



2008 Sunflower Performance Tests



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Information on Sunflower Performance Trials

Numerous hybrids were evaluated in performance tests during 2008. Commercially available hybrids and experimental lines were included within the tests. Tests were designed to provide information to assist producers in identifying superior hybrids and make crop management decisions.

Hybrids of private seed company origin are submitted based on decisions by the respective company and hybrid characteristics listed were provided by the companies (Table 1).

2008 Sunflower Crop Overview

The 2008 sunflower production season in Oklahoma got off to a cool and wet start. However, as temperatures started to reach near normal in late April and early May the early planted sunflower crop took off. The double-crop sunflowers around the state that were planted in June and July experienced a wide range of growing conditions. In the southern part of the state extremely dry conditions prevented many from getting adequate stands. In the northeast and northwest part of the state adequate rainfall was received for the most part but timing of rainfall caused problems. The biggest problem observed in 2008 was stand establishment. Many producers had a difficult time getting an adequate stand.

Pest problems

Plant disease was minimal during the 2008 growing season. Some rust was observed in the northeast part of the state but most likely had very little impact on yield. Some areas received heavy head moth pressure and had to apply insecticide to control populations.

Methods

Test locations were near Stillwater and Goodwell (dryland and irrigated). Two other locations were established but not harvested due to weather conditions. These locations were at Miami and Lahoma. All test plots were planted using four or two 30-inch rows (4 row Stillwater; 2 row Goodwell) that were 25 feet long. Plots were seeded at a rate of 18,000-21,000 seeds/ac depending on location. Tests were

conducted using randomized complete block design with four replications. Irrigation was used only at the Goodwell location. Two rows the entire length of the plot was harvested with a small plot combine to determine grain yield.

Interpreting Data

Details of establishment and management of each test are listed in footnotes below the tables. Least significant differences (LSD) are listed at the bottom of all but the Performance Summary tables. Differences between varieties are significant only if they are equal to or greater than the LSD value. If a given variety out yields another variety by as much or more than the LSD value, then we are 95% sure that the yield difference is real, with only a 5% probability that the difference is due to chance alone. For example, if variety X is 200 lb/ac higher in yield than variety Y, then this difference is statistically significant if the LSD is 200 or less. If the LSD is 200 or greater, then we are less confident that variety X really is higher yielding than variety Y under the conditions of the test.

The CV value or coefficient of variation, listed at the bottom of each table is used as a measure of the precision of the experiment. Lower CV values will generally relate to lower experimental error in the trial. Uncontrollable or immeasurable variations in soil fertility, soil drainage, and other environmental factors contribute to greater experimental error and higher CV values.

Results reported here should be representative of what might occur throughout the state but would be most applicable under environmental and management conditions similar to those of the tests. The relative yields of all sunflower hybrids are affected by crop management and by environmental factors including soil type, summer conditions, soil moisture conditions, diseases, and insects.

Additional information on the Web

A copy of this publication as well as additional information and more information on sunflower management can be found at

<http://pss.okstate.edu/>

Sources of Seed for the 2008 Sunflower Performance Tests

CROPLAN Genetics

PO Box 1291

Minot, ND 58702

Telephone: 701-852-3556

Monsanto

304 Center St.

West Fargo, ND 58078

Telephone: 800-437-4120

Mycogen

9300 Zionsville Rd

Indianapolis, IN 46268

Telephone: 1-800-MYCOGEN

Seeds 2000

115 North 3rd St.

Breckenridge, MN 56520

Telephone: 218-643-2410

Technology Crops International

4201 38th St. S.

Suite 108

Fargo, ND 58104

Telephone: 866-870-5910

Triumph Seed Co., Inc

PO Box 1050

Ralls, TX 79357

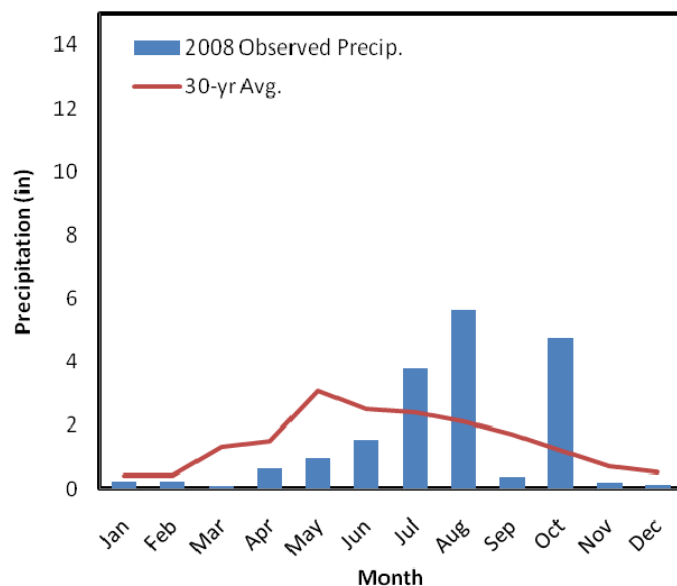
Telephone: 888-253-4012

Table 1. Sunflower characteristics of hybrids entered in the 2008 performance trials.

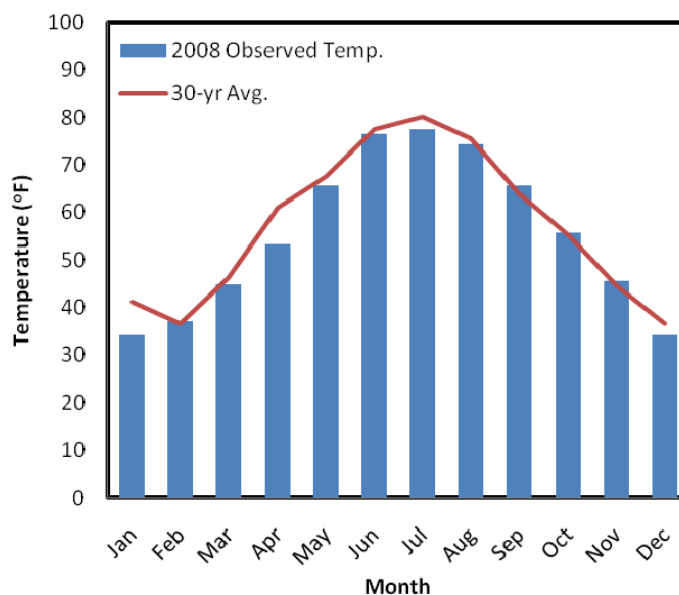
Entry	Company	Maturity	Oil Type	Oil		Plant		Disease Resistance	Other Tolerance/Resistance
				Content	%	Height	in		
306 DMR NS	Croplan Genetics	90	NuSun	47	72	Downy Mildew			
3080 DMR NS	Croplan Genetics	90	NuSun	47	72	Downy Mildew			
325 DMR NS	Croplan Genetics	92	NuSun	45	84	Downy Mildew			
356 NS	Croplan Genetics	95	NuSun	45	72	Downy Mildew			
369 DMR NS	Croplan Genetics	97	NuSun	45	70	Downy Mildew	Staygreen Characteristics		
378 DMR NS	Croplan Genetics	95	NuSun	45	68	Downy Mildew			
803 DMR NS	Croplan Genetics	88	NuSun	47	72	Downy Mildew			
DFK 34-33	Monsanto	96	NuSun	45	55-65	Downy Mildew			
DFK 34-80CL	Monsanto	97	NuSun	44	55-65	Downy Mildew	Clearfield		
DFK 37-31	Monsanto	100	NuSun	43	57-67				
DFK 38-45	Monsanto	105	NuSun	44	56-67				
IS 7120	Monsanto	95	High Oleic	44	55-65	Downy Mildew			
187	Mycogen	98	Traditional	40	52				
8H449 DM	Mycogen	97	High Oleic	44	65	Downy Mildew			
8N453 DM	Mycogen	97	NuSun	45	65	Downy Mildew			
8N510	Mycogen	100	NuSun	42	58				
BLAZER CL-NS	Seeds 2000	Med-Full	NuSun	na	na		Clearfield		
SIERRA HO	Seeds 2000	Full	High Oleic	na	na				
OLEX	Technology Crop Int.	na	na	na	na				
OLIMAX	Technology Crop Int.	na	na	na	na				
845HO	Triumph Seed Co.	95-105	High Oleic	45-49	55-65	Rust			
R657	Triumph Seed Co.	95-105	NuSun	44-48	55-65	Rust			
R664	Triumph Seed Co.	95-105	NuSun	45-49	55-65	Rust			
S 672	Triumph Seed Co.	94-104	NuSun	44-48	39-40	Rust			
s880CL	Triumph Seed Co.	95-105	High Oleic	44-48	38-40	Rust	Clearfield		

2008 Goodwell Trial Data

Precipitation



Temperature



Yields at Goodwell in 2008 were a little lower than average. Oil contents were lower than what we had in 2007. Typically, oil contents run between 40 and 43% for double crop irrigated in the area. Slightly cooler weather at the end of Aug. and in early Sept. appeared to delay maturity and may have effected oil content. Irrigated yields were lower than normal due to lodging. This was most likely due to environmental conditions observed at the end of the growing season.

Table 2. Information on soil chemical properties and management practices for the Irrigated Sunflower Performance Test at Goodwell, OK in 2008.

Soil Properties	Result	Cultural Practice	Information
pH	na ¹	Planting Date	July 7, 2008
Soil Test P Index	na	Harvest Dates	October 31, 2009
Soil Test K Index	na	Irrigation	as needed

¹Not available.

Table 3. Information on soil chemical properties and management practices for the Dryland Sunflower Performance Test at Goodwell, OK in 2008.

Soil Properties	Result	Cultural Practice	Information
pH	na ¹	Planting Date	July 18, 2009
Soil Test P Index	na	Harvest Dates	November 19, 2009
Soil Test K Index	na	Irrigation	none

¹Not available.

Table 4. Lodging, oil content, and seed yield for 2008 in Goodwell, OK (irrigated).

Entry	Company	Lodging [†]	Oil	Yield
		-- % --	-- % --	-- lb/ac --
S 672	Triumph Seed Co.	0	39.3	1582
356 NS	Croplan Genetics	23	38.1	1565
DFK 37-31	Monsanto	10	37.2	1494
DFK 38-45	Monsanto	8	39.5	1423
306 DMR NS	Croplan Genetics	3	38.0	1335
3080 DMR NS	Croplan Genetics	0	36.8	1327
IS 7120	Monsanto	0	37.7	1319
8N453 DM	Mycogen	35	38.1	1308
325 DMR NS	Croplan Genetics	23	38.5	1221
BLAZER CL-NS	Seeds 2000	15	38.3	1204
803 DMR NS	Croplan Genetics	10	36.4	1191
845HO	Triumph Seed Co.	23	37.6	1144
R664	Triumph Seed Co.	33	38.0	1135
8N510	Mycogen	20	39.8	1116
DFK 34-80CL	Monsanto	50	40.1	1070
369 DMR NS	Croplan Genetics	5	37.8	1020
8H449 DM	Mycogen	28	39.9	1013
DFK 34-33	Monsanto	60	40.1	986
R657	Triumph Seed Co.	33	38.0	969
187	Mycogen	50	36.8	939
s880CL	Triumph Seed Co.	48	37.5	825
378 DMR NS	Croplan Genetics	30	37.3	808
OLIMAX	Technology Crop Int.	33	37.6	753
OLEX	Technology Crop Int.	40	36.8	668
SIERRA HO	Seeds 2000	35	39.6	651
LSD (P=0.05)		83	4.2	475
CV		29	5.3	30

[†] Percent of plot that was lodged.

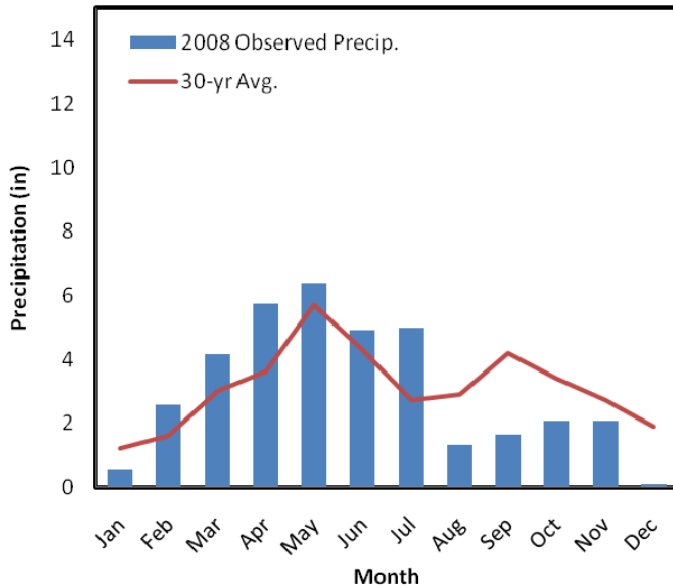
Table 5. Lodging, oil content, and seed yield for 2008 in Goodwell, OK (dryland).

Entry	Company	Lodging [†]	Oil	Yield
		-- % --	-- % --	-- lb/ac --
8H449 DM	Mycogen	3	38.4	1075
s880CL	Triumph Seed Co.	0	35.4	1050
DFK 38-45	Monsanto	0	36.3	984
DFK 37-31	Monsanto	3	36.4	935
306 DMR NS	Croplan Genetics	5	36.7	928
R664	Triumph Seed Co.	0	37.0	922
8N453 DM	Mycogen	0	36.7	916
325 DMR NS	Croplan Genetics	10	36.3	914
356 NS	Croplan Genetics	10	35.6	904
3080 DMR NS	Croplan Genetics	10	35.3	891
R657	Triumph Seed Co.	3	35.8	888
S 672	Triumph Seed Co.	5	35.1	880
187	Mycogen	5	36.4	818
845HO	Triumph Seed Co.	3	34.2	810
378 DMR NS	Croplan Genetics	0	36.7	809
8N510	Mycogen	5	36.6	800
DFK 34-80CL	Monsanto	8	38.9	788
IS 7120	Monsanto	3	38.4	788
BLAZER CL-NS	Seeds 2000	0	38.0	760
OLIMAX	Technology Crop Int.	10	32.8	738
369 DMR NS	Croplan Genetics	8	36.9	688
DFK 34-33	Monsanto	10	38.5	632
803 DMR NS	Croplan Genetics	28	36.1	584
SIERRA HO	Seeds 2000	8	38.6	559
OLEX	Technology Crop Int.	3	34.3	507
LSD (P=0.05)		NS	3.8	244
CV			5.1	20

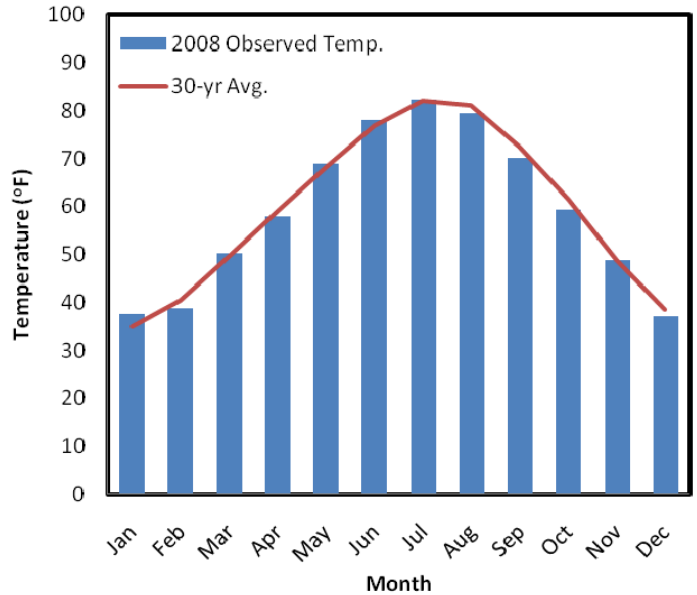
[†] Percent of plot that was lodged.

2008 Stillwater Trial Data

Precipitation



Temperature



The sunflower trial at Stillwater was planted on July 3. Shortly after planting this location received heavy rainfall and some plots were saturated with water. Standing water did result in a reduced stand in some plots, resulting in a slightly higher C.V. However, yields were good at the location. Average yield, when averaged across hybrid was 1268 lb/ac and average oil content was 39.3%. We observed very little pest pressure. Head moth was sprayed for once during early bloom but a very low population was observed. No lodging was observed for any hybrid at Stillwater.

Table 6. Information on soil chemical properties and management practices for the Dryland Sunflower Performance Test at Stillwater, OK in 2008.

Soil Properties	Result	Cultural Practice	Information
pH	7.3	Planting Date	7/3/2009
Soil Test P Index	68	Irrigation	none
Soil Test K Index	133	Harvest Date	10/22/2009
		Soil Moisture at Planting	good

Table 7. Sunflower growth characteristics, oil content, and yield for 2008 in Stillwater, OK.

Entry	Company	First Bloom			
		Date	Height -- in --	Oil -- % --	Yield -- lb/ac --
DFK 34-33	Monsanto	239	43	39.6	2435
8N453 DM	Mycogen	236	43	38.4	2077
8N510	Mycogen	239	38	39.1	1941
8H449 DM	Mycogen	238	46	39.3	1820
S 672	Triumph Seed Co.	238	46	38.0	1772
3080 DMR NS	Croplan Genetics	238	42	38.7	1751
BLAZER CL-NS	Seeds 2000	239	40	40.0	1447
DFK 34-80CL	Monsanto	237	41	41.0	1406
378 DMR NS	Croplan Genetics	237	36	38.9	1353
306 DMR NS	Croplan Genetics	237	41	39.0	1246
DFK 37-31	Monsanto	235	41	39.5	1188
s880CL	Triumph Seed Co.	238	30	40.7	1165
OLEX	Technology Crop Int.	238	39	39.4	1163
187	Mycogen	238	23	39.3	1114
DFK 38-45	Monsanto	237	45	40.8	1045
369 DMR NS	Croplan Genetics	234	48	37.4	991
356 NS	Croplan Genetics	239	44	37.2	930
R 664	Triumph Seed Co.	238	52	37.5	924
IS 7120	Monsanto	238	39	39.0	918
SIERRA HO	Seeds 2000	238	39	38.4	903
325 DMR NS	Croplan Genetics	238	37	42.0	889
R 657	Triumph Seed Co.	238	44	41.3	868
845 HO	Triumph Seed Co.	238	44	38.1	855
803 DMR NS	Croplan Genetics	237	37	40.1	778
OLIMAX	Technology Crop Int.	238	39	39.6	718
LSD (P=0.05)		2.3	8.4	3.4	750
CV		0.7	14.6	4.2	30

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