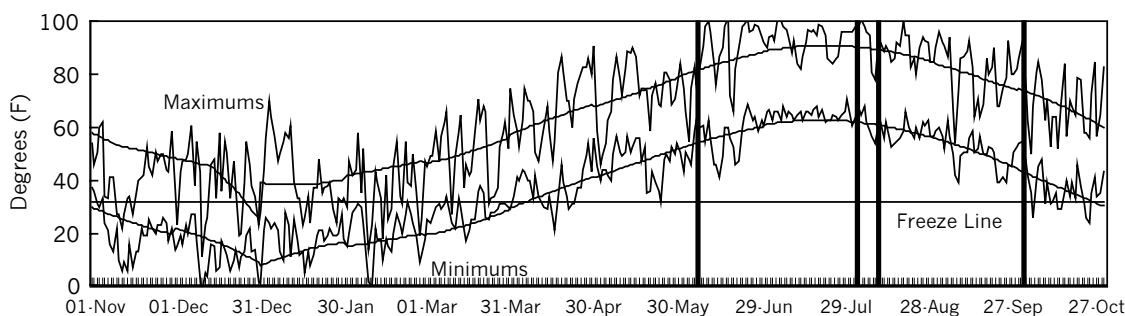
GROWING CONDITIONS: Good subsoil moisture was present, but extensive tillage resulted in dry, loose seedbed and shallow plow pan. Timely rains resulted in good stand establishment. Dry conditions limited seed fill, despite a hard, late-season rain. Severe head moth pressure existed throughout the region.

LOCATION: Northern Sun Industries,
Sherman County
COOPERATOR: Rob Aiken, research
crop scientist
TEST SITE: Ulysses silt loam
Wheat 1999, fallow 2000
FERTILIZATION: 60-0-0 spring 2001
6-30-0 at planting
PLANTING DATE: June 7, 2001
HEADING DATES: Aug.3-11 2001
HARVEST DATE: Oct. 2, 2001
PEST CONTROL: Lorsban 15G at planting;
Asana at flowering, 3 applications

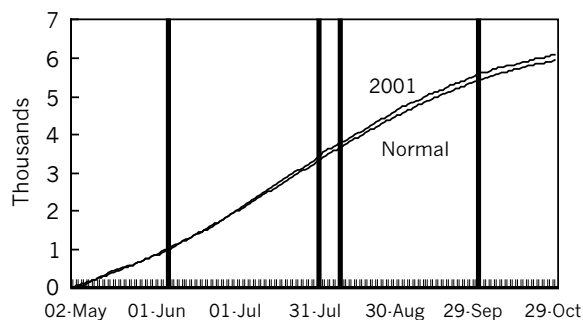
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	2001	Normal	2001	Normal	2001	Normal
April	0.7	1.8	52	49	0	0
May	2.9	2.9	60	60	777	781
June	0.9	3.1	71	70	1120	1093
July	6.1	3.0	79	76	1392	1317
August	0.9	2.2	75	74	1279	1241
Sep.	1.7	1.5	65	65	945	928
Oct.	0.5	1.1	53	53	599	574
Season Totals	13.6	15.6	65	64	6110	5934

Table 15. NSI Oilseed Sunflower Variety Trial, Goodland, Kansas, 2001

Brand and hybrid	Yield (lbs/a)	Yield as % of test average	Test weight (lbs/bu)	Oil yield (lbs/a)	Oil (%)
Croplan Genetics CL345	1090	99	20.6	403	37.0
Croplan Genetics CL380	1110	101	23.0	400	36.0
Croplan Genetics CL385	1242	113	22.8	469	37.8
Dekalb DK3881	1069	97	28.8	390	36.5
Dekalb DK3900	684	62	27.4	262	38.3
Dekalb DKF31-01	918	84	29.0	327	35.6
Dekalb DKF36-40	1029	94	29.2	371	36.1
Fontanelle X101	1021	93	23.4	385	37.7
Kaystar 2020	1280	117	25.5	477	37.3
Kaystar 9501	1177	107	28.1	394	33.5
Mycogen Calvary	1227	112	27.1	485	39.5
Mycogen 187	1429	130	25.9	490	34.3
Mycogen 260	1439	131	24.5	537	37.3
Mycogen 8377	1080	98	24.7	406	37.6
Mycogen 8488	987	90	23.7	371	37.6
Novartis 278	1045	95	26.4	388	37.1
Novartis NX30002	1182	108	27.1	434	36.7
Novartis T46-R9	1410	129	25.1	478	33.9
Pioneer® Brand 63A70	1268	116	25.5	488	38.5
Pioneer® Brand 63M80	1272	116	25.3	485	38.1
Pioneer® Brand 63M91	1104	101	25.5	417	37.8
Seeds 2000 Bronco	1274	116	24.1	471	37.0
Seeds 2000 Maverick	793	72	26.6	273	34.4
Seeds 2000 Ranger	855	78	26.9	312	36.5
Triumph TR636	1010	92	25.6	405	40.1
Triumph TR652	974	89	30.1	365	37.5
Triumph TR658	1032	94	23.8	391	37.9
Triumph TR665	922	84	28.4	353	38.3
Average	1097	100	25.8	408	37.0
LSD (.05)	316	----	4.2	----	-----

	Stand (plants/a)	Moisture (%)	Lodging (%)	200 seed weight (g)	Plant ht. (in)	Days to ½ bloom
Croplan Genetics CL345	15,000	4.9	7.4	8.15	51	59
Croplan Genetics CL380	15,000	5.2	6.1	6.67	54	61
Croplan Genetics CL385	14,500	5.2	8.8	6.78	43	63
Dekalb DK3881	16,250	6.0	25.2	6.67	53	60
Dekalb DK3900	10,625	6.3	55.3	7.58	52	63
Dekalb DKF31-01	12,250	6.8	12.1	8.80	56	60
Dekalb DKF36-40	14,125	7.0	18.5	10.09	58	58
Fontanelle X101	6,375	9.0	0.0	12.22	47	63
Kaystar 2020	14,500	5.4	14.5	6.65	45	63
Kaystar 9501	15,500	5.8	23.5	7.41	59	60
Mycogen Calvary	12,750	4.9	4.2	8.53	56	61
Mycogen 187	17,125	4.2	4.1	7.22	50	61
Mycogen 260	13,875	5.1	9.8	7.26	49	62
Mycogen 8377	12,750	6.2	6.4	8.08	52	60
Mycogen 8488	15,625	5.2	13.9	5.76	49	61
Novartis 278	13,750	6.0	30.8	8.12	54	61
Novartis NX30002	12,250	6.6	15.9	7.78	51	59
Novartis T46-R9	12,875	5.1	7.9	10.82	50	59
Pioneer® Brand 63A70	11,750	4.9	23.3	8.62	50	59
Pioneer® Brand 63M80	12,500	5.3	9.1	10.42	56	61
Pioneer® Brand 63M91	12,875	6.0	8.2	8.26	57	59
Seeds 2000 Bronco	14,625	5.5	9.8	6.07	45	63
Seeds 2000 Maverick	14,000	6.1	28.9	6.62	51	63
Seeds 2000 Ranger	14,250	7.1	9.1	6.81	46	60
Triumph TR636	9,625	6.2	10.6	9.15	54	61
Triumph TR652	12,625	7.0	23.7	7.70	53	62
Triumph TR658	12,000	5.1	26.2	7.46	55	61
Triumph TR665	11,125	6.8	21.3	7.36	56	63
Average	16,267	5.9	15.8	7.97	52	61
LSD (.05)	2,170	1.8	16.7	-----	4	---

Table 16. NSI Confectionary Sunflower Variety Trial, Goodland, Kansas, 2001

Brand and hybrid	Yield (lbs/a)	Stand (plants/a)	Lodging (%)	Test weight (lbs/bu)	Moisture (%)	200 seed weight (g)	Plant height (in)	Days to ½ bloom
Red River Commodities 2213	932	11,000	3	22.3	5.4	16.5	55	59
Red River Commodities 2413	685	10,625	1	24.3	6.7	16.4	51	61
Red River Commodities 2582	940	12,375	7	22.7	5.3	15.6	54	61
Seeds 2000 Grizzly	945	11,125	2	21.9	5.1	18.5	51	61
Seeds 2000 Kodiak	967	11,125	4	22.1	5.1	16.0	52	57
Sigco Rustler	1056	10,500	1	21.4	5.6	15.5	50	59
Sigco 3993	938	9,125	0	23.5	6.5	17.8	58	68
Sigco Exp3976	1053	9,875	0	22.2	6.1	20.9	58	62
Sigco Exp3994	945	10,000	1	21.5	6.1	20.5	53	59
Triumph 765C	1014	11,750	4	22.0	6.6	19.4	52	60
Triumph 766CRT	960	11,000	5	20.0	5.2	18.1	55	60
Triumph 777C	952	11,375	3	19.0	5.4	17.9	52	63
Triumph 700CLS	901	8,375	6	17.8	7.6	13.8	51	65
Average	945	10,635	3	21.6	5.8	17.4	53	61
LSD (.05)	355	1,960	6	3.6	1.1	-----	3	---

Brand and hybrid	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
Red River Commodities RRC2213	3.6	12.5	20.9	22.2	15.7	18.9	6.5
Red River Commodities RRC2413	13.2	13.0	14.5	13.9	14.1	22.6	9.4
Red River Commodities RRC2582	8.9	14.0	11.9	15.3	11.6	15.8	22.7
Seeds 2000 Grizzly	10.7	18.4	18.3	19.0	12.3	14.8	7.1
Seeds 2000 Kodiak	11.8	17.6	19.0	19.1	11.7	13.2	6.8
Sigco Rustler	20.0	22.1	15.2	12.9	9.4	16.2	4.5
Sigco 3993	0.1	1.4	6.5	12.9	18.7	44.4	16.3
Sigco Exp3976	30.4	21.7	17.3	12.2	6.1	8.4	3.3
Sigco Exp3994	8.4	15.5	21.3	26.7	13.3	11.6	3.0
Triumph 765C	27.6	24.1	18.0	15.8	6.4	6.6	1.6
Triumph 766CRT	14.9	21.2	19.2	17.8	10.0	12.4	4.5
Triumph 777C	36.5	19.0	16.5	11.3	5.7	7.0	4.1
Triumph 700CLS	10.7	18.4	18.3	19.0	12.3	14.8	7.1
Average	15.1	16.8	16.7	16.8	11.3	15.9	7.5

Entrants and Entries in 2001 Sunflower Performance Tests

Agway, Inc. 220 Clement Avenue Grandin, ND 58038	Agway Royal Hybrid	RH 118, RH 3708, RH 3738
Croplan Genetics PO Box 1291 Minot, ND 58702	Croplan	CL 322NS, CL 345NS, CL 380NS, CL385NS
Interstate Seed Co. PO Box 338 West Fargo, ND 58078	Garst Interstate	HYSUN 450, 521, 530 IS 4049, 4340, 5331, 6767, 8084 Exp 971136NS, f84021, f89008
Kaystar Seed Co. PO Box 947 Huron, SD 57350	Kaystar	9404, 9501
Monsanto 3100 Sycamore Road DeKalb, IL 60115	Dekalb Monsanto	DK3900 DKF31-01NS, DKF36-40NS EX3804NS
Mycogen Seeds 9330 Zionsville Road Indianaopolis, IN 46268	Mycogen	Cavalry, 8377NS, 8488NS SF 187, 260
Pioneer Hi-Bred, International 1616 S. Kentucky, Suite C-150 Amarillo, TX 79102	Pioneer Brand	63A70, 63M80, 63M91,
Red River Commodities, Inc. 1320 East College Drive Colby, KS 67701	RRC	2213, 2413, 2582
Seeds 2000 Box 200 Breckenridge, MN 56520	Seeds 2000	Blazer, Bronco, Grizzly, Kodiak, Maverick X3983, X3987
Sigco Sun Products 1701 Industrial Loop Goodland, KS 67735	Sigco	Rustler, Exp 392
Syngenta Seeds 1060 Wheatland Drive Buhler, KS 67522	Syngenta	278, NX30002, T46-R9
Triumph Seed Co., Inc. PO Box 1050 Ralls, TX 79357	Triumph	636, 658, 665 777C, 700CLS TRX 0395, TRX 1442 TRX0451CRT

CONTRIBUTORS

Pat Evans, Research Technologist, Colby
(Senior Author)

Rob Aiken, Crops Research Scientist, Colby

Mark Claassen, Agronomist, Hesston

Barney Gordon, Agronomist, Belleville

William Heer, Agronomist, Hutchinson

Kraig Roozeboom, Associate Agronomist, Manhattan

Alan Schlegel, Agronomist, Tribune

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