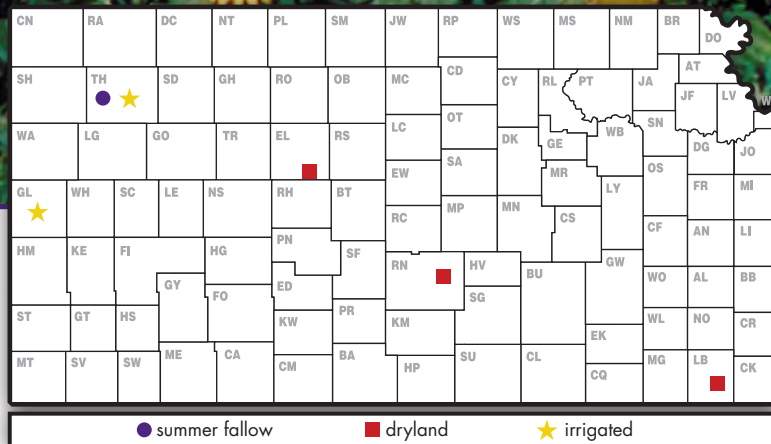
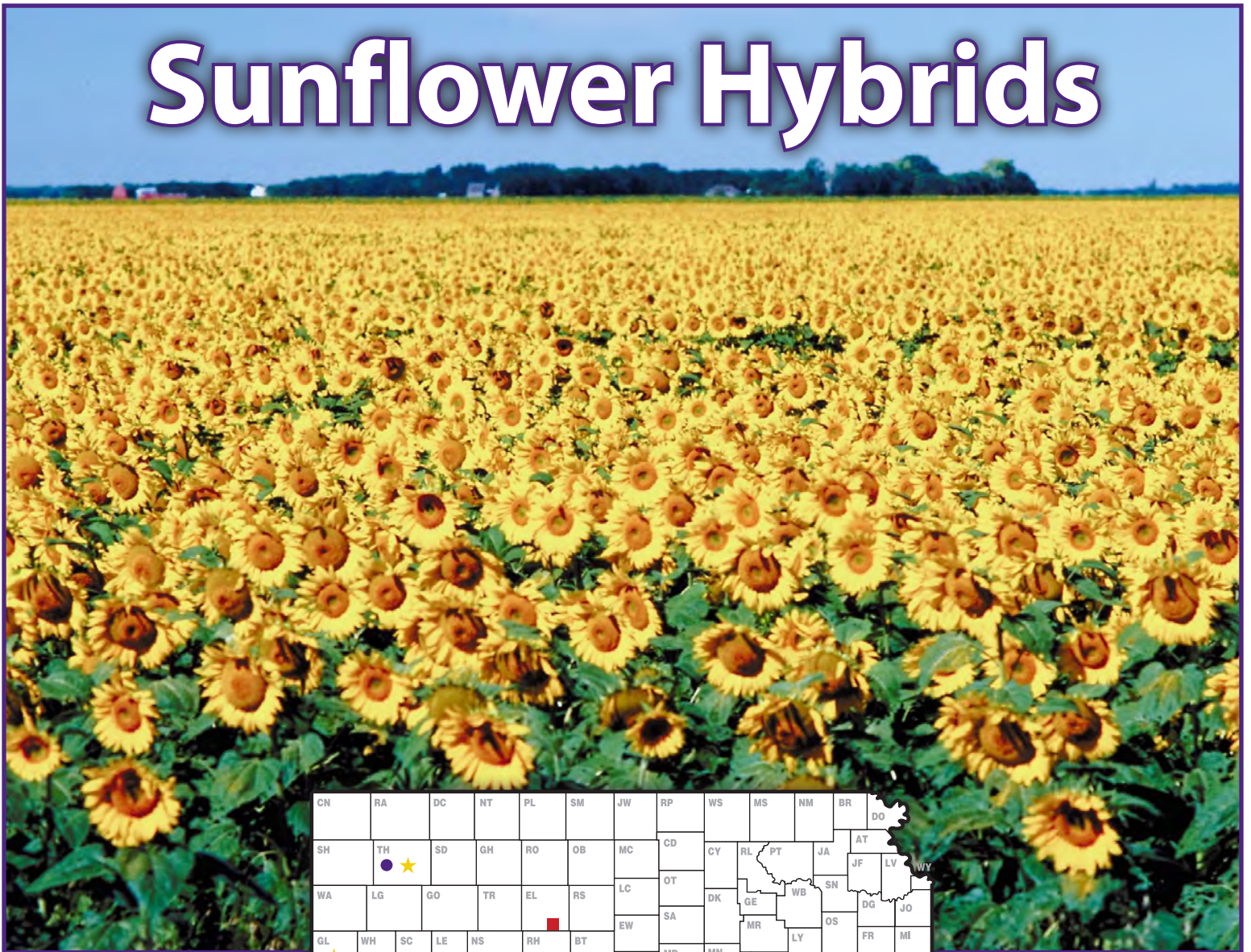


2015 Kansas Performance Tests with

Sunflower Hybrids



Report of Progress 1123



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INTRODUCTION

Objectives and Procedures

Sunflower performance tests were conducted in 2015 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 2015 were Thomas County-irrigated and fallow; Greeley 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 dryland oilseed test at Ellis County and both oilseed and confectionary tests at Labette County were abandoned for adverse conditions during the growing season. The dryland oilseed tests at Hutchinson and Tribune were abandoned due to animal feeding. Test results for 2015 and period-of-years average data are included in Tables 1 through 3. Entrants and entries in 2015 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 Lingenfelter, Kansas Crop Performance Tests coordinator, assisted in preparing this report, and temporary workers Hailey Schlinder and Daniel Foster 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

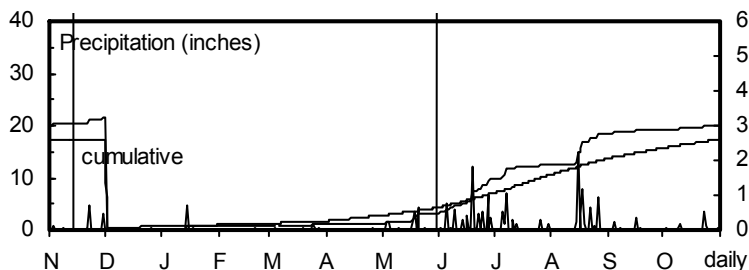
Keith silt loam; fallow in 2014

100 - 30 - 0 lb/a N, P, K

Planted on 6/10/2015; Harvested on 9/19/2015

Target stand of 17,000 plants/acre

Good stands were established and early summer was cooler and wetter than normal until August when it turned hot and dry.



Month	Precipitation		Average Temp.		GDU	
	2015	Norm.	2015	Norm.	2015	Norm.
Nov.-Mar.	1.4	3.3	38	34	470	206
April	2.1	1.3	51	49	216	175
May	6.5	2.7	57	59	275	327
June	2.7	3.2	74	70	618	553
July	6.0	2.9	77	76	691	701
August	0.7	1.9	74	74	644	669
Sep.-Oct.	2.3	1.7	64	62	882	462
Totals:	21.6	17.2	53	51	3,796	3,093

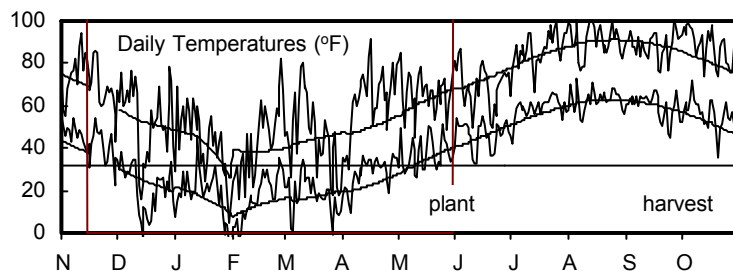


Table 1. Colby Fallow Oilseed Sunflower Performance Test, 2015

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	545 CL	1164	103	33	378	60	47	6	26	8
Croplan Genetics	549 CL HO	1098	97	31	340	57	49	5	25	9
Croplan Genetics	553 CL HO	1498	133	34	511	61	43	3	23	8
Croplan Genetics	CG 432ENS	1138	101	33	373	56	43	1	28	10
Mycogen	8H 449CLDM	1021	90	34	346	59	44	4	19	10
Mycogen	8H 456CL	1055	93	33	352	59	46	0	26	9
Mycogen	8H 570CLDM	1842	163	37	678	60	36	0	25	8
Syngenta	3495NS/CL/DM	1310	116	33	426	59	43	3	25	9
Syngenta	3732NS	909	80	32	290	58	43	4	27	11
Syngenta	3845HO	879	78	34	301	58	43	0	26	13
Syngenta	7717HO/CL/DM	905	80	33	297	57	43	3	24	10
AVERAGES		1126	1126	--	--	58	44	3	25	10
CV (%)		21	21	--	--	1	7	--	18	0
LSD (0.05)*		347	30	--	--	1	4	6	6	0

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

2-Year Averages (2014 and 2015)

Croplan Genetics	545 CL	1420	119	35	586	60	46	6	26	8
Croplan Genetics	CG 432ENS	1278	108	33	468	57	44	4	26	11
Mycogen	8H 449CLDM	1224	103	37	528	59	42	7	23	8
Mycogen	8H570CLDM	1639	139	41	588	61	35	4	26	8
Syngenta	3495NS/CL/DM	1144	97	36	352	59	43	11	25	10
Syngenta	3732NS	1172	98	35	502	58	41	5	26	11
Syngenta	7717HO/CL/DM	876	74	34	288	57	43	6	24	10
AVERAGES		1250	105	36	473	59	42	6	25	9

Table 1 continued. Colby Fallow Oilseed Sunflower Performance Test, 2015

3-Year Averages (2013 -2015)

Croplan Genetics	CG 432ENS	972	115	31	468	57	41	8	26	11
AVERAGES		972	115	31	468	57	41	8	26	11

NORTHWEST KANSAS IRRIGATED OILSEED SUNFLOWER TEST

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

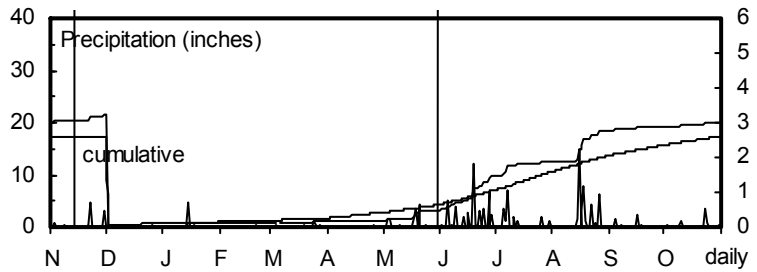
Keith silt loam; grain sorghum in 2014

140 - 25 - 0 lb/a N, P, K

Planted on 6/10/2015; Harvested on 10/14/2015

Target stand of 17,000 plants/acre

Good stands were established. Summer temperatures were about normal with some beneficial rainfall.



Month	Precipitation		Average Temp.		GDU	
	2015	Norm.	2015	Norm.	2015	Norm.
Nov.-Mar.	1.4	3.3	38	34	470	206
April	2.1	1.3	51	49	216	175
May	6.5	2.7	57	59	275	327
June	2.7	3.2	74	70	618	553
July	6.0	2.9	77	76	691	701
August	0.7	1.9	74	74	644	669
Sep.-Oct.	2.3	1.7	64	62	882	462
Totals:	21.6	17.2	53	51	3,796	3,093

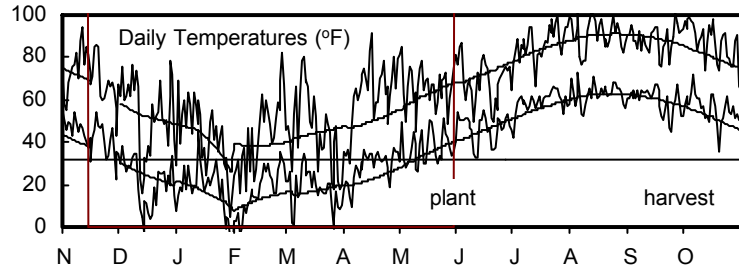


Table 2. Colby Irrigated Oilseed Sunflower Performance Test, 2015

Brand	Hybrid	Yield as %		Oil content (%)	Oil yield (lb/a)	Days to half bloom	Plant height (in.)	Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)
		Yield (lb/a)	of test average							
AgVenture	PSF63ME90	1685	71	40	674	57	59	8	30	12
AgVenture	PSF64HE00	2521	106	38	958	57	62	6	28	14
Croplan Genetics	458 E HO	1940	82	40	776	58	65	11	28	12
Croplan Genetics	545 CL	3151	133	40	1260	60	63	0	27	11
Croplan Genetics	549 CL HO	2966	125	39	1157	58	68	3	28	11
Croplan Genetics	553 CL HO	2390	101	40	956	61	64	5	28	10
Croplan Genetics	CG 432ENS	2034	86	36	732	56	60	5	26	14
Mycogen	8H 449CLDM	2908	123	42	1221	59	59	0	28	11
Mycogen	8H 456CL	2294	97	33	757	61	61	9	28	12
Mycogen	8H 570CLDM	2172	92	42	912	59	43	16	26	9
Nuseed Americas	Camaro II	2494	105	40	998	58	60	3	28	12
Nuseed Americas	Cobolt II	1818	77	40	727	57	56	3	27	11
Nuseed Americas	FALCON NS/SU	2670	113	39	1041	57	60	4	28	10
Nuseed Americas	Hornet	2663	112	41	1092	60	62	6	29	10
Nuseed Americas	NHK12MO54	2636	111	40	1054	58	59	3	28	12
Nuseed Americas	NHK12MO55	2424	102	39	945	57	56	2	29	12
Syngenta	3495NS/CL/DM	1863	78	40	745	57	58	10	27	13
Syngenta	3732NS	2639	111	41	1082	57	53	5	28	14
Syngenta	3845HO	2212	93	43	951	56	52	4	29	13
Syngenta	7717HO/CL/DM	1720	72	41	705	56	51	10	27	12
AVERAGES		2360	2360	--	--	58	58	6	28	12
CV (%)		18	18	--	--	1	4	--	6	0
LSD (0.05)*		629	26	--	--	1	3	6	2	0

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

2-Year Averages (2014 and 2015)

Croplan Genetics	545 CL	2891	115	41	1169	60	65	2	28	12
Croplan Genetics	CG 432ENS	2250	88	38	847	57	64	3	27	14
Mycogen	8H 449CLDM	3017	119	43	1283	60	63	1	29	12
Mycogen	8H 570CLDM	2328	92	41	953	59	53	8	26	11

Table 2 continued. Colby Irrigated Oilseed Sunflower Performance Test, 2015

Brand	Hybrid	Yield as %		Oil	Oil	Days to	Plant	Lodging (%)	Test	Seed
		Yield (lb/a)	of test average	content (%)	yield (lb/a)	half bloom	height (in.)		weight (lb/bu)	weight (g/200)
Nuseed Americas	Camaro II	2532	100	40	1013	59	63	4	28	13
Nuseed Americas	FALCON NS/SU	2686	106	40	1061	58	62	5	29	11
Nuseed Americas	Hornet	2791	110	42	1159	61	66	6	26	11
Syngenta	3495NS/CL/DM	2303	90	41	935	58	62	6	25	13
Syngenta	3732NS	2738	108	42	1137	58	59	4	28	13
Syngenta	7717HO/CL/DM	2131	83	41	861	57	58	8	28	13
AVERAGES		2567	101	41	1042	59	62	5	27	12

3-Year Averages (2013- 2015)

Croplan Genetics	CG 432ENS	2258	95	38	1042	57	60	6	27	14
Mycogen	8H 449CLDM	2876	121	44	1415	60	61	3	29	13
AVERAGES		2567	108	41	1229	59	61	5	28	14

NORTHWEST KANSAS IRRIGATED CONFECTIONARY SUNFLOWER TEST

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

Keith silt loam; corn in 2014

140 - 25 - 0 lb/a N, P, K

Planted on 6/10/2015; Harvested on 10/14/2015

Target stand of 17,000 plants/acre

Good stands were established. Summer temperatures were about normal with some beneficial rainfall.

Table 3. Colby Irrigated Confectionary Sunflower Performance Test, 2015

Brand	Hybrid	Yield as %		Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)	Days to half bloom	Seed Sizing (%)						
		Yield (lb/a)	of test average					>22	21-22	20-21	19-20	18-19	16-18	<16
CHS Sunflower	RH 1130 EX	1732	84	1	12	26	61	26	24	23	15	5	5	2
CHS Sunflower	RH 609 CLP	1721	83	10	17	28	60	25	21	21	18	7	6	2
NUSEED AMERICAS	Puma	2417	117	3	13	25	61	20	26	21	16	8	6	3
RED R. COMMODITIES	2215	2032	98	3	17	26	59	27	26	20	16	5	5	1
RED R. COMMODITIES	2217	2277	110	5	15	27	62	18	27	24	17	7	5	2
RED R. COMMODITIES	8015	2108	102	2	13	27	58	0	0	0	0	0	0	0
RED R. COMMODITIES	8042	1993	96	3	16	--	61	22	28	21	14	7	6	2
RED R. COMMODITIES	2215CL	2200	106	0	15	24	60	33	22	18	14	5	4	3
	AVERAGES	2060	2060	3	15	26	60	0	0	0	0	0	0	0
	CV (%)	17	17	--	22	0	0	0	0	0	0	0	0	0
	LSD (0.05)*	534	25	6	5	0	0	0	0	0	0	0	0	0

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

2-Year Averages (2014 and 2015)

Brand	Hybrid	Yield as %		Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)	Days to half bloom	Seed Sizing (%)						
		Yield (lb/a)	of test average					>22	21-22	20-21	19-20	18-19	16-18	<16
RED R. COMMODITIES	2215	2529	103	3	18	27	59	27	23	20	18	5	5	2
RED R. COMMODITIES	2217	2444	101	5	17	28	62	30	23	21	15	6	5	2
RED R. COMMODITIES	8015	2917	117	3	16	28	58	23	17	18	22	11	6	2
RED R. COMMODITIES	2215CL	2526	104	4	17	26	60	30	24	17	15	9	8	4
	AVERAGES	2604	106	4	17	27	60	28	22	19	18	8	6	3

3-Year Averages (2013- 2015)

RED R. COMMODITIES	2215	2466	100	8	19	27	59
RED R. COMMODITIES	2217	2156	102	9	17	28	62
RED R. COMMODITIES	8015	2424	114	9	17	27	58
	AVERAGES	2349	105	9	18	27	60

Table 4. Entrants and Entries in the 2015 Sunflower Performance Tests

AgVenture

207 N 7th Street
Kentland, IN 47951
888-999-0859
PSF63ME90
PSF64HE00

Mycogen Seed

9330 Zionsville Rd
Indianapolis, IN 46268
800-MYCOGEN
8H 449CLDM
8H 456CL
8H 570CLDM

Syngenta Seed

P.O. Box 18300
Greensboro, NC 27409
336-632-6000
3495NS/CL/DM
3732NS
3845HO
7717HO/CL/DM

CHS Sunflower

P.O. Box 169
Grandin, ND 58038
701 484-5313
RH 609 CLP
RH 1130 EX

Nuseeds Americas/Global

11901 S. Austin Avenue
Alsip, IL 60803
708-377-1330
Camaro II
Cobalt II
Falcon NS/SU
Hornet
NHK12MO54
NHK12MO55
Puma

Croplan Genetics

P.O. Box 64281
St. Paul, MN 55164
888-295-3011
458 E HO
545 CL
549 CL HO
553 CL HO
CG 432ENS

Red River Commodities

1320 East College Drive
Colby, KS 67701
785-462-3911
2215
2215CL
2217
8015
8042

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.k-state.edu/services/crop-performance-tests/index.html

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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 1123, '2015 Kansas Performance Tests with Sunflower Hybrids,' or the Kansas Crop Performance Test website, www.agronomy.k-state.edu/services/crop-performance-tests/index.html, for details. Endorsement or recommendation by Kansas State University is not implied."

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