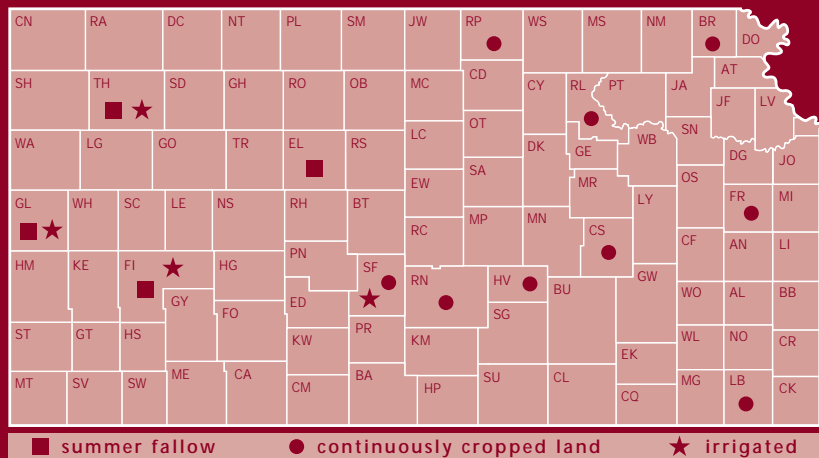


# 1998

## KANSAS PERFORMANCE TESTS WITH GRAIN SORGHUM HYBRIDS

REPORT OF PROGRESS 824

Kansas State University  
Agricultural Experiment Station  
and Cooperative Extension Service



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# 1998 KANSAS GRAIN SORGHUM PERFORMANCE TESTS

## INTRODUCTION

### TEST OBJECTIVES AND PROCEDURES

Sorghum Performance Tests, conducted annually by the Kansas Agricultural Experiment Station, provide farmers, extension workers, and private research and sales personnel with unbiased agronomic information on many of the sorghum hybrids marketed in the state. Entry fees from private seed companies help finance the tests. Seed companies receive test announcements and entry forms in late January each year; deadlines for receipt of completed entry forms and seed are in early March. Because entry selection and location are voluntary, not all hybrids grown in the state are included in tests, and hybrids are not grown uniformly at all test locations.

Individual test discussions include summaries of growing-season weather data for each location. These data are from the nearest weather-reporting station and often are supplemented with information from the test site. Precipitation graphs include cumulative lines for 1998 and the 30-year normal in addition to the daily rainfall amounts since last fall. Temperature graphs include daily maximum and minimum temperatures compared with normal. Growing degree graphs include cumulative lines for 1998 and normal. All graphs include vertical lines indicating planting, heading, and harvest dates, if available. The graphs reveal general trends in precipitation and rainfall compared to normal. For more detailed information, a table is included with monthly totals and averages for the growing season. Comparisons of the current year's weather with long-time averages often help explain unusual plant development patterns and inconsistent performance of individual hybrids over years.

Explanatory information is given preceding data summaries for each test. Tables 1-22 contain

results from the grain sorghum performance test locations. Hybrids are listed in order of increasing days to half bloom and increasing grain moisture for the current year so hybrids of similar maturity appear together. Yield summaries following each group of tests (Tables 4, 8, 12, 17, 22) present current-year yield as a percent of the average for each location and summarize hybrid performance over the past few years in that region as the difference in bushels per acre from the average of three check hybrids. Figures 6-10 present similar information for yield, days to bloom, and harvest moisture in a graphical format. The 1998 entrants, entries, and some additional descriptive information provided by the entrants are listed in the Appendices.

Most tests are planted at a rate 30% to 40% above the desired population and only minimally thinned. Planting to stand includes hybrid differences in stand establishment and early-season vigor in the overall performance evaluation. These differences may or may not be genetically controlled but contribute to marketed product performance in either case. Therefore, they are included in performance comparisons.

Tractor-powered, modified, air-planters were used for nearly all tests. Three or four plots (replications) of each hybrid were grown at each location in a randomized complete block design. Each harvested plot consisted of two rows trimmed to a specific length ranging from 20 to 30 feet at the different locations. Agronomists used specialized plot combines equipped with automatic weighing and sampling devices to harvest most tests.

Results for each grain sorghum test include *GRAIN YIELDS* reported as bushels per acre of shelled grain (56 lbs/bu) adjusted to a moisture content of 12.5%. *BUSHEL YIELDS* also are converted to *YIELDS AS PERCENTAGES OF THE TEST AVERAGE* to speed recognition of highest-yielding hybrids (more than 100%, the

test average). The actual test average in bushels per acre is listed as the test average in the *YIELD AS % OF TEST AVERAGE* columns as a guide to actual yields. Hybrids yielding more than 100% of the test average year after year merit consideration, but adaptation to individual farms for appropriate maturity, stalk strength, and other factors also must be considered.

When appropriate, tables include the number of *LODGED* stalks. Both broken stalks and stalks leaning more than 45 degrees from vertical were considered *LODGED*, although most were harvestable with modern machinery.

Two characteristics contributed to estimations of relative maturity at most locations. *DAYS FROM PLANTING TO HALF BLOOM* is the number of days between planting and the date when half of the heads of a given hybrid have roughly half of the florets in bloom. *GRAIN MOISTURE* at harvest also may help categorize hybrids for relative maturity, when harvest is early enough to provide a range in moisture contents among entries. Entries are listed in order of increasing maturity based on days to half bloom and harvest moisture in the current year to facilitate comparison of hybrids of like maturity. Maturity can be critical when considering a sorghum hybrid for a specific cropping system.

The *GROWTH UNIT* or *GROWING DEGREE DAY* concept was developed to measure the amount of heat available for growth and maturation. The formula used to generate the monthly totals in individual test discussions follows: Take the maximum temperature plus the minimum temperature for each day, divide by 2, and then subtract a base temperature of about 34 (actually 1° C was used in the calculations). The purpose is to describe temperatures for the season for comparison with previous years and other locations in explaining relative rates of plant development. Research by Dr. Richard Vanderlip and his students at Kansas State University has indicated an excellent relationship between the growth units generated by these calculations and the actual rate of plant development from blooming to physiological maturity. Growth unit accumulations for the current year are compared with the long-term average or 'normal' for each test.

Small differences in yield or other characteristics should not be overemphasized. Least significant differences (LSD's) are shown at the bottom of each table. Unless two entries differ by at least the LSD shown, little confidence can be placed in one being superior to the other in that character. The coefficient of variability (CV) can be used to estimate the degree of confidence one may have in published data from replicated tests. For yield estimates in this testing program, CV's below 10% generally indicate reliable, uniform data, whereas CV's of 10 to 15% are not uncommon and usually indicate that data are acceptable for the rough performance comparisons desired from these tests. Tests with CV's over 15% still may be useful, but hybrid comparisons lack precision.

## 1998 STATEWIDE GROWING CONDITIONS

### Weather Summary

The two most important weather factors affecting sorghum production, soil moisture and temperature, are graphed for the season in figures 1 and 2. Figures 3 and 4 illustrate the sorghum crop condition and progress during the season and reflect the impact of temperature and soil moisture extremes.

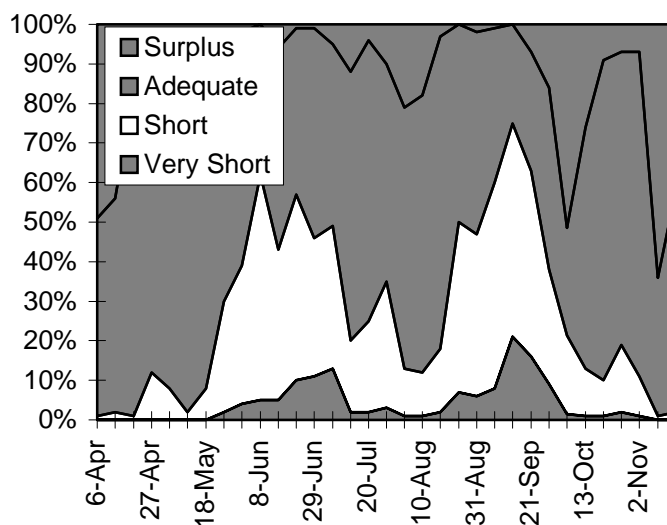
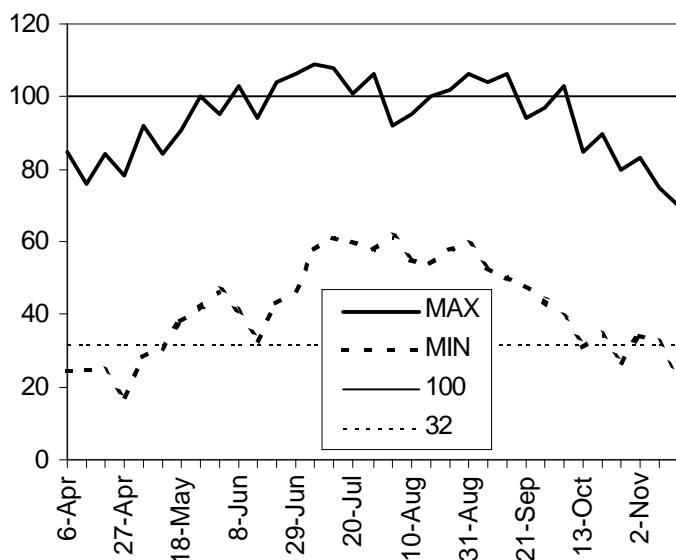


Figure 1. Statewide topsoil moisture status.

Just as planting was getting under way in mid-May, a period of high temperatures accompanied by low rainfall over much of the state caused uneven or slow emergence. Timely rains and the resulting increase in soil moisture during late June, July, and early August improved the

condition of the crop from the low point recorded in early July.

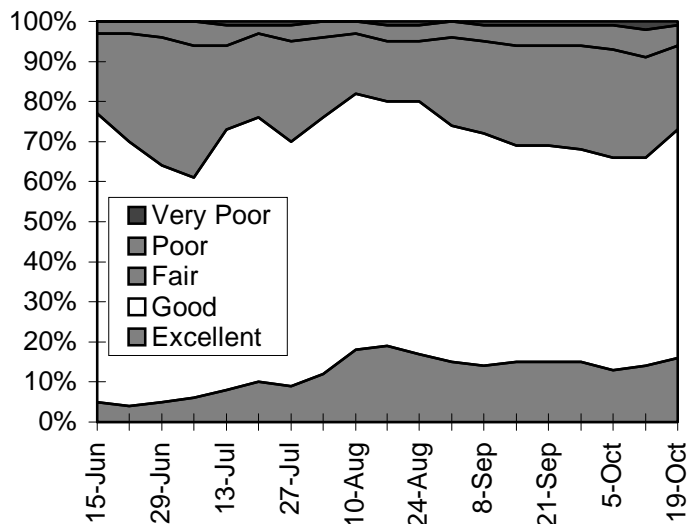


**Figure 2. 1998 Kansas weekly maximum and minimum temperatures.**

Decreasing soil moisture and high temperatures in late August and September hastened sorghum coloring and maturation. As a result, harvest started earlier than average and neared completion by late October. Rains in late October and early November delayed completion. (From Crop-Weather reports, Kansas Agricultural Statistics, Topeka)

**Insect Summary**

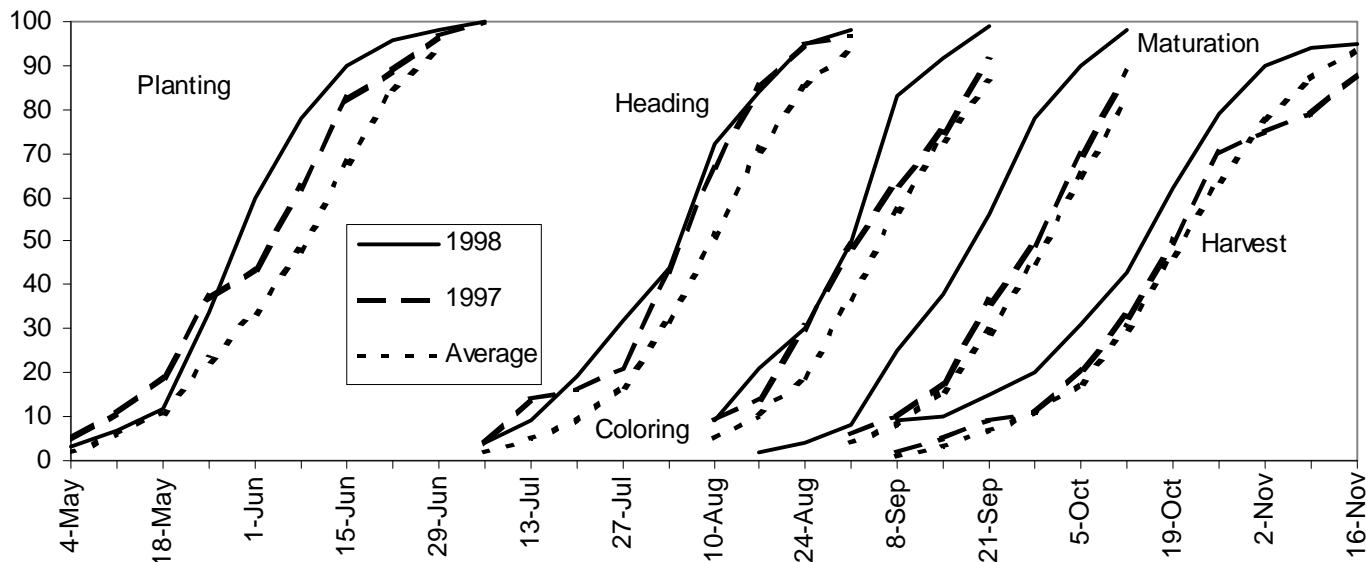
Early season insect activity was light. Billbug caused less concern than in 1997, but it remains



**Figure 3. 1998 Grain sorghum crop condition.**

as a possible early-season problem. You should suspect this if you see areas of ragged leaf feeding during the first 3 weeks after emergence, especially where the damage is close to nutsedge-infested areas.

Chinch bugs caused damage in some eastern areas, although populations have remained low since the wet 1993 season. During April and May, overwintered adults could be found in some wheat fields, and occasionally in alfalfa. In the Flint Hills region, damage was noted primarily where sorghum was planted adjacent to thin wheat. In some instances, damage developed in Gaucho-treated fields. Early planting may have given the chemical time to break down before chinch bugs moved in from nearby small grains.



**Figure 4. 1998 Kansas grain sorghum crop progress.**

Greenbug populations began to develop in southwest Kansas in early August and spread to the northeast over the next few weeks. On August 21, greenbugs were present in most fields examined from Beloit to Colby. Natural enemies were active and frequently prevented serious damage. Greenbugs destroyed some late-planted sorghum.

Corn leaf aphids are always present in whorl-stage sorghum, but usually disappear during the boot stage or shortly after. However, this year, heavy head infestations were common. Though this did not appear to affect pollination, it did cause a sticky mess and in some cases may have decreased grain yields.

From mid-July on, worms constituted the primary insect problem, especially in the southern half of Kansas. First, fall armyworm was found feeding in the whorls. We try to ignore this pest until about 75% of the plants show feeding signs and most of the whorl-damaged plants have at least one mid-sized larva. This year, particularly in the Arkansas River Valley east of Great Bend, 100% infestations were common, and up to 4 to 5 worms per plant were not unusual.

Later, after heading, corn earworms fed on the developing grain. What is unusual is that this is the third year in a row that corn earworm has developed as a pest in sorghum heads in August. If this occurs again in 1999, it may suggest that something is providing the insect with a better advantage than it has had during the past 25 years. (From Leroy Brooks, Extension Entomologist, Department of Entomology, Kansas State University.)

## Disease Summary

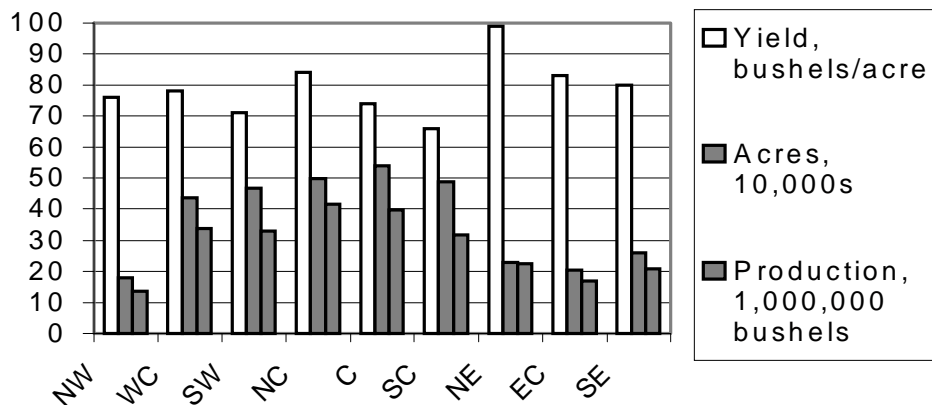
Frequent rains in early June resulted in above normal levels of both pythium and fusarium seedling blight problems. The most prominent disease of grain sorghum in the 1998 crop was sooty stripe. This foliar disease was found at high levels in many fields across the eastern half of the state. It was found as far west as Smith County, an area not previously reported to have sooty stripe. A wide range of susceptibility occurs among hybrids, and the most susceptible may have yield losses of up to 30%.

Ergot, which first appeared in Kansas in 1997, was not found in the state in 1998. Hot temperatures in both Texas and Kansas during pollination provided unfavorable conditions for the infection and spread of this disease. Although high temperatures reduced ergot incidence, it also resulted in the abortion of many seeds, and the Plant Disease Diagnostic Lab received many samples of poorly developed heads in the fall.

Stalk rot levels were above average in many parts of the state. Periods of hot and dry weather earlier in the season, followed by periods of excessive wetness during grain fill and dry down provided ideal conditions for the development of *Fusarium* stalk rot. Lodging differences among hybrids often could be observed in hybrid trials. (From Doug Jardine, Extension Plant Pathologist, Kansas State University Department of Plant Pathology.)

The November 10 Crops Report predicted a crop of 254.1 million bushels, down 7% from 1997. This production is from 3.3 million harvested acres, down 6% from last year.

Sorghum acres and production were concentrated in central, southwest, and west-central Kansas (Figure 5). Yield levels in western Kansas approached or exceeded those for the central districts. The highest yields were recorded in the northeast district at 99 bushels per acre. The predicted statewide average yield of 77 bushels per acre is 1 bushel lower than the final 1997 yield average.



**Figure 5. 1998 Kansas grain sorghum crop production by crop reporting district.**

# NORTHEASTERN KANSAS GRAIN SORGHUM TEST ON SILTY CLAY LOAM SOIL

**COUNTY:** BROWN

**LOCATION:** Cornbelt Experiment Field, Powhattan

**TEST SITE:** Grundy silty clay loam

**1997 CROP:** Soybeans

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 110 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/18/98

**HARVEST DATE:** 10/23/98

**COOPERATORS:**

Larry Maddux, agronomist; Steve Milne and David Zeit, technicians

**TARGET POPULATION:** 45,000 plants/acre,  
4.6 in. spacing

**STAND (% of target):** 100

**YIELD: Average (bu/a):** 112

**Range (bu/a):** 92 - 132

**LSD (bu/a):** 10

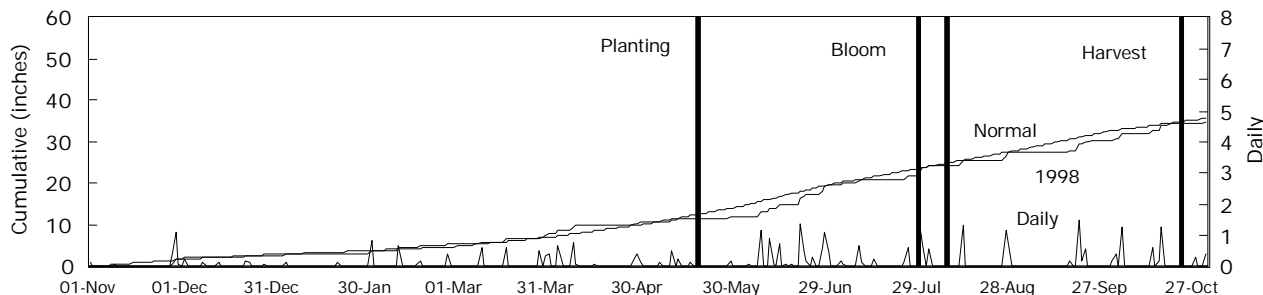
**CV (%):** 8

**BLOOM DATES:** 7/29/98 - 8/7/98

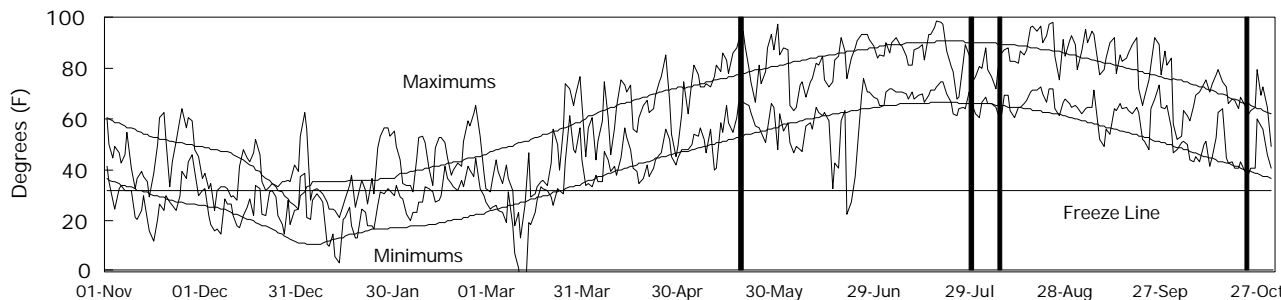
**1998 GROWING CONDITIONS:**

Dry conditions after planting caused uneven emergence, but stands eventually filled in quite well. Favorable weather for most of the season resulted in good yields. Diseases and insects caused little damage.

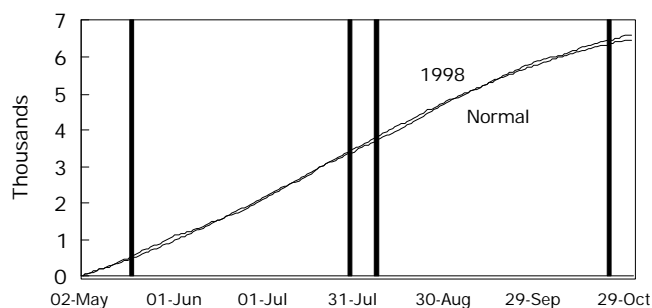
**PRECIPITATION**



**DAILY TEMPERATURES**



**GROWING DEGREE DAYS**



**GROWING-SEASON WEATHER SUMMARY**

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	2.7	3.1	53	55	0	0
May	1.2	4.2	69	65	1043	925
June	7.8	5.4	68	73	1020	1184
July	4.0	4.1	78	78	1349	1370
August	3.9	4.2	77	76	1332	1305
Sep.	2.6	4.7	73	68	1164	1011
Oct.	4.7	3.0	57	56	718	692
Season Totals	27.0	28.6	68	67	6626	6487



**TABLE 1. BROWN CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL						YIELD AS % OF TEST AVERAGE			97-98		1998					
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
AGRIPRO	AP 2233	98	--	--	--	--	88	--	--	--	--	72	12	59	42	1	--	--
MATURITY CHECK	C 305	101	87	100	94	96	90	90	93	69	13	72	12	56	51	1	--	--
ASGROW	SENECA	104	--	98	--	--	93	--	92	--	--	72	13	61	44	0	--	--
ASGROW	A459	116	--	--	--	--	104	--	--	--	--	72	13	61	55	0	--	--
MATURITY CHECK	TX3042xTX2737	120	98	83	109	100	108	101	77	69	14	72	13	58	57	0	--	--
AGRIPRO	AP 2660	109	97	113	103	107	97	101	105	73	15	72	14	58	48	0	--	--
ASGROW	XP3257	92	--	--	--	--	82	--	--	--	--	72	14	62	52	0	--	--
NK	KS 585	103	--	--	--	--	92	--	--	--	--	72	14	61	48	0	--	--
AGRIPRO	AP 2468	105	88	--	96	--	94	90	--	71	13	73	13	58	48	0	--	--
HOEGEMEYER	6055	111	--	--	--	--	99	--	--	--	--	73	13	60	49	0	--	--
MATURITY CHECK	OK11xTX2741	93	95	100	94	96	83	98	93	71	14	73	13	61	47	0	--	--
NC+	6R95	115	--	--	--	--	103	--	--	--	--	73	13	64	51	0	--	--
HOEGEMEYER	671	110	99	99	104	103	98	102	92	72	13	74	12	59	56	0	--	--
MATURITY CHECK	RS 610	108	82	98	95	96	96	85	91	72	13	74	12	59	56	1	--	--
AGRIPRO	AP 2800	106	--	--	--	--	95	--	--	--	--	74	13	60	50	0	--	--
ASGROW	A504	105	--	--	--	--	94	--	--	--	--	74	13	59	52	0	--	--
DEKALB	DK-35	104	93	95	98	97	93	96	89	70	14	74	13	62	51	0	--	--
PIONEER	85G55	112	--	--	--	--	100	--	--	--	--	74	13	64	51	0	--	--
ASGROW	A425	93	91	100	92	95	83	94	93	73	14	75	13	61	50	1	--	--
CARGILL	770Y	109	99	101	104	103	97	102	94	75	13	75	13	63	52	0	--	--
AGRIPRO	AP 2838	122	--	--	--	--	109	--	--	--	--	76	12	57	54	0	--	--
GOLDKIST	GK907	108	--	--	--	--	96	--	--	--	--	76	12	65	54	0	--	--
MYCOGEN	EXP9656	96	--	--	--	--	86	--	--	--	--	76	12	60	49	0	--	--
NC+	371	95	100	--	97	--	85	103	--	73	13	76	12	59	49	0	--	--
ASGROW	A570	126	--	--	--	--	113	--	--	--	--	76	13	61	61	1	--	--
DEKALB	DK-44	99	88	112	94	100	89	91	104	73	14	76	13	59	49	0	--	--
DEKALB	DK-47	117	96	115	107	110	105	100	108	73	14	76	13	60	53	0	--	--
GARST	N5470	93	--	--	--	--	83	--	--	--	--	76	13	61	49	1	--	--
HOEGEMEYER	6884	104	--	--	--	--	93	--	--	--	--	76	13	57	47	0	--	--
MATURITY CHECK	TX2752xTX430	127	95	114	111	112	114	98	107	76	13	76	13	63	52	0	--	--
MYCOGEN	444E	127	95	114	111	112	114	98	106	74	14	76	13	62	53	0	--	--
NK	K73-J6	113	100	124	106	112	101	103	116	75	14	76	13	61	55	0	--	--
PIONEER	84G62	119	--	--	--	--	106	--	--	--	--	76	13	59	54	0	--	--
MYCOGEN	EXP9888	111	--	--	--	--	99	--	--	--	--	76	14	63	55	0	--	--
ASGROW	A571	119	--	--	--	--	106	--	--	--	--	77	12	57	57	0	--	--
CARGILL	737	109	100	96	104	102	97	103	89	74	13	77	12	57	49	0	--	--
CARGILL	X12027 EXP	113	89	107	101	103	101	92	99	75	13	77	12	61	49	0	--	--
NC+	7R83	130	105	--	117	--	116	109	--	76	13	77	12	57	58	0	--	--
MYCOGEN	3694	122	--	--	--	--	109	--	--	--	--	77	13	57	55	0	--	--

(continued)



**TABLE 1. BROWN CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL									YIELD AS %			97-98		1998						
		1998			1997			1996			OF TEST			Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	AVERAGE	1998	1997	1996												
MYCOGEN	1506	126	100	126	113	117	113	103	117	75	13	78	12	60	62	0	--	--				
MYCOGEN	EXP9881	93	--	--	--	--	83	--	--	--	--	78	12	57	49	0	--	--				
CARGILL	837	125	110	113	118	116	112	114	106	76	14	78	13	60	55	0	--	--				
DEKALB	DK-54	129	125	152	127	135	116	129	141	76	14	78	13	63	61	0	--	--				
DEKALB	DK-45	118	104	138	111	120	106	107	128	76	14	78	13	58	56	0	--	--				
MIDLAND	4757Y	114	--	--	--	--	102	--	--	--	--	78	13	61	57	0	--	--				
MSG (OHLDE)	O 256	122	105	114	114	114	109	109	106	75	14	78	13	63	62	0	--	--				
MIDLAND	4836	123	--	--	--	--	110	--	--	--	--	78	14	62	52	0	--	--				
CARGILL	730	93	111	124	102	109	83	115	115	77	13	79	12	61	52	0	--	--				
NK	K59-Y2	107	--	--	--	--	96	--	--	--	--	79	12	59	54	0	--	--				
GOLDKIST	GK606	125	--	--	--	--	111	--	--	--	--	79	13	64	62	0	--	--				
CARGILL	833	114	--	--	--	--	102	--	--	--	--	80	13	59	53	0	--	--				
MIDLAND	4774	115	--	--	--	--	103	--	--	--	--	80	13	62	59	0	--	--				
MSG (OHLDE)	G 610	116	--	--	--	--	104	--	--	--	--	80	13	60	59	0	--	--				
PIONEER	82G63	120	--	--	--	--	108	--	--	--	--	80	13	61	57	0	--	--				
DEKALB	DK-53	125	--	--	--	--	112	--	--	--	--	80	14	64	59	0	--	--				
MATURITY CHECK	TX2752xTX2783	130	98	124	114	117	117	101	116	79	15	80	14	65	59	0	--	--				
MYCOGEN	EXP9874	97	--	--	--	--	87	--	--	--	--	81	12	60	58	0	--	--				
DEKALB	DK-56	132	98	119	115	116	118	101	111	79	14	81	13	64	62	0	--	--				
AVERAGES		112	97	107	104	105	112	97	107	74	14	76	13	60	53	0	--	--				
CV(%)		8	8	9	--	--	8	8	9	--	--	2	6	6	3	271	--	--				
LSD(0.05)**		10	10	13	--	--	9	10	12	--	--	2	1	NS	2	1	--	--				

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

# NORTHEASTERN KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL

**COUNTY:** RILEY

**LOCATION:** Agronomy North Farm, Manhattan

**TEST SITE:** Reading silt loam

**1997 CROP:** Soybeans

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 100 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/15/98

**HARVEST DATE:** 11/17/98

**COOPERATORS:**

Kraig Roozeboom, agronomist; Karl Mannschreck, superintendent

**TARGET POPULATION:** 45,000 plants/acre,  
4.6 in. spacing

**STAND (% of target):** 105

**YIELD: Average (bu/a):** 115

**Range (bu/a):** 82 - 146

**LSD (bu/a):** 11

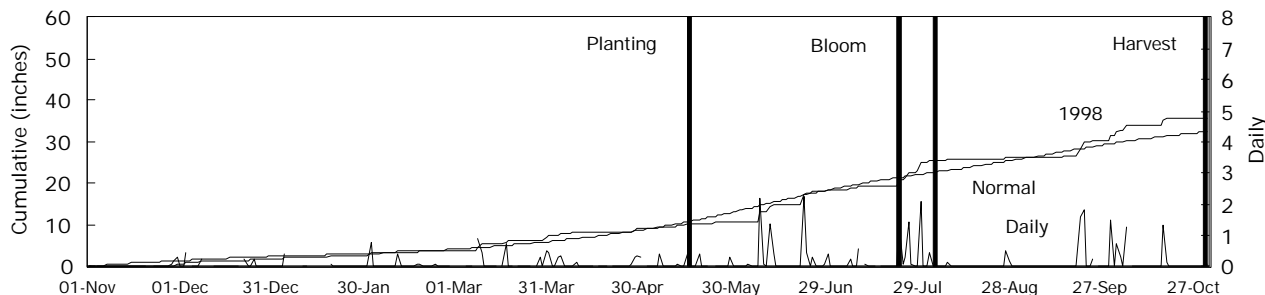
**CV (%):** 8

**BLOOM DATES:** 7/10/98 - 7/24/98

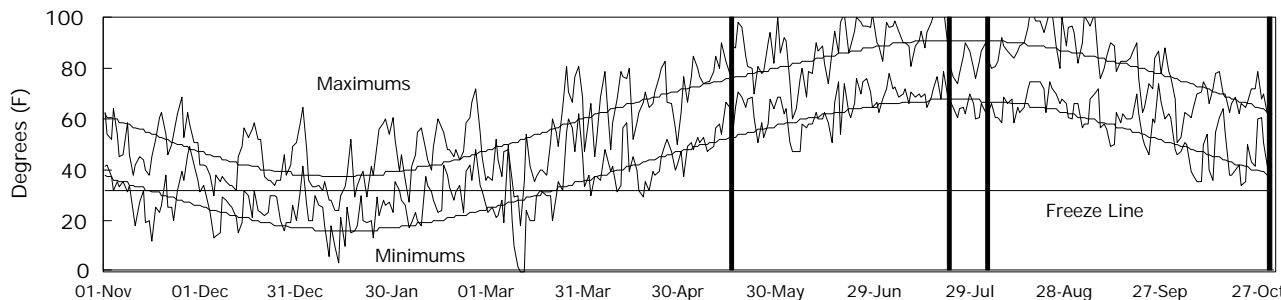
**1998 GROWING CONDITIONS:**

Emergence and stand establishment were excellent. A June hail storm caused little damage, because the plants were still relatively small at that time. Headworms caused some damage in late August. Wet fields delayed harvest.

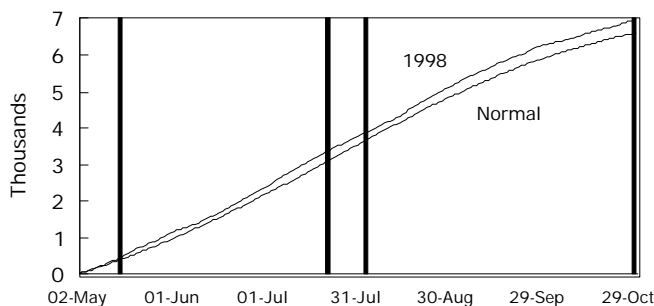
**PRECIPITATION**



**DAILY TEMPERATURES**



**GROWING DEGREE DAYS**



**GROWING-SEASON WEATHER SUMMARY**

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.9	2.7	53	54	0	0
May	1.6	4.6	70	65	1101	924
June	7.7	5.1	74	73	1215	1185
July	6.4	3.9	80	79	1411	1392
August	1.5	3.5	79	77	1393	1340
Sep.	5.3	3.8	72	69	1136	1047
Oct.	3.9	2.8	57	57	700	710
Season Totals	28.3	26.3	69	68	6955	6596

**TABLE 2. RILEY CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHELS						YIELD AS % OF TEST AVERAGE			97-98		1998					
		1998	1997	1996	2-Yr.	3-Yr.	1998	1997	1996	Days to Blm	Grain to Moist. %	Days to Blm	Grain to Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
					AVG.	AVG.												
MATURITY CHECK	C 305	86	110	129	98	108	75	87	91	61	15	56	16	52	48	4	89	1.6
ASGROW	XP3257	104	--	--	--	--	90	--	--	--	--	57	16	55	48	1	89	1.9
MATURITY CHECK	RS 610	82	118	136	100	112	71	93	95	65	15	58	16	51	52	4	91	1.6
ASGROW	SENECA	104	--	135	--	--	90	--	95	--	--	59	15	55	43	0	115	1.4
PIONEER	8500	112	128	146	120	129	97	101	102	65	15	59	16	56	49	1	113	1.5
MATURITY CHECK	OK11xTX2741	83	110	131	97	108	72	87	92	66	14	60	15	54	44	2	105	1.3
NK	KS 585	110	--	--	--	--	95	--	--	--	--	60	15	57	48	1	111	1.6
PIONEER	85G55	103	--	--	--	--	89	--	--	--	--	60	15	56	50	2	107	1.3
DEKALB	DK-35	103	118	145	111	122	90	94	102	65	15	60	16	53	47	0	98	1.6
MATURITY CHECK	TX3042xTX2737	107	103	137	105	116	93	82	96	64	15	60	16	55	54	2	108	1.3
NC+	6R95	110	--	--	--	--	95	--	--	--	--	60	16	54	46	1	105	1.3
MIDLAND	X876	92	--	--	--	--	79	--	--	--	--	61	15	55	44	2	95	1.4
ASGROW	A459	92	--	--	--	--	80	--	--	--	--	62	15	56	51	2	114	1.1
DEKALB	DK-45	125	131	161	128	139	108	103	113	67	14	62	15	56	53	0	114	1.2
DEKALB	DK-44	111	113	145	112	123	96	89	102	67	15	62	16	54	46	0	105	1.3
CARGILL	737	120	131	141	126	131	104	104	99	68	14	63	15	56	45	0	106	1.3
GOLDEN HARVEST	H-430Y	112	116	--	114	--	97	92	--	67	14	63	15	56	53	0	96	1.6
MYCOGEN	444E	127	146	157	137	144	110	116	110	68	15	63	16	55	51	NS	112	1.4
MYCOGEN	1506	127	130	144	128	133	110	103	101	68	15	63	16	57	60	0	108	1.5
ASGROW	A504	113	--	--	--	--	98	--	--	--	--	64	15	55	48	1	108	1.3
ASGROW	A425	114	111	142	113	122	99	88	100	68	14	64	15	55	46	1	104	1.4
CARGILL	770Y	109	130	143	119	127	94	103	100	69	14	64	15	53	49	0	108	1.3
MIDLAND	4836	120	--	--	--	--	104	--	--	--	--	64	15	56	48	1	105	1.4
MYCOGEN	3694	129	--	--	--	--	112	--	--	--	--	64	15	56	50	0	103	1.6
CHECK	ATX631xR9019	116	--	--	--	--	100	--	--	--	--	64	16	53	58	2	99	1.2
DEKALB	DK-47	134	147	130	141	137	117	116	91	68	15	64	16	56	49	0	106	1.5
GOLDEN HARVEST	H-512	120	--	--	--	--	104	--	--	--	--	64	16	56	50	0	111	1.4
MATURITY CHECK	TX2752xTX430	126	144	137	135	136	110	114	96	70	14	65	15	55	50	1	112	1.3
AGRIPRO	AP 2838	124	--	--	--	--	108	--	--	--	--	65	17	54	48	1	114	1.1
NC+	371	105	--	--	--	--	91	--	--	--	--	66	14	55	45	1	105	1.4
CARGILL	X12027 EXP	113	122	156	117	130	98	97	109	69	14	66	15	54	46	0	111	1.3
CARGILL	833	125	--	--	--	--	109	--	--	--	--	66	15	55	50	1	108	1.4
CARGILL	730	125	128	140	126	131	108	101	98	70	14	66	15	57	47	1	108	1.3
GARST	N5470	115	--	--	--	--	99	--	--	--	--	66	15	55	45	1	104	1.5
GOLDKIST	GK907	107	--	--	--	--	93	--	--	--	--	66	15	56	49	1	107	1.1
MIDLAND	4725	115	--	--	--	--	100	--	--	--	--	66	15	56	51	0	103	1.3
MYCOGEN	EXP9656	119	--	--	--	--	103	--	--	--	--	66	15	53	44	0	105	1.5
MYCOGEN	EXP9888	106	--	--	--	--	92	--	--	--	--	66	15	54	50	0	110	1.1
NK	K73-J6	124	138	158	131	140	107	109	111	70	14	66	15	56	51	1	105	1.3
MATURITY CHECK	TX2752xTX2783	112	115	146	114	125	97	91	103	70	15	66	16	56	52	0	115	1.2
NK	K59-Y2	120	--	--	--	--	104	--	--	--	--	66	16	53	53	2	101	1.3

(continued)

**TABLE 2. RILEY CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL						YIELD AS % OF TEST			97-98		1998					
		1998	1997	1996	2-Yr. 3-Yr.		AVERAGE			Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
					2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996									
MYCOGEN	EXP9881	120	--	--	--	--	104	--	--	--	--	67	14	54	44	1	103	1.4
DEKALB	DK-54	132	135	--	133	--	114	107	--	71	14	67	15	56	55	1	115	1.2
TRIUMPH	TR 481	115	125	--	120	--	100	98	--	71	14	67	15	57	53	1	103	1.3
CHECK	ATX631xTX436	126	135	--	130	--	109	107	--	72	14	68	14	57	54	0	90	1.3
MYCOGEN	EXP9874	100	--	--	--	--	87	--	--	--	--	68	14	57	52	0	102	1.4
CARGILL	837	132	135	139	134	136	115	107	98	71	14	68	15	56	51	1	104	1.3
DEKALB	DK-53	128	--	--	--	--	111	--	--	--	--	68	15	58	51	0	105	1.2
PIONEER	84G62	128	--	--	--	--	111	--	--	--	--	68	15	56	49	0	107	1.3
NC+	7R83	122	142	--	132	--	106	112	--	71	14	69	14	55	50	1	110	1.4
CHECK	A9009xTX436	118	--	--	--	--	102	--	--	--	--	69	15	56	53	0	96	1.4
GOLDKIST	GK606	122	--	--	--	--	105	--	--	--	--	69	15	57	56	0	82	1.4
ASGROW	A571	113	--	--	--	--	98	--	--	--	--	69	16	52	49	1	107	1.2
DEKALB	DK-56	130	143	--	136	--	113	113	--	72	14	70	14	56	54	0	90	1.4
ASGROW	A570	125	--	--	--	--	109	--	--	--	--	70	15	57	54	1	114	1.2
CHECK	ATX635xTX436	146	129	--	138	--	127	102	--	73	14	70	15	59	65	1	108	1.1
AVERAGES		115	127	142	121	128	115	127	142	68	14	64	15	55	50	1	105	1.4
CV(%)		8	7	6	--	--	8	7	6	--	--	1	5	2	3	184	8	10.5
LSD(0.05)**		11	10	10	--	--	10	8	7	--	--	1	1	2	2	2	10	0.2

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

# NORTH CENTRAL KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL

**COUNTY:** REPUBLIC

**LOCATION:** North Central Kansas Experiment Field, Belleville

**TEST SITE:** Crete silt loam

**1997 CROP:** Soybeans

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 120 N 30 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/20/98

**HARVEST DATE:** 10/20/98

**COOPERATORS:**

Barney Gordon, agronomist; Michael Larson and Allan Milner, technicians

**TARGET POPULATION:** 40,000 plants/acre,  
5.2 in. spacing

**STAND (% of target):** 125

**YIELD: Average (bu/a):** 128

**Range (bu/a):** 85 - 156

**LSD (bu/a):** 8

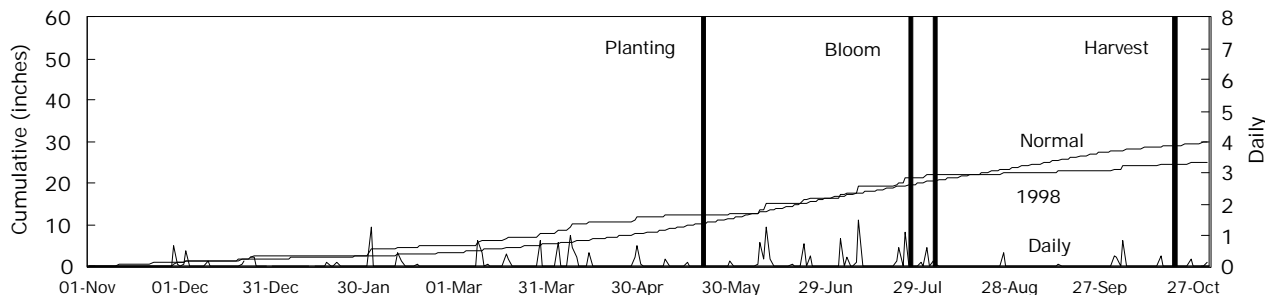
**CV (%):** 4

**BLOOM DATES:** 7/22/98 - 8/3/98

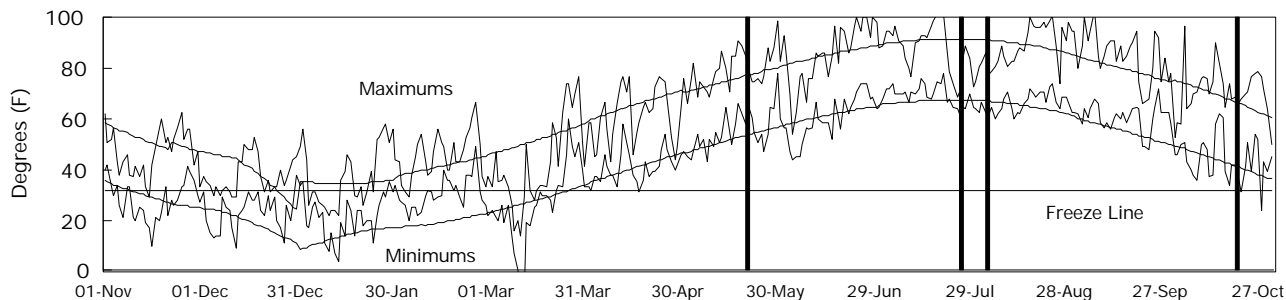
**1998 GROWING CONDITIONS:**

Below-normal May rainfall may have helped stand establishment, because crusting was not a problem. Soil moisture was adequate because of above-normal rainfall in April. Rainfall was ideal in June and July. Hot, dry conditions characterized August and September. Sooty stripe was noted on susceptible hybrids. Insect pests caused no problems.

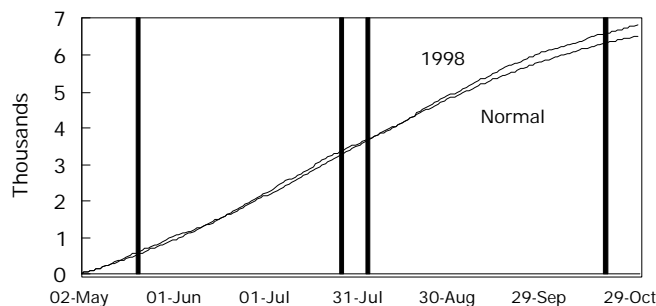
**PRECIPITATION**



**DAILY TEMPERATURES**



**GROWING DEGREE DAYS**



**GROWING-SEASON WEATHER SUMMARY**

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	4.2	2.5	51	53	0	0
May	0.7	4.0	67	64	1006	902
June	3.9	4.6	73	74	1172	1188
July	4.8	3.8	79	79	1384	1398
August	1.4	3.7	78	77	1359	1335
Sep.	0.1	3.9	73	67	1167	1004
Oct.	2.3	2.0	58	56	733	678
Season Totals	17.3	24.5	68	67	6819	6505

**TABLE 3. REPUBLIC CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	YIELD AS %									97-98		1998						
		ACRE YIELD, BUSHEL					OF TEST				Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	AVERAGE									
MATURITY CHECK	C 305	102	109	124	106	112	80	92	90	64	14	63	15	58	43	--	108	1.3	
ASGROW	SENECA	114	--	--	--	--	90	--	--	--	--	64	15	59	40	--	129	1.1	
ASGROW	XP3257	115	--	--	--	--	90	--	--	--	--	64	15	59	44	--	122	1.2	
DEKALB	DK-35	117	124	144	121	128	92	104	104	65	14	64	15	60	46	--	130	1.1	
MATURITY CHECK	TX3042xTX2737	106	112	134	109	117	83	93	97	65	14	64	15	60	48	--	127	1.1	
MATURITY CHECK	RS 610	85	107	108	96	100	67	90	79	65	14	64	15	58	44	--	105	1.3	
MATURITY CHECK	OK11xTX2741	105	109	112	107	109	82	91	82	65	14	64	15	59	43	--	117	1.2	
NK	KS 585	138	113	139	125	130	108	94	101	65	14	64	15	60	45	--	121	1.2	
CARGILL	627	124	122	134	123	127	97	102	97	66	14	65	15	59	47	--	124	1.1	
GOLDEN HARVEST	H-403	128	--	--	--	--	100	--	--	--	--	65	15	60	46	--	131	1.1	
MIDLAND	X876	119	--	--	--	--	93	--	--	--	--	65	15	59	43	--	113	1.2	
NC+	6R95	126	--	--	--	--	98	--	--	--	--	65	15	60	47	--	124	1.2	
PIONEER	85G55	125	--	--	--	--	98	--	--	--	--	65	15	60	46	--	126	1.1	
HOEGEMEYER	6055	113	--	--	--	--	89	--	--	--	--	66	15	59	46	--	131	1.1	
PIONEER	8505	116	131	157	124	135	91	109	114	65	15	66	16	60	45	--	128	1.1	
ASGROW	A425	118	119	--	118	--	92	99	--	68	14	67	15	59	54	--	119	1.2	
DEKALB	DK-45	137	132	159	134	143	107	111	115	67	14	67	15	59	52	--	129	1.1	
MIDLAND	4836	144	--	--	--	--	112	--	--	--	--	67	16	59	47	--	131	1.1	
DEKALB	DK-44	118	119	140	118	125	92	99	101	68	14	68	15	60	48	--	129	1.1	
GOLDEN HARVEST	H-430Y	114	117	--	116	--	89	98	--	68	14	68	15	60	58	--	126	1.1	
MYCOGEN	1506	131	111	141	121	128	103	93	102	68	14	68	15	60	62	--	129	1.1	
NK	K73-J6	136	121	--	129	--	106	101	--	69	14	68	15	60	56	--	127	1.1	
CARGILL	647	122	121	135	121	126	95	101	98	68	15	68	16	60	47	--	127	1.1	
ASGROW	A459	126	--	--	--	--	99	--	--	--	--	69	15	59	50	--	130	1.1	
CARGILL	770Y	121	129	143	125	131	95	108	104	69	14	69	15	58	53	--	128	1.1	
CARGILL	X12200 EXP	126	--	--	--	--	98	--	--	--	--	69	15	59	46	--	129	1.1	
CHECK	ATX631xR9019	140	--	--	--	--	109	--	--	--	--	69	15	59	60	--	109	1.2	
DEKALB	DK-43A	154	--	--	--	--	121	--	--	--	--	69	15	60	46	--	112	1.2	
MSG (OHLDE)	O 256	146	122	139	134	136	114	102	101	68	14	69	15	60	56	--	125	1.2	
MYCOGEN	444E	129	117	--	123	--	101	98	--	68	14	69	15	59	55	--	130	1.1	
MYCOGEN	3694	131	--	--	--	--	102	--	--	--	--	69	15	59	52	--	129	1.1	
NC+	6Y83-I	141	127	--	134	--	110	106	--	68	14	69	15	59	55	--	128	1.1	
TRIUMPH	TR 65-G	133	114	138	124	129	104	96	100	70	14	69	15	59	50	--	125	1.1	
WARNER	W-625-Y	140	--	--	--	--	110	--	--	--	--	69	15	60	58	--	121	1.2	
HOEGEMEYER	6884	131	--	--	--	--	102	--	--	--	--	69	16	59	45	--	128	1.1	
DEKALB	DK-47	153	134	158	143	148	120	112	114	69	14	70	15	60	48	--	119	1.2	

(continued)

**TABLE 3. REPUBLIC CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL						YIELD AS % OF TEST AVERAGE			97-98		1998					
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
		ASGROW	A504	117	--	--	--	--	91	--	--	--	--	71	15	59	49	--
CARGILL	X12027 EXP	130	118	144	124	130	101	99	104	71	15	71	15	59	50	--	126	1.1
CHECK	ATX631xTX436	142	--	--	--	--	111	--	--	--	--	71	15	60	62	--	109	1.3
GOLDEN HARVEST	H-512	136	122	--	129	--	106	102	--	70	14	71	15	60	56	--	127	1.1
HOEGEMEYER	671	97	122	137	109	118	76	102	99	70	14	71	15	59	50	--	122	1.2
MATURITY CHECK	TX2752xTX430	126	126	154	126	135	98	105	112	71	15	71	15	59	50	--	127	1.1
MIDLAND	4725	116	--	--	--	--	91	--	--	--	--	71	15	59	52	--	129	1.1
NK	K59-Y2	124	--	--	--	--	97	--	--	--	--	71	15	58	52	--	125	1.1
WARNER	W-965-E	136	--	--	--	--	107	--	--	--	--	71	16	59	50	--	129	1.1
CARGILL	737	138	128	137	133	134	108	107	99	71	14	72	15	58	47	--	129	1.1
MYCOGEN	EXP9874	132	--	--	--	--	103	--	--	--	--	72	15	60	55	--	127	1.1
ASGROW	A570	152	--	--	--	--	119	--	--	--	--	73	15	59	51	--	129	1.1
CARGILL	730	131	124	160	127	138	102	104	116	72	14	73	15	59	48	--	132	1.1
MYCOGEN	EXP9656	119	--	--	--	--	93	--	--	--	--	73	15	59	43	--	120	1.2
TRIUMPH	TR 481	142	--	--	--	--	111	--	--	--	--	73	15	60	58	--	127	1.1
ASGROW	A571	139	--	--	--	--	108	--	--	--	--	73	16	58	50	--	132	1.1
DEKALB	DK-53	127	--	--	--	--	99	--	--	--	--	73	16	60	58	--	128	1.1
NC+	7R83	140	--	--	--	--	109	--	--	--	--	73	16	58	58	--	126	1.1
PIONEER	84G62	148	--	--	--	--	116	--	--	--	--	73	16	60	49	--	131	1.1
CHECK	A9009xTX436	124	--	--	--	--	97	--	--	--	--	74	15	59	59	--	125	1.1
CHECK	ATX635xTX436	156	--	--	--	--	122	--	--	--	--	74	15	60	64	--	104	1.3
GARST	N5470	104	--	--	--	--	81	--	--	--	--	74	15	58	48	--	127	1.1
MYCOGEN	EXP9881	126	--	--	--	--	98	--	--	--	--	74	15	59	46	--	125	1.1
MYCOGEN	EXP9888	132	--	--	--	--	103	--	--	--	--	74	15	60	55	--	127	1.1
DEKALB	DK-54	139	134	--	136	--	109	112	--	73	15	74	16	60	58	--	132	1.1
MATURITY CHECK	TX2752xTX2783	120	115	132	118	122	94	96	96	74	15	74	16	60	58	--	128	1.1
DEKALB	DK-56	137	134	--	136	--	107	112	--	73	15	75	15	60	61	--	116	1.2
AVERAGES		128	120	138	124	128	128	120	138	69	14	69	15	59	51	--	125	1.1
CV(%)		4	3	7	--	--	4	3	7	--	--	1	1	1	1	--	5	4.5
LSD(0.05)**		8	5	13	--	--	6	4	9	--	--	1	0	0	1	--	8	0.1

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



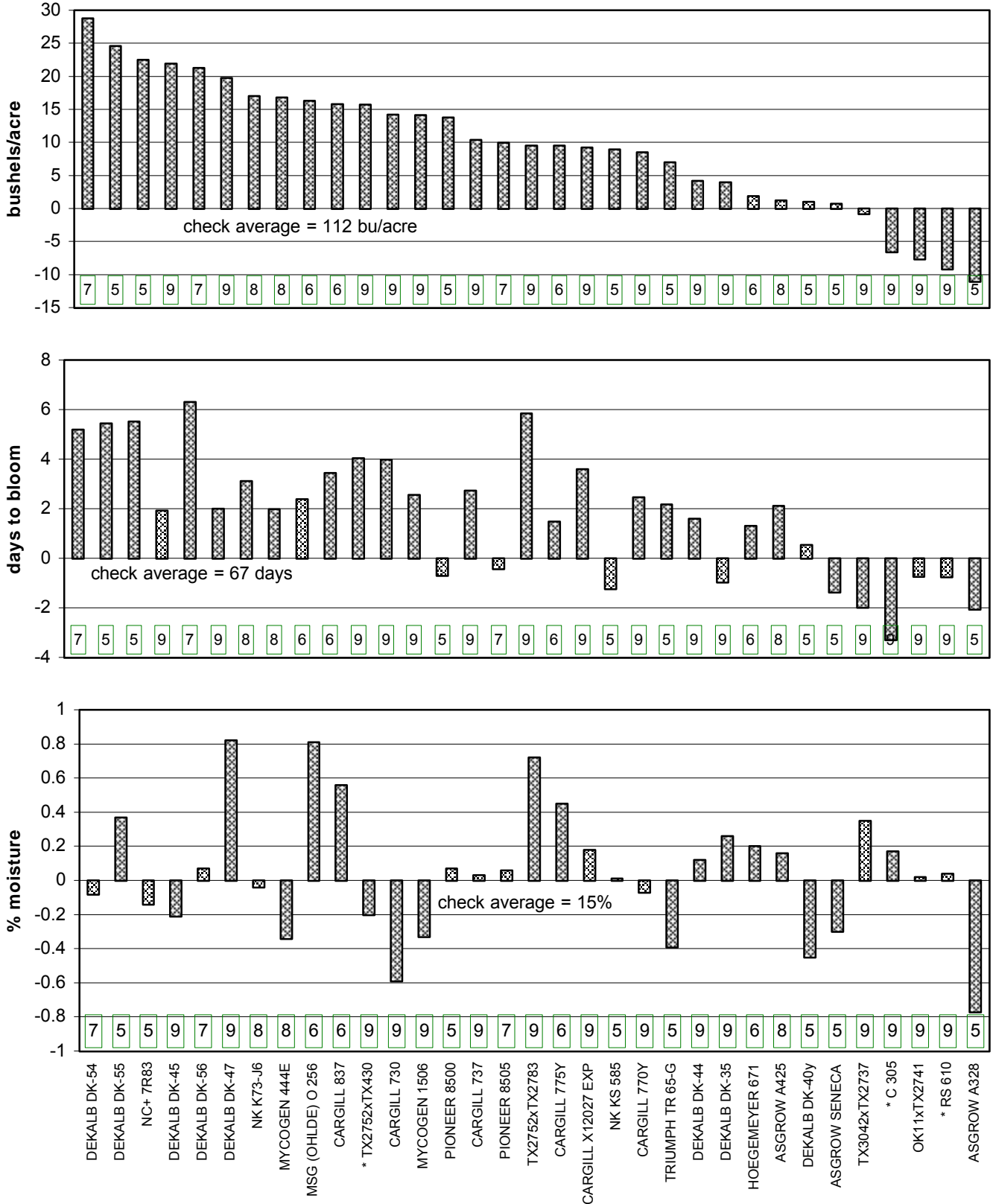
**TABLE 4. NORTHEASTERN KANSAS GRAIN SORGHUM TEST YIELD SUMMARY, 1996-1998.**

BRAND	NAME	1998 YIELD AS % OF TEST AVERAGE <sup>1</sup>				1996-1998		
		BRO	RIL	REP	AVG.	DYA (bu/a) <sup>2</sup>	SE <sup>3</sup>	N <sup>4</sup>
DEKALB	DK-54	116	114	109	113	28.8*	4.5	7
NC+	7R83	116	106	109	110	22.5*	3.1	5
DEKALB	DK-45	106	108	107	107	21.9*	3.3	9
DEKALB	DK-56	118	113	107	113	21.3*	3.0	7
DEKALB	DK-47	105	117	120	114	19.8*	5.2	9
NK	K73-J6	101	107	106	105	17.0*	3.4	8
MYCOGEN	444E	114	110	101	108	16.8*	3.2	8
MSG (OHLDE)	O 256	109	--	114	--	16.3*	4.9	6
CARGILL	837	112	115	--	--	15.8*	4.0	6
c MATURITY CHECK	TX2752xTX430	114	110	98	107	15.7*	2.7	9
CARGILL	730	83	108	102	98	14.2*	5.0	9
MYCOGEN	1506	113	110	103	109	14.2*	3.2	9
PIONEER	8500	--	97	--	--	13.8*	2.9	5
CARGILL	737	97	104	108	103	10.4*	4.0	9
PIONEER	8505	--	--	91	--	9.9*	3.6	7
MATURITY CHECK	TX2752xTX2783	117	97	94	103	9.5*	3.0	9
CARGILL	X12027 EXP	101	98	101	100	9.2*	3.2	9
NK	KS 585	92	95	108	98	8.9	6.5	5
CARGILL	770Y	97	94	95	96	8.5*	2.3	9
TRIUMPH	TR 65-G	--	--	104	--	7.0	5.6	5
DEKALB	DK-44	89	96	92	92	4.2	3.2	9
DEKALB	DK-35	93	90	92	91	4.0	2.9	9
HOEGEMEYER	671	98	--	76	--	1.9	2.9	6
ASGROW	A425	83	99	92	92	1.2	4.0	8
ASGROW	SENECA	93	90	90	91	0.7	3.0	5
MATURITY CHECK	TX3042xTX2737	108	93	83	95	-0.8	3.8	9
c MATURITY CHECK	C 305	90	75	80	81	-6.6*	1.4	9
MATURITY CHECK	OK11xTX2741	83	72	82	79	-7.7*	2.8	9
c MATURITY CHECK	RS 610	96	71	67	78	-9.2*	2.4	9
AGRIPRO	AP 2233	88	--	--	--	--	--	--
AGRIPRO	AP 2468	94	--	--	--	--	--	--
AGRIPRO	AP 2660	97	--	--	--	--	--	--
AGRIPRO	AP 2800	95	--	--	--	--	--	--
AGRIPRO	AP 2838	109	108	--	--	--	--	--
ASGROW	A459	104	80	99	94	--	--	--
ASGROW	A504	94	98	91	94	--	--	--
ASGROW	A570	113	109	119	113	--	--	--
ASGROW	A571	106	98	108	104	--	--	--
ASGROW	XP3257	82	90	90	88	--	--	--
CARGILL	627	--	--	97	--	--	--	--
CARGILL	647	--	--	95	--	--	--	--
CARGILL	833	102	109	--	--	--	--	--
CARGILL	X12200 EXP	--	--	98	--	--	--	--

(continued)



**Figure 6. Northeast Kansas sorghum hybrid performance summary, 1996-1998.**



Bars show differences between hybrid and average of checks\*. Values in boxes are numbers of tests that compared hybrids and checks.

# EAST CENTRAL KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL

**COUNTY:** FRANKLIN

**LOCATION:** East Central Kansas Experiment Field, Ottawa

**TEST SITE:** Woodson silt loam

**1997 CROP:** Soybeans

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 80 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/19/98

**HARVEST DATE:** 10/29/98

**COOPERATORS:**

Keith Janssen, agronomist; Jim Kimball, technician

**TARGET POPULATION:** 40,000 plants/acre,

5.2 in. spacing

**STAND (% of target):** 101

**YIELD: Average (bu/a):** 98

**Range (bu/a):** 76 - 116

**LSD (bu/a):** 12

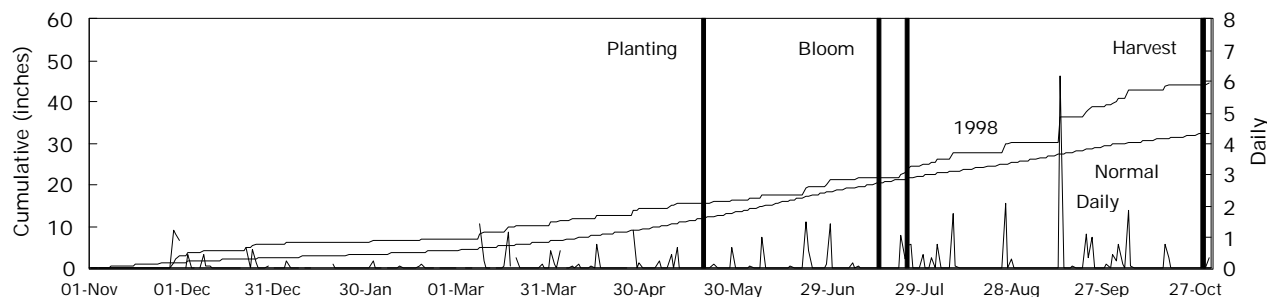
**CV (%):** 10

**BLOOM DATES:** 7/15/98 - 7/24/98

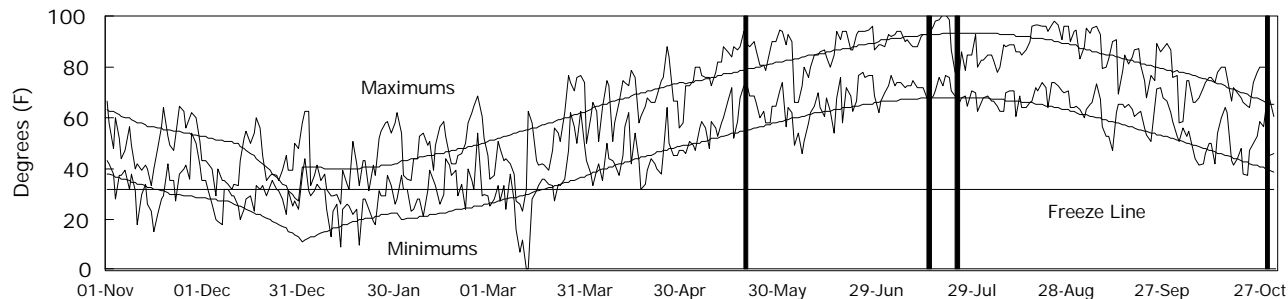
**1998 GROWING CONDITIONS:**

Several weeks of hot, dry weather after planting resulted in uneven emergence. However, stands eventually filled in. Headworms were present in August and may have reduced yield slightly.

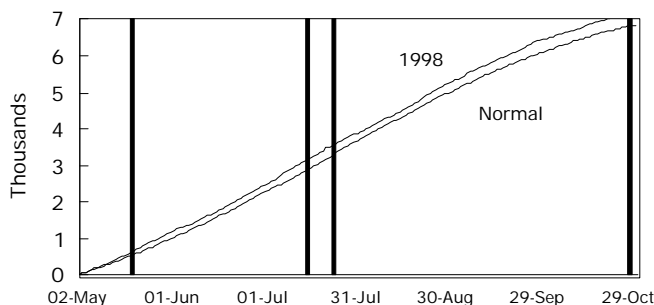
## PRECIPITATION



## DAILY TEMPERATURES



## GROWING DEGREE DAYS



## GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	3.3	2.9	56	57	0	0
May	2.3	4.2	72	66	1156	965
June	4.8	4.9	76	75	1246	1222
July	3.6	4.0	81	80	1452	1431
August	5.4	3.2	79	79	1399	1386
Sep.	9.3	4.1	73	70	1179	1080
Oct.	4.7	2.7	61	59	828	773
Season Totals	33.4	26.0	71	69	7259	6856

**TABLE 5. FRANKLIN CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	YIELD AS %									97-98		1998						
		ACRE YIELD, BUSHEL			OF TEST			AVERAGE			Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996										
NK	KS 585	101	139	123	120	121	103	97	94	56	16	57	16	57	48	0	100	1.6	
MATURITY CHECK	C 305	90	122	96	106	102	92	85	73	56	16	57	17	54	52	0	84	1.6	
CENTURY II	GB7540-E	96	--	--	--	--	98	--	--	--	--	58	15	57	47	0	79	1.4	
MATURITY CHECK	TX3042xTX2737	110	137	109	124	119	112	96	84	56	15	58	15	58	55	0	114	1.4	
PIONEER	8500	106	138	135	122	126	108	97	103	57	15	58	15	59	51	0	107	1.6	
CENTURY II	GB5543-E	91	142	99	117	111	93	100	75	56	16	58	17	55	54	5	95	1.5	
DEKALB	DK-35	101	130	142	116	124	103	91	108	57	15	59	15	58	46	0	107	1.5	
DELANGE	DSA 115C	95	126	127	110	116	97	88	97	58	15	59	15	56	46	0	108	1.2	
MATURITY CHECK	OK11xTX2741	81	128	123	104	111	83	89	94	58	15	59	15	56	47	0	100	1.3	
CENTURY II	GB4535-E	88	--	--	--	--	90	--	--	--	--	59	16	56	49	0	99	1.5	
MATURITY CHECK	RS 610	96	129	99	113	108	98	90	76	57	15	59	16	55	54	0	85	1.6	
DEKALB	DK-44	108	141	--	124	--	110	99	--	60	15	60	14	57	50	0	98	1.3	
ASGROW	A425	87	137	--	112	--	89	96	--	59	15	60	15	57	50	0	98	1.5	
DEKALB	DK-45	114	163	114	138	130	116	114	87	59	15	60	15	56	54	4	108	1.3	
GARST	5616	91	--	--	--	--	93	--	--	--	--	60	15	57	47	0	80	1.4	
ASGROW	A504	109	--	--	--	--	111	--	--	--	--	61	14	58	52	0	98	1.4	
DEKALB	DK-40y	104	145	--	125	--	107	101	--	60	15	61	14	57	50	0	79	1.5	
ASGROW	A459	90	--	--	--	--	92	--	--	--	--	61	15	58	55	0	121	1.1	
DELANGE	DSA 133	109	--	--	--	--	111	--	--	--	--	61	15	57	51	0	87	1.6	
MYCOGEN	1506	115	147	139	131	134	117	103	106	60	16	61	15	56	65	0	107	1.5	
HOEGEMEYER	6055	102	--	--	--	--	104	--	--	--	--	61	16	58	50	1	118	1.3	
MIDLAND	4774	103	--	--	--	--	105	--	--	--	--	61	16	57	56	0	110	1.3	
CARGILL	737	97	140	128	119	122	99	98	98	60	15	62	14	57	48	0	112	1.2	
NK	KS 711Y	103	136	119	120	119	105	95	91	61	15	62	14	58	45	0	107	1.4	
CARGILL	770Y	102	152	139	127	131	104	106	107	61	15	62	15	55	51	0	99	1.4	
CENTURY II	GB8041-W	98	135	130	117	121	100	95	100	61	15	62	15	57	55	0	97	1.4	
DEKALB	DK-47	98	146	155	122	133	100	102	118	60	16	62	15	58	51	0	90	1.4	
HOEGEMEYER	6766	105	143	--	124	--	107	100	--	60	17	62	15	58	56	0	97	1.3	
HOEGEMEYER	671	100	138	134	119	124	102	97	103	61	16	62	15	57	54	0	102	1.3	
MIDLAND	4757Y	98	--	--	--	--	100	--	--	--	--	62	15	58	60	0	98	1.6	
MSG (OHLDE)	O 256	96	153	148	124	132	98	107	113	60	16	62	15	57	65	1	100	1.4	
NC+	7B47	111	--	--	--	--	113	--	--	--	--	62	15	56	51	0	104	1.3	
HOEGEMEYER	6884	95	--	--	--	--	97	--	--	--	--	62	16	58	47	0	110	1.1	
MSG (OHLDE)	G 571	104	144	--	124	--	106	101	--	61	17	62	16	57	56	0	100	1.4	

(continued)

**TABLE 5. FRANKLIN CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	YIELD AS %									97-98		1998						
		ACRE YIELD, BUSHEL			OF TEST			AVERAGE			Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996										
NC+	7R37E	102	151	--	126	--	104	105	--	60	15	63	15	58	52	0	105	1.4	
CENTURY II	GB7042-E	88	139	117	113	115	90	97	89	60	16	63	16	56	49	0	108	1.3	
NK	K59-Y2	109	--	--	--	--	111	--	--	--	--	63	16	56	54	1	100	1.2	
CARGILL	730	88	142	144	115	125	90	100	110	63	15	64	14	58	52	2	108	1.2	
MYCOGEN	EXP9656	95	--	--	--	--	97	--	--	--	--	64	14	56	48	0	99	1.4	
DEKALB	DK-53	106	--	--	--	--	108	--	--	--	--	64	15	59	57	0	113	1.1	
MYCOGEN	444E	95	160	129	127	128	97	112	98	61	16	64	15	56	53	0	91	1.4	
PIONEER	84G62	112	--	--	--	--	114	--	--	--	--	64	15	59	53	0	113	1.3	
GOLDEN HARVEST	EX 502	78	--	--	--	--	80	--	--	--	--	64	16	57	57	1	100	1.1	
NK	K73-J6	96	152	141	124	130	98	106	108	62	17	64	16	57	57	0	95	1.4	
CARGILL	X12027 EXP	107	138	132	123	126	109	97	101	63	16	65	14	57	50	0	104	1.3	
DELANGE	DSA 123Y	92	--	--	--	--	94	--	--	--	--	65	15	55	49	0	90	1.6	
GOLDEN HARVEST	H-512	91	163	--	127	--	93	114	--	62	16	65	15	58	54	0	107	1.3	
MATURITY CHECK	TX2752xTX430	111	140	142	126	131	113	98	109	62	16	65	15	57	53	0	93	1.4	
MYCOGEN	EXP9881	88	--	--	--	--	90	--	--	--	--	65	15	56	47	0	97	1.5	
MYCOGEN	EXP9874	81	--	--	--	--	83	--	--	--	--	65	15	56	60	0	98	1.3	
DEKALB	DK-54	111	165	149	138	141	113	115	114	63	17	65	16	57	63	0	102	1.3	
MATURITY CHECK	TX2752xTX2783	83	139	142	111	122	85	97	109	65	18	65	16	58	58	0	104	1.3	
TRIUMPH	TR 481	89	148	143	118	127	91	104	109	63	17	65	16	57	58	0	93	1.5	
CARGILL	837	110	148	139	129	132	113	103	106	61	16	65	17	56	57	1	108	1.4	
GOLDKIST	GK907	98	--	--	--	--	100	--	--	--	--	66	14	57	56	0	104	1.1	
MYCOGEN	EXP9888	97	--	--	--	--	99	--	--	--	--	66	14	57	53	0	98	1.1	
ASGROW	A570	100	--	--	--	--	102	--	--	--	--	66	15	58	59	2	115	1.2	
DEKALB	DK-56	99	147	151	123	133	101	103	116	64	16	66	15	59	60	0	83	1.4	
GOLDKIST	GK606	107	--	--	--	--	109	--	--	--	--	66	15	57	63	0	76	1.5	
MIDLAND	4836	76	--	--	--	--	77	--	--	--	--	66	15	56	51	3	96	1.3	
ASGROW	A571	103	--	--	--	--	105	--	--	--	--	66	16	55	58	0	116	1.1	
PIONEER	82G63	116	--	--	--	--	118	--	--	--	--	66	16	58	58	0	118	1.1	
TRIUMPH	TR 82-G	84	--	145	--	--	85	--	111	--	--	66	16	57	59	2	102	1.2	
MSG (OHLDE)	G 610	77	--	--	--	--	79	--	--	--	--	66	17	57	62	1	103	1.2	
DELANGE	DSA 144	86	--	--	--	--	87	--	--	--	--	67	16	58	57	0	100	1.1	
AVERAGES		98	143	131	120	124	98	143	131	61	16	63	15	57	54	0	101	1.3	
CV(%)		10	5	7	--	--	10	5	7	--	--	2	4	2	4	208	9	10.1	
LSD(0.05)**		12	8	11	--	--	12	6	8	--	--	2	1	2	3	1	11	0.2	

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

# SOUTHEAST KANSAS GRAIN SORGHUM TEST ON SILTY CLAY SOIL

**COUNTY:** CHASE

**LOCATION:** ImMasche Research Center, Strong City

**TEST SITE:** Osage silty clay

**1997 CROP:** Corn

**1996 CROP:** Soybeans

**FERTILIZER (lbs/acre):** 100 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/26/98

**HARVEST DATE:** 10/15/98

**COOPERATORS:**

Kraig Roozeboom, agronomist; Gene Eidmand, cooperater

**TARGET POPULATION:** 40,000 plants/acre,

5.2 in. spacing

**STAND (% of target):** 119

**YIELD: Average (bu/a):** 95

**Range (bu/a):** 65 - 133

**LSD (bu/a):** 26

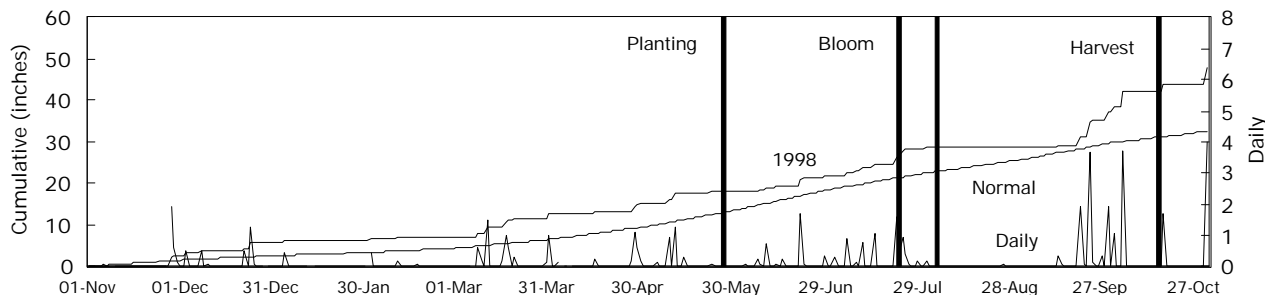
**CV (%):** 16

**BLOOM DATES:** 7/22/98 - 8/4/98

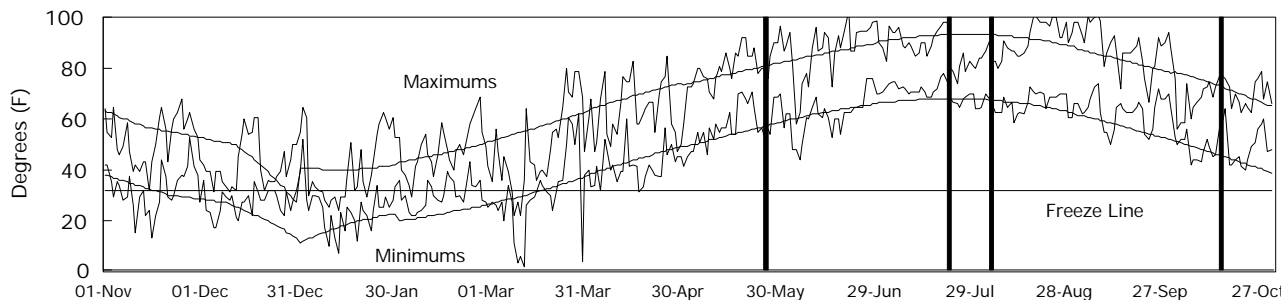
**1998 GROWING CONDITONS:**

An extended period of hot, dry weather after planting resulted in uneven emergence, but stands eventually filled in. Apparent headworm damage lowered yields slightly. Wet fields and flooding prevented harvest of two replications. Results are presented from only two replications.

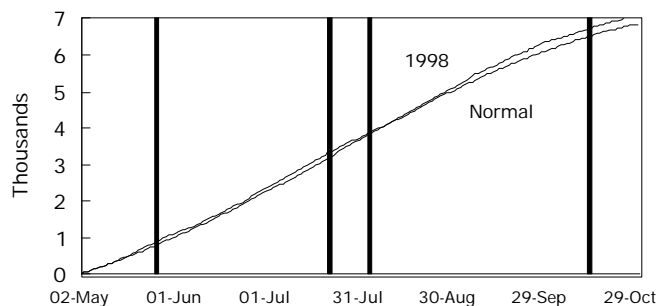
**PRECIPITATION**



**DAILY TEMPERATURES**



**GROWING DEGREE DAYS**



**GROWING-SEASON WEATHER SUMMARY**

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	2.4	2.9	53	57	0	0
May	2.8	4.2	69	66	1074	965
June	3.7	4.9	75	75	1218	1222
July	6.9	4.0	79	80	1410	1431
August	0.3	3.2	79	79	1389	1386
Sep.	8.6	4.1	76	70	1258	1080
Oct.	10.5	2.7	59	59	781	773
Season Totals	35.1	26.0	70	69	7128	6856



**TABLE 6. CHASE CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1995-1998.**

BRAND	NAME	YIELD AS %									97-98		1998						
		ACRE YIELD, BUSHELS			OF TEST			AVERAGE			Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
		1998	1997	1995	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1995										
MATURITY CHECK	C 305	72	135	91	104	99	76	95	108	59	18	57	18	51	49	4	110	1.3	
HOEGEMEYER	6055	118	--	--	--	--	124	--	--	--	--	59	16	51	50	4	138	1.0	
DEKALB	DK-35	89	130	--	110	--	94	92	--	63	16	60	16	53	49	8	128	1.1	
MYCOGEN	444E	81	161	--	121	--	86	114	--	63	16	60	16	52	56	17	103	1.2	
PIONEER	8500	92	--	--	--	--	98	--	--	--	--	60	16	55	52	2	129	1.1	
MATURITY CHECK	RS 610	65	129	84	97	93	69	92	100	62	17	60	17	53	55	13	101	1.3	
MATURITY CHECK	TX3042xTX2737	104	145	79	124	109	110	102	94	62	17	60	18	49	55	8	131	1.1	
MATURITY CHECK	OK11xTX2741	66	126	81	96	91	69	89	97	63	15	61	15	53	45	3	120	1.1	
GARST	5616	91	--	--	--	--	96	--	--	--	--	61	16	54	48	0	111	1.1	
DELANGE	DSA 133	98	--	--	--	--	103	--	--	--	--	61	17	50	55	14	119	1.2	
DEKALB	DK-45	114	136	102	125	117	121	96	121	64	16	62	16	55	56	6	118	1.0	
DEKALB	DK-44	88	113	--	101	--	92	80	--	64	16	62	17	49	51	5	119	1.1	
HOEGEMEYER	6884	92	--	--	--	--	97	--	--	--	--	62	17	52	52	1	125	1.1	
DEKALB	DK-40y	70	118	80	94	89	74	83	96	65	16	63	16	51	51	2	107	1.2	
MIDLAND	X876	119	--	--	--	--	126	--	--	--	--	63	16	55	47	--	126	1.0	
MYCOGEN	1506	106	153	90	130	117	112	108	107	65	16	63	16	55	65	6	112	1.1	
HOEGEMEYER	671	116	139	81	128	112	122	98	97	65	15	64	15	54	53	--	129	1.1	
ASGROW	A459	81	--	--	--	--	85	--	--	--	--	64	16	54	56	4	135	1.0	
HOEGEMEYER	6874	81	150	--	116	--	86	106	--	65	16	64	16	55	56	7	116	1.1	
MATURITY CHECK	TX2752xTX430	93	151	103	122	116	98	107	123	66	16	64	16	52	56	4	128	1.1	
NK	K73-J6	99	155	--	127	--	104	110	--	65	16	64	16	55	61	1	108	1.3	
DEKALB	DK-47	78	157	--	117	--	82	111	--	65	16	64	17	55	55	6	119	1.1	
DELANGE	DSA 115C	98	--	--	--	--	103	--	--	--	--	64	17	51	46	2	125	1.1	
MIDLAND	4725	106	--	--	--	--	111	--	--	--	--	65	15	54	57	1	123	1.1	
ASGROW	A504	101	--	--	--	--	107	--	--	--	--	65	16	52	52	5	113	1.1	
MYCOGEN	EXP9656	84	--	--	--	--	89	--	--	--	--	65	16	53	48	3	117	1.1	
ASGROW	A425	70	141	--	106	--	74	100	--	66	17	65	17	53	53	1	106	1.1	
MATURITY CHECK	TX2752xTX2783	99	148	85	124	111	105	105	102	67	17	65	17	54	56	8	121	1.1	
NC+	371	97	149	--	123	--	102	105	--	66	16	65	17	50	49	6	128	1.1	
DELANGE	DSA 123Y	93	--	--	--	--	98	--	--	--	--	66	15	54	48	1	128	1.1	
DEKALB	DK-53	133	--	--	--	--	140	--	--	--	--	66	16	55	56	3	128	0.9	
DELANGE	DSA 144	97	--	--	--	--	103	--	--	--	--	66	16	57	55	8	120	1.1	
MYCOGEN	EXP9881	91	--	--	--	--	96	--	--	--	--	66	16	53	51	5	91	1.3	
NK	K59-Y2	95	--	--	--	--	101	--	--	--	--	66	16	53	61	5	115	1.1	
PIONEER	84G62	97	--	--	--	--	102	--	--	--	--	66	16	56	53	3	116	1.2	
NC+	7R83	98	--	--	--	--	104	--	--	--	--	66	17	52	56	16	116	1.1	
ASGROW	A571	108	--	--	--	--	113	--	--	--	--	67	16	55	56	7	122	1.1	
ASGROW	A570	92	--	--	--	--	97	--	--	--	--	67	16	53	58	3	131	1.1	
PIONEER	82G63	99	--	--	--	--	105	--	--	--	--	67	17	55	57	19	127	1.1	
DEKALB	DK-54	123	153	--	138	--	130	108	--	68	16	68	16	54	61	4	118	1.2	
MIDLAND	4836	107	--	--	--	--	113	--	--	--	--	68	16	55	53	5	114	1.1	
DEKALB	DK-56	90	144	85	117	106	95	102	101	68	16	68	17	54	62	6	102	1.3	
MYCOGEN	EXP9888	100	--	--	--	--	105	--	--	--	--	70	16	54	55	3	129	0.9	
MYCOGEN	EXP9874	79	--	--	--	--	83	--	--	--	--	70	16	55	59	2	114	1.2	
AVERAGES		95	141	84	118	107	95	141	84	65	16	64	16	53	54	5	119	1.1	
CV(%)		16	7	10	--	--	16	7	10	--	--	1	4	3	4	81	7	6.2	
LSD(0.05)**		26	11	12	--	--	27	8	15	--	--	1	1	3	3	7	15	0.1	

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

# SOUTHEAST KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL

**COUNTY:** LABETTE

**LOCATION:** Southeast Agricultural Research Center, Parsons

**TEST SITE:** Parsons silt loam

**1997 CROP:** Soybeans

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 130 N 75 P<sub>2</sub>O<sub>5</sub> 75 K<sub>2</sub>O

**PLANTING DATE:** 5/13/98

**HARVEST DATE:** 9/9/98

**COOPERATORS:**

Kenneth Kelley, agronomist

**TARGET POPULATION:** 35,000 plants/acre,

6.0 in. spacing

**STAND (% of target):** 89

**YIELD: Average (bu/a):** 132

**Range (bu/a):** 104 - 166

**LSD (bu/a):** 9

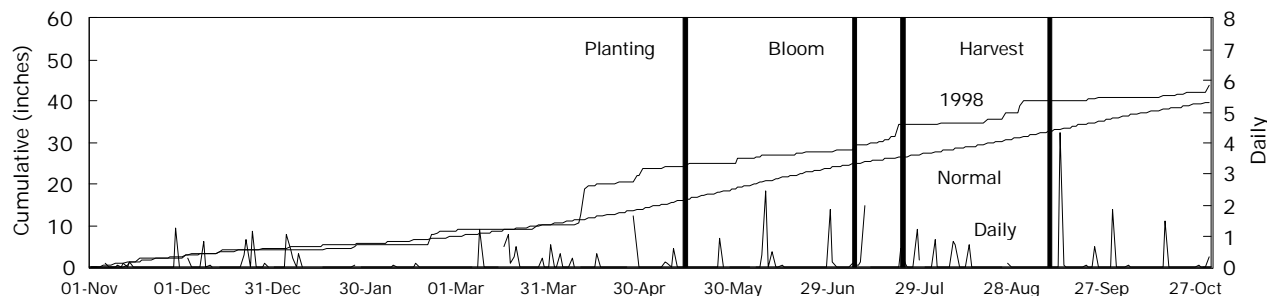
**CV (%):** 6

**BLOOM DATES:** 7/7/98 - 7/23/98

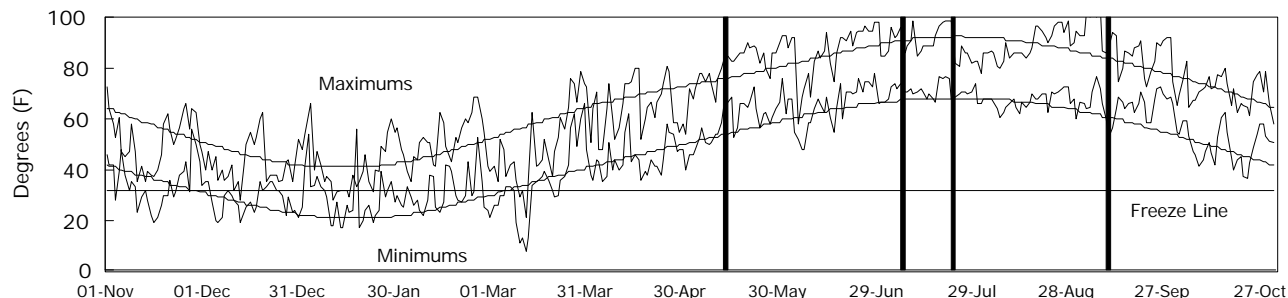
**1998 GROWING CONDITONS:**

Good soil moisture for seedling establishment led to good stands. May was drier than normal. Hail damaged plants about 1 month after emergence, causing the plants to produce more tillers than normal. Temperatures were above normal in late May and early June. Excellent rainfall from June through mid-August enabled the test to produce good yields. Dry, hot conditions from mid-August until harvest speeded maturity and harvest. Some corn earworms were noted after heading, but damage appeared light.

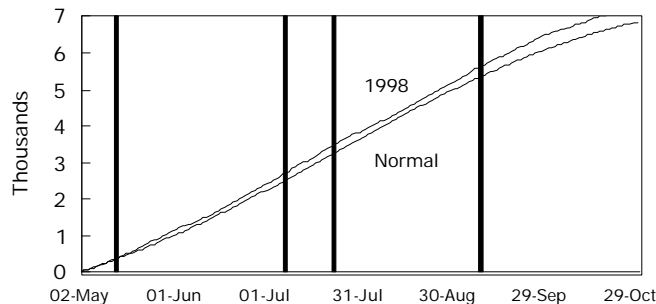
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	3.4	3.7	55	58	0	0
May	2.0	5.0	70	66	1096	965
June	5.4	4.7	76	75	1268	1215
July	5.1	3.5	80	80	1439	1418
August	3.4	3.9	78	78	1371	1371
Sep.	7.1	4.5	78	70	1305	1095
Oct.	2.1	3.8	60	60	818	791
Season Totals	28.5	29.2	71	69	7296	6853

**TABLE 7. LABETTE CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1995-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL						YIELD AS % OF TEST AVERAGE			97-98		1998					
		1998	1997	1995	2-Yr. 3-Yr.		1998	1997	1995	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
					2-Yr. AVG.	3-Yr. AVG.												
AGRIPRO	AP 2233	111	--	--	--	--	84	--	--	--	--	55	11	58	41	0	91	1.8
CENTURY II	GB4535-E	104	--	--	--	--	78	--	--	--	--	55	11	59	44	0	95	1.9
MATURITY CHECK	C 305	109	127	69	118	102	82	92	81	60	13	55	11	58	44	0	79	2.0
NK	KS 585	127	132	83	130	114	96	96	96	60	13	55	11	61	44	0	103	1.9
CENTURY II	GB5543-E	123	138	74	131	112	93	101	86	61	13	56	11	60	49	0	91	1.9
DEKALB	DK-35	123	133	--	128	--	93	96	--	61	13	56	11	60	44	0	89	2.1
MATURITY CHECK	TX3042xTX2737	125	143	77	134	115	94	104	90	61	13	56	11	59	49	0	92	1.9
MATURITY CHECK	RS 610	114	130	43	122	96	86	95	50	62	13	57	11	58	44	0	86	1.8
MATURITY CHECK	OK11xTX2741	115	126	73	120	104	87	92	85	63	13	57	11	59	41	0	89	1.9
PIONEER	8500	126	148	83	137	119	96	107	97	64	13	57	11	60	46	0	103	1.8
CENTURY II	GB7540-E	129	--	--	--	--	97	--	--	--	--	58	11	59	43	0	77	2.0
GARST	5616	124	--	--	--	--	94	--	--	--	--	58	11	60	43	0	84	1.8
HOEGEMEYER	6055	130	--	--	--	--	98	--	--	--	--	58	11	59	44	1	96	1.7
MYCOGEN	3838	125	--	--	--	--	95	--	--	--	--	58	11	61	42	1	95	1.6
DELANGE	DSA 115C	114	117	--	115	--	86	85	--	64	13	59	12	61	41	0	83	1.7
ASGROW	A459	129	--	--	--	--	97	--	--	--	--	60	11	60	48	0	96	1.5
HOEGEMEYER	6884	136	--	--	--	--	103	--	--	--	--	60	11	60	45	0	98	1.6
HOEGEMEYER	671	138	146	94	142	126	105	106	110	66	14	60	12	61	49	0	99	1.6
NK	KS 711Y	129	110	84	120	108	98	80	98	65	14	60	12	62	42	0	87	2.2
AGRIPRO	AP 2468	119	--	--	--	--	90	--	--	--	--	61	11	60	42	0	91	1.7
ASGROW	A425	133	129	--	131	--	101	94	--	66	13	61	11	60	45	0	88	1.9
CENTURY II	GB7042-E	131	128	75	130	112	99	93	88	67	14	61	12	59	45	0	99	1.8
DEKALB	DK-44	130	122	--	126	--	98	88	--	66	14	61	12	60	47	0	87	1.8
DEKALB	DK-45	145	140	92	143	126	109	102	108	67	14	61	12	60	48	0	94	1.6
NC+	7B47	142	--	--	--	--	107	--	--	--	--	61	12	60	45	0	90	1.7
AGRIPRO	AP 2660	129	--	--	--	--	97	--	--	--	--	62	11	60	43	0	86	1.8
AGRIPRO	AP 2838	130	--	--	--	--	98	--	--	--	--	62	11	60	46	0	87	1.7
CARGILL	770Y	135	145	--	140	--	102	105	--	67	13	62	11	59	45	0	86	1.9
ASGROW	A504	132	--	--	--	--	100	--	--	--	--	62	12	60	45	0	83	1.9
CARGILL	737	132	141	77	137	117	100	102	90	67	14	62	12	59	43	0	80	1.9
DEKALB	DK-40y	128	122	96	125	115	97	89	112	67	14	62	12	60	44	0	70	2.1
DEKALB	DK-47	136	153	--	145	--	103	111	--	65	14	62	12	61	47	0	87	2.0
DELANGE	DSA 133	135	--	--	--	--	102	--	--	--	--	62	12	60	46	0	83	1.9
GOLDEN HARVEST	H-512	135	139	--	137	--	102	101	--	68	14	62	12	61	45	0	88	1.9
GOLDEN HARVEST	EX 502	146	--	--	--	--	110	--	--	--	--	62	12	61	48	0	98	1.6
MATURITY CHECK	TX2752xTX430	141	150	91	145	127	106	109	106	68	14	62	12	60	45	0	85	1.9
MIDLAND	4774	134	--	--	--	--	102	--	--	--	--	62	12	60	50	0	91	1.9
MYCOGEN	1506	143	165	91	154	133	108	120	106	67	14	62	12	60	54	0	86	2.1
NK	K73-J6	133	146	--	139	--	100	106	--	67	14	62	12	60	47	0	95	1.9
HOEGEMEYER	6766	131	137	--	134	--	99	100	--	67	15	62	13	61	47	0	91	1.8

(continued)

**TABLE 7. LABETTE CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1995-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL						YIELD AS % OF TEST AVERAGE			97-98		1998					
		1998	1997	1995	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1995	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
CARGILL	730	134	143	89	138	122	101	104	104	68	13	63	11	60	44	0	87	1.9
NK	K59-Y2	131	--	--	--	--	99	--	--	--	--	63	11	60	49	0	88	1.7
AGRIPRO	AP 2800	127	--	--	--	--	96	--	--	--	--	63	12	61	44	0	84	1.9
CENTURY II	GB8041-W	124	137	81	130	114	94	99	95	67	13	63	12	61	47	1	87	1.9
DELANGE	DSA 123Y	134	--	--	--	--	101	--	--	--	--	63	12	60	42	0	86	2.0
MYCOGEN	EXP9656	136	--	--	--	--	103	--	--	--	--	63	12	59	42	0	88	1.9
MYCOGEN	EXP9881	134	--	--	--	--	101	--	--	--	--	63	12	60	43	0	86	2.0
ASGROW	A570	148	--	91	--	--	112	--	106	--	--	64	12	61	49	0	88	1.8
CARGILL	837	143	--	96	--	--	108	--	111	--	--	64	12	60	49	0	92	1.8
CARGILL	X12027 EXP	137	119	--	128	--	104	87	--	68	14	64	12	60	43	0	91	1.9
DEKALB	DK-53	154	--	--	--	--	117	--	--	--	--	64	12	61	48	0	89	1.6
MATURITY CHECK	TX2752xTX2783	145	138	79	142	121	109	101	92	70	14	64	12	61	49	0	94	1.7
MIDLAND	4836	137	--	--	--	--	104	--	--	--	--	64	12	60	47	0	95	1.9
MIDLAND	4757Y	126	--	--	--	--	95	--	--	--	--	64	12	60	50	0	90	1.8
NC+	7R83	137	147	92	142	125	103	107	107	69	14	64	12	60	47	0	94	1.5
PIONEER	84G62	162	--	--	--	--	122	--	--	--	--	64	12	61	46	0	98	1.9
TRIUMPH	TR 481	136	--	80	--	--	103	--	93	--	--	64	13	61	50	0	79	2.0
MYCOGEN	EXP9888	131	--	--	--	--	99	--	--	--	--	65	11	61	50	0	90	1.6
DEKALB	DK-54	162	164	96	163	141	123	119	112	69	14	65	12	61	51	0	94	1.8
ASGROW	A571	143	--	--	--	--	108	--	--	--	--	66	12	60	45	0	93	1.6
DELANGE	DSA 144	136	--	--	--	--	103	--	--	--	--	66	12	61	47	0	81	1.9
MYCOGEN	EXP9874	106	--	--	--	--	80	--	--	--	--	66	13	61	46	0	77	2.0
PIONEER	82G63	166	--	--	--	--	126	--	--	--	--	66	13	61	51	0	94	1.8
DEKALB	DK-56	141	141	--	141	--	107	103	--	70	14	67	12	62	48	0	81	1.8
TRIUMPH	TR 474	145	144	91	145	127	110	105	106	71	14	67	12	60	48	0	100	1.7
ASGROW	X6126	106	--	--	--	--	80	--	--	--	--	71	11	61	54	0	69	1.9
AVERAGES		132	138	86	135	119	132	138	86	67	14	62	12	60	46	0	89	1.8
CV(%)		6	3	8	--	--	6	3	8	--	--	2	2	1	4	241	9	10.6
LSD(0.05)**		9	6	11	--	--	7	4	13	--	--	1	0	0	2	NS	10	0.2

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

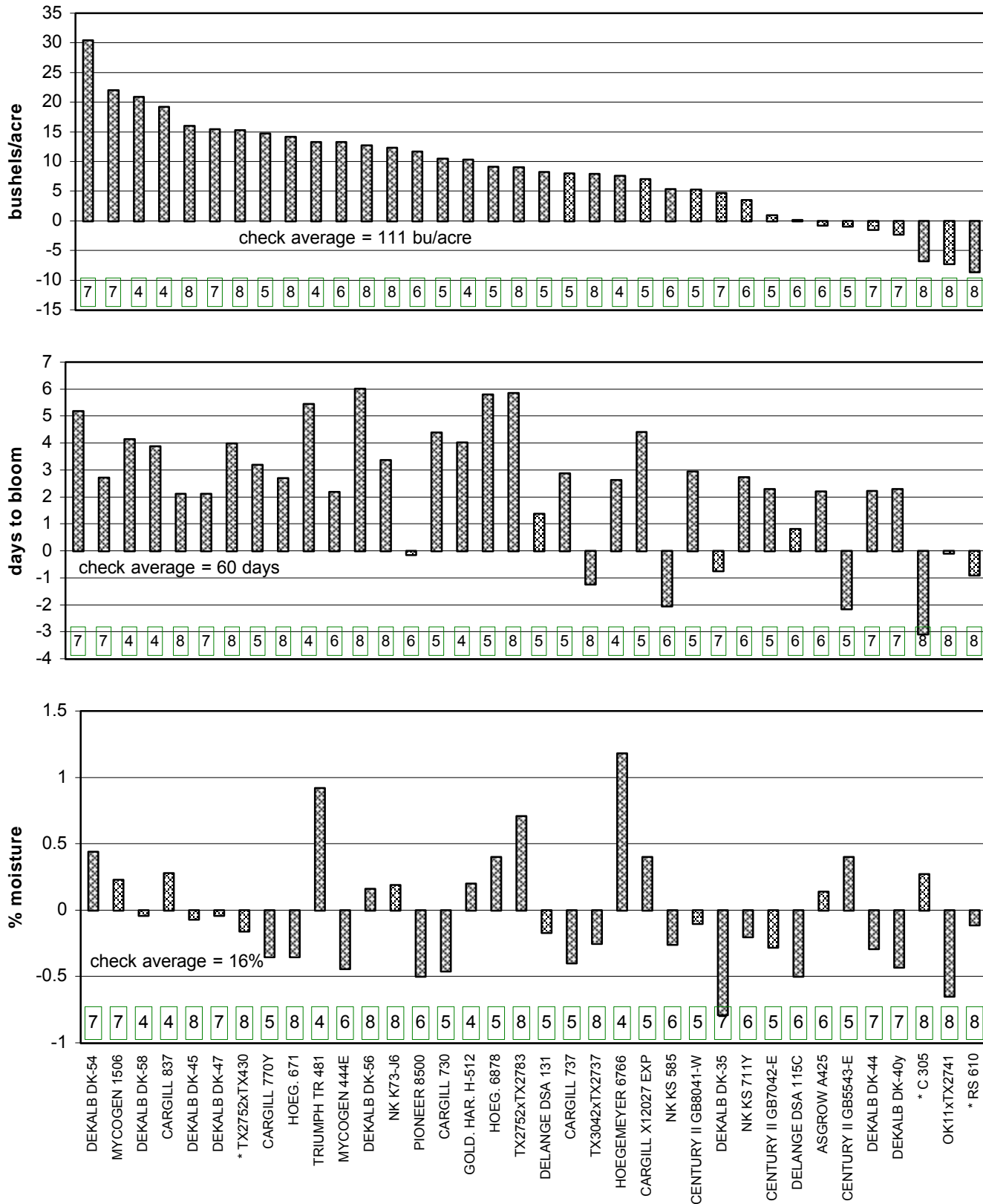
**TABLE 8. SOUTHEASTERN KANSAS GRAIN SORGHUM TEST YIELD SUMMARY, 1996-1998.**

BRAND	NAME	1998 YIELD AS % OF TEST AVERAGE <sup>1</sup>				1996-1998		
		FRA	CHA	LAB	AVG.	DYA (bu/a) <sup>2</sup>	SE <sup>3</sup>	N <sup>4</sup>
DEKALB	DK-54	113	130	123	122	30.4 *	4.5	7
MYCOGEN	1506	117	112	108	113	22.0 *	2.2	7
CARGILL	837	113	--	108	--	19.2 *	2.8	4
DEKALB	DK-45	116	121	109	115	16.0 *	4.8	8
DEKALB	DK-47	100	82	103	95	15.4 *	5.0	7
c MATURITY CHECK	TX2752xTX430	113	98	106	106	15.3 *	2.3	8
CARGILL	770Y	104	--	102	--	14.7 *	3.8	5
HOEGEMEYER	671	102	122	105	110	14.1 *	4.1	8
TRIUMPH	TR 481	91	--	103	--	13.3	7.3	4
MYCOGEN	444E	97	86	--	--	13.3 *	4.5	6
DEKALB	DK-56	101	95	107	101	12.8 *	4.2	8
NK	K73-J6	98	104	100	101	12.3 *	4.2	8
PIONEER	8500	108	98	96	100	11.7 *	2.4	6
CARGILL	730	90	--	101	--	10.4	6.0	5
GOLDEN HARVEST	H-512	93	--	102	--	10.4	7.5	4
MATURITY CHECK	TX2752xTX2783	85	105	109	100	9.0	5.3	8
CARGILL	737	99	--	100	--	8.0 *	2.6	5
MATURITY CHECK	TX3042xTX2737	112	110	94	105	7.9 *	2.8	8
HOEGEMEYER	6766	107	--	99	--	7.6 *	2.1	4
CARGILL	X12027 EXP	109	--	104	--	7.0	5.6	5
NK	KS 585	103	--	96	--	5.3 *	2.0	6
CENTURY II	GB8041-W	100	--	94	--	5.3	3.0	5
DEKALB	DK-35	103	94	93	96	4.7	4.3	7
NK	KS 711Y	105	--	98	--	3.5	5.9	6
CENTURY II	GB7042-E	90	--	99	--	0.9	3.9	5
DELANGE	DSA 115C	97	103	86	95	0.1	5.5	6
ASGROW	A425	89	74	101	88	-0.8	3.5	6
CENTURY II	GB5543-E	93	--	93	--	-0.9	4.0	5
DEKALB	DK-44	110	92	98	100	-1.4	5.2	7
DEKALB	DK-40y	107	74	97	92	-2.3	4.3	7
c MATURITY CHECK	C 305	92	76	82	83	-6.7 *	2.6	8
MATURITY CHECK	OK11xTX2741	83	69	87	80	-7.3 *	2.8	8
c MATURITY CHECK	RS 610	98	69	86	84	-8.6 *	1.8	8
AGRIPRO	AP 2233	--	--	84	--	--	--	--
AGRIPRO	AP 2468	--	--	90	--	--	--	--
AGRIPRO	AP 2660	--	--	97	--	--	--	--
AGRIPRO	AP 2800	--	--	96	--	--	--	--
AGRIPRO	AP 2838	--	--	98	--	--	--	--
ASGROW	A459	92	85	97	91	--	--	--
ASGROW	A504	111	107	100	106	--	--	--
ASGROW	A570	102	97	112	104	--	--	--
ASGROW	A571	105	113	108	109	--	--	--
ASGROW	X6126	--	--	80	--	--	--	--

(continued)



**Figure 7. Southeastern Kansas sorghum hybrid performance summary, 1996-1998.**



Bars show differences between hybrid and average of checks\*. Values in boxes are numbers of tests that compared hybrids and checks.



# SOUTH CENTRAL KANSAS GRAIN SORGHUM TEST ON SILTY CLAY LOAM SOIL

**COUNTY:** HARVEY

**LOCATION:** Harvey County Experiment Field, Hesston

**TEST SITE:** Ladysmith silty clay loam

**1997 CROP:** Oats

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 115 N 32 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 6/19/98

**HARVEST DATE:** 10/23/98

**COOPERATORS:**

Mark Claassen, agronomist; Kevin Duerksen and Lowell Stucky, technicians

**TARGET POPULATION:** 35,000 plants/acre,

6.0 in. spacing

**STAND (% of target):** 90

**YIELD: Average (bu/a):** 67

**Range (bu/a):** 22 - 102

**LSD (bu/a):** 11

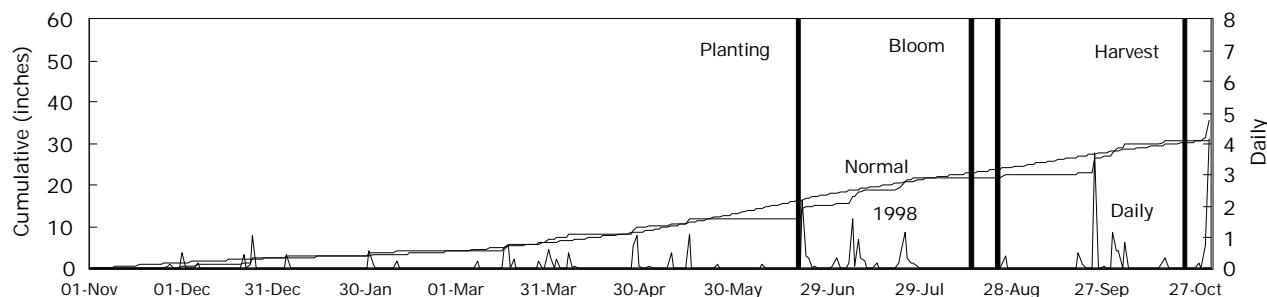
**CV (%):** 12

**BLOOM DATES:** 8/14/98 - 8/23/98

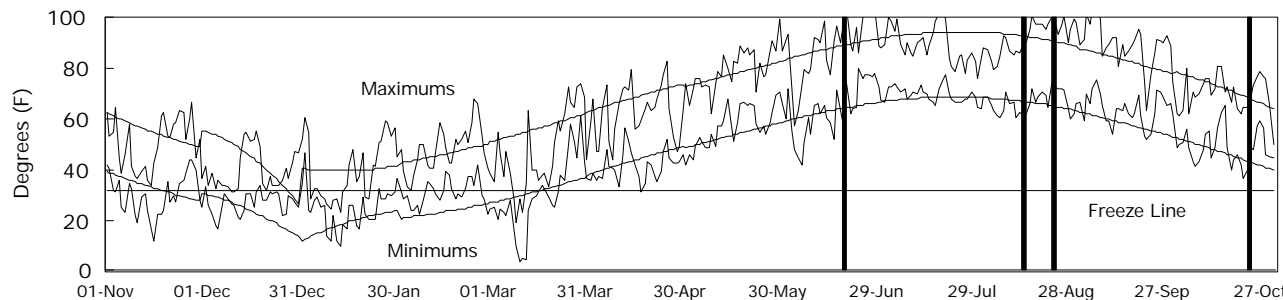
**1998 GROWING CONDITIONS:**

Planting was delayed by extremely dry soil conditions. Yields were highly related to lodging, which was caused by stalk rot.

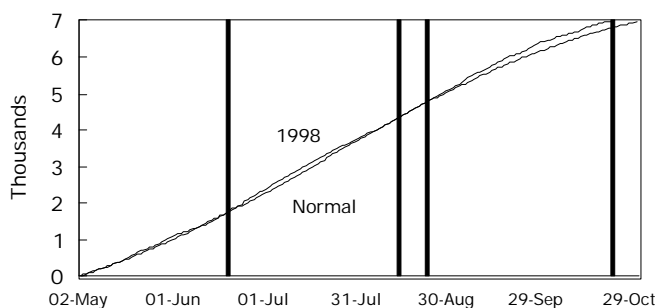
**PRECIPITATION**



**DAILY TEMPERATURES**



**GROWING DEGREE DAYS**



**GROWING-SEASON WEATHER SUMMARY**

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	2.9	2.6	52	56	0	0
May	1.8	4.5	69	66	1048	963
June	3.2	4.7	76	76	1270	1251
July	6.8	3.6	80	81	1418	1460
August	0.6	3.0	79	79	1405	1407
Sep.	5.6	3.7	77	71	1279	1098
Oct.	7.7	2.6	60	59	792	780
Season Totals	28.5	24.6	70	70	7212	6959

**TABLE 9. HARVEY CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL			YIELD AS % OF TEST			97-98		1998								
		1998	1997	1996	2-Yr. 3-Yr.		AVERAGE	Days to Blm	Grain to Moist. %	Days to Blm	Grain to Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Final Ldg %	Hds per Plnt			
					AVG.	AVG.										1998	1997	1996
ASGROW	SENECA	57	--	114	--	--	85	--	91	--	--	56	15	57	42	62	102	1.3
MATURITY CHECK	C 305	37	114	111	76	87	55	84	89	53	15	56	15	53	45	85	69	1.6
NC+	6B50	62	--	--	--	--	92	--	--	--	--	57	15	56	45	60	103	1.2
HOEGEMEYER	6055	59	--	--	--	--	88	--	--	--	--	58	15	56	45	62	109	1.0
MATURITY CHECK	TX3042xTX2737	42	124	126	83	97	62	91	101	55	15	58	15	55	51	91	103	1.2
MIDLAND	4664	49	--	--	--	--	72	--	--	--	--	58	15	55	44	85	98	1.3
NK	KS 585	56	149	140	103	115	83	109	112	56	15	58	15	58	45	80	84	1.6
ASGROW	XP3257	60	--	--	--	--	88	--	--	--	--	58	16	56	47	41	81	1.3
MATURITY CHECK	OK11xTX2741	42	98	118	70	86	63	72	95	58	15	59	15	57	42	60	80	1.1
NC+	6B70	59	--	--	--	--	87	--	--	--	--	59	15	57	46	57	106	1.3
NK	KS 711Y	64	139	127	101	110	94	102	101	59	15	59	15	58	43	45	98	1.5
PIONEER	8500	60	132	135	96	109	89	96	108	57	15	59	15	55	46	74	100	1.2
PIONEER	8505	71	137	131	104	113	105	100	105	57	15	59	15	58	44	36	96	1.2
DEKALB	DK-35	61	140	131	100	111	90	102	105	57	15	59	16	56	42	47	89	1.2
DEKALB	DK-47	69	--	139	--	--	102	--	111	--	--	60	15	56	44	67	94	1.1
DELANGE	DSA 123Y	38	--	--	--	--	56	--	--	--	--	60	15	55	41	71	86	1.3
DELANGE	DSA 115C	57	132	130	94	106	84	97	104	58	15	60	15	57	43	68	95	1.2
HOEGEMEYER	671	56	128	124	92	103	82	94	99	59	15	60	15	57	45	57	96	1.1
MIDLAND	4725	58	--	--	--	--	86	--	--	--	--	60	15	56	44	48	101	1.0
PIONEER	8414	88	139	128	114	118	131	101	102	59	15	60	15	57	44	30	97	1.2
ASGROW	A459	67	--	--	--	--	100	--	--	--	--	60	16	57	48	57	103	1.1
GARST	5616	74	--	124	--	--	109	--	99	--	--	60	16	56	42	49	99	1.1
MATURITY CHECK	RS 610	22	112	112	67	82	32	82	90	57	16	60	16	54	41	72	60	1.2
TRIUMPH	TR 462	74	139	--	106	--	109	101	--	59	16	60	16	57	45	65	97	1.1
AGRIPRO	AP 2660	77	141	129	109	115	113	103	103	59	15	61	15	58	44	35	98	1.1
AGRIPRO	AP 2800	54	--	--	--	--	80	--	--	--	--	61	15	57	42	43	86	1.2
ASGROW	A570	68	--	--	--	--	101	--	--	--	--	61	15	57	50	86	102	1.2
ASGROW	A504	79	--	--	--	--	118	--	--	--	--	61	15	57	47	32	80	1.2
CARGILL	X12200 EXP	65	--	--	--	--	96	--	--	--	--	61	15	57	44	40	79	1.3
CARGILL	730	81	148	124	115	118	120	109	99	61	15	61	15	57	44	37	99	1.1
CARGILL	627	72	151	114	112	112	107	110	91	60	15	61	15	56	45	30	90	1.1
CARGILL	770Y	60	131	128	96	106	89	96	102	60	15	61	15	56	43	54	84	1.3
DEKALB	DK-43A	53	138	--	95	--	78	101	--	60	15	61	15	56	41	56	75	1.3
DELANGE	DSA 133	60	--	--	--	--	89	--	--	--	--	61	15	57	44	60	81	1.3
GOLDEN HARVEST	H-512	68	146	--	107	--	100	107	--	61	15	61	15	59	46	56	94	1.2
HOEGEMEYER	6884	72	--	--	--	--	107	--	--	--	--	61	15	58	43	40	101	1.1
MIDLAND	4757Y	89	--	--	--	--	132	--	--	--	--	61	15	58	50	10	89	1.1
MYCOGEN	3838	53	--	126	--	--	79	--	101	--	--	61	15	58	44	58	87	1.2

(continued)

**TABLE 9. HARVEY CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL			YIELD AS % OF TEST			97-98		1998								
		1998	1997	1996	AVERAGE		Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand per Plnt				
		2-Yr. AVG.	3-Yr. AVG.	1998 1997 1996		1998	1997	1996										
MYCOGEN	EXP9881	36	--	--	--	--	53	--	--	--	61	15	55	41	64	79	1.4	
NC+	7B29	59	131	--	95	--	87	96	--	61	15	61	15	57	42	22	75	1.2
TRIUMPH	TR 447	55	--	--	--	--	81	--	--	--	61	15	56	39	36	83	1.1	
CARGILL	647	76	125	130	101	110	112	92	104	60	16	61	16	58	47	11	105	1.1
DEKALB	DK-45	73	146	141	110	120	108	107	113	59	16	61	16	56	51	68	99	1.1
DEKALB	DK-44	74	144	116	109	111	110	105	93	59	15	61	16	58	43	27	92	1.0
GARST	5429	96	167	--	131	--	142	122	--	60	15	61	16	57	50	27	100	1.1
MIDLAND	4774	101	--	--	--	--	150	--	--	--	--	61	16	57	49	23	104	1.0
MYCOGEN	EXP9656	47	--	--	--	--	70	--	--	--	--	61	16	55	41	62	95	1.3
MYCOGEN	1506	92	163	141	127	132	136	119	113	60	15	61	16	58	55	17	78	1.2
NK	K73-J6	83	172	--	128	--	123	126	--	59	16	61	16	56	48	30	85	1.2
AGRIPRO	AP 2838	71	126	--	99	--	106	92	--	61	15	62	15	57	43	43	95	1.0
MATURITY CHECK	TX2752xTX430	69	142	129	105	113	102	104	103	61	15	62	15	57	42	62	79	1.3
ASGROW	A571	71	--	123	--	--	105	--	99	--	--	62	16	56	47	34	89	1.2
DEKALB	DK-40y	61	120	118	91	100	90	88	94	60	15	62	16	58	43	18	76	1.3
GOLDEN HARVEST	EX 502	73	--	--	--	--	108	--	--	--	--	62	16	57	49	55	92	1.1
HOEGEMEYER	6874	71	138	120	105	110	106	101	96	60	16	62	16	58	44	52	93	1.3
MATURITY CHECK	TX2752xTX2783	65	118	131	92	105	97	86	105	62	16	62	16	57	48	78	85	1.2
MSG (OHLDE)	O 256	90	168	135	129	131	134	123	108	60	15	62	16	57	53	7	76	1.2
NK	K59-Y2	59	--	--	--	--	87	--	--	--	--	62	16	56	45	38	78	1.2
PIONEER	84G62	78	--	--	--	--	116	--	--	--	--	62	16	58	43	35	105	1.2
CARGILL	X12027 EXP	88	126	131	107	115	131	92	105	61	15	63	15	58	42	9	105	1.1
ASGROW	A425	61	150	132	106	114	91	110	106	60	16	63	16	58	44	34	86	1.2
DEKALB	DK-53	86	--	--	--	--	128	--	--	--	--	63	17	56	50	14	96	1.0
MYCOGEN	EXP9874	86	--	--	--	--	128	--	--	--	--	64	15	57	48	1	80	1.3
TRIUMPH	TR 481	102	171	--	136	--	151	125	--	64	15	64	15	58	53	2	83	1.1
DEKALB	DK-56	84	131	141	108	119	124	96	113	64	16	64	16	57	49	27	84	1.2
MIDLAND	4836	69	--	--	--	--	102	--	--	--	--	64	16	57	44	34	88	1.4
MSG (OHLDE)	G 610	102	--	--	--	--	150	--	--	--	--	64	16	58	52	5	83	1.1
DELANGE	DSA 144	70	--	--	--	--	103	--	--	--	--	65	15	57	44	26	91	1.1
MYCOGEN	EXP9888	76	--	--	--	--	113	--	--	--	--	65	15	56	46	26	94	1.1
AVERAGES		67	137	125	102	110	67	137	125	59	15	61	15	57	45	45	90	1.2
CV(%)		12	6	6	--	--	12	6	6	--	--	2	3	2	3	38	10	9.3
LSD(0.05)**		11	12	11	--	--	16	9	9	--	--	1	1	2	2	23	12	0.1

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

# SOUTH CENTRAL KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL

**COUNTY:** RENO

**LOCATION:** South Central Kansas Experiment Field, Hutchinson

**TEST SITE:** Ost silt loam

**1997 CROP:** Wheat

**1996 CROP:** Oats

**FERTILIZER (lbs/acre):** 120 N 40 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/27/98

**HARVEST DATE:** 10/12/98

**COOPERATORS:**

William Heer, agronomist; Jim Dirks, technician

**TARGET POPULATION:** 35,000 plants/acre,  
6.0 in. spacing

**STAND (% of target):** 108

**YIELD: Average (bu/a):** 93

**Range (bu/a):** 53 - 134

**LSD (bu/a):** 19

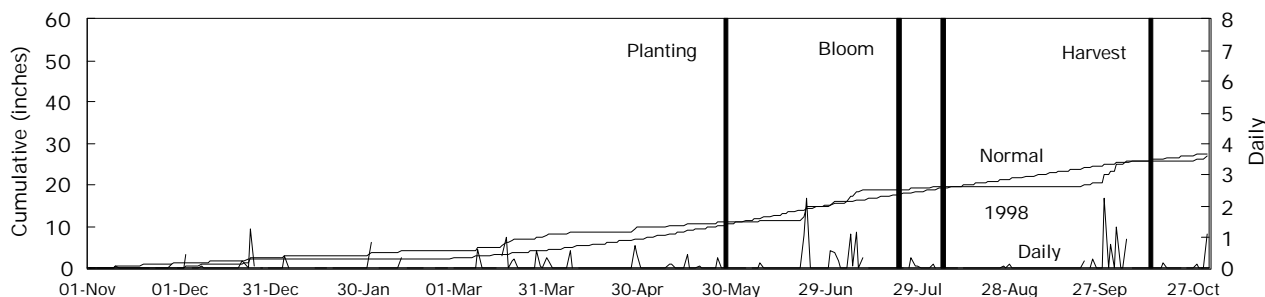
**CV (%):** 17

**BLOOM DATES:** 7/22/98 - 8/6/98

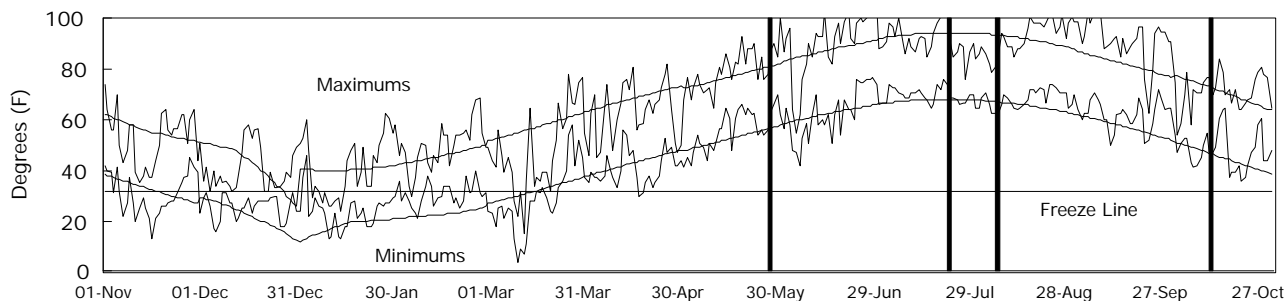
**1998 GROWING CONDITONS:**

Excellent stands were established before the hot, dry conditions in June. Moisture stress in August caused stalk rot, resulting in extensive lodging during a strong storm with driving rain and winds up to 50-60 mph. Yields appeared to be related strongly to level of lodging.

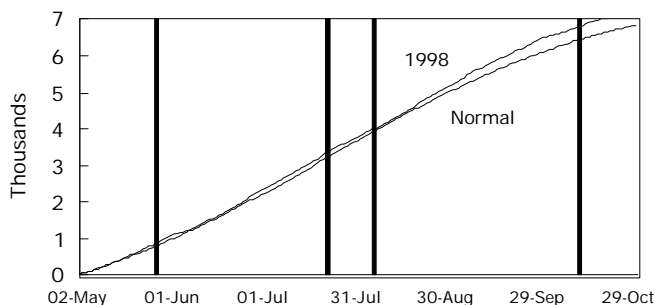
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.9	2.6	52	56	0	0
May	1.2	3.9	68	65	1033	940
June	3.6	4.3	76	75	1271	1234
July	4.7	3.4	80	81	1440	1454
August	0.3	3.1	81	79	1445	1385
Sep.	3.7	3.3	77	70	1294	1072
Oct.	3.8	2.5	60	58	798	748
Season Totals	19.1	23.1	71	69	7280	6833

**TABLE 10. RENO CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL			YIELD AS % OF TEST AVERAGE			97-98		1998								
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
ASGROW	XP3257	87	--	--	--	--	94	--	--	--	--	56	14	56	48	25	96	2.0
CENTURY II	GB4535-E	71	--	--	--	--	77	--	--	--	--	56	14	56	46	53	116	1.7
CENTURY II	GB5543-E	73	110	108	91	97	79	85	84	57	15	57	14	55	53	80	108	1.6
MATURITY CHECK	C 305	53	100	100	76	84	57	78	78	58	15	58	15	54	48	90	92	1.9
ASGROW	SENECA	88	--	110	--	--	94	--	85	--	--	59	14	58	42	48	126	1.4
DEKALB	DK-35	101	126	117	113	114	109	98	91	59	14	60	13	57	45	10	118	1.5
MATURITY CHECK	TX3042xTX2737	76	123	113	100	104	82	96	88	59	15	60	15	55	50	78	121	1.4
MIDLAND	4664	93	--	--	--	--	100	--	--	--	--	60	14	56	46	59	113	1.6
PIONEER	8505	121	--	--	--	--	130	--	--	--	--	60	14	57	47	28	107	1.5
HOEGEMEYER	6055	82	--	--	--	--	89	--	--	--	--	61	14	54	48	65	127	1.2
MATURITY CHECK	OK11xTX2741	76	120	110	98	102	82	94	85	61	14	61	14	57	46	35	95	1.4
MATURITY CHECK	RS 610	75	110	113	92	99	81	86	88	61	15	61	14	56	50	74	83	1.8
NC+	6B50	89	--	--	--	--	96	--	--	--	--	61	13	56	49	53	120	1.3
NK	KS 585	116	135	119	126	124	125	105	92	60	14	61	13	59	47	18	112	1.8
PIONEER	8500	107	134	129	120	123	115	104	101	60	15	61	14	57	49	15	124	1.5
CARGILL	647	103	137	132	120	124	111	106	103	62	15	62	14	59	50	33	118	1.5
CENTURY II	GB7042-E	83	120	134	101	112	89	93	104	61	14	62	14	56	50	75	113	1.5
DEKALB	DK-45	84	142	143	113	123	90	110	111	62	16	62	15	54	53	56	121	1.3
DEKALB	DK-44	104	109	140	107	118	112	85	109	62	15	62	14	58	48	26	123	1.2
DEKALB	DK-40y	81	118	126	100	108	88	92	98	62	14	62	13	57	49	58	96	1.6
DELANGE	DSA 133	88	--	--	--	--	95	--	--	--	--	62	14	56	50	69	103	1.7
DELANGE	DSA 115C	86	117	131	102	111	93	91	102	61	14	62	13	58	47	55	103	1.5
GARST	5429	123	--	--	--	--	132	--	--	--	--	62	14	59	54	4	125	1.3
MYCOGEN	3838	90	--	136	--	--	97	--	106	--	--	62	13	56	46	33	108	1.4
ASGROW	A459	105	--	--	--	--	113	--	--	--	--	63	14	57	55	6	127	1.1
HOEGEMEYER	6884	93	--	--	--	--	100	--	--	--	--	63	14	57	48	31	115	1.3
MIDLAND	4774	115	--	--	--	--	123	--	--	--	--	63	14	57	53	9	113	1.4
TRIUMPH	TR 462	95	143	140	119	126	102	111	109	59	15	63	14	57	53	71	123	1.4
AGRIPRO	AP 2838	97	--	--	--	--	105	--	--	--	--	64	16	54	50	58	120	1.1
AGRIPRO	AP 2660	89	142	--	115	--	95	110	--	63	15	64	15	56	48	44	104	1.5
ASGROW	A425	111	132	135	122	126	120	102	105	63	15	64	15	55	50	19	115	1.5
CARGILL	770Y	88	124	127	106	113	95	97	99	64	15	64	14	55	52	30	107	1.5
CARGILL	X12200 EXP	93	--	--	--	--	101	--	--	--	--	64	14	56	52	38	88	1.7
CENTURY II	GB7540-E	100	--	--	--	--	108	--	--	--	--	64	14	57	47	11	85	1.5
GARST	5616	101	--	128	--	--	109	--	100	--	--	64	13	58	47	10	111	1.3
MIDLAND	4757Y	126	--	--	--	--	136	--	--	--	--	64	13	58	58	4	113	1.5
MIDLAND	4725	97	--	--	--	--	104	--	--	--	--	64	13	59	52	8	123	1.2
MSG (OHLDE)	O 256	128	141	--	134	--	138	110	--	63	15	64	14	57	60	15	107	1.5
MYCOGEN	1506	132	143	150	138	142	143	112	117	63	15	64	14	59	61	0	100	1.7
NC+	6B70	101	--	--	--	--	109	--	--	--	--	64	14	57	50	45	125	1.6
NC+	7B29	94	120	--	107	--	101	93	--	64	14	64	13	58	47	15	114	1.4
WARNER	W-625-Y	130	--	--	--	--	140	--	--	--	--	64	14	58	59	8	101	1.7
WARNER	W-528-W	82	--	--	--	--	88	--	--	--	--	64	14	54	46	75	96	1.5

(continued)

**TABLE 10. RENO CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHELS									YIELD AS % OF TEST			97-98		1998						
		1996			1997			1998			AVERAGE			Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand per %	Hds per Plnt
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	1998	1997	1996	1998	1997	1996	Blm	%	Blm	%	lb/bu	in.	%
CARGILL	730	100	138	137	119	125	108	107	107	64	15	65	14	56	51	36	120	1.3				
CARGILL	627	107	129	140	118	125	115	101	109	63	15	65	14	57	50	29	107	1.5				
CENTURY II	GB8041-W	87	128	127	107	114	93	100	99	64	15	65	15	55	52	19	109	1.4				
CHECK	ATX631xR9019	79	--	--	--	--	85	--	--	--	--	65	15	55	61	80	101	1.3				
HOEGEMEYER	671	103	125	130	114	119	111	97	101	63	14	65	13	57	51	0	107	1.4				
NK	K73-J6	113	145	--	129	--	122	113	--	63	14	65	13	55	57	21	111	1.6				
NK	KS 711Y	100	100	128	100	109	107	78	100	64	14	65	13	58	46	10	118	1.6				
AGRIPRO	AP 2800	97	--	--	--	--	105	--	--	--	--	66	13	57	48	9	110	1.4				
ASGROW	A570	92	--	--	--	--	99	--	--	--	--	66	15	57	58	80	114	1.4				
ASGROW	A504	100	--	--	--	--	107	--	--	--	--	66	15	58	53	15	110	1.3				
DEKALB	DK-47	96	--	--	--	--	104	--	--	--	--	66	15	55	51	39	97	1.7				
DEKALB	DK-43A	89	128	--	109	--	96	99	--	64	15	66	14	57	48	36	103	1.6				
DEKALB	DK-53	108	--	--	--	--	117	--	--	--	--	66	14	59	56	18	117	1.1				
DELANGE	DSA 123Y	91	--	--	--	--	98	--	--	--	--	66	13	57	46	18	99	1.6				
HOEGEMEYER	6874	91	144	137	117	124	98	112	107	64	14	66	13	58	53	69	113	1.6				
MATURITY CHECK	TX2752xTX2783	72	120	144	96	112	78	93	112	57	14	66	13	57	57	81	116	1.4				
MATURITY CHECK	TX2752xTX430	82	132	140	107	118	88	103	109	61	14	66	13	53	52	75	104	1.7				
ASGROW	A571	89	--	144	--	--	96	--	112	--	--	67	14	57	54	61	105	1.4				
CHECK	ATX631xTX436	65	--	--	--	--	70	--	--	--	--	67	14	58	57	94	70	2.0				
GOLDKIST	GK606	63	--	--	--	--	68	--	--	--	--	67	14	56	55	69	70	2.0				
MYCOGEN	EXP9881	94	--	--	--	--	101	--	--	--	--	67	13	57	47	31	96	1.7				
MYCOGEN	EXP9656	106	--	--	--	--	115	--	--	--	--	67	13	57	47	34	104	1.6				
TRIUMPH	TR 461	70	--	--	--	--	75	--	--	--	--	67	14	55	55	91	118	1.3				
CARGILL	X12027 EXP	93	120	131	106	115	100	93	102	65	14	68	13	55	48	21	118	1.3				
CHECK	A9009xTX436	60	--	--	--	--	64	--	--	--	--	68	13	54	58	81	99	1.6				
DELANGE	DSA 144	78	--	--	--	--	84	--	--	--	--	68	14	54	53	78	121	1.3				
GOLDKIST	GK907	81	--	--	--	--	87	--	--	--	--	68	15	55	55	69	108	1.4				
MIDLAND	4836	74	--	--	--	--	80	--	--	--	--	68	14	56	50	93	110	1.5				
NK	K59-Y2	85	--	--	--	--	92	--	--	--	--	68	14	55	53	34	88	1.6				
PIONEER	84G62	105	--	--	--	--	113	--	--	--	--	68	14	57	51	49	122	1.2				
WARNER	W-965-E	55	--	--	--	--	59	--	--	--	--	68	14	53	49	100	106	1.5				
CHECK	ATX635xTX436	71	--	--	--	--	77	--	--	--	--	69	14	56	64	64	77	1.6				
MYCOGEN	EXP9888	84	--	--	--	--	90	--	--	--	--	70	14	56	55	51	114	1.1				
TRIUMPH	TR 481	134	153	143	143	143	144	119	111	67	15	70	14	60	57	1	98	1.5				
DEKALB	DK-56	86	128	142	107	118	92	99	110	67	16	71	16	54	55	51	96	1.5				
MYCOGEN	EXP9874	109	--	--	--	--	117	--	--	--	--	71	13	57	53	0	114	1.3				
AVERAGES		93	129	129	111	117	93	129	129	62	15	64	14	56	51	42	108	1.5				
CV(%)		17	6	6	--	--	17	6	6	--	--	2	5	3	3	55	9	10.1				
LSD(0.05)**		19	9	9	--	--	20	7	7	--	--	1	1	3	2	27	11	0.2				

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

# SOUTH CENTRAL KANSAS GRAIN SORGHUM TEST ON SANDY LOAM SOIL, FALLOW

**COUNTY:** STAFFORD

**LOCATION:** Sandyland Experiment Field, St. John

**TEST SITE:** Naron loamy fine sand

**1997 CROP:** Wheat

**1996 CROP:** Fallow

**FERTILIZER (lbs/acre):** 143 N 46 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 6/5/98

**HARVEST DATE:** 11/12/98

**COOPERATORS:**

Victor Martin, agronomist

**TARGET POPULATION:** 35,000 plants/acre,

6.0 in. spacing

**STAND (% of target):** 61

**YIELD: Average (bu/a):** 32

**Range (bu/a):** 13 - 51

**LSD (bu/a):** 11

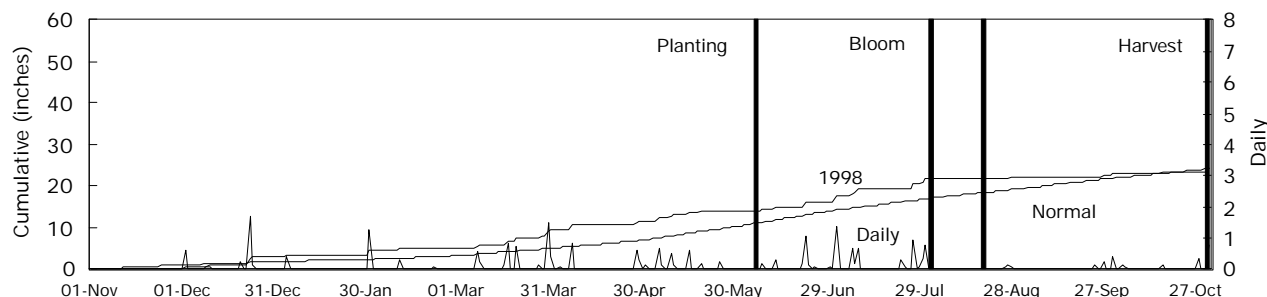
**CV (%):** 31

**BLOOM DATES:** 8/1/98 - 8/18/98

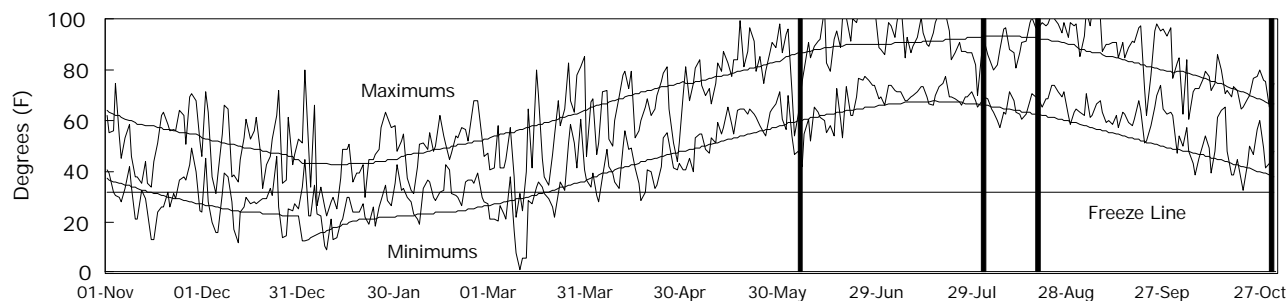
**1998 GROWING CONDITIONS:**

Poor, variable yields resulted from the combined effects of several factors. Dry, hot conditions delayed planting and emergence. July rains caused a flush of crabgrass that severely competed for water during the hot, dry conditions of August and September. Pollination and grain fill occurred under terrible conditions. Many plants had heads with almost no grain. Harvest was delayed by over 5 inches of rain in late October.

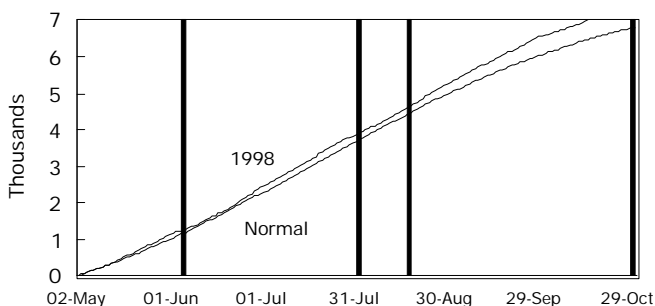
## PRECIPITATION



## DAILY TEMPERATURES



## GROWING DEGREE DAYS



## GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.9	2.0	53	57	0	0
May	2.7	3.4	70	66	1088	971
June	2.0	3.7	77	76	1283	1252
July	5.5	2.9	81	79	1462	1407
August	0.3	2.5	80	78	1418	1356
Sep.	0.9	2.5	77	69	1286	1044
Oct.	1.5	2.2	61	59	840	769
Season Totals	14.8	19.1	71	69	7376	6800



**TABLE 11. STAFFORD CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL			YIELD AS % OF TEST AVERAGE			97-98		1998					Final Hds Stand per Plnt			
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu		Plnt Ht. in.		
ASGROW	XP3257	28	--	--	--	--	88	--	--	--	--	57	16	50	44	33	51	--
CENTURY II	GB4535-E	29	--	--	--	--	92	--	--	--	--	57	16	51	42	61	42	--
ASGROW	SENECA	39	--	116	--	--	124	--	92	--	--	59	14	55	43	39	60	--
MATURITY CHECK	C 305	13	102	102	57	72	40	85	80	55	18	59	15	54	42	43	38	--
MATURITY CHECK	TX3042xTX2737	43	115	126	79	95	135	97	99	57	18	59	16	52	47	43	63	--
HOEGEMEYER	6055	42	--	--	--	--	132	--	--	--	--	60	14	51	44	12	80	--
MATURITY CHECK	OK11xTX2741	28	104	117	66	83	89	88	92	59	16	60	14	49	42	32	64	--
NK	KS 585	36	118	139	77	97	112	99	109	58	15	60	14	53	45	14	58	--
MYCOGEN	444E	42	124	--	83	--	133	104	--	60	18	60	15	53	42	41	67	--
NC+	6B50	49	--	--	--	--	154	--	--	--	--	61	14	53	45	16	76	--
TRIUMPH	TR 447	28	--	--	--	--	88	--	--	--	--	61	14	50	42	21	68	--
TRIUMPH	TR 462	28	--	--	--	--	88	--	--	--	--	61	15	52	44	67	65	--
CARGILL	647	28	123	129	75	93	88	103	102	60	15	62	13	54	45	32	70	--
CENTURY II	GB7042-E	20	111	132	65	88	62	93	104	60	16	62	14	53	44	43	52	--
DEKALB	DK-35	39	117	132	78	96	123	98	104	58	15	62	14	55	45	18	72	--
MATURITY CHECK	RS 610	20	104	117	62	81	64	87	92	57	15	62	14	54	49	44	42	--
DELANGE	DSA 133	36	--	--	--	--	115	--	--	--	--	62	15	50	43	33	63	--
MIDLAND	4664	35	--	--	--	--	111	--	--	--	--	62	15	50	43	19	48	--
PIONEER	84G62	51	--	--	--	--	161	--	--	--	--	62	15	55	44	1	83	--
PIONEER	8505	30	--	--	--	--	94	--	--	--	--	62	15	52	47	30	62	--
NC+	7B29	27	--	--	--	--	85	--	--	--	--	62	16	53	41	8	67	--
CENTURY II	GB5543-E	17	121	108	69	82	52	102	85	58	18	62	17	48	42	88	52	--
DEKALB	DK-45	37	118	119	78	91	118	99	94	61	18	62	17	49	50	49	60	--
AGRIPRO	AP 2660	15	130	--	72	--	46	109	--	61	16	63	15	50	40	39	64	--
PIONEER	8414	28	119	129	73	92	89	100	102	61	18	63	16	51	48	20	65	--
HOEGEMEYER	6874	33	128	130	80	97	103	108	102	61	18	63	17	48	43	38	65	--
DEKALB	DK-40y	16	116	117	66	83	49	97	92	62	16	64	13	51	43	28	52	--
CARGILL	770Y	23	124	--	74	--	73	104	--	63	16	64	14	48	44	15	59	--
CENTURY II	GB8041-W	46	128	122	87	99	146	108	96	62	17	64	15	52	45	8	62	--
CENTURY II	GB7540-E	20	--	--	--	--	62	--	--	--	--	64	15	51	42	8	44	--
DELANGE	DSA 115C	25	115	130	70	90	79	97	103	61	16	64	15	51	44	7	65	--
HOEGEMEYER	671	35	108	142	72	95	112	91	112	62	17	64	15	50	45	21	66	--
GARST	5429	47	--	--	--	--	149	--	--	--	--	64	16	51	45	16	82	--
WARNER	W-528-W	19	--	--	--	--	60	--	--	--	--	64	16	49	42	41	49	--
ASGROW	A459	38	--	--	--	--	120	--	--	--	--	64	17	51	50	44	72	--
CARGILL	X12200 EXP	25	--	--	--	--	78	--	--	--	--	65	14	53	47	31	50	--
MATURITY CHECK	TX2752xTX430	28	131	141	79	100	89	110	111	63	16	65	14	52	44	21	59	--
DEKALB	DK-43A	32	124	--	78	--	102	104	--	62	18	65	15	52	41	25	48	--
MIDLAND	4725	30	--	--	--	--	96	--	--	--	--	65	15	52	44	8	72	--
MYCOGEN	EXP9656	35	--	--	--	--	110	--	--	--	--	65	15	52	43	7	78	--

(continued)

**TABLE 11. STAFFORD CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL					YIELD AS % OF TEST AVERAGE			97-98		1998					Final Hds Stand per Plnt	
		1998	1997	1996	2-Yr.	3-Yr.	1998	1997	1996	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %		
					AVG.	AVG.												
NC+	6B70	34	--	--	--	--	106	--	--	--	--	65	15	50	45	15	70	--
MIDLAND	4774	39	--	--	--	--	122	--	--	--	--	65	16	50	48	21	61	--
CARGILL	730	26	129	129	78	95	83	109	102	63	15	66	14	51	43	8	55	--
NK	KS 711Y	23	116	144	69	94	72	97	113	63	15	66	14	53	41	4	63	--
ASGROW	A570	40	--	--	--	--	125	--	--	--	--	66	15	53	49	46	58	--
ASGROW	A425	36	119	130	78	95	113	100	102	62	17	66	15	49	43	15	66	--
CARGILL	627	42	129	125	86	99	134	109	99	63	16	66	15	50	46	6	69	--
DEKALB	DK-44	43	123	119	83	95	135	104	94	64	16	66	15	53	44	17	76	--
MYCOGEN	EXP9881	23	--	--	--	--	72	--	--	--	--	66	15	51	40	3	55	--
ASGROW	A504	45	--	--	--	--	141	--	--	--	--	66	16	50	46	34	59	--
GARST	5616	34	--	139	--	--	106	--	110	--	--	66	16	52	45	4	68	--
MSG (OHLDE)	O 256	40	126	134	83	100	126	106	106	63	18	66	16	50	49	12	59	--
WARNER	W-625-Y	31	--	--	--	--	97	--	--	--	--	66	17	48	47	7	50	--
HOEGEMEYER	6884	30	--	--	--	--	96	--	--	--	--	67	13	54	40	30	62	--
ASGROW	A571	31	--	136	--	--	97	--	107	--	--	67	14	51	44	25	67	--
DELANGE	DSA 123Y	31	--	--	--	--	97	--	--	--	--	67	14	51	39	8	73	--
MIDLAND	4757Y	34	--	--	--	--	108	--	--	--	--	67	15	53	48	27	70	--
NK	K59-Y2	27	--	--	--	--	86	--	--	--	--	68	13	51	45	25	50	--
DEKALB	DK-47	35	--	--	--	--	112	--	--	--	--	68	14	52	46	17	59	--
MYCOGEN	1506	40	126	--	83	--	125	106	--	63	18	68	15	50	51	29	53	--
DEKALB	DK-53	36	--	--	--	--	114	--	--	--	--	68	16	51	48	26	75	--
MYCOGEN	EXP9874	28	--	--	--	--	89	--	--	--	--	69	16	51	47	2	66	--
CARGILL	X12027 EXP	30	121	--	76	--	94	102	--	66	16	71	15	52	41	7	74	--
MIDLAND	4836	28	--	--	--	--	88	--	--	--	--	71	15	51	44	18	57	--
MYCOGEN	EXP9888	25	--	--	--	--	80	--	--	--	--	71	16	50	46	20	52	--
MSG (OHLDE)	G 571	28	120	--	74	--	88	101	--	66	16	72	14	52	44	15	64	--
DELANGE	DSA 144	35	--	--	--	--	111	--	--	--	--	72	16	50	45	32	63	--
DEKALB	DK-56	29	134	144	82	103	93	113	114	67	17	73	14	54	44	18	38	--
TRIUMPH	TR 481	24	--	--	--	--	77	--	--	--	--	73	16	51	45	23	52	--
MATURITY CHECK	TX2752xTX2783	32	114	136	73	94	101	96	107	69	16	74	15	53	44	49	57	--
AVERAGES		32	119	127	75	93	32	119	127	62	17	65	15	51	44	25	61	--
CV(%)		31	10	7	--	--	31	10	7	--	--	4	13	7	7	81	17	--
LSD(0.05)**		11	14	10	--	--	36	12	8	--	--	3	NS	NS	4	23	12	--

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

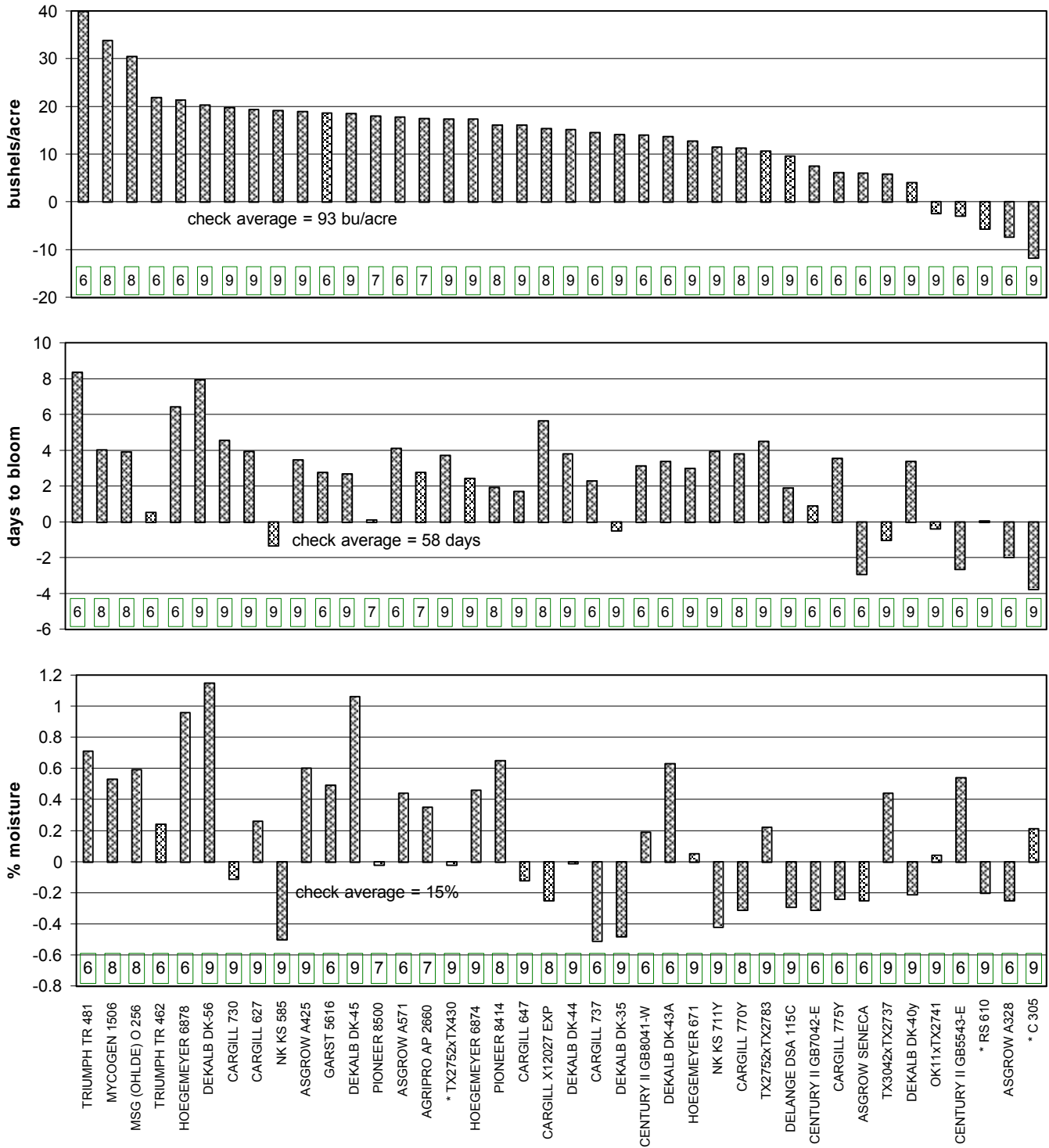
**TABLE 12. SOUTH CENTRAL KANSAS GRAIN SORGHUM TEST YIELD SUMMARY, 1996-1998.**

BRAND	NAME	1998 YIELD AS % OF TEST AVERAGE <sup>1</sup>				1996-1998		
		HAR	REN	STA	AVG.	DYA (bu/a) <sup>2</sup>	SE <sup>3</sup>	N <sup>4</sup>
TRIUMPH	TR 481	151	144	77	124	39.9*	8.4	6
MYCOGEN	1506	136	143	125	135	33.9*	5.4	8
MSG (OHLDE)	O 256	134	138	126	133	30.4*	5.8	8
PIONEER	8505	105	130	94	110	23.4*	6.8	5
TRIUMPH	TR 462	109	102	88	100	21.8*	3.3	6
DEKALB	DK-56	124	92	93	103	20.3*	3.2	9
CARGILL	730	120	108	83	103	19.7*	3.5	9
CARGILL	627	107	115	134	119	19.3*	3.9	9
NK	KS 585	83	125	112	107	19.1*	4.2	9
ASGROW	A425	91	120	113	108	18.9*	3.2	9
GARST	5616	109	109	106	108	18.6*	3.9	6
DEKALB	DK-45	108	90	118	105	18.5*	3.3	9
PIONEER	8500	89	115	--	--	18.0*	3.2	7
ASGROW	A571	105	96	97	99	17.8*	3.3	6
AGRIPRO	AP 2660	113	95	46	85	17.4*	4.4	7
c MATURITY CHECK	TX2752xTX430	102	88	89	93	17.4*	1.8	9
HOEGEMEYER	6874	106	98	103	102	17.3*	2.8	9
PIONEER	8414	131	--	89	--	16.1*	4.5	8
CARGILL	647	112	111	88	104	16.1*	3.5	9
CARGILL	X12027 EXP	131	100	94	108	15.4*	4.5	8
DEKALB	DK-44	110	112	135	119	15.1*	4.6	9
DEKALB	DK-35	90	109	123	107	14.1*	2.9	9
CENTURY II	GB8041-W	--	93	146	--	14.0*	3.0	6
DEKALB	DK-43A	78	96	102	92	13.7*	1.3	6
MYCOGEN	3838	79	97	--	--	12.9*	2.5	5
HOEGEMEYER	671	82	111	112	102	12.7*	3.3	9
NC+	7B29	87	101	85	91	12.3*	3.1	5
NK	KS 711Y	94	107	72	91	11.5*	4.1	9
CARGILL	770Y	89	95	73	86	11.2*	1.7	8
MATURITY CHECK	TX2752xTX2783	97	78	101	92	10.6*	3.2	9
DELANGE	DSA 115C	84	93	79	85	9.6*	1.6	9
CENTURY II	GB7042-E	--	89	62	--	7.5*	2.7	6
ASGROW	SENECA	85	94	124	101	6.0	4.6	6
MATURITY CHECK	TX3042xTX2737	62	82	135	93	5.8*	2.4	9
DEKALB	DK-40y	90	88	49	76	4.0	2.4	9
MATURITY CHECK	OK11xTX2741	63	82	89	78	-2.4	3.2	9
CENTURY II	GB5543-E	--	79	52	--	-2.9	2.9	6
c MATURITY CHECK	RS 610	32	81	64	59	-5.7*	2.3	9
c MATURITY CHECK	C 305	55	57	40	51	-11.7*	1.6	9
AGRIPRO	AP 2800	80	105	--	--	--	--	--
AGRIPRO	AP 2838	106	105	--	--	--	--	--
ASGROW	A459	100	113	120	111	--	--	--
ASGROW	A504	118	107	141	122	--	--	--
ASGROW	A570	101	99	125	108	--	--	--
ASGROW	XP3257	88	94	88	90	--	--	--
CARGILL	X12200 EXP	96	101	78	92	--	--	--
CENTURY II	GB4535-E	--	77	92	--	--	--	--
CENTURY II	GB7540-E	--	108	62	--	--	--	--

(continued)



**Figure 8. South central Kansas sorghum hybrid performance summary, 1996-1998.**



Bars show differences between hybrid and average of checks\*. Values in boxes are numbers of tests that compared hybrids and checks.

# NORTH CENTRAL KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL

**COUNTY:** ELLIS

**LOCATION:** Agricultural Research Center, Hays

**TEST SITE:** Harney silt loam

**1997 CROP:** Fallow

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 60 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/26/98

**HARVEST DATE:** 10/12/98

**COOPERATORS:**

Kenneth Kofoid, agronomist

**TARGET POPULATION:** 35,000 plants/acre,

6.0 in. spacing

**STAND (% of target):** 85

**YIELD: Average (bu/a):** 148

**Range (bu/a):** 117 - 171

**LSD (bu/a):** 15

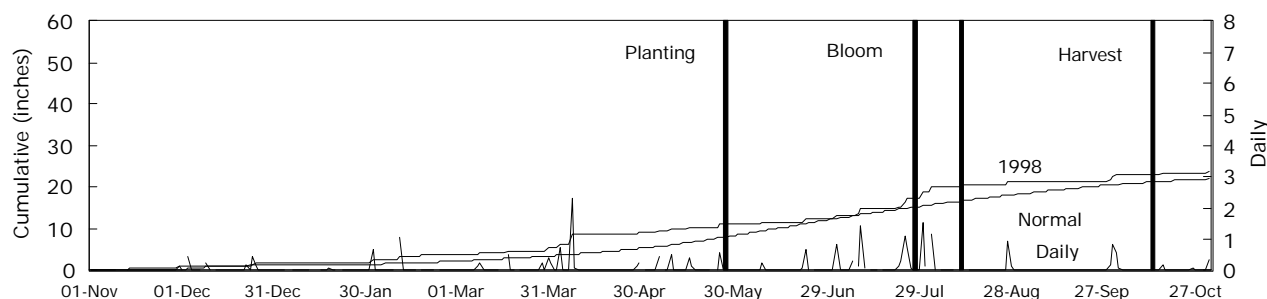
**CV (%):** 7

**BLOOM DATES:** 7/27/98 - 8/11/98

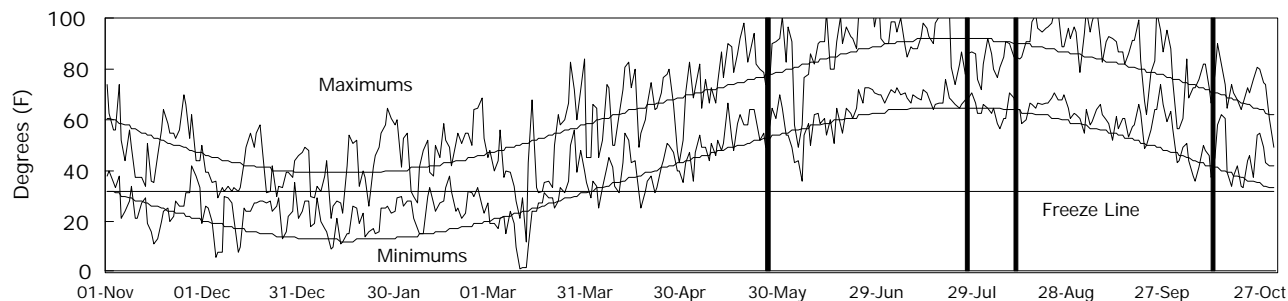
**1998 GROWING CONDITONS:**

Dry conditions after planting may have caused some stand variability. Rainfall was above normal during the middle of the season, including the bloom period. Conditions were again dry and hot during grain fill. Heavy infestations of corn earworms may have reduced yields somewhat, but yields were still exceptional.

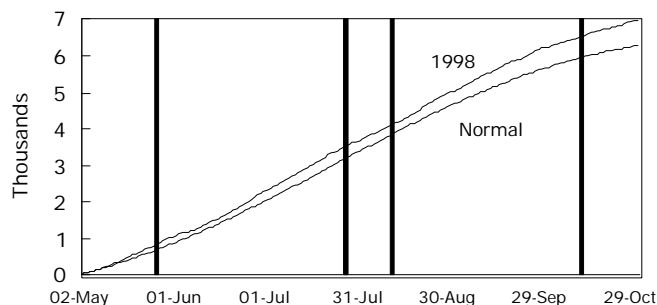
## PRECIPITATION



## DAILY TEMPERATURES



## GROWING DEGREE DAYS



## GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	3.5	1.9	51	51	0	0
May	2.1	3.2	68	62	1031	842
June	1.1	3.8	74	72	1208	1141
July	6.9	3.3	80	78	1423	1366
August	2.4	2.8	78	76	1353	1301
Sep.	1.0	2.2	74	67	1210	995
Oct.	1.4	1.4	58	55	752	638
Season Totals	18.4	18.5	69	66	6976	6281

**TABLE 13. ELLIS CO. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHELS			YIELD AS % OF TEST AVERAGE			97-98		1998						
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain to Moist. %	Days to Blm	Grain to Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Hds per Plnt
ASGROW	XP3257	117	--	--	--	--	79	--	--	--	--	62	14	58	43	2.2
MATURITY CHECK	C 305	121	131	81	126	111	81	92	72	62	14	64	13	57	45	2.3
ASGROW	SENECA	132	--	105	--	--	89	--	94	--	--	66	13	60	45	2.0
MATURITY CHECK	RS 610	121	122	81	122	108	81	86	72	65	14	66	13	58	46	2.0
NC+	5B74E	133	140	--	137	--	90	99	--	66	14	66	14	58	39	1.9
DEKALB	DK-36	127	135	--	131	--	85	95	--	65	14	67	14	59	40	2.1
NC+	6B50	157	149	--	153	--	106	106	--	67	14	67	14	59	47	1.9
PIONEER	8505	144	127	108	135	126	97	90	96	66	14	67	14	60	47	2.1
MATURITY CHECK	OK11xTX2741	132	144	97	138	124	89	102	86	67	13	68	13	59	45	1.7
MYCOGEN	3636	125	--	--	--	--	84	--	--	--	--	68	13	58	47	2.5
DEKALB	DK-35	145	141	114	143	133	97	100	101	66	14	68	14	60	45	1.9
DEKALB	DK-45	162	151	109	157	141	109	107	97	67	14	68	14	58	54	1.7
GOLDEN WORLD	GW 5960	132	153	108	142	131	89	108	96	67	14	68	14	59	47	1.9
PIONEER	8414	141	--	--	--	--	95	--	--	--	--	68	14	57	49	1.9
CARGILL	737	160	148	126	154	145	108	104	112	69	14	69	13	58	47	2.1
DEKALB	DK-44	142	150	119	146	137	96	106	106	68	14	69	13	59	46	1.7
MIDLAND	4664	140	--	--	--	--	94	--	--	--	--	69	13	58	47	2.0
NC+	Y363	144	144	--	144	--	97	102	--	67	13	69	13	60	50	2.3
TRIUMPH	TR 447	147	--	--	--	--	99	--	--	--	--	69	13	58	45	2.0
MATURITY CHECK	TX3042xTX2737	154	138	123	146	138	104	97	110	66	14	69	14	59	52	2.0
MIDLAND	X876	130	--	--	--	--	87	--	--	--	--	69	14	59	43	1.8
HOEGEMEYER	6766	162	151	--	156	--	109	106	--	68	15	69	15	58	51	1.9
MIDLAND	4774	153	--	--	--	--	103	--	--	--	--	69	15	59	51	1.8
ASGROW	A459	154	--	--	--	--	104	--	--	--	--	70	13	58	52	1.7
CARGILL	770Y	141	146	112	144	133	95	104	100	70	14	70	13	56	51	2.1
DEKALB	DK-40y	134	145	108	139	129	90	102	96	69	13	70	13	59	47	2.0
CARGILL	627	150	--	--	--	--	101	--	--	--	--	70	14	58	47	1.8
HOEGEMEYER	6874	153	148	143	150	148	103	104	127	71	14	70	14	61	51	1.9
TRIUMPH	TR 65-G	154	153	--	154	--	104	108	--	70	14	70	14	60	51	2.0
CARGILL	730	151	127	120	139	133	102	90	107	71	14	71	14	57	51	1.9
GOLDEN HARVEST	H-430Y	147	138	--	142	--	99	98	--	69	14	71	14	60	50	2.5
GOLDEN HARVEST	EX 471	145	--	--	--	--	98	--	--	--	--	71	14	59	45	1.8
GOLDEN WORLD	GW 1489	162	--	--	--	--	109	--	--	--	--	71	14	59	52	1.7
MIDLAND	4757Y	167	--	--	--	--	112	--	--	--	--	71	14	59	52	2.0
NK	KS 585	148	132	121	140	134	100	93	108	69	14	71	14	60	49	2.3
GARST	5631Y	160	142	--	151	--	108	100	--	68	13	72	13	60	47	2.1
GOLDEN WORLD	GW 1492	161	--	--	--	--	108	--	--	--	--	72	14	60	51	2.0
MYCOGEN	3838	146	141	100	144	129	99	100	89	69	14	73	13	61	44	1.7
MATURITY CHECK	TX2752xTX430	168	148	142	158	153	113	105	126	73	14	73	14	59	51	1.8
ASGROW	A425	171	142	101	156	138	115	100	90	70	15	74	14	58	50	1.9
DEKALB	DK-43A	166	160	--	163	--	111	113	--	71	14	74	14	59	47	2.1
GARST	5616	153	--	90	--	--	103	--	80	--	--	74	14	58	50	2.0
MATURITY CHECK	TX2752xTX2783	165	158	140	161	154	111	112	125	75	15	75	14	60	54	1.8
MIDLAND	4836	166	--	--	--	--	112	--	--	--	--	75	14	59	49	2.0
CARGILL	X12027 EXP	164	146	149	155	153	111	103	132	72	15	76	14	58	49	2.0
GOLDEN HARVEST	H-495W	155	--	--	--	--	104	--	--	--	--	76	14	59	48	1.8
HOEGEMEYER	671	163	148	140	156	150	110	105	124	74	14	76	14	59	50	2.0
MIDLAND	4725	153	--	--	--	--	103	--	--	--	--	77	14	60	50	1.8
NK	K59-Y2	149	--	--	--	--	101	--	--	--	--	77	14	55	50	1.8
PIONEER	84G62	157	--	--	--	--	106	--	--	--	--	77	14	60	51	2.0
AVERAGES		148	142	112	145	134	148	142	112	68	14	70	14	59	48	2.0
CV(%)		7	5	8	--	--	7	5	8	--	--	2	2	2	4	11.5
LSD(0.05)**		15	10	13	--	--	10	7	11	--	--	2	0	1	2	0.3

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



# NORTHWESTERN KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL, FALLOW

**COUNTY:** THOMAS

**LOCATION:** Northwest Research-Extension Center, Colby

**TEST SITE:** Keith silt loam

**1997 CROP:** Fallow

**1996 CROP:** Sunflowers

**FERTILIZER (lbs/acre):** 100 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 6/2/98

**HARVEST DATE:** 10/20/98

**COOPERATORS:**

Patrick Evans, agronomist

**TARGET POPULATION:** 24,000 plants/acre,  
8.7 in. spacing

**STAND (% of target):** 85

**YIELD: Average (bu/a):** 128

**Range (bu/a):** 81 - 135

**LSD (bu/a):** 12

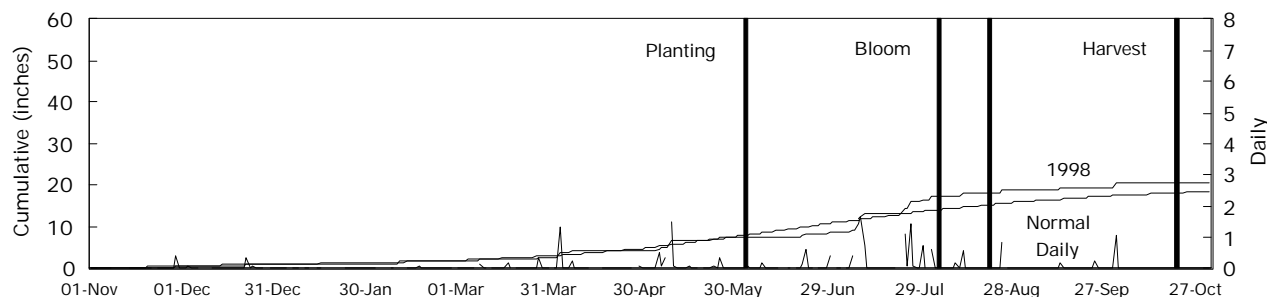
**CV (%):** 8

**BLOOM DATES:** 8/4/98 - 8/20/98

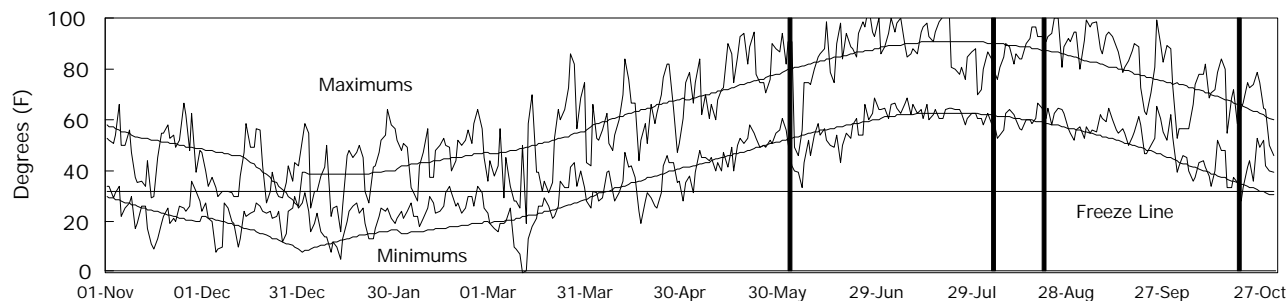
**1998 GROWING CONDITIONS:**

Dry conditions after planting caused uneven emergence. Growing conditions improved as the season progressed, resulting in exceptional yields for this location. Greenbugs were present but caused little damage.

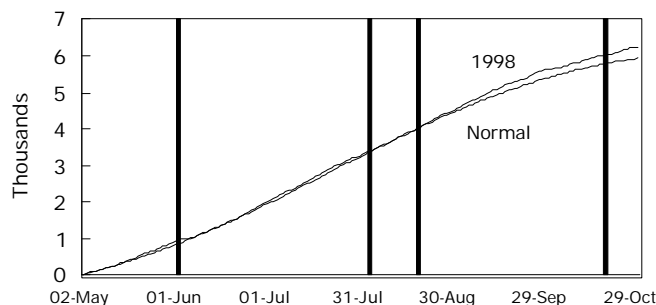
## PRECIPITATION



## DAILY TEMPERATURES



## GROWING DEGREE DAYS



## GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.7	1.8	47	49	0	0
May	3.1	2.9	63	60	876	781
June	1.5	3.1	69	70	1042	1093
July	7.9	3.0	77	76	1328	1317
August	2.4	2.2	74	74	1246	1241
Sep.	0.5	1.5	71	65	1114	928
Oct.	1.1	1.1	54	53	631	574
Season Totals	18.0	15.6	65	64	6236	5934

**TABLE 14. THOMAS CO. FAL. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-98.**

BRAND	NAME	ACRE YIELD, BUSHELS							YIELD AS % OF TEST AVERAGE			97-98		1998				
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %	Hds per Plnt
PIONEER	87G57	132	71	--	101	--	103	102	--	66	15	68	14	59	45	0	93	2.4
MATURITY CHECK	C 305	106	63	102	84	90	83	90	88	67	15	70	15	57	47	1	70	2.4
CARGILL	576	96	51	88	73	78	75	73	75	69	16	70	16	59	44	0	91	2.0
ASGROW	XP3257	111	--	--	--	--	87	--	--	--	--	71	16	59	46	0	66	2.3
PIONEER	85Y34	129	83	--	106	--	101	119	--	71	16	72	15	58	48	0	87	2.5
DEKALB	DK-36	124	59	--	91	--	97	85	--	71	17	72	16	59	47	2	78	2.5
MATURITY CHECK	RS 610	106	52	98	79	85	83	75	84	70	16	72	16	57	47	0	75	2.1
PIONEER	8505	135	--	--	--	--	106	--	--	--	--	72	16	59	49	0	94	2.1
MATURITY CHECK	OK11xTX2741	118	70	110	94	100	92	101	94	74	16	73	15	60	47	1	89	1.8
MATURITY CHECK	TX3042xTX2737	140	76	106	108	108	110	110	91	73	16	73	15	59	52	2	97	2.3
NC+	5B74E	136	78	--	107	--	106	113	--	74	17	73	16	58	44	0	96	2.2
AGRIPRO	AP 2233	118	--	--	--	--	92	--	--	--	--	74	16	58	46	0	86	2.2
DEKALB	DK-35	127	64	121	96	104	100	92	103	73	16	74	16	59	46	0	92	2.0
DEKALB	DK-40y	112	64	119	88	98	88	91	102	74	17	74	16	58	46	1	83	1.9
NC+	Y363	134	91	--	112	--	105	131	--	74	17	74	16	59	50	0	95	2.4
DEKALB	DK-44	130	69	115	99	104	102	98	98	75	17	75	16	59	46	0	98	1.7
MIDLAND	4664	135	--	--	--	--	106	--	--	--	--	75	16	57	46	0	84	2.6
CARGILL	647	136	80	124	108	113	106	114	106	75	17	75	17	59	50	0	96	2.2
DEKALB	DK-45	136	64	119	100	106	106	92	102	75	17	75	17	58	52	0	95	1.9
GARST	5631Y	127	66	--	97	--	100	95	--	75	16	76	15	60	46	1	88	1.9
ASGROW	SENECA	124	--	--	--	--	97	--	--	--	--	76	16	60	45	0	90	2.2
CARGILL	770Y	147	81	131	114	120	115	116	112	77	18	76	16	58	47	0	91	2.3
GARST	5616	130	--	108	--	--	101	--	92	--	--	76	16	58	45	0	79	2.0
TRIUMPH	TR 447	118	--	--	--	--	92	--	--	--	--	76	16	58	45	0	85	2.1
DEKALB	DK-43A	138	70	--	104	--	108	100	--	76	17	76	17	58	46	0	81	2.2
ASGROW	A425	122	66	--	94	--	96	95	--	75	18	76	18	57	46	0	72	2.3
CARGILL	X12200 EXP	123	--	--	--	--	96	--	--	--	--	76	18	56	49	0	78	2.0
GOLDEN WORLD	GW 5960	120	73	--	97	--	94	104	--	76	19	76	18	57	48	0	67	2.1
MIDLAND	4757Y	143	--	--	--	--	112	--	--	--	--	76	18	58	54	0	98	1.9
NC+	6B50	112	76	--	94	--	88	109	--	77	19	76	18	56	46	0	84	1.9
NK	KS 585	139	74	--	106	--	109	106	--	76	19	76	18	59	48	0	79	2.4
ASGROW	A459	144	--	--	--	--	113	--	--	--	--	77	16	58	51	0	98	1.7
CARGILL	627	121	80	116	100	105	95	115	99	74	17	77	16	57	47	0	78	2.1
MIDLAND	4836	134	--	--	--	--	105	--	--	--	--	78	15	58	49	1	85	2.4
AGRIPRO	AP 2468	124	91	--	108	--	97	130	--	79	18	78	16	57	45	0	94	1.9
NK	K59-Y2	128	--	--	--	--	100	--	--	--	--	78	16	57	51	0	78	2.1
TRIUMPH	TR 461	139	--	--	--	--	109	--	--	--	--	78	16	58	51	2	96	1.9
CARGILL	X12027 EXP	137	69	128	103	112	108	100	110	77	19	78	17	57	46	0	98	2.1
CARGILL	730	131	82	137	107	117	102	118	117	79	19	78	17	56	47	0	92	2.0
CARGILL	737	122	70	113	96	102	95	101	97	78	20	79	20	55	45	0	77	2.2
GOLDEN WORLD	GW 1489	122	--	--	--	--	95	--	--	--	--	80	19	56	51	0	69	2.0
MATURITY CHECK	TX2752xTX430	147	87	142	117	126	115	125	122	81	19	80	19	56	48	0	76	2.5
GOLDEN WORLD	GW 1492	126	--	--	--	--	99	--	--	--	--	80	20	56	50	0	75	2.2
MATURITY CHECK	TX2752xTX2783	142	74	137	108	117	111	106	117	82	19	82	19	56	51	0	90	2.0
AVERAGES		128	70	117	99	105	128	70	117	74	18	75	17	58	47	0	85	2.1
CV(%)		8	11	7	--	--	8	11	7	--	--	1	5	1	3	467	10	9.6
LSD(0.05)**		12	9	12	--	--	9	13	10	--	--	1	1	1	2	NS	10	0.2

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

# WEST CENTRAL KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL, FALLOW

**COUNTY:** GREELEY

**LOCATION:** Southwest Research-Extension Center, Tribune

**TEST SITE:** Ulysses silt loam

**1997 CROP:** Fallow

**1996 CROP:** Corn

**FERTILIZER (lbs/acre):** 80 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/28/98

**HARVEST DATE:** 10/6/98

**COOPERATORS:**

Alan Schlegel, agronomist; David Frickel, research associate

**TARGET POPULATION:** 24,000 plants/acre,  
8.7 in. spacing

**STAND (% of target):** 83

**YIELD: Average (bu/a):** 75

**Range (bu/a):** 40 - 96

**LSD (bu/a):** 9

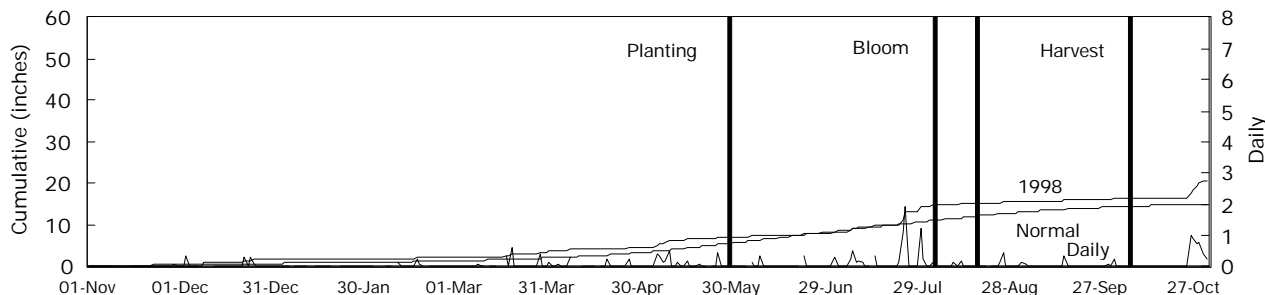
**CV (%):** 11

**BLOOM DATES:** 8/3/98 - 8/17/98

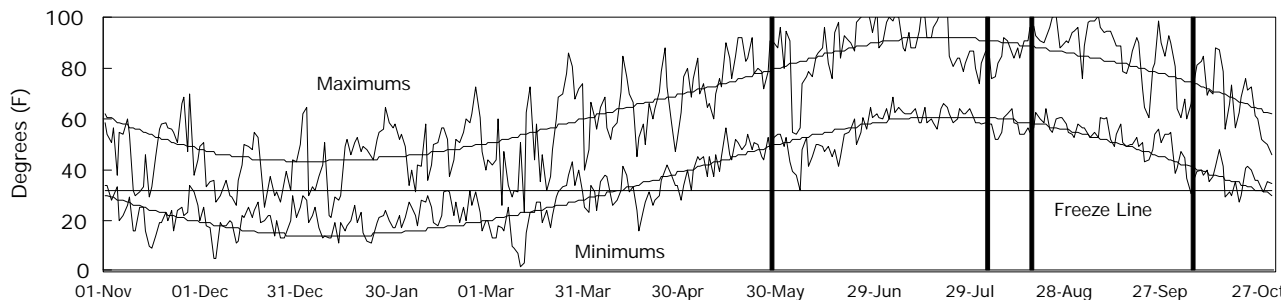
**1998 GROWING CONDITONS:**

Emergence was good in most plots. Below-normal precipitation in April, May, and especially June caused some prereproductive stress. Above-normal precipitation in July and early August provided some relief during blooming. Extremely high temperatures were recorded for nearly half of the days in June and July. Stalk rot caused most of the recorded lodging.

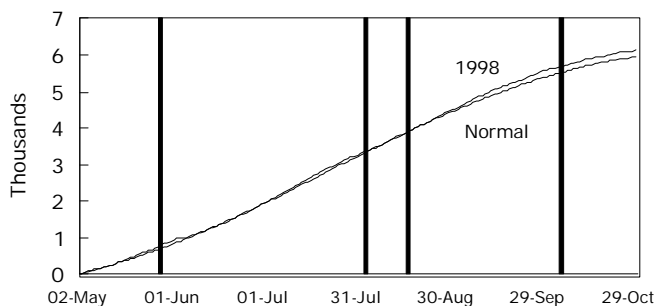
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	0.9	1.3	47	50	0	0
May	2.5	2.4	63	60	876	786
June	0.9	2.5	68	70	1024	1093
July	6.5	2.5	77	76	1335	1307
August	1.1	2.2	73	74	1220	1231
Sep.	0.6	1.3	70	65	1094	944
Oct.	4.3	0.7	53	53	574	597
Season Totals	16.9	12.9	65	64	6122	5958

**TABLE 15. GREELEY CO. FAL. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-98.**

BRAND	NAME	ACRE YIELD, BUSHELS					YIELD AS % OF TEST AVERAGE			97-98		1998				
		1998	1997	1996	2-Yr.	3-Yr.	1998	1997	1996	Days to Blm	Grain to Moist. %	Days to Blm	Grain to Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %
					AVG.	AVG.										
PIONEER	87G57	79	91	--	85	--	104	85	--	66	14	66	14	57	49	28
ASGROW	XP3257	67	--	--	--	--	89	--	--	--	--	70	13	58	51	66
MATURITY CHECK	C 305	40	108	93	74	80	53	100	85	68	14	71	13	55	50	84
DEKALB	DK-36	55	86	--	70	--	73	80	--	71	15	71	15	57	49	33
PIONEER	85Y34	80	109	--	94	--	106	102	--	71	14	72	13	57	50	48
CARGILL	576	56	78	99	67	78	75	73	90	70	14	72	14	58	43	8
MATURITY CHECK	RS 610	49	98	87	74	78	65	92	79	71	14	72	14	56	55	70
PIONEER	8505	91	109	110	100	103	121	102	100	72	14	72	14	58	50	30
MATURITY CHECK	TX3042xTX2737	61	111	107	86	93	81	104	98	73	14	73	13	57	54	75
DEKALB	DK-35	81	87	108	84	92	108	81	99	72	15	73	14	57	47	19
CARGILL	627	80	111	110	95	100	106	103	100	73	14	74	14	56	48	41
NC+	5B74E	86	122	--	104	--	114	114	--	75	15	74	15	57	46	5
MIDLAND	4664	50	--	--	--	--	67	--	--	--	--	75	14	56	46	83
MIDLAND	4774	79	--	--	--	--	105	--	--	--	--	75	15	58	51	15
AGRIPRO	AP 2233	78	--	--	--	--	104	--	--	--	--	75	16	57	45	4
NC+	Y363	78	113	--	95	--	103	105	--	75	16	75	16	58	47	4
ASGROW	SENECA	79	--	--	--	--	105	--	--	--	--	76	14	59	45	25
DEKALB	DK-40y	72	94	104	83	90	96	88	95	78	15	76	14	58	48	89
MATURITY CHECK	OK11xTX2741	66	102	124	84	97	87	95	113	78	15	76	14	57	47	18
CARGILL	647	95	117	121	106	111	125	109	110	75	15	76	15	58	49	5
NC+	6B50	90	--	--	--	--	119	--	--	--	--	76	15	57	49	26
DEKALB	DK-44	83	97	116	90	99	110	91	106	78	15	76	16	58	45	31
MIDLAND	4757Y	95	--	--	--	--	126	--	--	--	--	76	17	58	51	13
CARGILL	X12200 EXP	80	--	--	--	--	106	--	--	--	--	76	18	56	52	25
TRIUMPH	TR 447	67	--	--	--	--	89	--	--	--	--	77	13	55	45	24
DEKALB	DK-45	74	106	107	90	96	98	99	98	79	15	77	15	58	53	74
ASGROW	A425	83	110	--	97	--	110	103	--	76	15	78	14	58	46	34
TRIUMPH	TR 462	79	140	--	110	--	105	130	--	81	15	78	14	59	51	56
CARGILL	730	78	126	130	102	111	103	118	119	82	15	78	15	57	46	60
CARGILL	770Y	87	131	115	109	111	116	122	105	81	15	78	15	57	47	30
CARGILL	X12027 EXP	76	103	121	90	100	101	96	110	78	15	78	15	56	46	14
GARST	5616	87	--	--	--	--	115	--	--	--	--	78	15	58	44	1
GOLDEN WORLD	GW 1489	79	--	--	--	--	105	--	--	--	--	78	15	58	55	68
NK	KS 585	82	106	--	94	--	109	99	--	79	15	78	15	58	50	20
CARGILL	737	87	124	117	105	109	115	116	107	80	16	78	16	56	49	25
DEKALB	DK-43A	70	122	--	96	--	93	114	--	79	16	78	16	57	43	63
GOLDEN WORLD	GW 5960	70	125	110	98	102	93	116	100	80	16	78	16	57	48	50
ASGROW	A459	96	--	--	--	--	127	--	--	--	--	79	15	58	51	33
GOLDEN WORLD	GW 1492	87	--	--	--	--	115	--	--	--	--	79	16	59	53	19
MIDLAND	4836	57	--	--	--	--	76	--	--	--	--	80	15	57	50	49
MATURITY CHECK	TX2752xTX430	79	130	122	105	110	104	122	112	83	16	80	16	56	52	78
NK	K59-Y2	70	--	--	--	--	93	--	--	--	--	80	16	55	51	38
MATURITY CHECK	TX2752xTX2783	71	123	110	97	101	94	115	100	84	16	80	17	58	54	76
MIDLAND	4725	70	--	--	--	--	93	--	--	--	--	80	17	56	48	13
AVERAGES		75	107	110	91	97	75	107	110	76	15	76	15	57	49	38
CV(%)		11	11	7	--	--	11	11	7	--	--	2	8	1	5	62
LSD(0.05)**		9	14	10	--	--	12	13	9	--	--	2	1	1	3	27

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

# SOUTHWESTERN KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL, FALLOW

**COUNTY:** FINNEY

**LOCATION:** Southwest Research-Extension Center, Garden City

**TEST SITE:** Keith silt loam

**1997 CROP:** Fallow

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 80 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/22/98

**HARVEST DATE:** 10/15/98

**COOPERATORS:**

Merle Witt, agronomist

**TARGET POPULATION:** 31,000 plants/acre,  
6.7 in. spacing

**STAND (% of target):** 191

**YIELD: Average (bu/a):** 81

**Range (bu/a):** 61 - 103

**LSD (bu/a):** 11

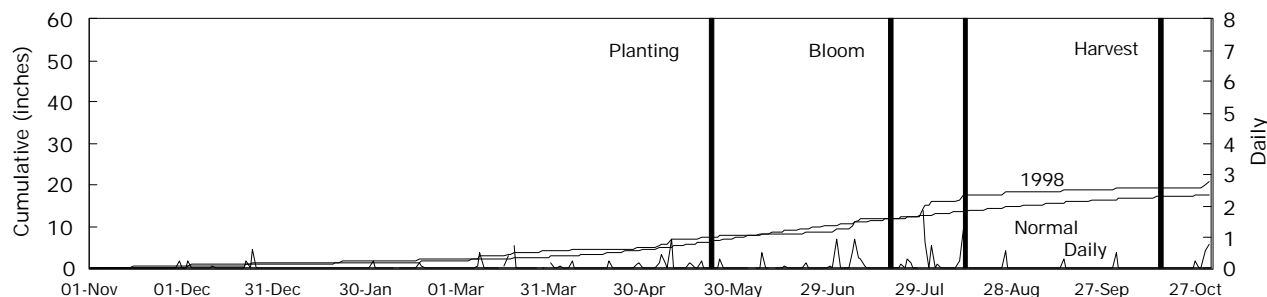
**CV (%):** 10

**BLOOM DATES:** 7/19/98 - 8/12/98

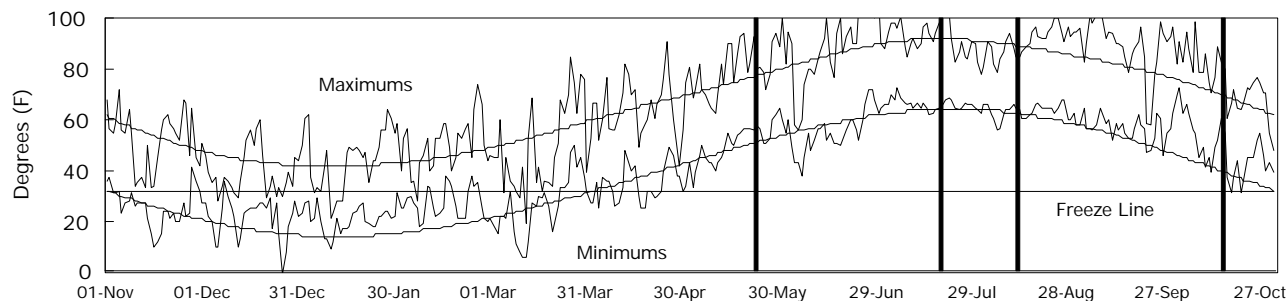
**1998 GROWING CONDITIONS:**

Excellent planting and establishment conditions resulted in the emergence of nearly every seed. Hot, dry conditions stressed the test in June. July and August weather brought some relief. Greenbugs appeared in late summer in a few hybrids.

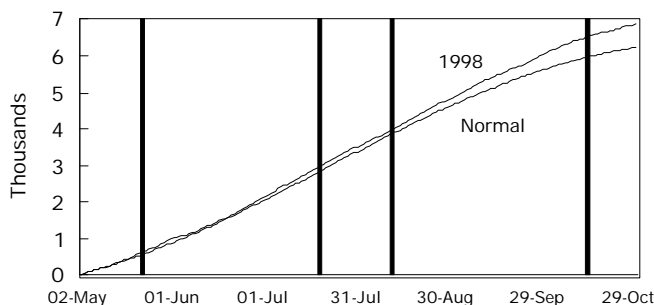
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	0.9	1.7	49	51	0	0
May	2.7	2.9	65	62	949	842
June	0.9	2.9	72	72	1134	1145
July	6.6	2.5	79	78	1404	1352
August	3.1	2.2	77	75	1330	1275
Sep.	0.3	1.6	73	67	1179	986
Oct.	2.1	1.0	62	54	874	632
Season Totals	16.6	14.8	68	66	6868	6231

**TABLE 16. FINNEY CO. FALLOW GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-98.**

BRAND	NAME	ACRE YIELD, BUSHELS						YIELD AS % OF TEST AVERAGE			97-98		1998				
		1998	1997	1996	2-Yr.	3-Yr.	1998	1997	1996	Days to Blm	Grain Moist. %	Days to Blm	Grain Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %
					AVG.	AVG.											
MATURITY CHECK	C 305	61	79	89	70	76	75	93	86	58	14	58	13	58	46	--	99
PIONEER	87G57	82	73	--	77	--	101	85	--	61	15	59	13	59	43	--	129
ASGROW	XP3257	72	--	--	--	--	89	--	--	--	--	62	13	60	45	--	130
DEKALB	DK-36	68	72	--	70	--	83	85	--	65	15	62	13	60	41	--	181
MATURITY CHECK	RS 610	65	81	102	73	83	80	96	99	65	14	62	13	59	43	--	101
PIONEER	8505	69	--	--	--	--	85	--	--	--	--	62	13	61	44	--	132
PIONEER	85Y34	78	--	--	--	--	95	--	--	--	--	62	13	59	43	--	147
DEKALB	DK-35	72	99	--	85	--	89	116	--	64	14	63	13	60	43	--	158
DEKALB	DK-40y	77	78	100	77	85	94	92	97	68	15	64	13	60	45	--	157
CARGILL	647	79	82	113	81	91	97	97	109	66	14	65	13	61	46	--	151
CARGILL	627	72	91	90	82	85	89	107	88	66	14	65	13	59	46	--	138
ASGROW	A425	91	96	--	94	--	112	113	--	67	14	66	13	60	45	--	146
DEKALB	DK-44	84	84	104	84	91	103	98	101	69	14	66	13	60	44	--	163
GARST	5429	74	--	--	--	--	91	--	--	--	--	66	13	60	49	--	141
MATURITY CHECK	TX3042xTX2737	84	92	92	88	89	103	108	89	65	14	66	13	60	48	--	140
ASGROW	SENECA	84	--	--	--	--	103	--	--	--	--	67	13	60	44	--	151
DEKALB	DK-45	74	93	101	83	89	90	109	98	71	15	67	13	60	50	--	141
DELANGE	DSA 115C	77	76	--	76	--	94	90	--	68	15	67	13	61	43	--	142
GARST	5616	85	--	111	--	--	105	--	108	--	--	67	13	60	43	--	128
MSG (OHLDE)	G 571	91	87	--	89	--	112	103	--	69	16	67	13	60	51	--	140
NC+	5B74E	88	83	--	85	--	108	97	--	67	14	67	13	60	42	--	158
WARNER	W-625-Y	92	--	--	--	--	114	--	--	--	--	67	13	61	51	--	122
CARGILL	X12200 EXP	86	--	--	--	--	105	--	--	--	--	68	13	60	49	--	189
MYCOGEN	3838	81	88	110	85	93	100	104	107	68	15	68	13	61	44	--	139
NC+	Y363	87	--	--	--	--	106	--	--	--	--	68	13	60	48	--	145
MIDLAND	4664	82	--	--	--	--	101	--	--	--	--	69	13	59	46	--	161
MSG (OHLDE)	O 256	82	89	--	85	--	101	104	--	72	16	69	13	60	53	--	131
NC+	6B50	98	89	--	93	--	120	105	--	69	15	69	13	60	47	--	160
TRIUMPH	TR 447	75	--	--	--	--	92	--	--	--	--	69	13	60	44	--	145
AGRIPRO	AP 2660	92	--	--	--	--	113	--	--	--	--	70	13	60	45	--	183
ASGROW	A459	85	--	--	--	--	104	--	--	--	--	70	13	60	53	--	149
CARGILL	737	94	90	107	92	97	115	106	104	71	15	71	13	59	46	--	163
DEKALB	DK-43A	86	96	--	91	--	105	113	--	73	16	71	13	61	46	--	125
GOLDEN WORLD	GW 5960	74	90	119	82	94	91	106	116	71	15	71	13	59	49	--	135
MATURITY CHECK	OK11xTX2741	64	80	108	72	84	78	94	105	70	14	71	13	60	47	--	131
MIDLAND	4757Y	79	--	--	--	--	97	--	--	--	--	71	13	60	51	--	134
WARNER	W-528-W	65	--	--	--	--	80	--	--	--	--	71	13	60	46	--	148
AGRIPRO	AP 2838	81	--	--	--	--	100	--	--	--	--	72	13	59	50	--	246
CARGILL	770Y	86	88	107	87	94	106	104	104	73	15	72	13	59	49	--	149
GOLDEN WORLD	GW 1489	103	--	--	--	--	127	--	--	--	--	72	13	60	53	--	138
MATURITY CHECK	TX2752xTX430	88	105	115	96	103	108	124	111	74	16	72	13	59	50	--	143
MYCOGEN	3636	69	--	--	--	--	85	--	--	--	--	72	13	58	45	--	140
CARGILL	730	97	81	112	89	97	119	96	109	75	16	73	13	60	51	--	196
MIDLAND	4836	82	--	--	--	--	101	--	--	--	--	73	13	60	47	--	132
NK	K59-Y2	90	--	--	--	--	111	--	--	--	--	74	13	58	53	--	133
GOLDEN WORLD	GW 1492	87	--	--	--	--	107	--	--	--	--	75	13	60	50	--	133
NK	KS 585	91	88	115	89	98	111	104	112	73	15	75	13	60	47	--	140
TRIUMPH	TR 481	83	--	--	--	--	102	--	--	--	--	75	13	61	53	--	148
CARGILL	X12027 EXP	70	86	107	78	87	85	101	104	75	16	76	13	59	47	--	164
MATURITY CHECK	TX2752xTX2783	93	104	109	98	102	114	122	106	77	16	77	13	61	53	--	138
PIONEER	84G62	90	--	--	--	--	111	--	--	--	--	77	13	60	51	--	154
DELANGE	DSA 123Y	88	--	--	--	--	109	--	--	--	--	81	13	60	49	--	129
AGRIPRO	AP 2800	71	--	--	--	--	87	--	--	--	--	82	13	60	48	--	177
AVERAGES		81	85	103	83	90	81	85	103	69	15	69	13	60	47	--	147
CV(%)		10	9	11	--	--	10	9	11	--	--	3	2	1	3	--	15
LSD(0.05)**		11	11	15	--	--	14	13	15	--	--	3	NS	1	2	--	29

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



**TABLE 17. WEST KANSAS FALLOW GRAIN SORGHUM TEST YIELD SUMMARY, 1996-1998.**

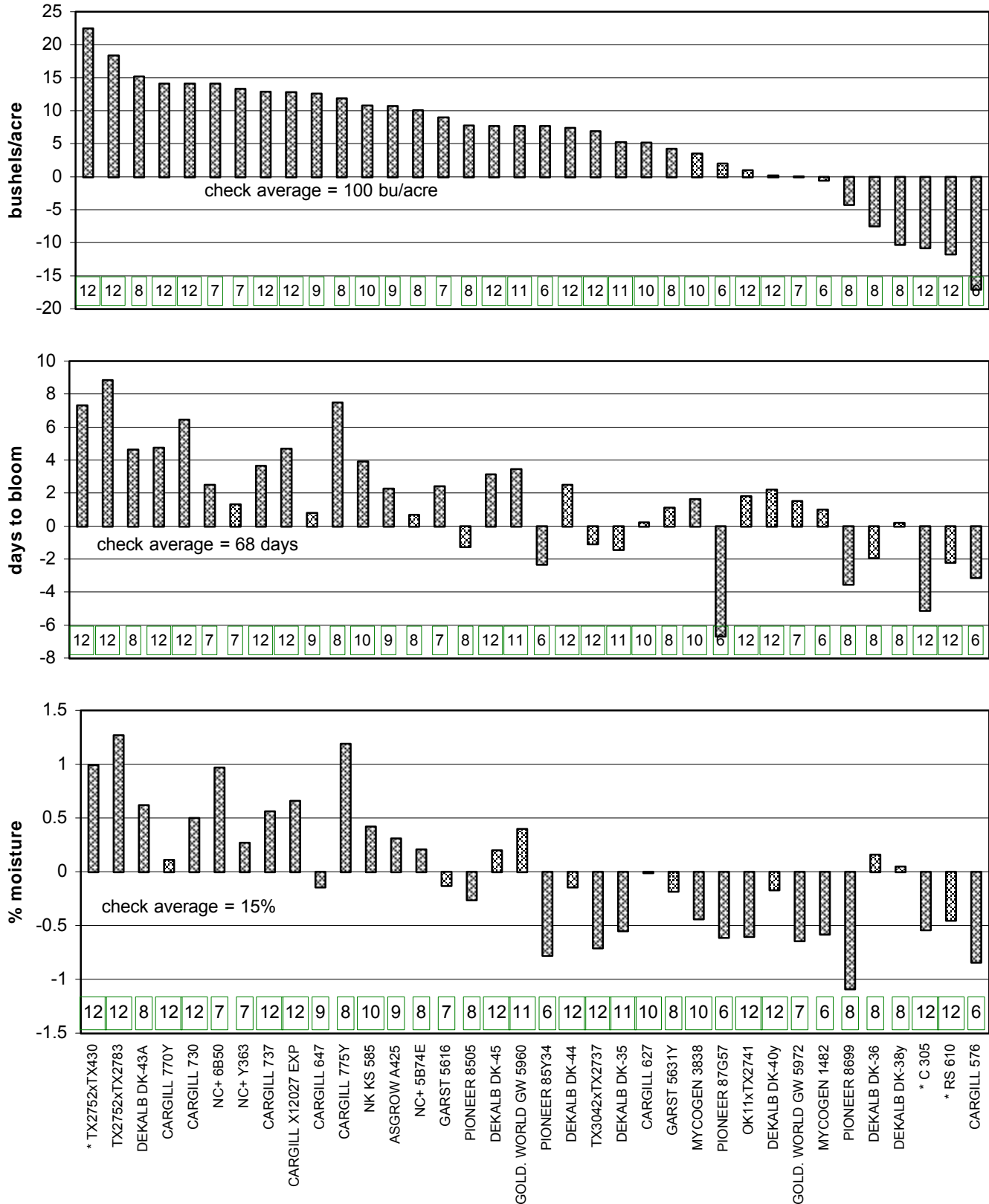
c	BRAND	NAME	1998 YIELD AS % OF TEST AVERAGE <sup>1</sup>					1996-1998		
			ELL	THF	GRF	FIF	AVG.	DYA (bu/a) <sup>2</sup>	SE <sup>3</sup>	N <sup>4</sup>
	MATURITY CHECK	TX2752xTX430	113	115	104	108	110	22.5 *	2.2	12
	MATURITY CHECK	TX2752xTX2783	111	111	94	114	107	18.4 *	2.7	12
	DEKALB	DK-43A	111	108	93	105	104	15.2 *	3.0	8
	CARGILL	770Y	95	115	116	106	108	14.1 *	2.5	12
	CARGILL	730	102	102	103	119	107	14.1 *	3.1	12
	NC+	6B50	106	88	119	120	108	14.1 *	5.1	7
	NC+	Y363	97	105	103	106	103	13.3 *	2.8	7
	CARGILL	737	108	95	115	115	108	12.9 *	2.9	12
	CARGILL	X12027 EXP	111	108	101	85	101	12.8 *	4.3	12
	CARGILL	647	--	106	125	97	--	12.6 *	3.9	9
	NK	KS 585	100	109	109	111	107	10.8 *	3.3	10
	ASGROW	A425	115	96	110	112	108	10.7 *	4.2	9
	NC+	5B74E	90	106	114	108	104	10.1 *	3.8	8
	GARST	5616	103	101	115	105	106	9.0	5.0	7
	PIONEER	8505	97	106	121	85	102	7.7	4.4	8
	DEKALB	DK-45	109	106	98	90	101	7.7 *	2.7	12
	GOLDEN WORLD	GW 5960	89	94	93	91	92	7.7 *	2.2	11
	PIONEER	85Y34	--	101	106	95	--	7.7	4.1	6
	DEKALB	DK-44	96	102	110	103	103	7.4 *	3.2	12
	MATURITY CHECK	TX3042xTX2737	104	110	81	103	99	6.9 *	2.8	12
	DEKALB	DK-35	97	100	108	89	98	5.2	3.5	11
	CARGILL	627	101	95	106	89	98	5.2	2.9	10
	GARST	5631Y	108	100	--	--	--	4.2	4.2	8
	MYCOGEN	3838	99	--	--	100	--	3.5	2.7	10
	PIONEER	87G57	--	103	104	101	--	2.0	6.4	6
	MATURITY CHECK	OK11xTX2741	89	92	87	78	87	1.0	2.7	12
	DEKALB	DK-40y	90	88	96	94	92	0.2	2.7	12
	DEKALB	DK-36	85	97	73	83	85	-7.5	3.4	8
c	MATURITY CHECK	C 305	81	83	53	75	73	-10.8 *	1.5	12
c	MATURITY CHECK	RS 610	81	83	65	80	77	-11.7 *	1.5	12
	CARGILL	576	--	75	75	--	--	-17.0 *	5.1	6
	AGRIPRO	AP 2233	--	92	104	--	--	--	--	--
	AGRIPRO	AP 2468	--	97	--	--	--	--	--	--
	AGRIPRO	AP 2660	--	--	--	113	--	--	--	--
	AGRIPRO	AP 2800	--	--	--	87	--	--	--	--
	AGRIPRO	AP 2838	--	--	--	100	--	--	--	--
	ASGROW	A459	104	113	127	104	112	--	--	--
	ASGROW	SENECA	89	97	105	103	99	--	--	--
	ASGROW	XP3257	79	87	89	89	86	--	--	--

(continued)





**Figure 9. Western Kansas fallow sorghum hybrid performance summary, 1996-1998.**



Bars show differences between hybrid and average of checks\*. Values in boxes are numbers of tests that compared hybrids and checks.

# SOUTH CENTRAL KANSAS GRAIN SORGHUM TEST ON SANDY LOAM, IRRIGATED

**COUNTY:** STAFFORD

**LOCATION:** Sandyland Experiment Field, St. John

**TEST SITE:** Naron loamy fine sand

**1997 CROP:** Wheat

**1996 CROP:** Soybeans

**FERTILIZER (lbs/acre):** 213 N 46 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 6/19/98

**HARVEST DATE:** 11/16/98

**COOPERATORS:**

Victor Martin, agronomist

**TARGET POPULATION:** 71,000 plants/acre,  
2.9 in. spacing

**STAND (% of target):** 67

**YIELD: Average (bu/a):** 112

**Range (bu/a):** 87 - 144

**LSD (bu/a):** 18

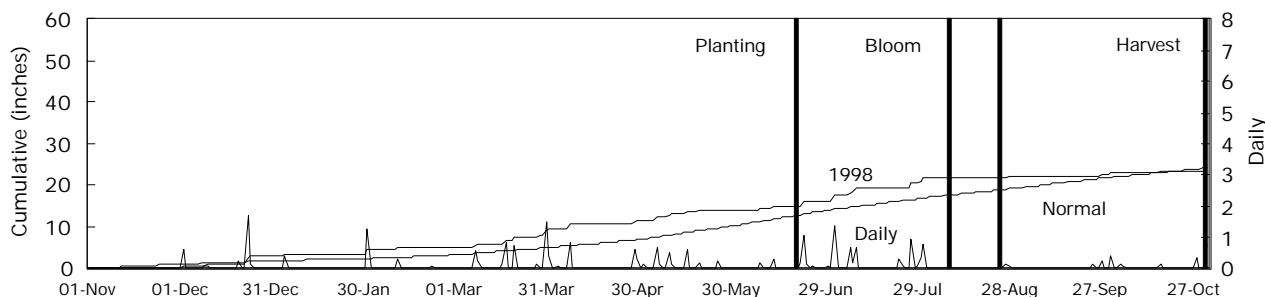
**CV (%):** 14

**BLOOM DATES:** 8/8/98 - 8/24/98

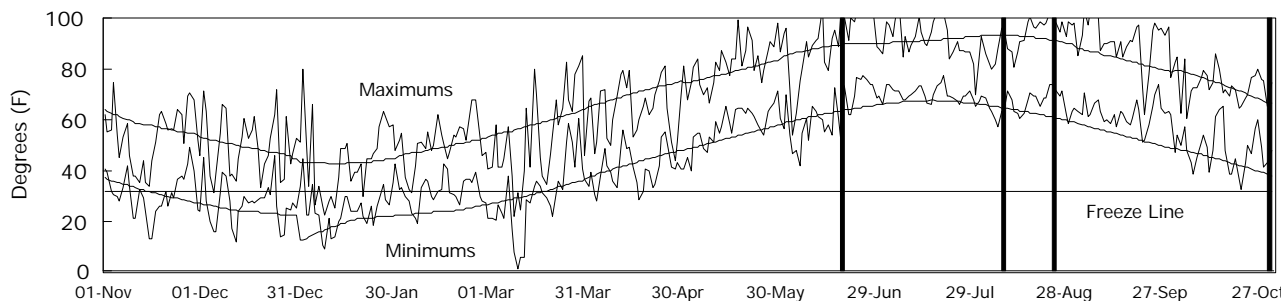
**1998 GROWING CONDITONS:**

This test fared much better than the dryland test at this site. Weed control was excellent. Yield variability was higher than expected because of some stand variability and some bird damage received in late September. Over 5 inches of rain in late October delayed harvest.

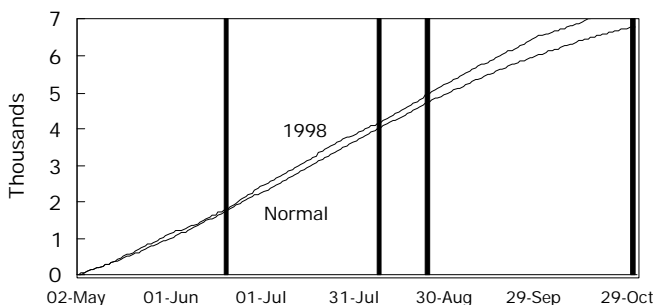
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.9	2.0	53	57	0	0
May	2.7	3.4	70	66	1088	971
June	2.0	3.7	77	76	1283	1252
July	5.5	2.9	81	79	1462	1407
August	0.3	2.5	80	78	1418	1356
Sep.	0.9	2.5	77	69	1286	1044
Oct.	1.5	2.2	61	59	840	769
Season Totals	14.8	19.1	71	69	7376	6800

**TABLE 18. STAFFORD CO. IRR. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1998.**

BRAND	NAME	ACRE YIELD, BUSHEL					YIELD AS % OF TEST AVERAGE			97-98		1998					Final Hds Stand per Plnt	
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain to Moist. %	Days to Blm	Grain to Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %		
ASGROW	XP3257	96	--	--	--	--	86	--	--	--	--	50	15	54	50	4	64	--
MIDLAND	4664	101	--	--	--	--	91	--	--	--	--	50	15	48	52	7	65	--
MATURITY CHECK	TX3042xTX2737	87	128	--	108	--	78	92	--	50	15	50	16	48	52	12	72	--
ASGROW	SENECA	105	--	--	--	--	94	--	--	--	--	51	14	54	53	9	64	--
MATURITY CHECK	OK11xTX2741	104	137	--	120	--	93	99	--	53	14	51	15	49	55	19	65	--
ASGROW	A459	99	--	--	--	--	88	--	--	--	--	51	16	49	54	16	66	--
MATURITY CHECK	C 305	97	129	--	113	--	87	93	--	50	15	51	17	48	56	12	66	--
MIDLAND	4725	115	--	--	--	--	103	--	--	--	--	52	14	51	59	15	62	--
ASGROW	A570	110	--	--	--	--	98	--	--	--	--	52	15	49	54	23	64	--
NC+	7B47	144	--	--	--	--	129	--	--	--	--	52	15	51	59	10	64	--
MATURITY CHECK	RS 610	90	117	--	104	--	81	84	--	52	16	52	17	46	53	5	67	--
ASGROW	A425	105	143	--	124	--	94	103	--	54	15	53	16	52	52	13	69	--
DEKALB	DK-47	120	150	--	135	--	107	108	--	54	16	53	17	48	55	4	73	--
ASGROW	A504	106	--	--	--	--	95	--	--	--	--	54	15	51	53	16	63	--
PIONEER	84G62	134	--	--	--	--	120	--	--	--	--	54	15	53	56	5	68	--
MATURITY CHECK	TX2752xTX430	106	143	--	125	--	95	103	--	56	15	54	16	47	50	7	78	--
NC+	7R83	109	141	--	125	--	98	102	--	55	15	54	16	47	52	7	69	--
ASGROW	A571	129	--	--	--	--	115	--	--	--	--	54	17	45	53	14	64	--
PIONEER	83G66	120	--	--	--	--	107	--	--	--	--	54	17	48	56	16	63	--
MIDLAND	4774	103	--	--	--	--	93	--	--	--	--	55	16	51	56	12	68	--
MIDLAND	4757Y	118	--	--	--	--	106	--	--	--	--	56	15	51	53	1	83	--
MATURITY CHECK	TX2752xTX2783	118	141	--	130	--	106	102	--	59	16	57	18	49	55	7	71	--
MIDLAND	4836	126	--	--	--	--	113	--	--	--	--	58	15	51	54	8	58	--
NC+	8R18	124	--	--	--	--	111	--	--	--	--	58	15	52	52	9	63	--
TRIUMPH	TR 82-G	113	--	--	--	--	101	--	--	--	--	61	16	53	53	7	78	--
DEKALB	DK-54	124	154	--	139	--	111	111	--	59	16	61	18	50	59	4	57	--
DEKALB	DK-65	100	--	--	--	--	90	--	--	--	--	62	16	48	56	27	60	--
DEKALB	DK-53	133	--	--	--	--	119	--	--	--	--	62	16	50	53	9	69	--
DEKALB	DK-55	114	151	--	133	--	102	109	--	61	15	64	16	52	54	8	68	--
DEKALB	DK-56	111	138	--	124	--	99	99	--	62	16	65	17	49	51	5	79	--
ASGROW	X6126	99	--	--	--	--	88	--	--	--	--	66	14	53	53	5	68	--
AVERAGES		112	139	--	125	--	112	139	--	56	15	55	16	50	54	10	67	--
CV(%)		14	7	--	--	--	14	7	--	--	--	3	9	8	7	95	15	--
LSD(0.05)**		18	12	--	--	--	16	9	--	--	--	2	2	NS	NS	NS	NS	--

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

# NORTHWESTERN KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL, IRRIGATED

**COUNTY:** THOMAS

**LOCATION:** Northwest Research-Extension Center, Colby

**TEST SITE:** Keith silt loam

**1997 CROP:** Soybeans

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 118 N 40 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 6/1/98

**HARVEST DATE:** 10/19/98

**COOPERATORS:**

Patrick Evans, agronomist

**TARGET POPULATION:** 80,000 plants/acre,  
2.6 in. spacing

**STAND (% of target):** 91

**YIELD: Average (bu/a):** 106

**Range (bu/a):** 81 - 135

**LSD (bu/a):** 12

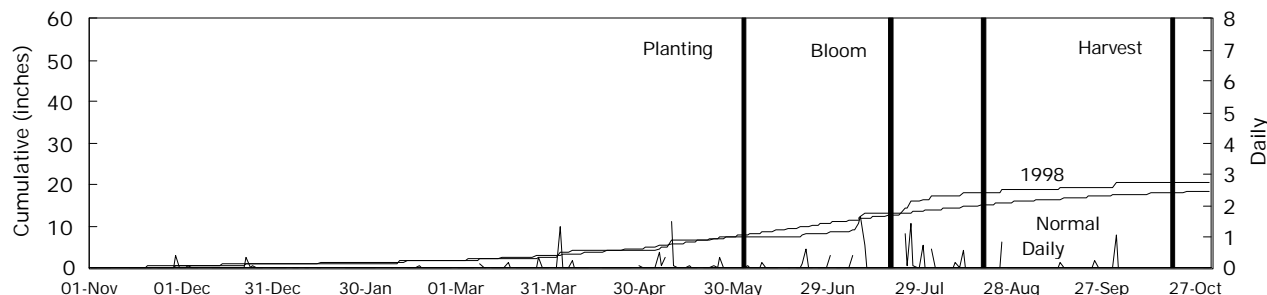
**CV (%):** 10

**BLOOM DATES:** 7/19/98 - 8/18/98

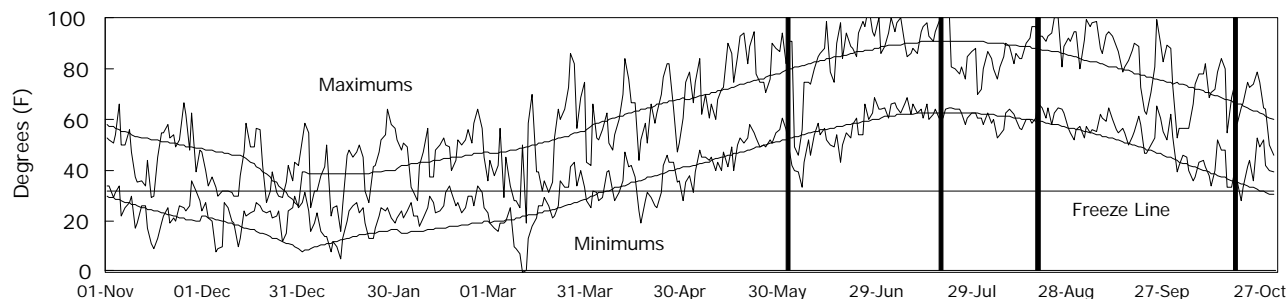
**1998 GROWING CONDITONS:**

Favorable planting conditions resulted in good stands in most plots. The good weather continued through most of the season, resulting in good yields. Greenbugs were present, but predatory insects kept populations low. Blackbirds came in just before harvest and removed enough grain to lower yields. The feeding appeared to reduce yields uniformly across the test.

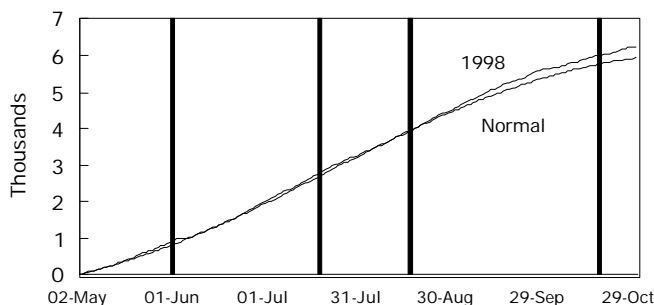
PRECIPITATION



DAILY TEMPERATURES



GROWING DEGREE DAYS



GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.7	1.8	47	49	0	0
May	3.1	2.9	63	60	876	781
June	1.5	3.1	69	70	1042	1093
July	7.9	3.0	77	76	1328	1317
August	2.4	2.2	74	74	1246	1241
Sep.	0.5	1.5	71	65	1114	928
Oct.	1.1	1.1	54	53	631	574
Season Totals	18.0	15.6	65	64	6236	5934

**TABLE 19. THOMAS CO. IRRIGATED GRAIN SORGHUM PERFORMANCE TEST RESULTS, 96-98.**

BRAND	NAME	ACRE YIELD, BUSHEL					YIELD AS % OF TEST AVERAGE			97-98		1998						
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain to Moist. %	Days to Blm	Grain to Moist. %	Test Wt. lb/bu	Plant Ht. in.	Ldg %	Final Stand %	Hds per Plnt
MATURITY CHECK	C 305	95	73	106	84	92	90	61	78	63	15	63	14	58	52	--	63	1.2
ASGROW	XP3257	135	--	--	--	--	128	--	--	--	--	66	14	61	53	--	87	1.0
MATURITY CHECK	RS 610	91	97	106	94	98	86	81	78	66	15	66	14	59	52	--	76	1.0
MATURITY CHECK	TX3042xTX2737	117	95	107	106	106	110	79	79	68	15	70	14	60	58	--	99	0.9
MIDLAND	4757Y	118	--	--	--	--	111	--	--	--	--	71	15	60	59	--	100	0.9
MATURITY CHECK	OK11xTX2741	105	87	117	96	103	100	72	86	73	15	72	14	60	50	--	84	1.1
ASGROW	SENECA	116	--	--	--	--	109	--	--	--	--	72	15	61	48	--	96	1.0
MIDLAND	4664	115	--	--	--	--	109	--	--	--	--	72	15	58	48	--	82	1.1
NC+	6R95	119	--	--	--	--	112	--	--	--	--	72	15	61	52	--	100	1.0
CARGILL	770Y	112	125	126	119	121	106	105	93	76	15	73	14	59	53	--	93	0.9
ASGROW	A425	109	126	--	117	--	103	105	--	73	16	73	15	60	51	--	97	0.9
ASGROW	A459	123	--	--	--	--	116	--	--	--	--	74	14	61	57	--	94	1.0
AGRIPRO	AP 2838	115	123	--	119	--	108	103	--	77	16	74	15	60	56	--	100	1.0
AGRIPRO	AP 2660	121	126	--	124	--	115	106	--	77	16	74	15	60	52	--	99	0.9
CARGILL	737	98	113	133	106	115	92	95	98	75	16	74	15	58	50	--	75	1.1
DEKALB	DK-47	107	127	132	117	122	101	106	98	73	16	74	15	60	55	--	90	1.0
DEKALB	DK-53	98	--	--	--	--	93	--	--	--	--	75	15	60	59	--	100	0.9
ASGROW	A504	92	--	--	--	--	87	--	--	--	--	76	15	59	54	--	94	0.9
CARGILL	730	101	132	145	117	126	95	110	107	78	16	76	15	58	52	--	97	0.8
MATURITY CHECK	TX2752xTX430	81	126	155	104	121	77	105	115	79	17	76	15	59	55	--	93	1.0
CARGILL	X12027 EXP	94	108	123	101	109	89	91	91	75	17	76	16	59	49	--	96	1.0
DEKALB	DK-54	118	139	148	128	135	111	116	109	77	17	76	16	59	61	--	99	1.0
MATURITY CHECK	TX2752xTX2783	101	152	163	126	139	96	127	120	80	17	76	16	60	57	--	94	0.9
AGRIPRO	AP 2800	92	--	--	--	--	87	--	--	--	--	77	15	59	50	--	82	1.0
ASGROW	A570	100	--	151	--	--	95	--	112	--	--	77	15	59	61	--	98	0.9
DEKALB	DK-65	110	--	--	--	--	104	--	--	--	--	77	15	59	60	--	96	0.9
ASGROW	X6126	97	--	--	--	--	91	--	--	--	--	78	16	59	65	--	60	1.1
DEKALB	DK-56	105	123	143	114	123	99	102	105	78	17	78	16	59	59	--	91	0.9
DEKALB	DK-55	106	133	149	120	130	100	112	110	80	17	78	16	58	58	--	94	0.9
NC+	7R83	99	146	--	122	--	93	122	--	81	17	78	16	57	56	--	97	0.9
ASGROW	A571	92	--	154	--	--	87	--	114	--	--	79	16	57	57	--	93	0.9
AVERAGES		106	120	136	113	120	106	120	136	75	16	74	15	59	55	--	91	1.0
CV(%)		10	9	5	--	--	10	9	5	--	--	1	4	1	2	--	7	8.3
LSD(0.05)**		12	13	9	--	--	12	11	6	--	--	1	1	1	1	--	8	0.1

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

# WEST CENTRAL KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL, IRRIGATED

**COUNTY:** GREELEY

**LOCATION:** Southwest Research-Extension Center, Tribune

**TEST SITE:** Ulysses silt loam

**1997 CROP:** Fallow

**1996 CROP:** Sorghum

**FERTILIZER (lbs/acre):** 200 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

**PLANTING DATE:** 5/29/98

**HARVEST DATE:** 10/16/98

**COOPERATORS:**

Alan Schlegel, agronomist; David Frickel, research associate

**TARGET POPULATION:** 80,000 plants/acre,  
2.6 in. spacing

**STAND (% of target):** 100

**YIELD: Average (bu/a):** 152

**Range (bu/a):** 116 - 184

**LSD (bu/a):** 12

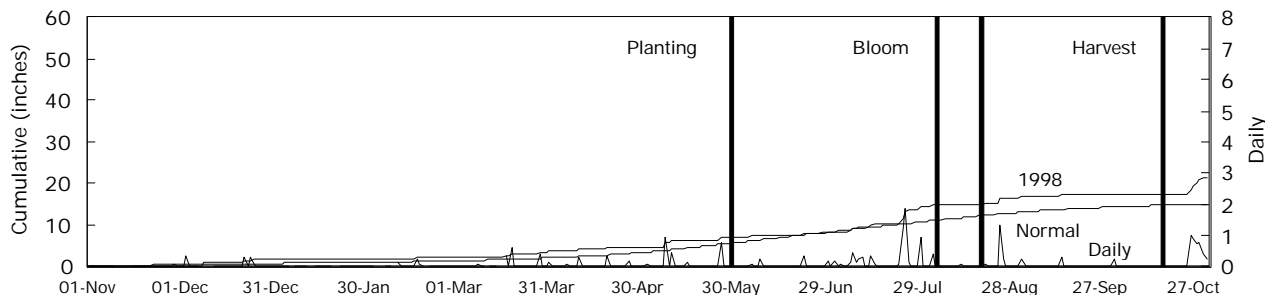
**CV (%):** 6

**BLOOM DATES:** 8/4/98 - 8/18/98

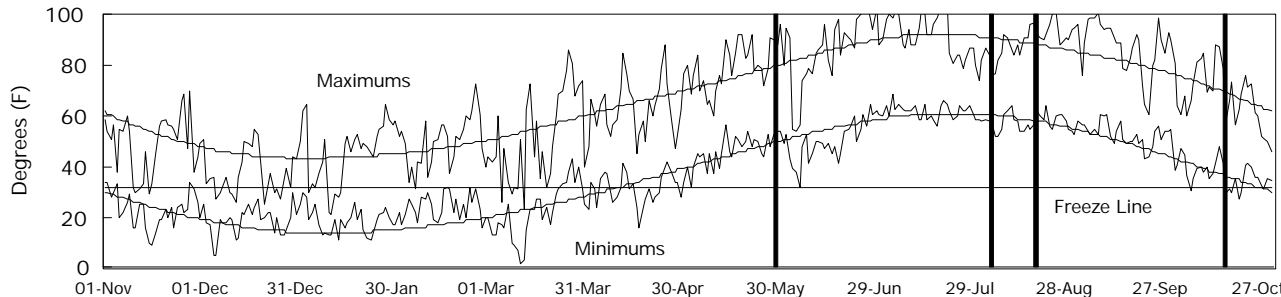
**1998 GROWING CONDITIONS:**

Emergence was excellent in most plots. Precipitation was slightly below normal in April and May. Precipitation was below normal in June, above normal in July and August, and below normal in September. Extremely high temperatures were recorded for nearly half of the days from June through September.

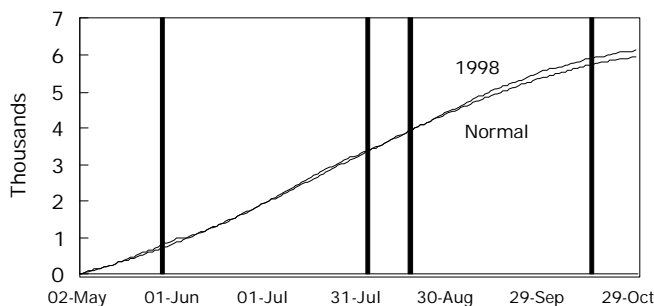
**PRECIPITATION**



**DAILY TEMPERATURES**



**GROWING DEGREE DAYS**



**GROWING-SEASON WEATHER SUMMARY**

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	1.0	1.3	47	50	0	0
May	2.5	2.4	63	60	876	786
June	0.9	2.5	68	70	1024	1093
July	6.3	2.5	77	76	1335	1307
August	2.2	2.2	73	74	1220	1231
Sep.	0.5	1.3	70	65	1094	944
Oct.	4.3	0.7	53	53	574	597
Season Totals	17.8	12.9	65	64	6122	5958



**TABLE 20. GREELEY CO. IRR. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-98.**

BRAND	NAME	ACRE YIELD, BUSHEL						YIELD AS % OF TEST AVERAGE			96-98		1998			
		1998	1996	1994	2-Yr.	3-Yr.	1998	1996	1994	Days to Blm	Grain to Moist. %	Days to Blm	Grain to Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %
					AVG.	AVG.										
MATURITY CHECK	C 305	124	93	129	109	115	82	90	89	63	13	67	13	57	55	--
MATURITY CHECK	RS 610	118	82	106	100	102	77	79	73	66	13	70	14	58	58	--
ASGROW	XP3257	127	--	--	--	--	84	--	--	--	--	71	13	60	53	--
MATURITY CHECK	TX3042xTX2737	151	85	144	118	127	99	82	99	68	14	73	14	59	60	--
MIDLAND	4774	116	--	--	--	--	76	--	--	--	--	74	17	58	55	--
MIDLAND	4664	143	--	--	--	--	94	--	--	--	--	75	16	58	50	--
MIDLAND	4757Y	143	--	--	--	--	94	--	--	--	--	75	16	59	60	--
ASGROW	SENECA	137	--	--	--	--	90	--	--	--	--	76	14	61	49	--
MATURITY CHECK	OK11xTX2741	140	105	141	122	129	92	101	97	72	14	76	15	59	53	--
ASGROW	A425	156	--	--	--	--	102	--	--	--	--	76	16	59	50	--
CARGILL	X12027 EXP	147	122	--	134	--	97	117	--	71	16	76	18	58	49	--
DEKALB	DK-47	161	102	--	131	--	106	98	--	72	16	76	18	59	56	--
ASGROW	A459	161	--	--	--	--	106	--	--	--	--	77	14	60	62	--
MIDLAND	4836	154	--	--	--	--	101	--	--	--	--	77	16	59	55	--
DEKALB	DK-53	157	--	--	--	--	103	--	--	--	--	77	17	59	59	--
CARGILL	730	133	116	--	125	--	88	112	--	75	14	78	15	59	51	--
DEKALB	DK-55	160	84	143	122	129	105	81	98	74	15	78	16	59	60	--
DEKALB	DK-65	165	--	--	--	--	109	--	--	--	--	78	16	59	64	--
DEKALB	DK-54	168	106	146	137	140	111	102	100	74	15	78	17	59	61	--
MATURITY CHECK	TX2752xTX430	175	120	162	147	152	115	115	111	76	16	78	18	58	58	--
ASGROW	A504	162	--	--	--	--	107	--	--	--	--	79	16	58	53	--
DEKALB	DK-56	149	--	--	--	--	98	--	--	--	--	79	16	59	61	--
MATURITY CHECK	TX2752xTX2783	184	113	176	148	157	121	109	121	77	15	79	17	60	60	--
MIDLAND	4725	159	--	--	--	--	105	--	--	--	--	79	17	59	56	--
ASGROW	A570	177	--	--	--	--	117	--	--	--	--	80	17	59	62	--
NC+	7R83	170	--	--	--	--	112	--	--	--	--	80	18	57	58	--
ASGROW	A571	165	--	--	--	--	109	--	--	--	--	81	18	57	57	--
AVERAGES		152	104	146	128	134	152	104	146	72	15	76	16	59	56	--
CV(%)		6	12	5	--	--	6	12	5	--	--	1	3	1	4	--
LSD(0.05)**		12	15	13	--	--	8	14	9	--	--	1	1	0	3	--

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

# SOUTHWESTERN KANSAS GRAIN SORGHUM TEST ON SILT LOAM SOIL, IRRIGATED

**TARGET POPULATION:** 80,000 plants/acre,  
2.6 in. spacing

**STAND (% of target):** 127  
**YIELD: Average (bu/a):** 118

**COUNTY:** FINNEY

**Range (bu/a):** 82 - 137

**LOCATION:** Southwest Research-Extension Center, Garden City

**LSD (bu/a):** 14

**TEST SITE:** Keith silt loam

**CV (%):** 9

**1997 CROP:** Fallow

**BLOOM DATES:** 7/9/98 - 8/5/98

**1996 CROP:** Sorghum

**1998 GROWING CONDITONS:**

**FERTILIZER (lbs/acre):** 150 N 0 P<sub>2</sub>O<sub>5</sub> 0 K<sub>2</sub>O

Excellent planting and establishment conditions resulted in the emergence of nearly every seed. Hot, dry conditions prevailed in June. July and August rainfall brought some relief.

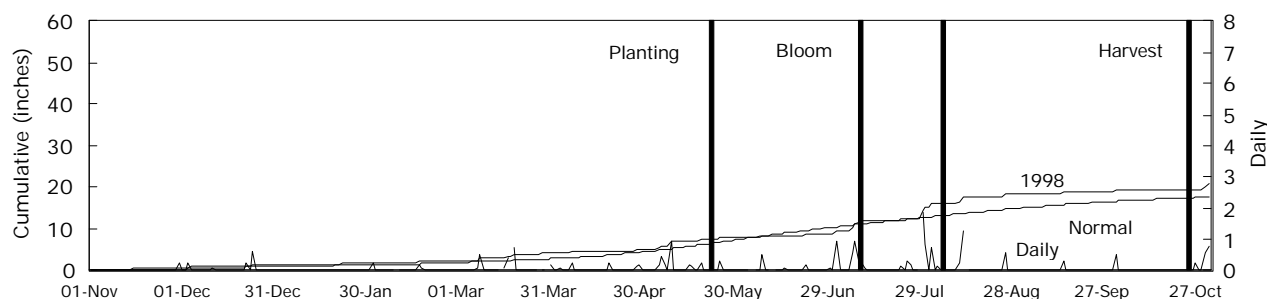
**PLANTING DATE:** 5/22/98

**HARVEST DATE:** 10/24/98

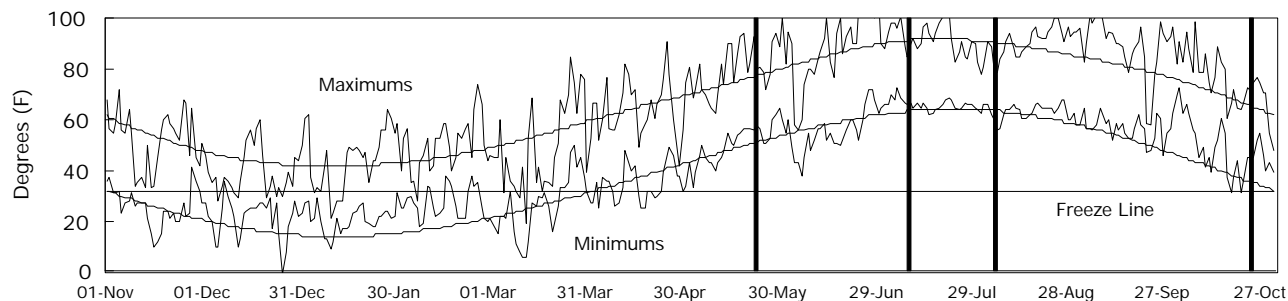
**COOPERATORS:**

Merle Witt, agronomist

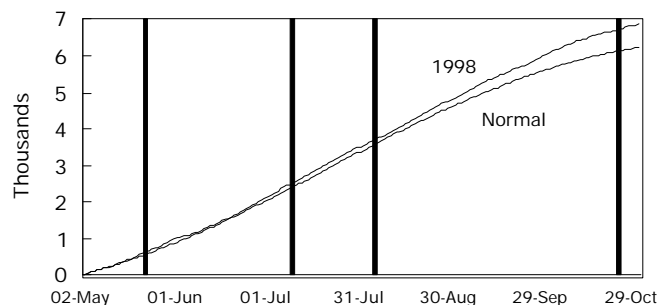
## PRECIPITATION



## DAILY TEMPERATURES



## GROWING DEGREE DAYS



## GROWING-SEASON WEATHER SUMMARY

Month	Precipitation		Average Temp.		GDD	
	1998	Normal	1998	Normal	1998	Normal
April	0.9	1.7	49	51	0	0
May	2.7	2.9	65	62	949	842
June	0.9	2.9	72	72	1134	1145
July	6.6	2.5	79	78	1404	1352
August	3.1	2.2	77	75	1330	1275
Sep.	0.3	1.6	73	67	1179	986
Oct.	2.1	1.0	62	54	874	632
Season Totals	16.6	14.8	68	66	6868	6231

**TABLE 21. FINNEY CO. IRR. GRAIN SORGHUM PERFORMANCE TEST RESULTS, 1996-1998.**

BRAND	NAME	ACRE YIELD, BUSHEL							YIELD AS % OF TEST AVERAGE			97-98		1998			
		1998	1997	1996	2-Yr. AVG.	3-Yr. AVG.	1998	1997	1996	Days to Blm	Grain to Moist. %	Days to Blm	Grain to Moist. %	Test Wt. lb/bu	Plnt Ht. in.	Ldg %	Final Stand %
MATURITY CHECK	C 305	98	97	92	98	96	83	90	78	53	14	48	14	59	52	--	84
MATURITY CHECK	RS 610	85	86	87	85	86	72	79	74	57	14	53	13	59	55	--	94
ASGROW	XP3257	118	--	--	--	--	101	--	--	--	--	56	13	61	53	--	115
MSG (OHLDE)	O 256	115	--	--	--	--	98	--	--	--	--	57	13	60	66	--	131
MATURITY CHECK	TX3042xTX2737	101	88	97	94	95	86	81	83	60	14	58	13	61	60	--	146
MYCOGEN	1506	126	127	117	126	123	107	117	99	61	14	58	13	61	68	--	117
MYCOGEN	3694	122	--	--	--	--	104	--	--	--	--	58	13	61	58	--	134
CHECK	ATX631xR9019	120	--	--	--	--	102	--	--	--	--	59	13	60	67	--	92
GARST	5429	130	--	--	--	--	110	--	--	--	--	59	13	61	62	--	136
ASGROW	A425	132	121	--	127	--	112	112	--	62	14	59	14	60	54	--	124
ASGROW	SENECA	82	--	--	--	--	70	--	--	--	--	60	13	61	51	--	152
MIDLAND	4757Y	110	--	--	--	--	94	--	--	--	--	60	13	61	65	--	140
MIDLAND	4664	112	--	--	--	--	95	--	--	--	--	60	13	59	54	--	128
DEKALB	DK-53	137	--	--	--	--	117	--	--	--	--	60	14	61	61	--	132
DEKALB	DK-47	132	116	106	124	118	112	107	90	63	14	61	13	61	56	--	123
MATURITY CHECK	OK11xTX2741	117	87	87	102	97	99	81	74	63	14	61	13	61	54	--	116
WARNER	W-818-E	123	--	--	--	--	104	--	--	--	--	61	13	61	63	--	137
DELANGE	DSA 133	127	--	--	--	--	108	--	--	--	--	61	14	61	62	--	134
MIDLAND	4836	112	--	--	--	--	95	--	--	--	--	61	14	60	53	--	126
MYCOGEN	444E	131	98	120	115	117	112	91	102	64	15	61	14	60	61	--	117
AGRIPRO	AP 2838	116	113	--	115	--	99	104	--	65	14	62	13	60	61	--	143
ASGROW	A459	133	--	--	--	--	113	--	--	--	--	62	13	61	63	--	130
MSG (OHLDE)	G 610	114	--	--	--	--	97	--	--	--	--	62	13	61	64	--	120
AGRIPRO	AP 2660	106	102	--	104	--	90	95	--	65	14	62	14	61	55	--	191
NK	K73-J6	119	121	131	120	124	102	112	112	65	15	62	14	61	62	--	122
WARNER	W-965-E	119	--	--	--	--	101	--	--	--	--	62	14	60	54	--	124
CARGILL	837	134	116	112	125	121	114	107	95	65	14	63	13	60	61	--	169
DEKALB	DK-55	131	113	140	122	128	112	105	119	65	14	63	13	60	62	--	131
MATURITY CHECK	TX2752xTX430	130	114	111	122	118	111	105	95	66	14	63	13	60	61	--	134
CARGILL	730	113	132	111	122	118	96	122	94	65	14	64	13	60	59	--	126
DEKALB	DK-65	134	--	--	--	--	114	--	--	--	--	64	13	61	64	--	121
CARGILL	833	115	--	--	--	--	98	--	--	--	--	65	13	60	59	--	169
CHECK	ATX631xTX436	109	116	--	112	--	92	107	--	68	14	65	13	60	69	--	88
CARGILL	X12027 EXP	117	93	130	105	113	100	86	111	67	15	65	14	61	52	--	152
MATURITY CHECK	TX2752xTX2783	122	89	121	105	111	104	82	103	70	15	65	14	61	63	--	127
DEKALB	DK-56	117	124	125	120	122	99	115	106	67	15	66	14	61	65	--	114
DEKALB	DK-54	119	115	136	117	123	101	106	115	66	15	66	14	61	67	--	129
AGRIPRO	AP 2800	106	--	--	--	--	90	--	--	--	--	67	13	61	56	--	121
CHECK	A9009xTX436	113	--	--	--	--	96	--	--	--	--	67	14	60	67	--	111
ASGROW	A570	123	--	132	--	--	105	--	112	--	--	68	13	60	67	--	143
ASGROW	X6126	111	--	--	--	--	94	--	--	--	--	68	13	61	71	--	83
CHECK	ATX635xTX436	104	130	--	117	--	89	120	--	70	14	68	13	60	77	--	75
ASGROW	A571	122	--	115	--	--	104	--	98	--	--	68	14	60	62	--	128
DELANGE	DSA 144	131	--	--	--	--	112	--	--	--	--	68	14	61	60	--	130
MYCOGEN	3800	124	100	132	112	119	105	93	112	69	15	68	14	61	59	--	146
NC+	7R83	121	116	--	119	--	103	107	--	68	14	68	14	60	63	--	141
TRIUMPH	TR 82-G	130	117	128	124	125	111	108	109	71	15	68	14	61	63	--	137
ASGROW	A504	98	--	--	--	--	83	--	--	--	--	69	13	60	58	--	131
GARST	N5424	98	--	--	--	--	84	--	--	--	--	75	14	61	51	--	128
AVERAGES		118	108	118	113	114	118	108	118	65	14	63	13	60	61	--	127
CV(%)		9	9	8	--	--	9	9	8	--	--	2	1	0	2	--	7
LSD(0.05)**		14	13	12	--	--	12	12	10	--	--	2	0	0	2	--	12

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

**TABLE 22. WEST KANSAS IRRIGATED GRAIN SORGHUM TEST YIELD SUMMARY, 1996-1998.**

BRAND	NAME	1998 YIELD AS % OF TEST AVERAGE <sup>1</sup>					1996-1998		
		STI	THI	GRI	FII	AVG.	DYA (bu/a) <sup>2</sup>	SE <sup>3</sup>	N <sup>4</sup>
DEKALB	DK-54	111	111	111	101	109	25.2*	3.1	10
ASGROW	A570	98	95	117	105	104	24.0*	4.3	6
MATURITY CHECK	TX2752xTX2783	106	96	121	104	107	22.9*	5.6	10
MYCOGEN	3800	--	--	--	105	--	22.5*	6.3	5
ASGROW	A571	115	87	109	104	104	21.2*	4.0	6
DEKALB	DK-55	102	100	105	112	105	20.7*	4.5	10
NC+	7R83	98	93	112	103	101	20.6*	4.8	7
ASGROW	A425	94	103	102	112	103	19.2*	2.6	7
c MATURITY CHECK	TX2752xTX430	95	77	115	111	99	18.7*	3.9	10
DEKALB	DK-47	107	101	106	112	107	17.8*	2.5	10
DEKALB	DK-56	99	99	98	99	99	17.5*	2.3	9
MYCOGEN	1506	--	--	--	107	--	17.5*	4.9	7
CARGILL	730	--	95	88	96	--	16.9*	4.3	8
MYCOGEN	444E	--	--	--	112	--	12.0	5.4	5
CARGILL	X12027 EXP	--	89	97	100	--	10.9*	4.2	8
MATURITY CHECK	OK11xTX2741	93	100	92	99	96	1.0	3.1	10
MATURITY CHECK	TX3042xTX2737	78	110	99	86	93	-2.0	3.9	10
c MATURITY CHECK	C 305	87	90	82	83	86	-7.0*	2.8	10
c MATURITY CHECK	RS 610	81	86	77	72	79	-11.7*	2.2	10
AGRIPRO	AP 2660	--	115	--	90	--	--	--	--
AGRIPRO	AP 2800	--	87	--	90	--	--	--	--
AGRIPRO	AP 2838	--	108	--	99	--	--	--	--
ASGROW	A459	88	116	106	113	106	--	--	--
ASGROW	A504	95	87	107	83	93	--	--	--
ASGROW	SENECA	94	109	90	70	91	--	--	--
ASGROW	X6126	88	91	--	94	--	--	--	--
ASGROW	XP3257	86	128	84	101	100	--	--	--
CARGILL	737	--	92	--	--	--	--	--	--
CARGILL	770Y	--	106	--	--	--	--	--	--
CARGILL	833	--	--	--	98	--	--	--	--
CARGILL	837	--	--	--	114	--	--	--	--
DEKALB	DK-53	119	93	103	117	108	--	--	--
DEKALB	DK-65	90	104	109	114	104	--	--	--
DELANGE	DSA 133	--	--	--	108	--	--	--	--

(continued)

**TABLE 22. WEST KANSAS IRRIGATED GRAIN SORGHUM TEST YIELD SUMMARY, 1996-1998.**

BRAND	NAME	1998 YIELD AS % OF TEST AVERAGE <sup>1</sup>					1996-1998		
		STI	THI	GRI	FII	AVG.	DYA (bu/a) <sup>2</sup>	SE <sup>3</sup>	N <sup>4</sup>
DELANGE	DSA 144	--	--	--	112	--	--	--	--
GARST	5429	--	--	--	110	--	--	--	--
GARST	N5424	--	--	--	84	--	--	--	--
MIDLAND	4664	91	109	94	95	97	--	--	--
MIDLAND	4725	103	--	105	--	--	--	--	--
MIDLAND	4757Y	106	111	94	94	101	--	--	--
MIDLAND	4774	93	--	76	--	--	--	--	--
MIDLAND	4836	113	--	101	95	--	--	--	--
MSG (OHLDE)	G 610	--	--	--	97	--	--	--	--
MSG (OHLDE)	O 256	--	--	--	98	--	--	--	--
MYCOGEN	3694	--	--	--	104	--	--	--	--
NC+	6R95	--	112	--	--	--	--	--	--
NC+	7B47	129	--	--	--	--	--	--	--
NC+	8R18	111	--	--	--	--	--	--	--
NK	K73-J6	--	--	--	102	--	--	--	--
PIONEER	83G66	107	--	--	--	--	--	--	--
PIONEER	84G62	120	--	--	--	--	--	--	--
TRIUMPH	TR 82-G	101	--	--	111	--	--	--	--
WARNER	W-818-E	--	--	--	104	--	--	--	--
WARNER	W-965-E	--	--	--	101	--	--	--	--
CHECK	A9009xTX436	--	--	--	96	--	--	--	--
CHECK	ATX631xR9019	--	--	--	102	--	--	--	--
CHECK	ATX631xTX436	--	--	--	92	--	--	--	--
CHECK	ATX635xTX436	--	--	--	89	--	--	--	--
AVERAGES	(bushels/acre)	112	106	152	118	122	--	--	--
LSD(0.05)**		16	12	8	12	--	--	--	--

<sup>1</sup> STI = Stafford Co. Test, Sandyland Experiment Field, St. John

THI = Thomas Co. Test, Northwest Res. Ext. Center, Colby

GRI = Greeley Co. Test, Southwest Rex. Ext. Center, Tribune

FII = Finney Co. Test, Southwest Rex. Ext. Center, Garden City

<sup>2</sup> DYA = Differential Yielding Ability; average difference of hybrid yield compared to average of check hybrids in bushels per acre.

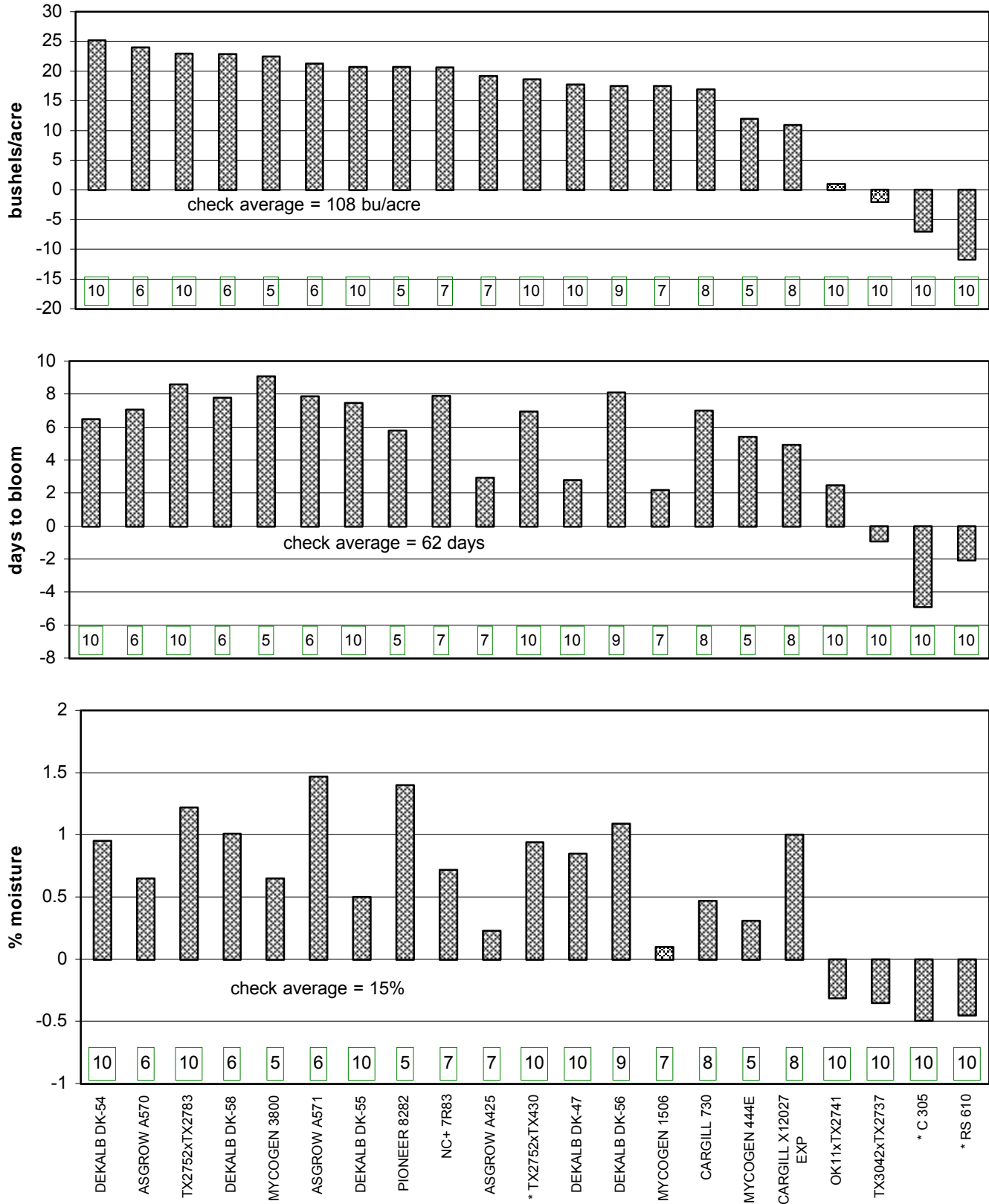
<sup>3</sup> SE = Standard Error of DYA; measure of consistency of yield differences.

<sup>4</sup> N = Number of tests where hybrid was compared with checks; DYA was calculated only for those with at least 5 comparisons.

<sup>c</sup> Check hybrid; each hybrid compared to average yield of these check hybrids.

\* Statistically significantly different from the average of the check hybrids, which = 0 (P < 0.5).

**Figure 10. West Kansas irrigated sorghum hybrid performance summary, 1996-1998.**



Bars show differences between hybrid and average of checks\*. Values in boxes are numbers of tests that compared hybrids and checks.

## APPENDIX 1: Entrants in the 1998 Kansas Sorghum Performance Tests

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### AgriPro

AgriPro Seeds, Inc.  
Front St.  
P.O. Box 2212  
Hereford, TX 79045  
800-858-4603

### DeLange

Steve Ahring  
DeLange Seed (AGSECO)  
P.O. Box 7  
Girard, KS 66743  
316-724-6223

### Hoegemeyer

Don Moeller  
Hoegemeyer Hybrids  
1755 Hoegemeyer Rd.  
Hooper, NE 68031-2125  
402-654-3399

### NK

Marcus Schwartz  
Novartis Seeds, Inc.  
1060 Wheatland Dr.  
Buhler, KS 67522  
316-543-2707

### Asgrow

Matt Sowder  
Asgrow Seed Co.  
Halstead, KS 67056  
888-827-4769

### Garst

Garst Seed Co.  
2369 330th St.  
Slater, IA 50244  
800-831-6630

### MSG (Ohlde)

Eric Woofter  
Midwest Seed Genetics, Inc.  
Rt. 1, Box 37  
Hanston, KS 67849  
316-623-2075

### Pioneer

Brad Lance  
Pioneer Hi-Bred Intl., Inc.  
1616 S. Kentucky St.  
Suite C-150  
Amarillo, TX 79102  
806-356-0160

### Cargill

Kevin Hannigan  
Cargill Hybrid Seeds  
P.O. Box 5645  
Minneapolis, MN 55440-5645  
612-742-6727

### Gold Kist

Wayne Mannis  
Gold Kist Seed  
1506 Highway 286 West  
Suite 114  
Conway, AR 72032

### Midland

Ron Sylvester  
Midland Seeds, Inc.  
1906 Kingman Rd.  
Ottawa, KS 66067  
800-819-SEED

### Triumph

Ben Benton  
Triumph Seed Co. Inc.  
P.O. Box 1050  
Ralls, TX 79357  
806-253-2584

### Century II

Robert Jacquinet  
Greenbush Seed&Supply, Inc.  
315 S. Adams  
P.O. Box 661  
Hutchinson, KS 67504-0661  
316-662-6659

### Golden Harvest

Bill Green  
J.C. Robinson Seed Co.  
100 J.C. Robinson Blvd.  
P.O. Box A  
Waterloo, NE 68069  
800-228-9906

### Mycogen

A. James Allison  
Mycogen Seeds  
3600 N. Columbia  
Plainview, TX 79072  
806-995-1322

### Warner

Bill Lyles  
George Warner Seed  
Box 1877  
Hereford, TX 79045  
800-364-4470

### DeKalb

Charles Courtney  
DeKalb Plant Genetics Corp.  
R.R. 2, Box 56  
Lubbock, TX 79415  
806-763-3336

### Golden World

George Pechacek  
Crosbyton Seed  
P.O. Box 429  
Crosbyton, TX 79322  
806-675-7351

### NC+

Wes Zart  
NC+ Hybrids  
P.O. Box 4408  
1300 N. 79th  
Lincoln, NE 68504  
402-467-2517



## APPENDIX 2: Entries in the 1998 Kansas Grain Sorghum Performance Tests

<b>AGRIPRO</b>						<b>DELANGE</b>					
Grain	End.	Mat.	Days	G-bug*		Grain	End.	Mat.	Days	G-bug	
AP 2233	B	HY	E	62	CE	DSA 115C	C	HY	ME	59	CE
AP 2468	B	HY	ME	64	C	DSA 123Y	Y	Y	M	65	EI
AP 2660	R	W	M	68	CE	DSA 133	B	HY	M	65	CE
AP 2800	C	HY	M	70	C	DSA 144	B	HY	ML	69	CE
AP 2838	R	W	M	71	CE						
<b>ASGROW</b>						<b>GARST</b>					
Grain	End.	Mat.	Days	G-bug*		Grain	End.	Mat.	Days	G-bug	
SENECA	B	HY	ME	63	C	5631Y	C	HY	E	62	E
XP3257	R	W	ME	63		5616	R	HY	M	66	
A425	R	W	M	64	E	5429	B	HY	M	68	C
A459	R	W	M	65	E	N5470	B	HY	M	70	CEIK
A504	C	HY	M	68		N5424	Y	Y	ML	73	C
X6126	W	W	ML	71		<b>GOLDEN HARVEST</b>					
A570	R	W	ML	72		Grain	End.	Mat.	Days	G-bug	
A571	B	W	ML	72		H-403	B	HY	E	62	E
<b>CARGILL</b>						<b>GOLDEN WORLD</b>					
Grain	End.	Mat.	Days	G-bug*		Grain	End.	Mat.	Days	G-bug	
576	B	HY	E	61	CEIK	EX 471	B	HY	M	64	C
647	B	HY	M	68	C	H-430Y	Y	Y	M	64	C
X12027 EXP	B	HY	M	68	CEIK	H-495W	W	HY	M	69	C
X12200 EXP	B	HY	M	68	CEIK	EX 502	R	HY	L	70	E
627	B	HY	M	69	CEIK	H-512	R	W	L	71	E
730	B	HY	M	70	CEIK	<b>GOLDEN WORLD</b>					
737	B	HY	M	70	C	Grain	End.	Mat.	Days	G-bug	
770Y	C	Y	M	70	CEIK	GW 5960	B	Y	ME	65	E
833	B	HY	L	71		GW 1489	R	W	ML	68	E
837	B	HY	L	73		GW 1492	R	W	ML	68	E
<b>CENTURY II</b>						<b>GOLDKIST</b>					
Grain	End.	Mat.	Days	G-bug*		Grain	End.	Mat.	Days	G-bug	
GB4535-E	R	HY	E	45	E	GK606	W	W	ML	58	
GB5543-E	R	HY	E	55	E	GK907	W	W	ML	63	
GB7042-E	R	HY	M	70	E	<b>HOEGEMEYER</b>					
GB7540-E	R	HY	M	75	E	Grain	End.	Mat.	Days	G-bug	
GB8041-W	W	HY	M	80	CD	6055	B	Y	E	62	
<b>DEKALB</b>						<b>MIDLAND</b>					
Grain	End.	Mat.	Days	G-bug*		Grain	End.	Mat.	Days	G-bug	
DK-36	B	HY	E	66	CE	4664	B	R	ME	60	O
DK-35	B	HY	E	67	CE	4725	C	R	M	64	O
DK-40y	Y	Y	E	70	CE	4757Y	Y	Y	M	64	O
DK-43A	B	HY	E	70	CE	4774	B	R	M	65	O
DK-44	B	HY	M	71	CE	4836	R	R	ML	68	E
DK-45	B	HY	M	72	CE	X876	R	R	L	69	O
DK-47	B	HY	M	72	CE	<b>MSG (OHLDE)</b>					
DK-65	B	HY	L	73		Grain	End.	Mat.	Days	G-bug	
DK-53	B	HY	L	74	CE	G 571	B	Y	ML	67	C
DK-54	B	HY	L	75	CE	G 610	B		ML	68	CE
DK-55	B	HY	L	75	CE	O 256	B	Y	ML	68	CE
DK-56	B	HY	L	76	CE						

\*Grain = Grain color: Bronze, Cream, Red, Yellow, White; End. = Endosperm color: White, Yellow, Hetero-Yellow; Mat. = Relative maturity: Early, Medium, Late; Days = Days to half bloom; G-bug = Greenbug biotype resistance: Resistant, Susceptible, biotype E, biotype I. Blank spaces indicate that the information was not provided. Most information was provided by entrants.

(continued)

## APPENDIX 2: Entries in the 1998 Kansas Grain Sorghum Performance Tests

<b>MYCOGEN</b>						<b>TRIUMPH</b>					
	Grain	End.	Mat.	Days	G-bug*		Grain	End.	Mat.	Days	G-bug
3636	Y	Y	ME	59	CEIK	TR 461	R	W	ME	62	CE
3838	C	HY	M	60	CE	TR 447	C	W	ME	63	CE
1506	C	HY	M	62	CE	TR 462	R	W	M	70	CE
EXP9874	C	HY	M	63	CE	TR 65-G	R	W	M	70	CE
EXP9656	C	Y	M	65	CEIK	TR 481	R	W	ML	72	CE
EXP9881	C	Y	M	65	CEIK	TR 474	C	W	ML	73	CE
3694	B	HY	ML	68	CE	TR 82-G	R	W	ML	73	CE
444E	B	HY	ML	68	CE						
EXP9888	C	HY	ML	68		<b>WARNER</b>	<b>Grain</b>	<b>End.</b>	<b>Mat.</b>	<b>Days</b>	<b>G-bug</b>
3800	B	HY	ML	70	CE	W-528-W	C	W	M	65	C
						W-625-Y	Y	Y	M	68	C
<b>NC+</b>	<b>Grain</b>	<b>End.</b>	<b>Mat.</b>	<b>Days</b>	<b>G-bug*</b>	W-818-E	B	HY	ML	72	CE
5B74E	B	HY	E	60	CE	W-965-E	R	HY	ML	72	CE
6B50	B	HY	ME	62		<b>CHECK</b>	<b>Grain</b>	<b>End.</b>	<b>Mat.</b>	<b>Days</b>	<b>G-bug</b>
Y363	Y	Y	ME	64	C	A9009xTX436	W	W	L		
6B70	B	HY	M	65	C	ATX631xR9019	W	W	L		
6C63	C	HY	M	65	C	ATX631xTX436	W	W	L	76	
6R95	R	W	M	67		ATX635xTX436	W	W	L	78	
6Y83-I	Y	Y	M	67	CEIK	<b>MATURITY CHECK</b>	<b>Grain</b>	<b>End.</b>	<b>Mat.</b>	<b>Days</b>	<b>G-bug</b>
7B29	B	HY	M	69		C 305	R		E	60	
371	C	HY	M	70	C	TX3042xTX2737	B	W	E	65	
7B47	B	HY	M	70	CE	RS 610	R	W	M	68	
7R37E	R	W	M	70	CE	OK11xTX2741	W	W	M	69	
7R83	R	W	ML	70		TX2752xTX430	B	W	L	73	
8R18	R	W	L	75		TX2752xTX2783	R	W	L	74	E
<b>NK</b>	<b>Grain</b>	<b>End.</b>	<b>Mat.</b>	<b>Days</b>	<b>G-bug*</b>						
K59-Y2	C	HY	M	67	E						
KS 585	B	HY	M	67	E						
KS 711Y	C	HY	M	70	E						
K73-J6	B	HY	M	71	E						
<b>PIONEER</b>	<b>Grain</b>	<b>End.</b>	<b>Mat.</b>	<b>Days</b>	<b>G-bug*</b>						
87G57	B	Y	E	62	CE						
85Y34	Y	Y	E	66	CE						
8500	R	W	M	68							
8505	R	W	M	68	CE						
8414	R	W	M	69	CE						
85G55	R	W	M	69	CE						
84G62	B	Y	M	71	CE						
83G66	R	W	L	72	CE						
82G63	B	Y	L	74							

\*Grain = Grain color: Bronze, Cream, Red, Yellow, White; End. = Endosperm color: White, Yellow, Hetero-Yellow; Mat. = Relative maturity: Early, Medium, Late; Days = Days to half bloom; G-bug = Greenbug biotype resistance: Resistant, Susceptible, biotype E, biotype I. Blank spaces indicate that the information was not provided. Most information was provided by entrants.

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