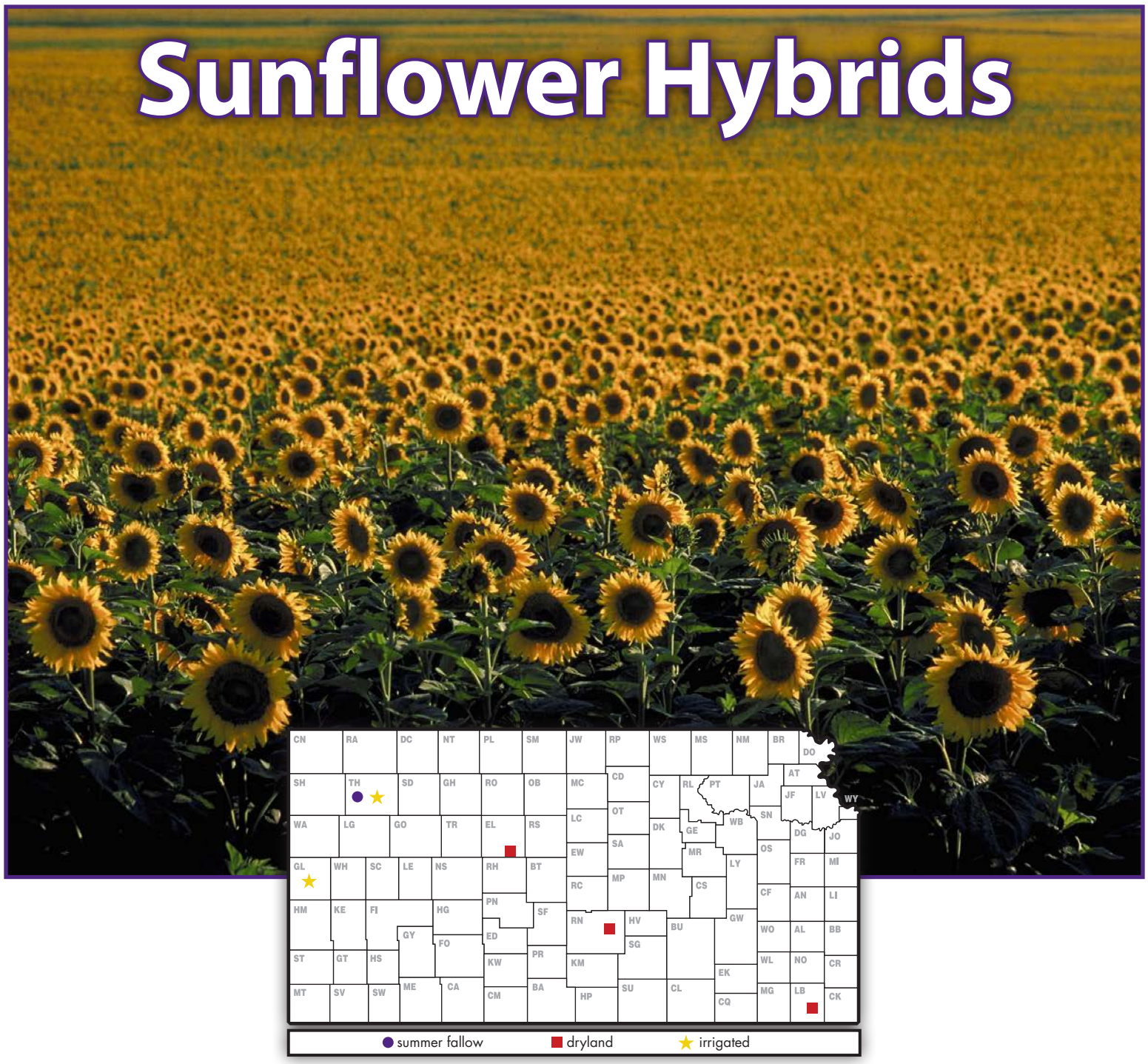
2012 Kansas Performance Tests with

Sunflower Hybrids



Report of Progress 1078

K-STATE Research and Extension

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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Contribution No. 13-103-S from the Kansas Agricultural Experiment Station.

INTRODUCTION

Objectives and Procedures

Sunflower performance tests were conducted in 2012 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. As a result, not all hybrids grown in the state were included in the tests, and hybrids were not grown uniformly at all locations.

Test locations in 2012 were Thomas County-irrigated and fallow; Greely County-irrigated; Ellis County- dryland; and Labette and Reno Counties-dryland. Oilseed entries were grown at all locations. Confectionary entries were evaluated in Thomas County-irrigated and fallow; Greeley County-irrigated; and Labette County-dryland. 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 except those in Thomas County were planted at a high seeding rate and were hand thinned after emergence to desired stands. Tests in Thomas County were planted to stand with a modified Monosem Vacuum Planter.

Environmental factors affecting test results and cultural practices are presented for each individual test site. The irrigated oilseed test at Greeley County and the dryland oilseed tests at Reno, Ellis, and Labette County were abandoned for adverse conditions during the growing season. Test results for 2012 and period-of-years average data are included in Tables 1 through 3. Entrants and entries in 2012 tests are listed in Table 4.

Data Interpretation

Yields are reported as pounds of seed per acre adjusted to 10% moisture content.

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

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

Oil percentage 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 pounds of oil per acre.

Seed-size percentage 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 might have no real meaning. To help interpret data, we applied a statistical technique, analysis of variance, whenever 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, 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. Trials with a CV ranging from 10% to 15% are usually acceptable for performance comparisons. Trials with a CV 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, and Jane Lingenfelser, Kansas Crop Performance Tests coordinator, assisted in preparing this report, and temporary workers Christian Wilson and Anna Taylor helped with seed counting, plot thinning, and maintenance. Mary Knapp at the Weather Data Library provided climatological data.

NORTHWEST KANSAS FALLOW OILSEED SUNFLOWER TEST

Northwest Research-Extension Center, Colby; Patrick Evans, agronomist

Keith silt loam; Fallow in 2011

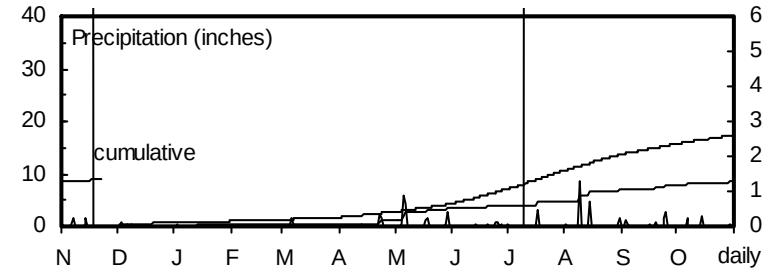
80 - 0 - 0 lb/a N, P, K

Planted on 6/9/2012; Harvested on 10/17/2012

Target stand of 17,000 plants/acre; 12.3 in. spacing

Very dry at planting time. Summer was hot with little rainfall.

	Precipitation		Average Temp.	
Month	2012	Norm.	2012	Norm.
Nov.-Mar.	1.5	3.3	40	34
April	2.5	1.3	55	49
May	0.4	2.7	64	59
June	0.5	3.2	77	70
July	2.1	2.9	80	76
August	1.0	1.9	74	74
Sep.-Oct.	1.2	1.7	60	62
Totals:	9.1	17.2	55	51



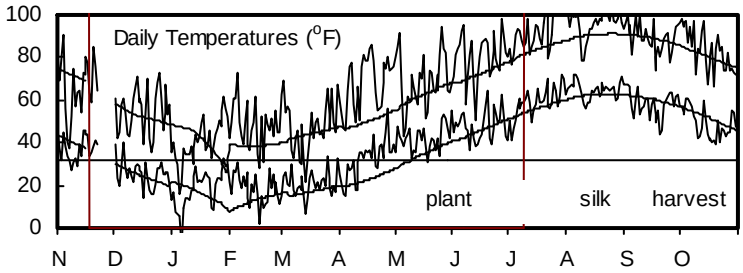


Table 1. Colby Fallow Oilseed Sunflower Performance Test, 2012

Brand	Hybrid	Yield (lb/a)	Yield as % of test average	Oil content (%)	Oil yield (lb/a)	Days to half bloom	Plant height (in.)	Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)
CROPLAN GENETICS	CG 432ENS	1416	108	35	494	60	42	8	24	14
CROPLAN GENETICS	CG 460 E NS	1153	88	35	400	63	43	17	23	13
CROPLAN GENETICS	CG 548CLDMRNS	1153	88	37	427	62	42	2	25	10
CROPLAN GENETICS	CG 559CLDMRNS	1441	109	39	562	63	44	8	22	12
MYCOGEN	8H 449CLDM	1199	91	38	459	63	41	0	25	14
MYCOGEN	8N 421 CLDM	1659	126	39	642	62	44	3	25	12
MYCOGEN	8N 510	1222	93	40	483	62	42	6	25	11
MYCOGEN	8N 6785	1496	114	38	570	65	40	5	23	12
SEEDS 2000	DAYTONA HO/CL	1594	121	36	571	63	39	3	24	10
SEEDS 2000	DURANGO	919	70	38	353	65	40	1	20	12
SEEDS 2000	TORINO	809	61	36	291	63	43	7	18	10
SYNGENTA	3158NS/CL/DM	1037	79	36	373	62	45	8	23	11
SYNGENTA	3495NS/CL/DM	1258	96	35	442	62	42	0	25	12
SYNGENTA	3733NS/DM	1536	117	35	544	62	41	0	26	10
SYNGENTA	3733NS/DM Coated	1223	93	37	450	62	39	0	23	14
SYNGENTA	3845NS	1466	111	36	520	62	46	2	26	11
SYNGENTA	3990NS/CL/DM	976	74	36	349	62	46	17	22	12
SYNGENTA	4596HO/DM	1566	119	37	584	62	44	2	25	13
SYNGENTA	NX24121	1104	84	39	425	60	42	0	24	15
SYNGENTA	NX24122	1137	86	37	420	62	48	7	22	10
SYNGENTA	NX24123	691	52	38	260	64	45	0	14	14
TRIUMPH	s668	1184	90	41	489	63	35	0	25	13
TRIUMPH	s673	1946	148	37	720	64	38	0	26	10
TRIUMPH	TRX11345CPD	1663	126	39	649	62	46	3	22	12
TRIUMPH	TRX11431HO	1272	97	39	494	64	36	0	24	12
TRIUMPH	TRX1261	1651	125	36	593	62	42	7	24	10
TRIUMPH	TRX1262CLDM	1156	88	39	454	62	43	2	23	10

Table 1 continued. Thomas County Dryland Sunflower Performance Test, 2012

Brand	Hybrid	Yield (lb/a)	Yield as % of test average	Oil content (%)	Oil yield (lb/a)	Days to half bloom	Plant height (in.)	Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)
TRIUMPH	TRX1284CPDM	1754	133	41	717	62	44	2	26	12
AVERAGES		1310	1310	37	491	62	42	4	23	12
CV (%)		13	13	--	--	0	3	--	3	--
LSD (0.05)*		242	18	--	--	0	3	10	1	--

* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

2-Year Averages (2010 and 2012)

CROPLAN GENETICS	CG 460 E NS	1868	94	36	692	61	52	9	23	12
CROPLAN GENETICS	CG 559CLDMRNS	1962	102	39	746	61	55	4	23	11
MYCOGEN	8H 449CLDM	1905	96	38	725	53	52	0	25	12
SYNGENTA	3845NS	2095	108	37	787	59	52	1	26	12
TRIUMPH	s668	2064	108	41	827	61	41	0	26	12
AVERAGES		1979	1979	38	755	59	51	3	25	12

NORTHWEST KANSAS IRRIGATED OILSEED SUNFLOWER TEST

Northwest Research-Extension Center, Colby; Patrick Evans, agronomist

Keith silt loam; Soybean in 2011

160 - 55 - 0 lb/a N, P, K

Planted on 6/9/2012; Harvested on 10/17/2012

Target stand of 17,000 plants/acre; 12.3 in. spacing

Good stands were obtained. Summer was hotter than normal early but returned to normal in July and August.

	Precipitation		Average Temp.	
Month	2012	Norm.	2012	Norm.
Nov.-Mar.	1.5	3.3	40	34
April	2.5	1.3	55	49
May	0.4	2.7	64	59
June	0.5	3.2	77	70
July	2.1	2.9	80	76
August	1.0	1.9	74	74
Sep.-Oct.	1.2	1.7	60	62
Totals:	9.1	17.2	55	51

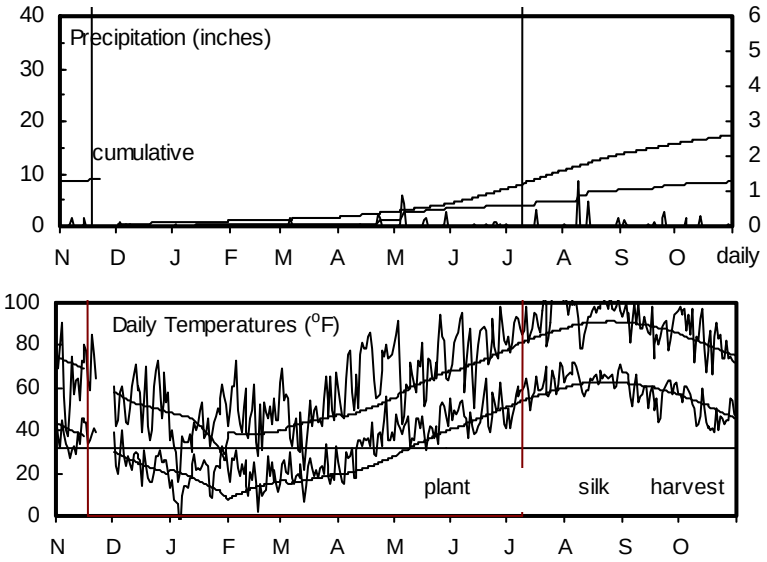


Table 2. Colby Irrigated Oilseed Sunflower Performance Test, 2012

Brand	Hybrid	Yield (lb/a)	Yield as % of test average	Oil content (%)	Oil yield (lb/a)	Days to half bloom	Plant height (in.)	Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)
CROPLAN GENETICS	CG 432ENS	4173	100	37	1548	53	65	0	29	15
CROPLAN GENETICS	CG 460 E NS	3580	86	38	1364	58	70	4	28	12
CROPLAN GENETICS	CG 548CLDMRNS	3686	88	40	1489	56	65	1	28	11
CROPLAN GENETICS	CG 559CLDMRNS	3798	91	44	1683	56	68	1	29	13
MYCOGEN	8H 449CLDM	4943	118	40	1987	56	69	1	30	11
MYCOGEN	8N 421 CLDM	4541	109	42	1912	56	64	3	29	13
MYCOGEN	8N 510	4560	109	41	1856	55	63	0	28	11
MYCOGEN	8N 6785	5255	126	44	2317	59	51	1	28	12
SEEDS 2000	DAYTONA HO/CL	3741	89	38	1429	56	57	1	27	10
SEEDS 2000	DURANGO	3832	92	37	1410	60	64	3	29	12
SEEDS 2000	FALCON NS/SU	3915	94	38	1496	56	66	0	29	12
SEEDS 2000	TORINO	4079	98	40	1644	57	66	0	29	11
SEEDS 2000	X6822 HO/CL/DMR	3848	92	40	1535	55	58	0	28	12
SEEDS 2000	X6872 NS/CL/DMR	3907	93	38	1496	56	62	4	27	12
SEEDS 2000	X6878 NS/CL/DMR	3694	88	39	1437	56	66	0	29	12
SYNGENTA	3158NS/CL/DM	4283	102	43	1855	53	61	0	30	11
SYNGENTA	3495NS/CL/DM	3724	89	37	1382	55	62	1	30	13
SYNGENTA	3733NS/DM	4165	100	42	1728	55	63	0	28	11
SYNGENTA	3733NS/DM Coated	4268	102	43	1848	55	59	3	29	13
SYNGENTA	3845NS	4177	100	35	1441	53	60	0	29	12
SYNGENTA	3990NS/CL/DM	3379	81	41	1368	58	65	2	29	12
SYNGENTA	4596HO/DM	4795	115	40	1899	55	58	0	28	11
SYNGENTA	NX24121	3059	73	43	1312	51	60	0	27	15
SYNGENTA	NX24122	4337	104	40	1713	55	66	0	28	12
SYNGENTA	NX24123	3859	92	42	1625	58	68	0	26	13
TRIUMPH	s668	4729	113	44	2090	58	47	1	28	13
TRIUMPH	s673	4514	108	44	2000	59	46	0	26	11
TRIUMPH	TRX11345CPD	4626	111	43	1998	55	63	1	27	12
TRIUMPH	TRX11431HO	4471	107	44	1958	58	48	1	29	10
TRIUMPH	TRX1261	4168	100	40	1651	55	62	5	29	11
TRIUMPH	TRX1262CLDM	4318	103	40	1727	56	64	2	28	11

Table 2 continued. Colby Irrigated Oilseed Sunflower Performance Test, 2012

Brand	Hybrid	Yield (lb/a)	Yield as % of test average	Oil content (%)	Oil yield (lb/a)	Days to half bloom	Plant height (in.)	Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)
TRIUMPH	TRX1284CPDM	4722	113	44	2059	56	66	0	31	12
AVERAGES		4161	4161	41	1696	56	61	1	28	12
CV (%)		14	14	--	--	1	4	--	3	--
LSD (0.05)		860	20	--	--	0	4	3	1	--

* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

2-Year Averages (2010 and 2012)

CROPLAN GENETICS	CG 460 E NS	3162	90	42	1302	58	72	4	28	12
CROPLAN GENETICS	CG 559CLDMRNS	3283	92	43	1429	57	72	2	29	11
MYCOGEN	8H 449CLDM	4339	122	43	1832	56	72	1	30	12
MYCOGEN	8N 421 CLDM	3764	105	43	1593	57	65	5	29	11
SYNGENTA	3845NS	3686	104	39	1420	54	64	0	30	13
TRIUMPH	s668	4096	115	44	1795	59	49	2	29	12
AVERAGES		3722	3722	42	1562	57	66	2	29	12

NORTHWEST KANSAS IRRIGATED CONFECTIONARY SUNFLOWER TEST

Northwest Research-Extension Center, Colby; Patrick Evans, agronomist

Keith silt loam; Soybean in 2011

160 - 55 - 0 lb/a N, P, K

Planted on 6/9/2012; Harvested on 10/17/2012

Target stand of 17,000 plants/acre; 12.3 in. spacing

Stands in some plots were less than expected. Summer was hotter than normal early but returned to normal in July and August.

	Precipitation		Average Temp.	
Month	2012	Norm.	2012	Norm.
Nov.-Mar.	1.5	3.3	40	34
April	2.5	1.3	55	49
May	0.4	2.7	64	59
June	0.5	3.2	77	70
July	2.1	2.9	80	76
August	1.0	1.9	74	74
Sep.-Oct.	1.2	1.7	60	62
Totals:	9.1	17.2	55	51

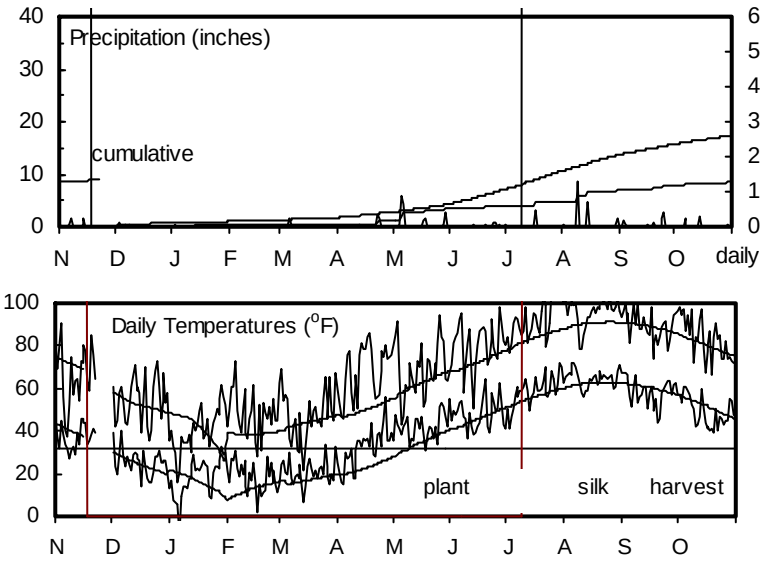


Table 3. Colby Irrigated Confectionary Sunflower Performance Test, 2012

Brand	Hybrid	Yield (lb/a)	Yield as % of test average	Oil content (%)	Oil yield (lb/a)	Days to half bloom	Plant height (in.)	Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)
CHS SUNFLOWERS	RH402CL	2666	102	--	--	60	60	0	18	31
MYCOGEN	8C 451CP	2239	85	--	--	61	61	0	18	31
RED R. COMMODITIES	2215	2411	92	--	--	58	58	0	18	33
RED R. COMMODITIES	2217	3285	125	--	--	60	60	0	19	32
RED R. COMMODITIES	8015	2986	114	--	--	59	59	1	18	35
RED R. COMMODITIES	2215CL	2709	103	--	--	61	61	1	19	29
SEEDS 2000	5009	2857	109	--	--	59	59	0	19	34
SEEDS 2000	JAGUAR CL	2736	104	--	--	56	56	1	19	34
SEEDS 2000	JAGUAR II CL	3003	115	--	--	56	56	0	19	34
SEEDS 2000	X4334 CL	2153	82	--	--	62	62	0	17	33
SEEDS 2000	X4337 CL	2955	113	--	--	59	59	0	18	32
TRIUMPH	751C	1956	74	--	--	60	60	0	17	33
TRIUMPH	755C	2261	86	--	--	58	58	0	14	32
TRIUMPH	770CL	2325	89	--	--	64	64	0	18	30
AVERAGES		2610	2610	--	--	59	62	0	18	32
CV (%)		31	31	--	--	3	6	--	15	--
LSD (0.05)		1181	45	--	--	2	2	2	4	--

* Unless two varieties differ by more than the LSD, little confidence can be placed in one being superior to the other.

2-Year Averages (2010 and 2012)

MYCOGEN	8C 451CP	2497	91	--	--	60	61	1	19	29
RED R. COMMODITIES	2215	2638	97	--	--	59	58	1	19	30
RED R. COMMODITIES	8015	2977	110	--	--	59	59	1	18	32
RED R. COMMODITIES	2217	3104	114	--	--	60	60	3	20	29
SEEDS 2000	JAGUAR CL	2784	102	--	--	56	56	1	20	30
TRIUMPH	770CL	2568	94	--	--	63	64	0	19	31
AVERAGES		2761	2761			60	60	1	19	30

Table 4. Entrants and Entries in the 2012 Sunflower Performance Tests

CHS Sunflowers, Inc.
220 Clement Avenue
Grandin, ND 58038
701-484-5313
- RH402CL

Croplan Genetics
P.O. Box 64281
St. Paul, MN 55164
888-295-3011
- CG 432ENS
- CG 548CLDMRNS
- CG 559CLDMRNS
- CG 460 ENS

Dahlgren and Company, Inc.
1220 Sunflower Street
Crookston, MN 56716
218-281-2985
- 9530CL
- 9592CL
- 9569
- 9579
- EX-11CL

Mycogen Seed
9330 Zionsville Road
Indianapolis, IN 46268
800-MYCOGEN
- 8C 451CP
- 8H 449 CLDM
- 8N 510
- 8N 6785

Red River Commodities
1320 East College Drive
Colby, KS 67701
785-462-3911
- RRC 2215
- RRC 2215CL
- RRC 2217
- RRC 8015

Seeds 2000
P.O. Box 200
Breckenridge, MN 56520
888-786-7333
- Daytona HO/CL
- Durango
- Falcon NS/SU
- Jaguar CL
- Jaguar II CL
- Torino
- 5009
- X4334 CL
- X4337 CL
- X6822 HO/CL/DMR
- X6872 NS/CL/DMR
- X6878 NS/CL/DMR

Syngenta Seeds
11055 Wayzata Boulevard
Minnetonka, MN 55305
800-445-0956
- 3158 NS/CL/DM
- 3495 NS/CL/DM
- 3733 NS/DM
- 3733 NS/DM Coated
- 3845 NS
- 3990 NS/CL/DM
- 4596 HO/DM
- NX24121
- NX24122
- NX24123

Triumph Seed Co., Inc.
P.O. Box 1050
Ralls, TX 79357
888-521-7333
- 662
- 651CLD
- 751C
- 755C
- 770CL
- 849CLD
- s668
- s673
- s678
- TRX11345CPD
- TRX11431HO

To access crop performance testing information electronically, visit our website. The information contained in this publication, plus more, is available for viewing or downloading at:

www.agronomy.ksu.edu/kscpt

Excerpts from the
University Research Policy Agreement with Cooperating Seed Companies

Permission is hereby given to Kansas State University (KSU) to test varieties and/or hybrids designated on the attached entry forms in the manner indicated in the test announcements. I certify that seed submitted for testing is a true sample of the seed being offered for sale.

I understand that all results from Kansas Crop Performance Tests belong to the University and the public and shall be controlled by the University so as to produce the greatest benefit to the public. Performance data may be used in the following ways: 1) Tables may be reproduced in their entirety provided the source is referenced and data are not manipulated or reinterpreted; 2) Advertising statements by an individual company about the performance of its entries may be made as long as they are accurate statements about the data as published, with no reference to other companies' names or cultivars. In both cases, the following must be included with the reprint or ad citing the appropriate publication number and title: "See the official Kansas State University Agricultural Experiment Station and Cooperative Extension Service Report of Progress 1078, '2012 Kansas Performance Tests with Sunflower Hybrids,' or the Kansas Crop Performance Test website, *www.agronomy.ksu.edu/kscpt*, for details. Endorsement or recommendation by Kansas State University is not implied."

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SRP 1078 December 2012

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