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EC99-107 Nebraska Proso, Sunflower, Bean, Pea, Oat and Spring Wheat Variety Tests, 1999

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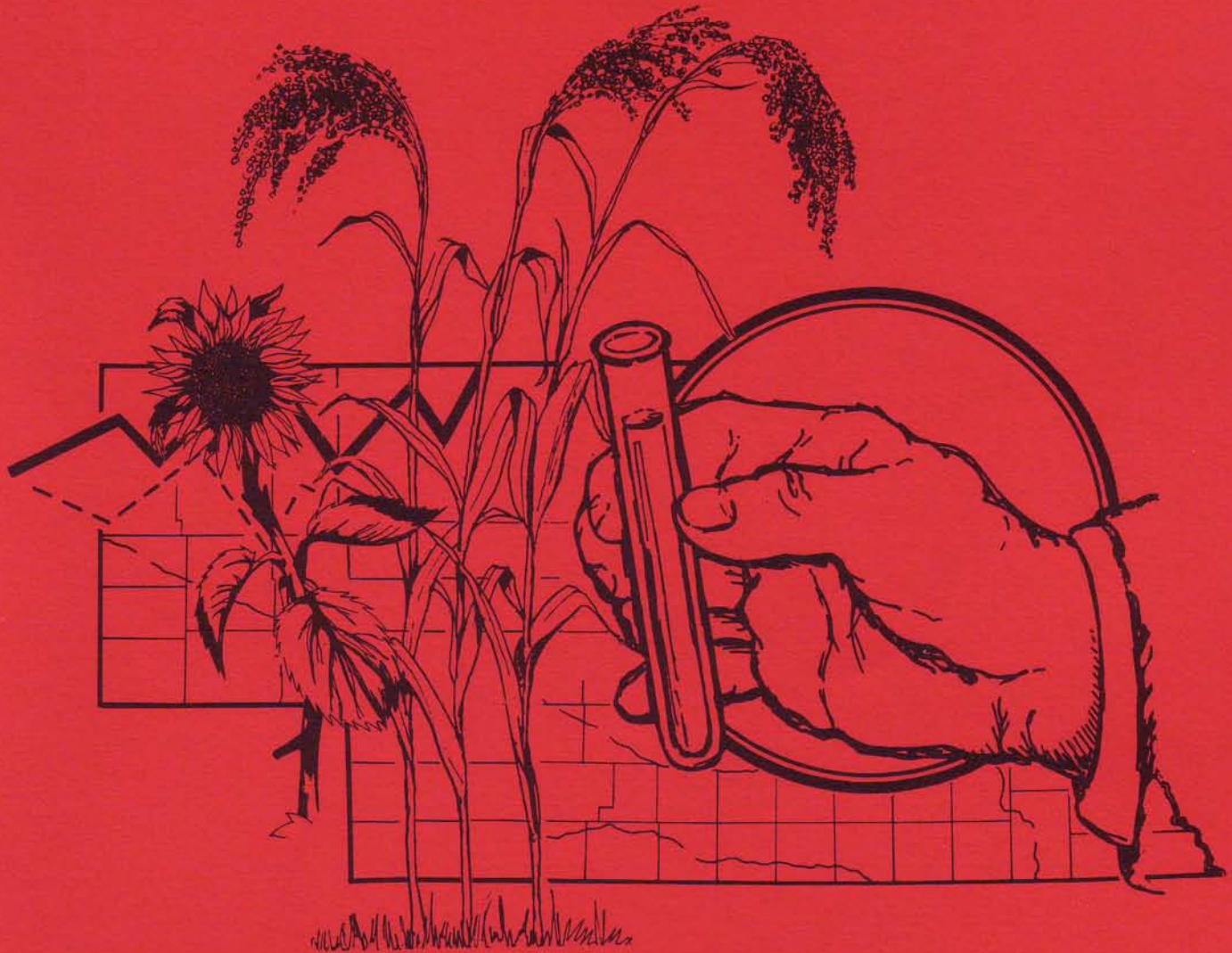
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NEBRASKA PROSO, SUNFLOWER, BEAN, PEA, OAT AND SPRING WHEAT VARIETY TESTS 1999



University of Nebraska—Lincoln
Institute of Agriculture and Natural Resources
Agricultural Research Division
Cooperative Extension



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This circular is a progress report of spring small grain trials grown throughout Nebraska, and proso, sunflower, dry bean, and field pea variety trials conducted by the Panhandle Research and Extension Center, Scottsbluff, and the High Plains Agricultural Laboratory, Sidney. Conduct of the experiments and publication of

results is a joint effort of the Agricultural Research Division and the Cooperative Extension Service.

Thanks to Jeff Golus, John Rickertsen, Bruce Swan, John Eis, and Greg Dorn for their assistance on trial maintenance and data analysis.

METRIC EQUIVALENTS

1 centimeter = 0.394 inches

1 hectare = 2.471 acres

1 kilogram = 2.205 pounds

1 hectoliter = 2.838 bushels

kg/hl = lb/bu x 1.287

cm = inches x 2.541

ha = acres x 0.405

kg = pounds x 0.454

hl = bushels x 0.352

kg/ha = bu/A x 62.71 (56# bu)

DEFINITIONS

CWT = hundred weight

L.S.D. (.05) = A statistic (calculated at the 5% probability level in this book) used to compare the difference between two entries for significance. If the difference between two entries is larger than the LSD value at the bottom of each table, it is assumed significant.

N.S. = not significant. The differences between two entries were not statistically significant.

EXTENSION CIRCULAR 99-107

TABLE OF CONTENTS

Proso Millet and Sunflower Price History and Patterns, 1993-1999	5
--	---

PROSO

Proso Millet Variety Trials and Description of Plot Techniques	7
Agronomic Characteristics of Varieties	8-9
Proso Yields for 1999 Variety Trials	10-11
Nine Year Yield Summaries of Proso Varieties	12-13

DRY BEANS and PEAS

Dry Bean Variety Trials and Description of Plot Techniques	14
Dry Bean Yields for 1997-9 Variety Trials	15
Pea Variety Trials and Description of Varieties	16-18
Pea Yields for 1997-9 Variety Trials	19

SUNFLOWER

Sunflower Trials and Description - 1999	20-21
Sunflower Yields	22-30
Cheyenne Co. Sunflower	22-23
Perkins Co. Sunflower	23-24
Laramie Co. Sunflower	25
Sunflower Four Year Yield and Oil Summaries	26-30

Spring Grain

Spring Grain Test Description	31
Oat Test Saunders Co.	32
Spring Wheat Test Saunders & Cheyenne Co.	32

Historical Prices and Seasonal Price Patterns for Proso Millet and Sunflowers

by Paul A. Burgener, Dillon M. Feuz, and Tom Holman

During the past marketing year, prices for proso millet and sunflowers have reached their lowest levels for the past several years. These price levels may affect the number of acres planted to both proso millet and sunflowers over the next year. Although prices are low for these crops, the same price levels are also present in the wheat and corn markets. With the present federal crop program, proso millet may be the hardest hit of the area dryland crops. Wheat, corn, and sunflowers have a set loan rate, and a loan deficiency payment in case prices are below that loan rate. Proso millet is not included in this program, limiting the options for proso millet producers in low price years.

The price of proso millet has been more consistent over the past five years, after an annual average high price of \$14.99 per cwt in the 1993-94 crop year (Table 1). The variability can be attributed to a supply/demand imbalance in the 1993-94 crop year. Average monthly prices were in excess of \$20.00 per cwt in four months during 1993-94. The 5-year monthly averages range from a high of \$5.61 per cwt in November to a low of \$4.79 per cwt in August just prior to new crop proso millet entering the market.

The seasonal price indices for proso millet range from a high of 8% above the average in November to 5% below the average in August. The seasonal pattern shows nearly 13% total change from highest to lowest prices. Different from most commodities, the highest prices are at harvest. Because of this, there is little incentive to store proso millet with the expectation of short term price gains from off season marketing. Potential incentives for storing proso millet are long term gains from different season marketing. Figure 1 shows the actual seasonal price variation experienced over the crop year.

Over the past five years, the low annual average price of sunflowers has been \$8.24 per cwt in the 1998-99 crop year, while the high price of \$11.97 per cwt came in the 1995-96 crop year (Table 2). The 5-year average monthly prices show a low price of \$9.83 in September, while the average monthly high price of \$11.20 has occurred in May over the past five years.

The seasonal price index pattern for sunflowers follows the standard crop pattern of the lowest prices near harvest time, and highest prices in

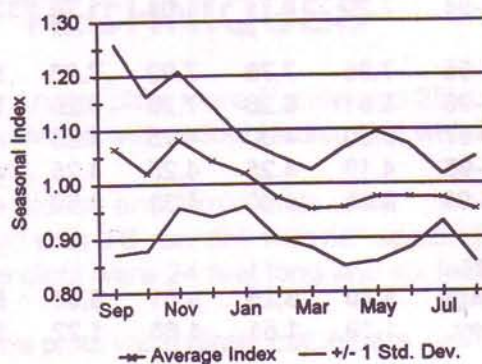


Figure 1. Seasonal Price Pattern for Proso Millet, 1994-1999.

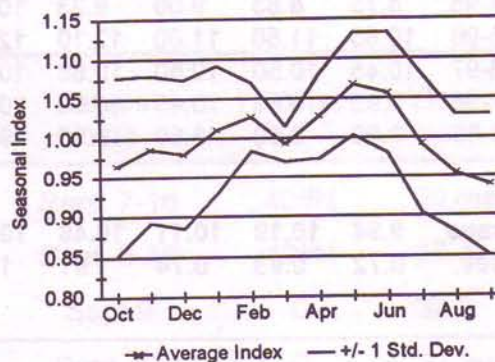


Figure 2. Seasonal Price Pattern for Sunflowers, 1994-1999.

the spring or early summer. However, the sunflower pattern seems to go up and down several times through the year, making price predictions difficult at best. There is only a 13% difference between the index for the lowest month (September) and the highest month (May). Some of this variation and difference in seasonal patterns may be explained by the market structure for sunflowers. As an oilseed crop, the sunflower market is a small portion of the world oilseed market. This market is pressured by world production of palm, safflower, canola, soybeans, peanuts, and other edible oil crops that produce substitutes for sunflower oil. Figure 2 shows the actual seasonal price variation experienced over the crop year.

Table 1. Average monthly prices of proso millet, Western Nebraska, 1993-1999. (dollars per cwt)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	Annual Average
1993-94	7.20	8.71	11.01	11.76	13.95	17.27	21.35	22.52	20.02	20.02	18.02	8.01	14.99
1994-95	7.86	7.76	7.99	7.26	5.51	5.01	5.01	4.76	4.76	4.84	5.39	6.01	6.01
1995-96	5.51	6.26	7.26	6.26	7.50	7.00	7.25	7.75	8.00	7.50	7.00	5.25	6.88
1996-97	5.50	4.00	4.25	4.25	4.40	4.56	4.19	4.00	4.13	4.35	4.35	4.25	4.35
1997-98	4.19	4.25	4.25	4.25	4.19	4.00	4.00	4.00	4.00	4.05	4.10	4.25	4.13
1998-99	3.95	4.00	4.31	4.60	4.50	4.25	4.00	4.13	4.25	4.25	4.06	4.19	4.21
5-year													
Average	5.40	5.25	5.61	5.32	5.22	4.96	4.89	4.93	5.03	5.00	4.98	4.79	5.12
St. Dev.	1.39	1.51	1.66	1.22	1.23	1.07	1.24	1.44	1.51	1.28	1.12	0.73	1.12
----- Price Index -----													
5-year													
Average	1.07	1.02	1.08	1.04	1.02	0.98	0.95	0.96	0.98	0.98	0.97	0.95	
St. Dev.	0.19	0.14	0.13	0.10	0.06	0.08	0.07	0.11	0.12	0.09	0.04	0.10	

Source: Crossroads Cooperative, Sidney, Nebraska.

Table 2. Average monthly prices of Sunflowers, Western Nebraska, 1994-1999. (dollars per cwt)

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual Average
1994-95	8.75	8.83	9.00	9.33	10.75	10.50	10.43	10.85	11.50	11.00	11.00	11.25	10.27
1995-96	10.85	11.50	11.00	12.10	12.30	12.15	13.30	13.55	12.75	11.20	11.70	11.20	11.97
1996-97	10.45	10.50	10.60	10.88	10.75	10.50	10.80	11.50	11.38	10.90	10.00	9.75	10.67
1997-98	9.95	10.63	10.45	10.50	10.50	10.69	11.50	12.25	12.25	11.85	10.38	10.25	10.93
1998-99	9.69	9.50	9.50	9.50	9.00	7.95	7.81	7.84	7.52	7.00	6.90	6.72	8.24
5-year													
Average	9.94	10.19	10.11	10.46	10.66	10.36	10.77	11.20	11.08	10.39	10.00	9.83	10.42
St. Dev.	0.72	0.93	0.74	1.01	1.05	1.35	1.78	1.90	1.85	1.73	1.65	1.66	1.22
----- Price Index -----													
5-year													
Average	0.96	0.99	0.98	1.01	1.03	0.99	1.03	1.07	1.06	0.99	0.95	0.94	
St. Dev.	0.11	0.09	0.09	0.08	0.04	0.02	0.05	0.06	0.08	0.09	0.08	0.09	

Source: Crossroads Cooperative, Sidney, Nebraska.

PROSO VARIETY TRIALS

1999

The 1999 proso millet tests contained 19 white seeded, 3 red seeded entries, and 3 waxy types. Huntsman, Sunrise, and Earlybird are releases from the proso breeding program at the Panhandle

Research and Extension Center. These varieties have demonstrated improved yield over other varieties and are larger seeded than Rise. Foundation and certified seed are now available.

DESCRIPTION OF PLOT TECHNIQUES

Five proso millet variety trials were conducted in 1999. Two were located at the High Plains Agricultural Laboratory (HPAL) near Sidney, Nebraska (early planted and late planted), one at the USDA Central Great Plains Research Center at Akron, CO; one at the University of Wyoming Research Center at Archer WY; and one was located on the Larry Novotny farm near Martin, South Dakota.

The plot at Martin received a heavy rain after planting, and stands were severely reduced. The plot was not harvested.

The Martin plots were 6' wide and 30' long, and were seeded with a no-till drill with 10" row spacing.

The Archer plots were 5' wide and 25' long, planted with a double-disc drill with 9" spacing.

The Sidney and Akron trials were seeded with a 6-row drill with 12" spacing. These plots were 24 feet long and six feet wide.

Some plots were direct cut, others were windrowed with a small plot swather, and then threshed. The Sidney plots were harvested progressively as the varieties matured.

Lodging was not a problem in any of the plots.

Four replications of each variety were planted and harvested.

Table 3. 1999 Proso Millet Plots

Location	Tillage System	Previous Crop	Plant Date	Harvest Date	Fertilizer	Yield Cwt/A
Sidney	Conventional	wheat	June 4	Sept. 7-16	40#N	29.6
Sidney	Conventional	wheat	June 24	Sept. 8-16	40#N	25.4
Akron	No-till	wheat	June 14	Sept. 9	0	32.0
Archer	Conventional	fallow	June 14	Sept. 30	0	22.2
Martin	No-till	wheat	June 8	-	40#N	--

DESCRIPTION OF VARIETIES

SUNRISE

Sunrise is a high yielding, large seeded, mid-maturing line developed cooperatively by the University of Nebraska Agricultural Research Division and the USDA/ARS. It was previously tested as NE860053. It has good straw strength, short plant height, and good test weight. The parentage of Sunrise includes Sunup, Rise, Dawn, Panhandle, Minco, and Minn 402. It has a white seed coat. It is expected to be a replacement for Rise and Sunup where they have been grown successfully.

HUNTSMAN

Huntsman is a large seeded, moderately late variety developed cooperatively by the University of Nebraska Agricultural Research Division and the USDA/ARS. It was tested as NE870063. Yield performance, test weight, plant height, and straw strength have all been similar to Sunup. Huntsman's parentage includes Cope, Sunup, Rise, Dawn, and Minn 402. It has a white seed coat. Huntsman is expected to be best adapted to production systems where Cope has done well.

EARLYBIRD

Earlybird is a large seeded, early maturing variety developed by the University of Nebraska Agricultural Research Division. It was previously tested as NE870041. Plant height is slightly shorter than Sunup with good straw strength. It has a white seed coat and larger seed size than most other varieties. Earlybird's parentage includes Rise, Dawn, Panhandle, and Minco. Earlybird is not as early maturing as Dawn, but should be early enough to replace it in most systems.

SUNUP

Sunup is a 1989 release from the University of Nebraska. It is a white seeded variety with good yield potential. Its height is greater than Rise but not as tall as Panhandle. Sunup has good stem strength. Maturity is similar to Rise and Sunrise. Sunup's parentage includes Rise and Dawn.

RISE

Rise is a 1983 University of Nebraska release. It is the result of a Dawn X Minn 402 cross made in 1975. It is white seeded and has had a good yield record. It does not have the large seed size of Sunrise or Earlybird.

NE1

NE1 is a white seeded, high yielding, mid maturing line. It has good straw strength, short plant height and a good test weight. NE1 was tested as NE 860203. It includes Sunup and Rise in its parentage. It was released as a germplasm rather than a variety because of its small seed size.

DAWN

Dawn is a 1976 University of Nebraska release. It is very early maturing. It has been used as a parent because it has a large seed with good white color that has been well accepted in the bird seed trade.

CERISE

Cerise is a red seeded proso with a loose panicle. It is similar in height to Turghai and Panhandle, It heads about one day earlier than Turghai, and one and a half days earlier than Panhandle. The color is very similar to Turghai.

COPE

Cope is a 1978 Colorado release. It is a white seeded, late maturing variety. It has yielded well in Nebraska, especially when planted early, but has severe lodging problems.

MINCO

Minco is a joint Colorado-Minnesota release. It is taller and later than Panhandle. It has white seed and produces fair yields.

PANHANDLE

Panhandle is a 1968 University of Nebraska release. It is the first variety selected from the common white proso grown in western Nebraska. It has fair yield compared with newer varieties. It is white seeded.

MINSUM

Minsum is a 1980 release from Minnesota. It is white seeded, quite early, and medium in height. It's most noticeable characteristic is an extremely loose panicle. It has a good yield potential and may have some utility in Nebraska.

ABARR

Abarr is a 1974 release from Colorado. It is a white seeded variety with good yield potential. It is similar to Panhandle, with improved seed type.

SNOWBIRD

Snowbird is a Minnesota release. It is a white seeded variety with an open panicle and early maturity. Yields have been poor in Nebraska.

Table 4. Agronomic characteristics of proso millet varieties.

VARIETY	Seed Size	Maturity	Straw Strength	Panicle Type	Height	Test Weight
SUNRISE	Large	Mid	Good	Compact	Short	Good
HUNTSMAN	Large	Late	Good	Compact	Average	Good
EARLYBIRD	Large	Early	Good	Compact	Short	Fair
SUNUP	Small	Mid	Good	Compact	Average	Good
RISE	Small	Mid	Good	Compact	Average	Fair
NE1	Small	Mid	Good	Compact	Short	Good
DAWN	Large	V. Early	Good	Compact	V. Short	Good
CERISE (red)	V. Small	Early	Poor	Loose	Tall	Good
COPE	Average	Late	Fair	Compact	V. Tall	Good
MINCO	Average	Early	Poor	Open	Tall	Good
PANHANDLE	Average	Early	Poor	Open	Tall	Good
MINSUM	Large	Early	Poor	Loose	Average	Fair
ABARR	Large	Mid	Poor	Open	Tall	Fair
SNOWBIRD	Large	Early	Good	Open	Tall	Good

Table 5. Proso yields for 1999 variety trials at four locations.

ENTRY	SIDNEY Early Plant	SIDNEY Late Plant	AKRON CO	ARCHER WY	AVERAGE
	-----CWT/ACRE-----				
9668-6	34.0	27.1	39.3	26.4	31.7
9217	35.3	30.0	35.4	26.0	31.7
9213	35.1	28.7	33.6	28.4	31.5
HUNTSMAN	33.8	30.9	33.8	27.1	31.4
EARLYBIRD	34.0	29.9	32.0	26.2	30.5
9668-17	35.1	28.4	34.9	23.4	30.5
9668-18	34.9	29.6	37.9	19.6	30.5
SUNUP	35.1	28.9	32.2	24.9	30.3
SUNRISE	35.1	29.3	32.1	23.7	30.1
9210	33.6	27.9	33.0	25.1	29.9
9308	34.4	27.9	34.1	22.4	29.7
9668-16	34.1	28.4	32.1	24.0	29.7
9668-5	34.1	27.2	33.0	23.8	29.5
9304	32.0	26.8	33.2	24.8	29.2
9307	32.1	26.0	32.5	22.5	28.3
9668-10	28.0	24.6	33.2	19.9	26.4
9668-1	28.7	28.2	26.4	20.2	25.9
9239 red	25.3	22.1	33.2	17.3	24.5
COPE	25.7	26.4	28.4	16.7	24.3
DAWN	25.2	21.7	18.1	18.1	20.8
9241 red	20.7	18.4	28.7	14.2	20.5
CERISE red	19.6	19.3	26.1	14.2	19.8
436623 waxy	19.7	16.5	-	-	18.1
436625 waxy	17.7	17.3	-	-	17.5
436626 waxy	16.7	13.5	-	-	15.1
AVERAGE	29.6	25.4	32.0	22.2	26.7
L.S.D. (.05)	3.1	3.9	7.9	3.7	3.1

Table 6. Agronomic characteristics of entries in 1999 proso trials averaged over four locations.

ENTRY	TEST WT Lbs/Bu	HEIGHT Inches	NO. SEEDS /5 grams	HEADING DATE Aug.
9668-6	55.3	31	796	7
9217	55.0	30	754	7
9213	54.9	33	762	8
HUNTSMAN	55.3	33	777	7
EARLYBIRD	54.7	32	740	7
9668-17	54.9	29	741	6
9668-18	54.4	31	768	7
SUNUP	55.6	31	798	7
SUNRISE	55.1	31	741	6
9210	55.1	32	793	7
9308	54.2	31	726	7
9668-16	53.6	31	743	8
9668-5	55.2	29	738	7
9304	53.0	32	777	8
9307	55.2	31	789	7
9668-10	55.7	30	775	7
9668-1	55.0	30	773	6
9239 red	55.3	35	825	8
COPE	54.7	38	778	8
DAWN	55.1	29	767	6
9241 red	56.1	37	868	16
CERISE red	56.0	33	912	5
436623 waxy	47.9	33	973	21
436625 waxy	47.0	44	807	18
436626 waxy	47.0	42	955	17
AVERAGE	54.1	33	795	9
L.S.D. (.05)	1.6	3	32	1

Table 7. Nine year yield summary of proso varieties included in tests

VARIETY	9 yr Avg	1999	1998	1997	1996	1995	1994	1993	1992	1991
		-----CWT/ACRE-----								
SUNRISE	23	30	18	24	21	15	23	25	22	27
EARLYBIRD	23	31	17	25	22	14	23	22	21	28
HUNTSMAN	23	31	17	25	22	16	22	21	24	27
SUNUP	22	30	17	23	21	16	22	21	24	26
COPE	19	24	13	21	21	13	19	18	21	18
AVERAGE	22	29	14	20	18	12	18	21	22	25

Table 8. Two year yield summary of proso varieties currently being tested

VARIETY	2 yr Avg	1999	1998	2 yr Avg	1999	1998	
		-----CWT/ACRE-----			-----SEEDS / 5 grams-----		
9217	25	32	17	751	754	748	
9213	24	32	15	757	762	751	
HUNTSMAN	24	31	17	768	777	758	
EARLYBIRD	24	31	17	746	740	752	
SUNUP	24	30	17	801	798	803	
SUNRISE	24	30	18	740	741	739	
9210	24	30	17	802	793	811	
9308	23	30	16	731	726	735	
9304	23	29	17	768	777	759	
9307	23	28	17	804	789	818	
9239	19	25	12	835	825	844	
COPE	19	24	13	778	778	777	
DAWN	16	21	11	779	767	791	
9241	16	21	11	877	868	886	
CERISE	16	20	11	921	912	929	
AVERAGE	22	28	15	790	787	793	

Table 9. Five year yield summary of proso varieties grown in previous years

VARIETY	5 yr Avg	1997	1996	1995	1994	1993
	CWT/ACRE					
SUNRISE	22	24	21	15	23	25
EARLYBIRD	21	25	22	14	23	22
NE 1	21	24	21	15	21	25
HUNTSMAN	21	25	22	16	22	21
SUNUP	21	23	21	16	22	21
RISE	20	20	21	16	21	22
MINCO	18	21	16	13	18	21
COPE	18	21	21	13	19	18
SNOWBIRD	17	17	17	11	18	20
PANHANDLE	16	16	17	12	17	17
MINSUM	15	18	17	12	14	16
ABARR	14	15	16	10	15	-
DAWN	13	12	13	9	14	16
AVERAGE	18	20	19	13	19	20

DRYLAND DRY BEAN TRIALS

by David Baltensperger, Glen Frickel, David Nuland, and Drew Lyon

Dry bean variety trials were planted into a dryland situation at the High Plains Ag Lab at Sidney, NE, in 1997, 1998, and 1999.

Many varieties were tested during the three years. Some were discontinued because of low yields. Yields for the varieties that were tested all three years are shown on the next page.

The plots were planted directly into wheat or millet stubble with a row crop planter with 30 inch row spacing. Each plot was four rows wide and thirty feet long, and replicated four times. Seeding rate was 35,000 plants per acre.

A starter containing 7 lbs. N and 24 lbs. P_2O_5 was applied with the planter, along with 40# N broadcast.

Frontier or Dual was applied pre-emergence for grassy weed control. Pursuit and Poast were used post-emergence as needed to control broadleaf weeds and volunteer wheat and millet.

The beans were harvested by cutting with a small plot bean cutter, and then threshing with a combine.

All growing seasons had above average temperatures, especially in the fall, that helped the beans mature. Rainfall was also above average, but 1997 and 1999 rainfall was not timely, and yields were lowered by periods of drought. A June hailstorm damaged the 1999 plot, causing considerable stem breakage as the crop matured, and yields were significantly lowered.

Table 10. Three year yield summary of dry bean varieties

Year	Growing Season Rainfall	Plant Date	Harvest Date	Yield Lbs/A	Number Seeds/Lb
1997	9.2 in.	6-19	Sept. 25	630	1850
1998	8.2 in.	6-13	Sept. 14	1060	1980
1999	11.0	6-10	Sept. 3-15	450	1990

Table 11. 1997-9 CHEYENNE CO NEBRASKA DRYLAND DRY BEANS

1999 plot had considerable hail damage.

VARIETY	YIELD LBS/A				SEEDS /LB			
	3 YR AVE	1999	1998	1997	3 YR AVE	1999	1998	1997
NAVY								
SCHOONER	590	190	1090	540	3150	3690	3150	2890
VISTA	540	490	670	450	3130	3240	3070	3090
BLACK								
SHADOW	720	280	1190	730	2510	2670	2570	2300
MIDNIGHT	580	310	830	690	2910	2920	3010	2810
GREAT NORTHERN								
HARRIS	900	560	1520	770	1510	1420	1770	1500
IVORY	880	410	1450	780	1510	1460	1700	1380
UI 425	850	500	1150	840	1660	1520	1810	1650
1140	820	610	1180	750	1700	1800	1830	1480
BERYL	820	670	1230	550	1940	1880	2080	1870
MARQUIS	750	360	1010	880	1860	1810	2040	1740
WEIHING		570	1220	-		1420	1730	-
PINTO								
PONCHO	880	480	1240	920	1430	1440	1520	1330
CHASE	860	510	1240	760	1560	1550	1680	1440
OTHELLO	810	420	1320	680	1580	1640	1610	1500
BILL Z	800	610	1130	680	1720	1820	1860	1470
GTS-900	590	210	880	690	1710	1900	1830	1410
UI 196		310	-	-		1860	-	-
RED MEXICAN								
NW 63	660	560	800	640	1850	1720	2040	1810
PINK								
VIVA		630	-	-		2010	-	-
Plot Averages	750	450	1060	630	1980	1990	1980	1850
L.S.D. (.05)	175	260	360	220	100	170	160	200

GRAIN PEA TRIALS

As more farmers diversify their cropping systems, legumes such as peas are being grown on more acres in western Nebraska to bring a broadleaf crop into the system and to add nitrogen to the soil.

Plot Techniques

In 1999, a dryland grain pea trial was grown near Hemingford, and an irrigated trial was planted at the High Plains Ag Lab near Sidney. The Sidney plot was destroyed by hail in June.

Table 12. Average irrigated grain pea yields (1999 is dryland)

Location	Year	Pea yield (lb/acre)
Scottsbluff	1997	2630
Sidney	1997	740
Hemingford	1998	1460
Sidney	1998	790
Hemingford	1999	1850

The Box Butte County trial was planted on the Brad Hansen farm west of Hemingford. On March 24, it was direct seeded into foxtail millet stubble. Plots were planted with a 6-row hoe drill with 12" row spacing. A starter containing 8 lbs. N and 28 lbs. P_2O_5 was applied. Rainfall was plentiful, and contributed to good yields. Plots were pulled when ripe, and threshed with a small plot thresher. Harvest was August 9.

Table 13. 1999 Dryland Pea Trial

Variety	Yield Lbs/Acre
Wirrega	2320
Carneval	2230
Profi	2230
Majoret	2160
Integra	2040
Toledo	1990
Alma	1940
Early Dun	1920
Arvika	1820
Dundale	1770
AWP Melrose	1390
Miranda	1340
Pro 2100	980
Average	1850
L.S.D. (.05)	570

DESCRIPTION OF VARIETIES

Pea varieties can be classified by pea type and growth habit. The main pea types are feed peas, yellow food peas, and green food peas. Some of the food varieties have been bred to have a semi-leafless growth habit which produce tendrils in place of leaves. Such varieties are designed for direct combining and stand upright better in the field than the viney types.

MIRANDA

Miranda was one of the highest yielding varieties in 1997. Miranda is a short-vined, large-seeded yellow feed pea with medium maturity. Data were not collected in 1998 on this variety because of seed mixing.

ARVIKA

Arvika was a new entry in 1998 and performed very well in Hemingford and Sidney. Arvika is a purple-flowered feed pea good for dairy production. The high tannin content of the seed coat makes it unsuitable as hog feed, but it may be used to feed cattle and sheep.

CARNEVAL

Carneval is an upright semi-leafless variety that performed very well in Hemingford in 1998. Its low yields in Sidney could be due to loss from shattering after swathing. It is a mid maturing yellow food pea.

PROFI

Profi is a semi-leafless variety that yielded below average in all trials except Sidney in 1997. Profi is an early maturing, large yellow food pea that also may be used as a forage.

DUNDALE

This is a reselection from Wyoming of the Australian variety Dundale, a purple-flowered, early-maturing feed pea.

TRAPPER

Trapper's high yield in Hemingford 1998 gave it a high 3-year yield but it did poorly

in Sidney. It is viney and has white flowers and produces a small yellow pea used for bird food and forage. Trapper is being replaced by Arvika.

WIRREGA

Wirrega is an Australian variety bred for high yields. A viney variety, it is tall and late maturing. Seed has a creamy white seed coat and yellow cotyledons. It has excellent cooking and splitting quality.

AUSTRIAN WINTER PEA

This was an excellent biomass accumulator under dryland conditions in Wyoming. It has high protein and good winter hardiness. However, it consistently yielded poorly in the grain pea trials.

INTEGRA

Similar to Profi, it has twice the standability. A yellow pea, it may be suited for the Mexican edible pea market. It had higher than average yields in Sidney 1997 and Hemingford 1998.

PRO 2100

This is a smaller green pea with a long vine. It may be difficult to harvest because it lays down when mature. It is late maturing and produces an edible green pea. It yielded well above average at Sidney in 1997 and Hemingford in 1998.

COLUMBIAN

A standard green food pea, its white flowers develop early unless under stress. It yielded above average in Hemingford 1998 and Sidney 1997.

Table 14. Characteristics of grain pea varieties.

Variety	Type	Growth habit	Seed color	Seed size	Maturity
Pro 2100	food	viney	green	small	late
Columbian	food	viney	green	medium	early
Dundale	feed	viney	dull green	medium	early
Integra	food	semi-leafless	yellow	large	early
Highlight	food	semi-leafless	yellow	medium	early
Wirrega	food	viney	white	small	late
Trapper	feed	viney	yellow	small	late
Alma	feed	viney	dull green	medium	late
Grande	food	viney	white	large	mid
Profi	food/feed	semi-leafless	yellow	large	early
Majoret	food	semi-leafless	green	medium	mid
Early Dun	feed	viney	dull green	medium	late
Cameval	food	semi-leafless	yellow	medium	mid
Austrian winter pea	feed	viney	dark green, speckled	small	late
Arvika	feed	viney	grey-slate, speckled	medium	late
Miranda	feed	viney	yellow	large	mid-early

Table 15. Production details for grain pea trials 1997-1998.

Location	Year	Type	Planting date	Seeding rate/acre	Fertilizer/acre	Swathing date
Scottsbluff	1997	irrig	4-21-97	150 lb	60 lb N, 45 lb P ₂ O ₅	8-5-97
Sidney	1997	irrig	4-17-97	150 lb	8 lb N, 28 lb P ₂ O ₅	7-28-97
Sidney	1997	dry	4-17-97	100 lb	8 lb N, 28 lb P ₂ O ₅	not harvested
Hemingford	1998	irrig	4-9-98	150 lb	8 lb N, 28 lb P ₂ O ₅	7-30-98
Sidney	1998	irrig	4-2-98	150 lb	8 lb N, 28 lb P ₂ O ₅	7-14-98
Sidney	1998	dry	4-1-98	75 lb	8 lb N, 28 lb P ₂ O ₅	not harvested
Hemingford	1999	dry	3-24-99	75 lb	8 lb N, 28 lb P ₂ O ₅	8-9-99
Sidney	1999	irrig	3-26-99	150 lb	38 lb N, 28 lb P ₂ O ₅	hailed out

Table 16. Yields of irrigated grain pea at three locations.

Variety	3-year average	4-year average
	----- lb/acre -----	
Pro 2100	1280	1530
Columbian	1160	--
Dundale	1140	1640
Integra	1130	--
Highlight	1090	--
Wirrega	1070	1580
Trapper	1040	--
Alma	1040	1360
Grande	1020	--
Profi	1000	--
Majoret	980	--
Early Dun	860	1160
Carneval	710	--
Austrian winter	400	870
Average all	1010	1400
Dif req for Sig	240	204

SUNFLOWER TRIALS - 1999

The 1999 dryland sunflower tests were conducted in Cheyenne County, NE; Hitchcock County, NE; Perkins County, NE; and Laramie County, WY. An irrigated sunflower trial was also planted in Cheyenne County.

The Cheyenne County irrigated trial was lost to hail, and the Hitchcock County trial was not harvested due to severe drought throughout the year.

These plots were planted with 30 inch row spacing. Plots were approximately 30 feet long. Each hybrid was replicated four times.

The two Cheyenne County trials were planted at the High Plains Agriculture Laboratory (HPAL) near Sidney, Nebraska. The Cheyenne County irrigated sunflower trial received 40 lbs. N and 2.4 pints/acre Prowl 3.3, incorporated into a conventional seedbed. A starter containing 7 lbs. N and 24 lbs. P_2O_5 was applied. Seeding rate was 23,000 seeds per acre. This plot was destroyed by a June 26 hailstorm.

The Cheyenne County dryland plot was direct seeded into millet stubble. Prowl and Spartan were the herbicides. A starter of 7 lbs. N and 24 lbs. P_2O_5 per acre was applied. This plot was sprayed with Asana in June for grasshoppers, and in August to control seed weevils. Above average rainfall and warm weather were beneficial and helped the plants to mature. Drydown occurred quickly after a Sept. 13 frost. There was no lodging. Harvest stand was approximately 15,000 plants/acre.

The Hitchcock County sunflower trial was planted on Ron Bley's farm near Wauneta, Nebraska. 70 lbs. N and 1.25 pints/acre Treflan were applied preplant, and incorporated in a conventionally prepared seedbed. Hard rain after planting reduced stands, followed by severe drought. The plot was not harvested.

The Perkins County sunflower trial was planted on Mike McArtor's farm near Grant, Nebraska. The plot was direct seeded into corn stalks. 70 lbs. N/acre was applied preplant. Roundup was applied preemergence, then 2 qt./acre Poast. Warrior and Parathion were applied twice during the year.

The Laramie County sunflower trial was planted on Stan Butler's farm near Carpenter, Wyoming. Tri4 was applied at .75 lb./acre, along with 20 lbs. N and 20 lbs. P_2O_5 . This was incorporated into a conventionally prepared seedbed, where wheat had been grown in 1998. No appreciable lodging occurred.

EXPLANATION OF TABLES

In the following tables, "FLWR" refers to the days after Aug 1 that the variety was judged to have half of the flowers open. "HT" is the height of the neck or the head, whichever is greatest, at harvest time.

"%>20/64" refers to confection seed size. This is the total percentage of seed that passes over a 20/64 sieve.

Oil percentage is based on 10% moisture. Analysis was provided by Dr. J.F. Miller, USDA-ARS in Fargo, North Dakota. Thanks to Dr. Miller and all of his assistants for their contributions to these tests.

Multiple year averages are shown for those hybrids that the seed companies entered in the tests year after year.

Companies Entering the 1999 Sunflower Test

Agway, Inc.	Grandin, ND
Cargill Hybrid Seeds	Fargo, ND
Monsanto	Dekalb, IL
Interstate Seed Co.	West Fargo, ND
Kaystar Seed	Huron, SD
Mycogen Seeds	Eagan, MN
Pioneer Hi-Bred Int., Inc.	Lincoln, NE
Proseed	Harvey, ND
Seeds 2000	Breckenridge, MN
Sigco Sun	Breckenridge, MN
Triumph Seed Co., Inc.	Ralls, TX

Table 17. 1999 Sunflower Plot Summary.

Location	Rotation	Plant Date	Harvest Date	Yield Lbs/A	Oil % / Conf > 20/64
Cheyenne County, NE	Millet-Sunflower- Fallow	6-8	10-14	Oils 1850	43.5
				Conf 1030	71
Cheyenne County, NE	Irrigated Corn-Sunflower	6-11	-	Oils -	-
				Conf -	-
Hitchcock County, NE	Wheat-Sunflower- Fallow	6-9	-	Oils -	-
				Conf -	-
Perkins County, NE	Corn-Sunflower- Fallow	6-4	10-20	Oils 1490	43.1
				Conf 1430	51
Laramie County, WY	Wheat-Sunflower- Fallow	6-2	10-14	Oils 1170	45.1

Table 18. 1999 CHEYENNE CO NEBRASKA SUNFLOWER HYBRIDS

BRAND	HYBRID	OIL TYPES				
		YIELD LBS/A	TEST WT Lbs/Bu	HT Inches	FLWR Aug	OIL Pct
Triumph	562	2190	27.1	63	16	42.6
Kaystar	9404	2140	26.8	61	15	40.8
Pioneer	6338	2110	29.5	66	16	42.0
DeKalb	DK3875	2100	28.6	62	16	42.9
Pioneer	XF379	2100	24.3	63	16	43.3
Triumph	540	2040	28.0	58	13	45.3
DeKalb	DK3790	2000	28.9	61	14	44.9
Cargill	SF125NL	1990	30.7	71	14	41.7
Cargill	SF120	1960	30.8	66	13	40.5
Garst Interstate	IS4049	1960	24.8	65	17	42.9
DeKalb	DK3806	1950	29.0	59	13	45.0
Cargill	SF187	1940	27.2	55	16	42.7
Cargill	SF290NL	1940	26.0	56	16	44.9
Pioneer	63A70	1930	26.5	60	14	45.5
DeKalb	SF9813	1910	27.9	61	13	43.3
Pioneer	6451	1890	26.4	58	16	46.3
Proseed	Monosun 9406	1890	26.7	59	16	44.5
Garst Interstate	IS6767	1890	27.4	61	15	43.0
DeKalb	DK3868	1860	27.9	56	14	44.7
DeKalb	SF9837	1850	27.3	60	15	44.1
Pioneer	63A81	1850	24.7	60	17	44.1
DeKalb	DK3900	1850	28.0	60	17	44.1
Mycogen	8488NS	1830	28.1	63	16	43.4
Garst Interstate	Hysun 450	1810	27.8	57	17	44.3
Pioneer	6300	1800	27.4	66	15	44.9
Garst Interstate	Hysun 449	1790	24.0	61	16	41.3
Triumph	545A	1780	27.0	58	15	47.6
Mycogen	8372	1750	28.4	61	14	44.6
Proseed	Monosun 9076	1710	27.4	64	16	43.0
DeKalb	SF9859	1590	26.6	63	15	41.2
Cargill	SF260	1580	26.8	58	16	44.0
Cargill	SF270	1570	27.9	55	13	41.8
DeKalb	DK3872NS	1510	26.2	65	16	46.2
Proseed	Monosun 9103	1350	24.0	58	16	41.7
DeKalb	SF9825	1320	24.5	54	17	38.9
AVERAGES		1850	27.2	61	15	43.5
L.S.D. (.05)		365	2.4	3	1.3	1.7

Table 19. 1999 CHEYENNE CO NEBRASKA SUNFLOWER HYBRIDS

DRYLAND		CONFECTION TYPES					
BRAND	HYBRID	YIELD LBS/A	TEST WT Lbs/Bu	HT Inches	FLWR Aug	SEED %>22/64	SIZE %>20/64
Pioneer	DE-1998	1220	21.4	49	14	37	79
Seeds 2000	KODIAK	1080	20.4	62	14	18	43
Sigco	SS62	1080	20.7	65	15	13	39
Triumph	766CRT	1070	20.0	65	15	35	78
Garst Interstate	IS8048	930	21.5	58	15	59	86
Triumph	765C	910	19.3	62	15	68	86
Pioneer	XF 981	890	19.3	58	13	61	84
AVERAGES		1030	20.4	60	14	42	71
L.S.D. (.05)		N.S.	1.0	4	N.S.	13	10

Table 20. 1999 PERKINS CO NEBRASKA SUNFLOWER HYBRIDS

DRYLAND		CONFECTION TYPES					
BRAND	HYBRID	YIELD LBS/A	TEST WT Lbs/Bu	HT Inches	LODG Pct	SEED %>22/64	SIZE %>20/64
Seeds 2000	Kodiak	1470	22.0	47	4	16	45
RRC	2413	1450	19.9	53	8	27	57
Sigco	SS62	1410	20.1	48	3	20	46
Triumph	765C	1390	20.0	47	16	25	57
AVERAGES		1430	20.5	48.8	8	22	51
L.S.D. (.05)		N.S.	1.5	N.S.	N.S.	8	N.S.

Table 21. 1999 PERKINS CO NEBRASKA SUNFLOWER HYBRIDS**DRYLAND****OIL TYPES**

BRAND	HYBRID	YIELD LBS/A	TEST WT Lbs/Bu	HT Inches	LODG Pct	OIL Pct
DeKalb	DK3900	2020	31.7	47	4	44.8
Garst Interstate	IS4049	1890	30.7	51	3	45.4
Mycogen	8372	1690	28.7	46	3	43.2
Triumph	562	1690	28.7	47	3	44.0
Proseed	Monosun 9406	1670	29.7	47	4	44.0
DeKalb	SF9813	1660	31.1	44	3	43.1
DeKalb	DK3806	1610	30.6	46	1	43.6
Cargill	SF260	1560	27.1	45	3	43.0
Cargill	SF187	1530	29.3	43	1	42.3
Cargill	SF120	1500	31.5	46	8	41.2
DeKalb	DK3868	1460	29.0	43	11	42.2
DeKalb	SF9837	1460	29.0	51	3	42.8
Garst Interstate	Hysun 450	1460	26.2	43	0	41.5
Garst Interstate	IS6767	1460	29.7	44	1	43.0
Garst Interstate	Hysun 449	1450	27.1	49	9	43.0
DeKalb	DK3790	1430	28.0	47	5	43.6
Mycogen	8488NS	1410	29.6	44	5	42.6
DeKalb	SF9859	1400	30.2	48	3	42.7
Cargill	SF270	1380	30.1	38	1	43.4
Proseed	Monosun 9076	1370	30.6	49	3	43.9
Cargill	SF290NL	1360	28.1	38	5	43.9
DeKalb	DK3872NS	1330	28.5	55	9	45.7
DeKalb	DK3875	1320	28.5	49	1	41.0
Proseed	Monosun 9103	1320	26.8	46	4	43.1
DeKalb	SF9825	1310	30.4	47	3	44.7
Cargill	SF125NL	1270	31.2	47	14	41.4
Kaystar	9404	1260	26.9	45	2	41.0
	AVERAGES	1490	29.2	46	4	43.1
	L.S.D. (.05)	338	2.2	4	5	1.8

Table 22. 1999 LARAMIE CO WYOMING SUNFLOWER HYBRIDS

DRYLAND		OIL TYPES			
BRAND	HYBRID	YIELD LBS/A	TEST WT Lbs/Bu	HT Inches	OIL Pct
DeKalb	DK3875	1450	28.5	50	43.4
Cargill	SF125NL	1390	30.9	54	45.2
Garst Interstate	IS4049	1370	26.2	50	45.8
DeKalb	DK3806	1360	30.2	51	47.4
DeKalb	DK3900	1310	28.1	50	46.0
Cargill	SF120	1260	32.1	52	43.7
Kaystar	9404	1260	28.0	48	43.2
DeKalb	DK3868	1240	30.7	45	44.9
Mycogen	8372	1230	29.5	52	47.9
DeKalb	SF9825	1220	29.5	47	47.3
Garst Interstate	Hysun 449	1170	26.2	51	40.4
DeKalb	DK3872NS	1160	27.3	56	47.0
Triumph	540	1150	28.7	48	46.6
DeKalb	DK3790	1120	30.6	48	46.0
Cargill	SF187	1100	26.6	45	44.1
Cargill	SF260	1100	28.6	47	46.1
Cargill	SF270	1080	29.0	45	46.1
Garst Interstate	Hysun 450	1080	25.4	46	41.9
Cargill	290NL	1070	24.8	43	43.6
Mycogen	8488NS	1050	28.4	50	44.8
DeKalb	SF9813	1040	30.0	49	46.3
DeKalb	SF9859	1010	28.9	53	43.6
DeKalb	SF9837	980	29.8	51	45.5
Garst Interstate	IS6767	980	29.7	49	47.1
AVERAGES		1170	28.6	49	45.1
L.S.D. (.05)		243	1.1	3	1.1

Table 23. Cheyenne County Sunflower Hybrids

DRYLAND AVERAGED OVER FOUR YEARS

BRAND	HYBRID	YIELD LBS/ACRE						OIL %					
		AVERAGES				AVERAGES		AVERAGES					
		96-99	98-99	1999	1998	1997	1996	95-99	98-99	1999	1998	1997	1996
	Oil Types												
Cargill	SF187	1620	1730	1940	1520	1010	2010	41.1	39.2	42.7	35.6	42.3	43.8
DeKalb	DK3790	1580	1820	2000	1630	1080	1610	43.7	42.1	44.9	39.2	44.3	46.6
DeKalb	DK3868	1490	1580	1860	1300	1150	1650	42.4	41.3	44.7	37.9	42.0	45.1
Cargill	SF270	1370	1530	1570	1480	880	1540	41.1	39.9	41.8	37.9	40.7	44.1
Triumph	562		1760	2190	1320	1460	-		40.3	42.6	38.0	43.4	-
DeKalb	DK3875		1760	2100	1410	1120	-		39.6	42.9	36.3	41.3	-
Pioneer	XF379		1730	2100	1350				39.9	43.3	36.4		
Pioneer	6338		1690	2110	1270				39.8	42.0	37.6		
DeKalb	DK3806		1680	1950	1410				42.1	45.0	39.1		
Garst Interstate	IS4049		1670	1960	1380				41.0	42.9	39.0		
Cargill	SF290NL		1610	1940	1280				41.2	44.9	37.4		
Garst Interstate	IS6767		1600	1890	1300				40.9	43.0	38.7		
DeKalb	DK3900		1580	1850	1310				41.7	44.1	39.3		
Mycogen	8488NS		1570	1830	1300				40.7	43.4	37.9		
Pioneer	6451		1570	1890	1240				43.0	46.3	39.6		
Garst Interstate	Hysun 449		1560	1790	1330				39.5	41.3	37.6		
Mycogen	8372		1490	1750	1230				41.5	44.6	38.4		
	Oil Averages	1520	1640	1920	1360	1120	1700	42.1	40.8	43.6	38.0	42.3	44.9
	Confection Types								% over 20/64				
Pioneer	DE-1998		1350	1220	1470				65	79	50		
Seeds 2000	Kodiak		1290	1080	1490				41	43	39		
Sigco	SS62		1360	1080	1640				44	39	48		
Triumph	765C		1230	910	1540				86	86	85		
	Confection Averages		1310	1070	1540				59	62	56		

Table 24. Perkins County Sunflower Hybrids**AVERAGED OVER FOUR YEARS**

BRAND	HYBRID	YIELD LBS/ACRE						OIL %					
		AVERAGES		1999	1998	1997	1996	AVERAGES		1999	1998	1997	1996
		96-99	98-99					96-99	98-99				
Oil Types													
Cargill	SF187	1640	1370	1530	1210	2010	1790	42.4	42.8	42.3	43.2	40.8	43.3
Cargill	SF270	1550	1250	1380	1120	1870	1810	42.8	42.8	43.4	42.1	42.9	42.7
Garst Interstate	IS6767	1380	1270	1460	1080	1730	1260	42.7	42.4	43.0	41.8	41.8	44.1
Garst Interstate	IS4049	-	1710	1890	1520	-	-	-	44.4	45.4	43.3	-	-
DeKalb	DK3900	-	1650	2020	1280	-	-	-	44.1	44.8	43.3	-	-
Triumph	562	-	1600	1690	1500	-	-	-	43.9	44.0	43.7	-	-
Mycogen	8372	-	1510	1690	1320	-	-	-	43.5	43.2	43.8	-	-
DeKalb	DK3806	-	1500	1610	1390	-	-	-	43.8	43.6	43.9	-	-
Garst Interstate	Hysun 449	-	1420	1450	1380	-	-	-	42.8	43.0	42.5	-	-
DeKalb	DK3868	-	1370	1460	1280	-	-	-	42.1	42.2	41.9	-	-
Cargill	SF290NL	-	1280	1360	1190	-	-	-	43.3	43.9	42.6	-	-
DeKalb	DK3790	-	1260	1430	1080	-	-	-	43.4	43.6	43.2	-	-
DeKalb	DK3875	-	1180	1320	1030	-	-	-	41.9	41.0	42.7	-	-
Oil Averages		1520	1410	1560	1260	1870	1620	42.6	43.1	43.3	42.9	41.8	43.4
Confection Types													
								% over 20/64					
Seeds 2000	Kodiak	1410	1470	1470	1460	1190	1530	65	55	45	64	63	86
Sigco	SS62	-	1440	1410	1460	-	-	-	52	46	58	-	-
Confection Averages		1410	1460	1440	1460	1190	1530	65	53	46	61	63	86

Table 25. Laramie County Wyoming Sunflower Hybrids

AVERAGED OVER FOUR YEARS

BRAND	HYBRID	YIELD LBS/ACRE						OIL %					
		AVERAGES		1999	1998	1997	1996	AVERAGES		1999	1998	1997	1996
		96-99	98-99					96-99	98-99				
Oil Types													
Cargill	SF187	860	910	1100	720	1030	590	41.0	42.2	44.1	40.2	41.1	38.6
Cargill	SF270	800	890	1080	700	840	560	43.3	44.6	46.1	43.0	43.7	40.5
DeKalb	DK3875	-	1140	1450	820			-	41.6	43.4	39.8		
DeKalb	DK3806	-	1060	1360	760			-	45.9	47.4	44.3		
Garst Interstate	IS4049	-	1000	1370	630			-	45.1	45.8	44.3		
DeKalb	DK3900	-	990	1310	670			-	44.1	46.0	42.2		
Mycogen	8372	-	980	1230	730			-	44.7	47.9	41.5		
DeKalb	DK3868	-	970	1240	690			-	43.1	44.9	41.2		
Cargill	290NL	-	960	1070	850			-	43.4	43.6	43.1		
Triumph	540	-	930	1150	700			-	45.0	46.6	43.4		
Garst Interstate	Hysun 449	-	910	1170	650			-	40.4	40.4	40.3		
DeKalb	DK3790	-	850	1120	570			-	44.2	46.0	42.3		
Garst Interstate	IS6767	-	830	980	670			-	45.4	47.1	43.7		
Mycogen	8488NS	-	760	1050	470			-	45.1	44.8	45.4		
Averages		830	940	1190	690	940	580	42.2	43.9	48.8	45.7	42.4	39.6

Table 26. Cheyenne County Irrigated Sunflower Hybrids**AVERAGED OVER THREE YEARS (1997 and 1999 plots hailed out)**

BRAND	HYBRID	YIELD LBS/ACRE					OIL %				
		AVERAGE					AVERAGE				
		95-98	96-98	1998	1996	1995	95-98	96-98	1998	1996	1995
Oil types											
Cargill	SF187	2030	2250	1680	2820	1600	37.7	38.7	36.0	41.4	35.7
Mycogen	Cavalry	2010	2260	1830	2680	1510	41.5	42.4	40.9	43.8	39.9
Cargill	SF270	1940	2020	1390	2650	1780	39.7	40.9	38.7	43.1	37.3
Proseed	140	1830	2030	1590	2470	1440	40.3	41.3	39.0	43.6	38.3
Pioneer	6338	-	2720	2100	3330	-	-	41.6	40.4	42.7	-
DeKalb	DK3881	-	2610	2340	2870	-	-	41.2	39.3	43.1	-
Triumph	545	-	2230	2010	2450	-	-	44.7	42.6	46.8	-
DeKalb	DK3868	-	2200	1810	2580	-	-	41.3	39.1	43.5	-
Pioneer	6451	-	2140	1450	2820	-	-	42.9	40.7	45.1	-
Interstate Seed Co	IS6767	-	2090	1460	2710	-	-	42.3	40.9	43.7	-
DeKalb	DK3790	-	2040	1550	2520	-	-	42.6	40.1	45.1	-
Oil Averages		1950	2240	1750	2720	1580	39.8	41.8	39.8	43.8	37.8
Confection types											
							% over 20/64				
Triumph	520C	2070	2110	2000	2220	1990	70	73	66	79	65
Pioneer	6946	-	2430	2310	2540	-	-	70	70	69	-
Confection Averages		2070	2270	2160	2380	1990	70	71	68	74	65

Table 27. Hitchcock County Sunflower Hybrids

AVERAGED OVER FOUR YEARS (1999 Plot not harvested)

BRAND	HYBRID	YIELD LBS/ACRE						OIL %					
		AVERAGES		1998	1997	1996	1995	AVERAGES		1998	1997	1996	1995
		95-98	97-98					95-98	97-98				
Oil Types													
Cargill	SF187	2010	2100	1700	2490	1740	2120	43.2	43.8	42.4	45.1	43.0	42.4
Cargill	SF270	1990	1950	1580	2320	2220	1840	44.2	44.0	42.7	45.2	45.1	43.6
Interstate Seed Co	IS6767	1980	1950	1830	2070	2280	1740	44.5	43.5	41.7	45.3	45.3	45.7
Dekalb	DK3881	1960	2020	1540	2500	1600	2180	44.6	43.7	43.0	44.3	45.7	45.5
Pioneer	6451	1860	1990	1550	2430	1610	1830	46.4	46.5	44.6	48.4	47.0	45.7
Cargill	SF128	1860	1950	1340	2560	2140	1410	43.7	44.5	43.7	45.2	44.7	41.2
Dekalb	DK3868	1810	1710	1290	2130	2130	1700	44.3	43.1	42.7	43.5	45.8	45.0
Dekalb	DK3790	1760	1810	1370	2250	1860	1560	44.8	44.1	43.0	45.1	45.8	45.3
Mycogen	Cavalry	1750	1910	1500	2320	1810	1360	46.7	46.7	44.0	49.3	46.5	46.8
Proseed	141	1670	1940	1550	2320	1310	1480	44.7	44.5	44.3	44.6	44.7	45.0
Proseed	140	1670	1880	1270	2480	1590	1320	44.3	44.0	41.7	46.3	44.4	44.6
Triumph	562	-	2140	1670	2610	-	-	-	45.4	44.7	46.0	-	-
Dekalb	DK3875	-	2110	1710	2500	-	-	-	43.6	42.8	44.3	-	-
Pioneer	6338	-	2080	1700	2400	2140	-	-	44.3	43.7	45.6	43.7	-
Pioneer	63A51	-	2000	1660	2330	-	-	-	44.1	43.5	44.6	-	-
Oil Averages		1850	1970	1550	2380	1870	1690	44.7	44.4	43.2	45.5	45.1	44.6
Confection Types													
Triumph	520C	1700	1970	1760	2170	1960	900	78	83	81	84	75	73
Triumph	765C	-	1960	1620	2300	-	-	-	88	85	90	-	-
Triumph	760C	-	1690	1440	1940	-	-	-	93	91	95	-	-
Confection Averages		1700	1870	1610	2140	1960	900	78	88	86	90	75	73

SPRING GRAIN VARIETY TRIALS

1999

Oat and spring wheat were planted at three locations in 1999. One location was a dryland site in Saunders County. The second was an irrigated site in Cheyenne County and the third was a dryland site in Cheyenne County. The 16 oat cultivars are either publicly released or

experimental varieties from neighboring states. Of the 12 spring wheat varieties, three are privately entered by General Mills. They are Utopia, Sceptre, and 377S. The other nine varieties are publicly released varieties.

DESCRIPTION OF PLOT TECHNIQUES

The Saunders County oat and spring wheat tests were planted on March 29 on land cropped with soybean last year. Moisture was quite adequate during most of the growing season. The plots were harvested on July 22. The yield and agronomic data are reported on page 32. The average oat yield is 58 bu/a and the average wheat yield is 28 bu/a.

The irrigated plot in Cheyenne was planted on March 26. A hail

storm on June 26 destroyed the plot. No harvest data was taken on either wheat or oat. The dryland plot in Cheyenne County was planted on March 25 following a proso crop. It was fertilized with 60 pounds N. The oat plot was destroyed by grasshoppers and hail. The spring wheat was harvested on August 10 and the yields are reported on page 32. The average yield of 20 bu/a reflects the hail damage.

Saunders County Oat Variety Test - 1999

Variety	Grain yield bu/a	Bushel weight lb/bu	Plant height inches	Flower date June
Judd	89	39.5	44	13
Jerry	89	41.1	42	10
Jim	87	40.3	39	9
Rodeo	80	35.9	39	11
MN94112	79	39.3	42	11
Burton	76	38.7	38	11
Belle	75	39.2	37	13
Gem	74	38.0	39	12
Vista	66	41.1	45	12
Ogle	65	38.5	39	10
Riser	63	41.6	34	7
Chairman	62	37.9	39	10
Don	61	40.6	34	8
Ida	54	34.9	40	14
Russell	42	34.5	39	13
Settler	42	32.8	39	15
Average	58	32.3	33	9
Dif Req for Sig 5%	20	1.9	3	1

Saunders and Cheyenne County Dryland Spring Wheat Variety Test 1999

Variety	Saunders County			Cheyenne Co
	Grain yield bu/a	Bushel weight lb/bu	Plant height inches	Grain yield bu/a
Russ	39	55.7	34	18
Ingot	36	58.7	36	17
Oxen	36	55.6	31	27
Sharp	33	57.4	34	18
Argent	31	57.6	33	15
Utopia (General Mills)	29	52.2	27	25
Butte 86	27	55.4	34	15
SD 3219	27	58.2	34	20
Butte 86	24	55.2	34	16
Sceptre (General Mills)	22	51.9	36	19
McVey	19	51.0	30	26
377S (General Mills)	13	52.4	31	22
Average	28	55.0	33	20
Dif req for sig 5%	9	1.8	3	5



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