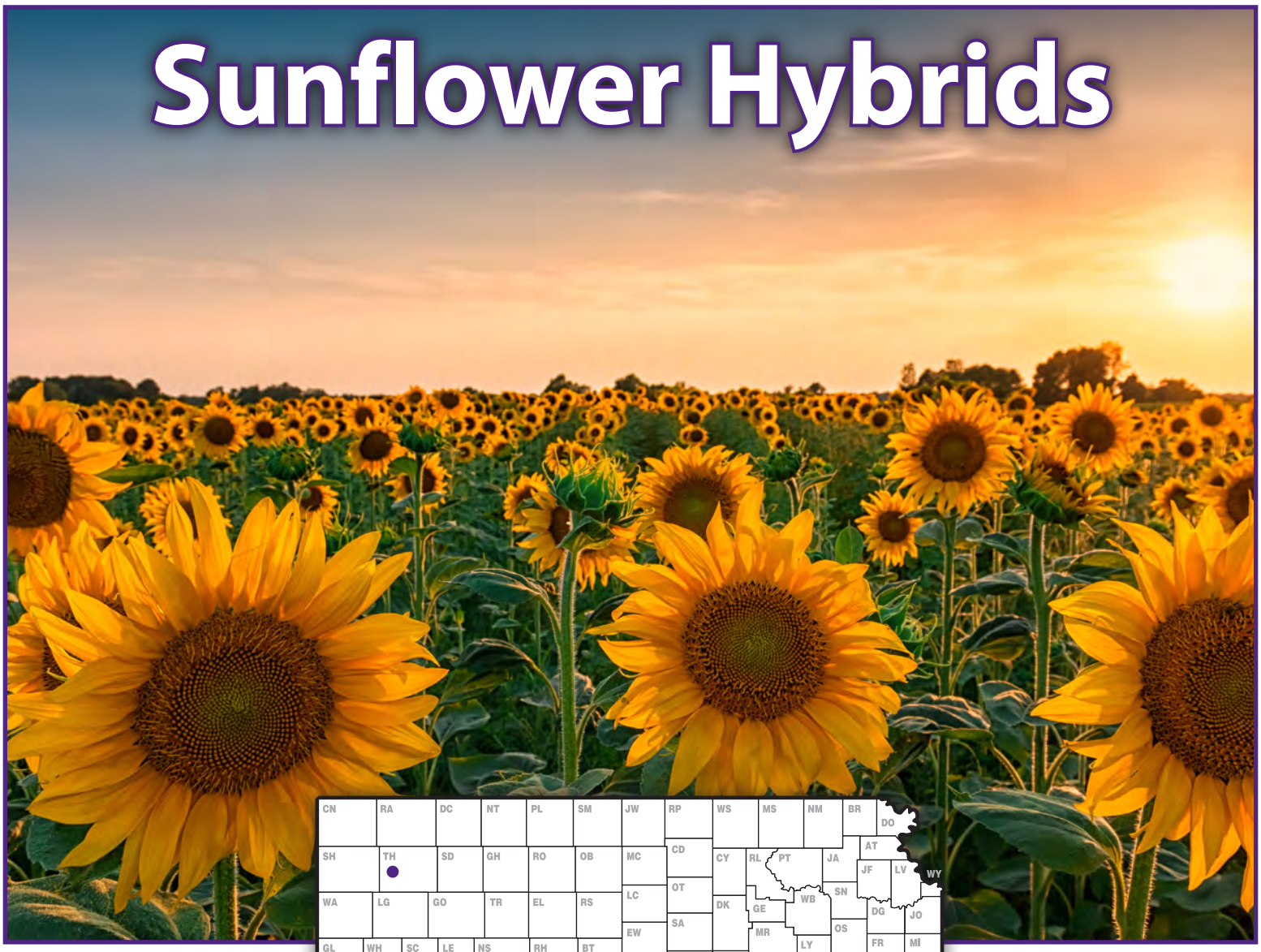
2019 Kansas Performance Tests with

Sunflower Hybrids



Report of Progress 1156

K-STATE Research and Extension

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

TABLE OF CONTENTS

Contribution No. 20-334-S from the Kansas Agricultural Experiment Station.

INTRODUCTION

Objectives and Procedures

Sunflower performance tests were conducted in 2019 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 2019 were Thomas County—irrigated and fallow; Ellis County—dryland; and Labette County—dryland. Oilseed entries were grown at all locations. Hybrids 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. The Ellis County test location was not harvested due to adverse growing conditions. The Thomas County irrigated test location was affected by stand failure and was also not harvested.

Environmental factors affecting test results and cultural practices are presented for each individual test site. Test results for 2019 and period-of-years average data are included in Tables 1 and 2. Entrants and entries in 2018 tests are listed in Table 3.

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.

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.

ACKNOWLEDGMENTS

Cooperation of Rob Aiken, Ram Perumal, Troy Ostmeyer, Gretchen Sassenrath, and Lonnie Mengarelli for field operations is sincerely appreciated. Mary Knapp at the Weather Data Library provided climatological data.

NORTHWEST KANSAS FALLOW OILSEED SUNFLOWER TEST

Colby, Thomas County
K-State Northwest Research Center
Planted: 6/12/2019
Harvested: 10/26/2019
100-0-0 lb/a N, P, K
Keith silt loam
Previous crop: fallow
Cooperator: Rob Aiken

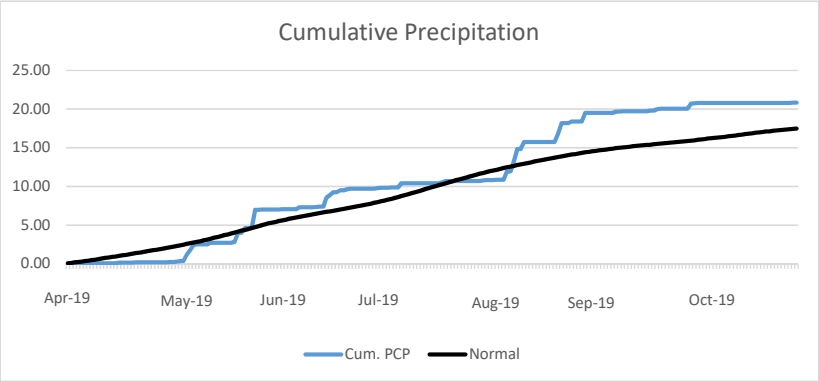


Table 1. Colby Fallow Oilseed Sunflower Performance Test, 2019

Brand	Hybrid	Yield (lb/a)	Yield as % of test average	Days to half bloom	Plant height (in.)	Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)
DYNA-GRO	H45NS16CL	1745	69	--	53	17	22	15
DYNA-GRO	H48HO15CL	2459	97	--	58	24	19	16
DYNA-GRO	H49HO19CL	2543	101	--	52	12	16	15
DYNA-GRO	H49NS14CL	2970	118	--	56	13	18	15
PIONEER	P64ME01	2919	116	--	55	13	13	17
S&W	NSW20110	2158	85	--	54	1	12	16
S&W	NSW20440	2794	111	--	54	9	19	16
	Average	2513	2513	--	54	13	17	16
	CV (%)	19	19	--	8	82	14	--
	LSD (0.05)*	710	28	--	7	16	3	--

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

2-Year Averages (2018 and 2019)

DYNA-GRO	H48HO15CL	1452	75	63	56	24	22	16
DYNA-GRO	H49HO19CL	1421	68	67	46	12	21	15
DYNA-GRO	H49NS14CL	2127	134	60	51	13	22	15
AVERAGES		1667	92	63	51	16	22	15

SOUTHEAST KANSAS DRYLAND OILSEED SUNFLOWER TEST

Parsons, Labette County
K-State Southeast Research Center
Planted: 7/11/2019
Harvested: 11/20/2019
80-46-60 lb/a N, P, K
Keith silt loam
Previous crop: wheat
Herbicide: 1 qt/a Gramoxone, 1 pt/a Dual Mag, 6 oz/a Spartan
Cooperators: Gretchen Sassenrath and Lonnie Mengarelli

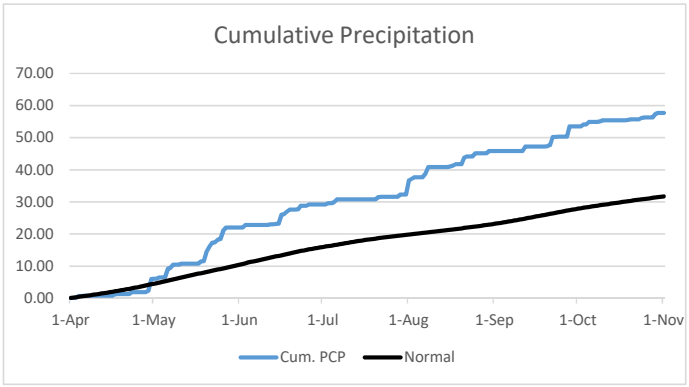


Table 1. Parsons Dryland Oilseed Sunflower Performance Test, 2019

Brand	Hybrid	Yield (lb/a)	Yield as % of test average	Days to half bloom	Plant height (in.)	Lodging (%)	Test weight (lb/bu)	Seed weight (g/200)
DYNA-GRO	H45NS16CL	1957	91	48	44	--	28	15
DYNA-GRO	H48HO15CL	2058	96	49	47	--	29	16
DYNA-GRO	H49HO19CL	2005	93	49	43	--	29	16
DYNA-GRO	H49NS14CL	2046	95	49	42	--	29	15
PIONEER	P64ME01	2274	106	50	47	--	28	17
S&W	NSW20110	2275	106	48	40	--	29	16
S&W	NSW20440	2377	111	49	45	--	29	16
	Average	2142	100	49	44	--	29	16
	CV (%)	20	20	4	20	--	4	--
	LSD (0.05)*	643	30	3	13	--	1	--

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

Table 3. Entrants and Entries in the 2019 Sunflower Performance Tests

Dyna-Gro
1111 US HWY 62
Ralls, TX 79357
806-402-0463

H45NS16CL
H48HO15CL
H49HO19CL
H49NS14CL

S&W Seeds
106 K Street, Suite 300
Sacramento, CA 95814
559-884-2535

NSW 20110
NSW20440

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

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 1156, '2019 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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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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