Table 3. Spring 2003 Southern Pea Trial, Goodwell, OK. Observational Trial

Variety	Flowering[z]	Growth habit[y]	Shelled yield lbs./acre	
			Dry[x]	Imbibed[w]
Blackeye types				
AR01-633	35	2.3	1337	2854
TX160BE	53	2.3	579	2023
TX158BEgc	70	2.3	1067	2207
ARK Blackeye #1	13	3.0	1180	3432
Cream types				
US-1080	3	1.0	749	1779
LA91-30cr	85	1.5	662	1879
Early Acre	33	2.5	1233	3872
Pinkeye types				
US-1084	13	5.0	1089	3384
US-1086	10	4.3	266	440
US-1088	8	4.3	501	1015
AR96-854	23	2.0	1307	3355
AR01-1237	5	3.5	1124	2736
TX162PE	0	3.8	470	1264
LA94-1	90	1.0	727	1340
LA95-17	0	2.5	775	2549
LA96-18	75	2.0	688	1780
Coronet	40	5.0	1237	3563
Other types *(Red Holstein)*				
AR01-874	0	2.3	1599	3944

[z]Flowering=estimated percent flowering on August 7, 2003

[y]Growth habit=1-5 rating, 1=erect, 5=trailing or prostrate.

[x]Dry shelled wt.=mechanically harvested on 9/16/03 yield in lbs./acre.

[w]Imbibed wt.=Imbibed weight in lbs./acre.

Cowpea Forage Trial
June, 2003, Texas County, Oklahoma

Oklahoma Panhandle Research and Extension Center

L. Brandenberger, L. K. Wells, J. Sanchez, R. Kochenower, D. Redfearn

Materials and Methods: Cowpeas can rapidly establish and produce forage during warm summer months. Forage types include both (*Vigna unguiculata)* and (*Vigna sinensis*). They are native to the African continent, vary considerably genetically and in general are heat and drought tolerant. Because of this, they have potential for use in the Panhandle region of Oklahoma particularly as dry-land forage. During 2003, efforts were initiated on cowpea research at the Goodwell station. The objective of the trial was to provide Oklahoma producers with information on crop flowering, growth habit and yield potential of varieties and breeding lines that are available commercially or may become available in the future. Seven different forage cowpeas were included in this first year's trial. Plots consisted of one row 20 feet long with rows on 30 inch row-centers. Seed were spaced 1 seed per foot due to seed availability and were inoculated with *Rhizobium* at planting. The trial was planted on 6/16/03 and included 4 replications in a randomized block design (Table 1). Plots were rated on 8/07/03 for percent flowering, growth habit and forage quality samples were also collected. Harvest data was collected by hand harvesting forage from each plot and recording fresh and dry weights.

Results and Discussion: Flowering ratings were zero for all entries in the trial (Table 1). Growth habit ratings ranged from 1-5. Of the six varieties in the trial, GC-86L-98 and Red Ripper had an average growth habit rating of 5 and Iron had 4.4, indicating high levels of vegetative growth. Crude protein ranged from 15.6 for GC-86L-98 to a high of 22.7 percent for Poona. Total digestible nutrients (TDN) were relatively uniform with only Caloona having TDN lower than 60 percent. GC-86L-98 and Victor had the highest yields both for fresh and dried forage. GC-86L-98 had fresh and dried yields of 14.2 and 4.2 tons/acre, respectively, and Victor had 12.3 and 3.6 tons/acre, respectively. This was a first year trial for forage cowpeas and further study is needed to determine how varieties will perform during different seasons. Based upon the data, the authors would conclude that of the varieties tested this season Victor appears to have several of the attributes that are needed for forage production and would warrant more testing.

Acknowledgements: The authors thank Lawrence Bohl, Matthew LaMar and Mike LaMar for support and assistance in completing this study.

Table 1. Spring 2003 Southern Pea Trial, Goodwell, OK. Forage Trial.

Variety	Source	Flowering[z]	Growth habit[y]	Crude Protein[x]	TDN[w]	Forage yield tons/acre[v]	
						Fresh	Dry Matter
Poona	USDA	0 b[u]	1.0 d	22.7 a	60.6 ab	8.6 bc	2.7 bc
Iron	USDA	0 b	4.4 a	20.4 ab	63.1 a	6.0 cd	2.0 c
Clay	USDA	0 b	2.9 b	19.7 ab	63.9 a	5.3 cd	1.8 c
GC-86L-98	USDA	0 b	5.0 a	15.6 c	61.1 ab	14.2 a	4.2 a
Victor	OPREC	0 b	3.4 b	20.0 ab	63.9 a	12.3 ab	3.6 ab
Red Ripper	OPREC	4 a	5.0 a	17.4 bc	61.6 ab	4.1 d	1.5 c
Caloona	USDA	0 b	1.9 c	21.7 a	59.3 b	7.8 cd	2.4 bc

[z]Flowering=estimated percent flowering on August 7, 2003

[y]Growth habit=1-5 rating, 1=erect, 5=prostrate growth habit.

[x]Crude protein=dry basis percent.

[w]TDN=total digestible nutrients percent.

[v]Yield=Tons/acre for fresh green weight and dry matter weight.

[u]Numbers in a column followed by the same letter exhibit no significant differences based on Duncan's Multiple Range Test where P=0.05.

Minimum Irrigated Cotton Variety Trial – Texas County

J.C. Banks, Shane Osborne, and Rick Kochenower

Six cotton varieties were planted both on the 10th and again on the 30th of May. Two row by 25' plots were seeded at a rate of 14 lbs/A and managed for optimum yield. Plots received 5 inches of overhead irrigation from a pivoting sprinkler system. Interest in cotton continues to grow in the northern parts of Oklahoma, Texas and Southern Kansas. As indicated by the results below, planting date and variety selection can be important factors to consider for these areas.

Trial ID:	OSUVP0304	Location:	OPREC
Planting Date:	May 10 & 30	Seeding Rate:	14 lbs/A
Row Spacing:	30 inches	Plot Size:	2 r x 25'
Replications:	4	Soil Type:	Sandy Clay Loam
Harvest Date:	December 15		

Trt No.	Treatment Name	Grow Stg	Appl Code	GIN PERCENT		LINT LBS/ACRE	
1	DP 555 B/R	EARLPLAN	A	31	a	664	fg
2	PM 2280 B/R	EARLPLAN	A	25	d	746	efg
3	PM 2266 RR	EARLPLAN	A	28	bc	1029	ab
4	ST 2454 R	EARLPLAN	A	28	bc	859	cde
5	PM 2145 RR	EARLPLAN	A	30	abc	1087	a
6	PM 2167 RR	EARLPLAN	A	30	ab	1033	ab
7	DP 555 B/R	LATPLANT	B	28	abc	613	g
8	PM 2280 B/R	LATPLANT	B	27	cd	747	efg
9	PM 2266 RR	LATPLANT	B	27	bcd	885	cde
10	ST 2454 R	LATPLANT	B	28	abc	795	def
11	PM 2145 RR	LATPLANT	B	29	abc	923	bcd
12	PM 2167 RR	LATPLANT	B	30	abc	998	abc
LSD (P=.05)				2.9		140	
Standard Deviation				2		96.9	
CV				6.99		11.21	

Means followed by same letter do not significantly differ (P=.05, LSD)

Irrigated Variety Trial – Texas County

Trial ID: OSUVP0304
Planting Date: May 10 & 30
Row Spacing: 30 inches
Replications: 4
Harvest Date: December 15

Location: Panhandle St.
Seeding Rate: 14 lbs/A
Plot Size: 2 r x 25'
Soil Type: Sandy Clay Loam

Trt No.	Treatment Name	Grow Stg	Appl Code	FIBER MIC		FIBER LENGTH		FIBER STRENGTH	
1	DP 555 B/R	EARLPLAN	A	2.45	g	1.132	a	25	e
2	PM 2280 B/R	EARLPLAN	A	2.83	f	1.13	a	27.7	abc
3	PM 2266 RR	EARLPLAN	A	3.2	cde	1.102	b	27.33	abc
4	ST 2454 R	EARLPLAN	A	2.95	ef	1.08	cd	26.7	bcd
5	PM 2145 RR	EARLPLAN	A	3.75	a	1.053	e	28.2	a
6	PM 2167 RR	EARLPLAN	A	3.6	ab	1.025	f	26.85	abc
7	DP 555 B/R	LATPLANT	B	2.53	g	1.135	a	25.35	de
8	PM 2280 B/R	LATPLANT	B	3.08	def	1.093	bc	28.1	ab
9	PM 2266 RR	LATPLANT	B	3.2	cde	1.097	bc	27.25	abc
10	ST 2454 R	LATPLANT	B	3.05	def	1.067	de	26.3	cde
11	PM 2145 RR	LATPLANT	B	3.32	bcd	1.02	f	27.1	abc
12	PM 2167 RR	LATPLANT	B	3.43	bc	1.027	f	26.25	cde
LSD (P=.05)				0.298		0.0216		1.497	
Standard Deviation				0.207		0.015		1.037	
CV				6.63		1.39		3.86	

Means followed by same letter do not significantly differ (P=.05, LSD)

ALFALFA HERBICIDE STUDY

Curtis Bensch, Oklahoma Panhandle Research and Extension Center, Goodwell

A field experiment was conducted at the Oklahoma Panhandle Research and Extension Center in Goodwell, OK to examine crop injury and efficacy of 9 alfalfa herbicides in alfalfa. Herbicides examined were Karmex, Sinbar 80W, Velpar, Sencor DF, Raptor, and Buytyrac (Table 1). The experiment was established as a randomized complete block design with four replications. The plot size was 10 feet by 25 feet. The alfalfa stand was located at an irrigated site owned by Oklahoma Panhandle State University. The alfalfa variety was Cimarron VR, and the stand was 6 years old in excellent condition. The alfalfa was irrigated throughout the growing season as needed. The herbicides were applied postemergent on March 26, 2003 using a CO^2 hand boom sprayer with 4 nozzles on 19 inch spacing, 20 GPA, and 35 PSI. The alfalfa had just begun to break dormancy at application time. Application timing was targeted for alfalfa just breaking dormancy to better assess crop injury associated with the later than traditionally recommended application. Tansymustard and downy brome were the dominant weed species present. The tansymustard was 2-6" tall at a density of 2-4 per ft^2, and 3-5 leaf at application time. Downy brome was 3-4" tall at a density of 0-5 per ft^2, and 4-9 leaf. Alfalfa was 2-3 inches tall and had broken winter dormancy approximately 3 weeks earlier. Soil moisture conditions were excellent. Tansymustard and downy brome control was determined at 14 and 30 days after treatment (DAT). Crop injury was also determined at 14 and 30 DAT. Alfalfa forage yield was determined for the first 2 harvests (May 14 and June 25). Data analysis was conducted using SAS and Proc mixed.

Table 1. Herbicide treatments and rates applied with surfactants.

HERBICIDE	RATE
Karmex	1# product/A
Karmex	2# product/A
Sinbar 80W	0.5# product/A
Sinbar 80W	1.0 # product/A
Velpar L	2 pints product/A
Velpar L	3 pints product/A
Sencor DF	1 # product/A
Raptor NIS UAN	5 fluid oz/A 0.25% v/v 1.25% v/v
Butyrac (2,4-DB)	2 qts product/A

RESULTS

Downy brome and tansymustard control varied with herbicide and rate (Table 2). Velpar at 3 pts/acre gave the highest downy brome control at both 14 and 30 days after treatment. Velpar at 2 and 3 lb/A, Raptor, Sencor DF, and Sinbar at 1 lb/A all gave better than 90% control of downy brome at 30 DAT. Sinbar, Velpar, Sencor, and Raptor all gave better than 90% control of tansymustard 30 DAT. 2,4-DB provided very poor control of tansymustard, and no control of downy brome as expected.

Karmex, Sinbar, Velpar, and Sencor all caused slight visible crop injury 14 DAT (Table 2), although the crop injury did not seem to significantly affect yield (Table 3). Little crop injury was evident 30 DAT. Raptor gave excellent control of both downy brome and tansymustard and caused no crop injury. Karmex, Sinbar, Velpar, and Sencor are all chemically related compounds with the photosynthetic inhibition mode of action. Raptor's mode of action is inhibition of amino acid synthesis, specifically targeting the ALS enzyme functioning in production of branched chain amino acids.

Table 2. Downy brome control, tansymustard control, and Alfalfa injury 2 weeks and 30 days after treatment.

HERBICIDE	RATE	DOWNY BROME CONTROL		TANSY MUSTARD CONTROL		ALFALFA INJURY	
		14 DAT	30 DAT	14 DAT	30 DAT	14 DAT	30 DAT
Karmex	1# product/A	13	25	69	81	4	0
Karmex	2# product/A	0	13	73	88	4	3
Sinbar 80W	0.5# product/A	0	81	54	99	3	1
Sinbar 80W	1.0 # product/A	13	94	70	100	5	1
Velpar L	2 pints product/A	25	92	84	100	18	1
Velpar L	3 pints product/A	45	97	90	100	20	1
Sencor DF	1 # product/A	18	94	58	96	14	8
Raptor	5 fluid oz/A	28	96	93	97	0	0
Butyrac (2,4-DB)	2 qts product/A	0	0	45	0	0	0
Check		0	0	0	0	0	0
LSD		26	16	20	6	6	3

Table 3. Alfalfa yield for first and second cutting.

		ALFALFA YIELD (Pounds DM/acre)	
HERBICIDE	RATE	1ST CUTTING	2ND CUTTING
Karmex	1# product/A	5770	3566
Karmex	2# product/A	4877	2775
Sinbar 80W	0.5# product/A	5408	3053
Sinbar 80W	1.0 # product/A	4858	2775
Velpar L	2 pints product/A	5249	3190
Velpar L	3 pints product/A	5469	3431
Sencor DF	1 # product/A	5166	3580
Raptor	5 fluid oz/A	5820	3039
Butyrac (2,4-DB)	2 qts product/A	4163	2921
check		3201	2391
LSD		1614	982

OKLAHOMA CORN PERFORMANCE TRIALS, 2003

PRODUCTION TECHNOLOGY CROPS

OKLAHOMA COOPERATIVE EXTENSION SERVICE
DEPARTMENT OF PLANT AND SOIL SCIENCES
DIVISION OF AGRICULTURAL SCIENCES & NATURAL RESOURCES
OKLAHOMA STATE UNIVERSITY

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TRIAL OBJECTIVES AND PROCEDURES

Each year the Oklahoma Cooperative Extension Service conducts corn performance trials in Oklahoma's corn producing areas. In 2003 a dryland trial was added at Blackwell. These trials provide producers, extension educators, industry representatives, and researchers with information on corn hybrids marketed in Oklahoma. Company or brand name, entry designation, plant characteristics, and maturity information, was provided by the companies (Table 3,4). Oklahoma State University did not verify this information. For disease resistance consult company representatives. Company participation was voluntary, therefore some hybrids marketed in Oklahoma were not included in the test.

Irrigated test plots were established at the Oklahoma Panhandle Research and Extension Center (OPREC), Goodwell, Joe Webb farm, near Guymon, and a dryland trial near Blackwell. Fertility levels, herbicide use, and soil series (when available) are listed with data. At OPREC and the Webb location, two rows 25 feet long were seeded at the target population of 32,000 plants/ac, and 20 feet of both rows were harvested. At the Blackwell location two rows 25 feet long were seeded at target population of 25,000 plants/ac, 20 feet of both rows were harvested. The ensilage trial was seeded the same as grain trial at OPREC and 10 feet of one row was harvested for yield Experimental design was a randomized complete block with four replications. Grain yields are reported as bu/ac of shelled grain (56 lbs/bu) adjusted to moisture content of 15.5%. This is consistent with U.S. No. 1 grade corn standards. Corn ensilage was harvested at the early dent stage with average moisture content of 70.8 %. Ensilage production is reported as tons/ac adjusted to 65% moisture. This is consistent with current ensiling practices.

GROWING CONDITIONS

Panhandle

The planting period was characterized by less than desirable topsoil moisture. Most producers used some pre-irrigation to obtain desired soil moisture levels. Soil temperature of 61° F on April 1 at the two-inch depth was consistent with observations in previous years. Most corn in the region was planted in April without delays due to rainfall. During the growing season rainfall was excellent from mid May until July 1 (Table 1) with some areas receiving more rain than OPREC. With the abundant precipitation most producers in the area did not start irrigation until early July. The panhandle region had several yield reducing hailstorms from mid May until early July, although OPREC didn't have hail for the first time in 5 years. Pollination period (July 1 through July 15) temperatures for 2003 were higher than in 2002, but not as severe as 2001 (Fig. 1) although yields in most instances were not affected. High moisture corn was cut with minor delays from weather in late August and early September. However, delays of 3 weeks or more were common for dry corn harvest due to cool temperatures and rain in late September and October.

Blackwell

The planting period had ideal soil moisture and soil temperatures, followed bye adequate rainfall until the first of July. Lack of rainfall in the month of July adversely affected grain fill therefore test weights were low. Most corn was harvested in August and without major delays.

RESULTS

Grain yields, test weight, harvest moisture, and plant populations for the Blackwell, OPREC, and Webb trials are presented (Tables 5-7). Yields in the panhandle trials were excellent in 2003. Yields for the Blackwell trial were lower than expected. Plant populations at both the Blackwell and Webb trials were higher than target due to better than expected emergence. Yields at Blackwell were not adversely affected by high seeding rate, highest yields in a seeding rate study at same location were observed at 27,000 plants/ac.

Ensilage yields ADF, TDN, and energy values are reported (Table 8). Crude protein is not reported, because no difference existed between hybrids, the average was 7.3%. No two-year data is reported because silage was not harvested in 2002.

Small differences in yield or other parameters should not be overemphasized. Least Significant Differences (L.S.D.) are shown at the bottom of each table. Unless two entries differ by at least the L.S.D. shown, little confidence can be placed in one being superior to another. The coefficient of variability (C.V.) is provided as an estimate of the precision of the data with respect to the mean. To provide some indication of yield stability, 2-year means are provided in tables 5, 6, and 7. Producers interested in comparing hybrids for consistency of yield should consult these tables.

The following people have contributed to this report by assisting in crop production, data collection, and publication; Donna George, Lawrence Bohl, Matt LaMar, Mike LaMar, Chad Fowler, and James Shepard. Their efforts are greatly appreciated.

Figure 1. Daily OPREC high temperatures for July 1 through July 15, 2001, 2002, 2003, and long-term mean.

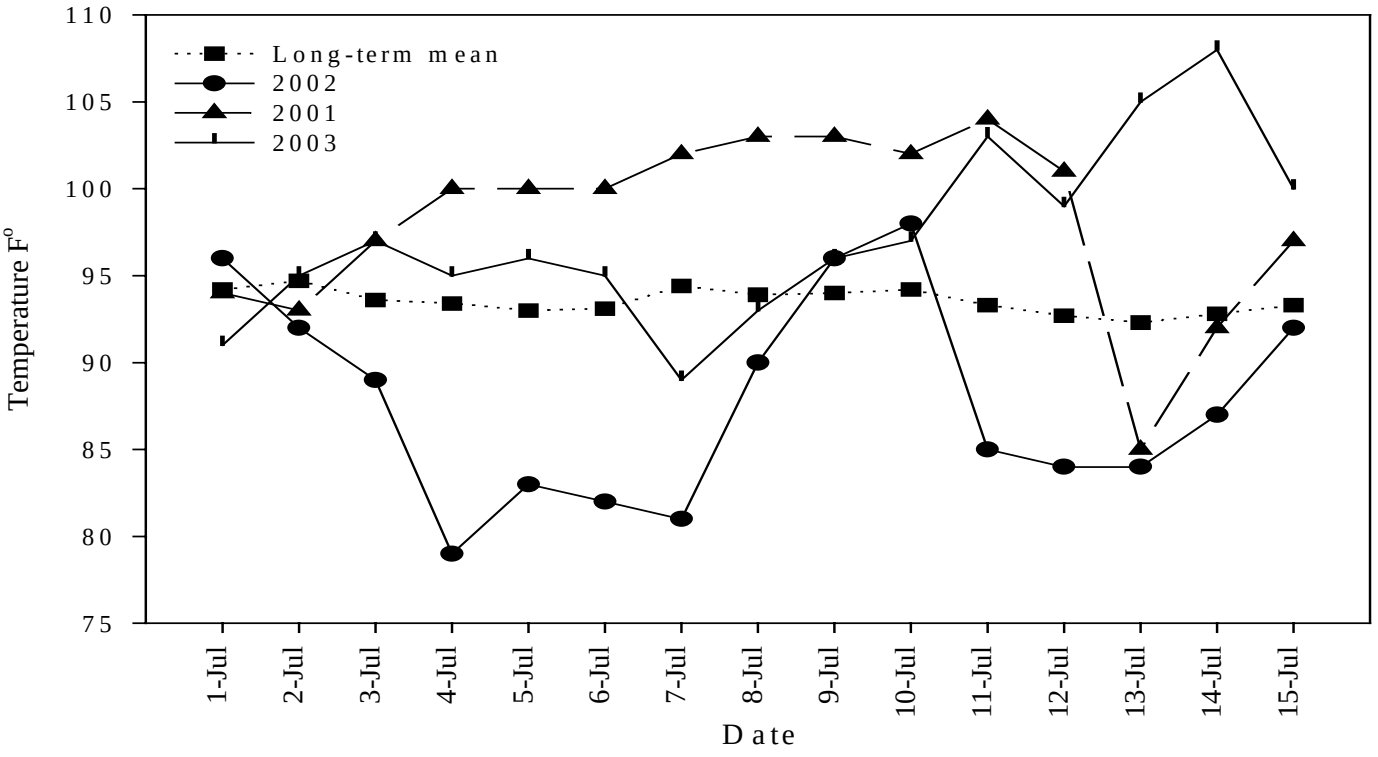


Table 1. Rainfall and irrigation for irrigated corn performance trial locations, 2003.

Location	April	May	June	July	Aug	Total
Long-term mean	1.33	3.25	2.86	2.58	2.28	12.3
Texas county	0.55	1.84	5.26	1.87	1.19	10.71
Irrigation						
OPREC	2.0	2.0	1.0	6.0	5.0	16.0
Joe Webb*	0.0	2.0	1.5	7.5	5.0	16.0

* Joe Webb trial 4 inches of pre-irrigation

Table 2. Rainfall at Blackwell dryland corn performance trial, 2003.

Location	April	May	June	July	Aug	Total
Long-term mean	3.28	5.83	4.05	2.68	3.19	19.03
2003	4.34	5.43	4.13	0.01	3.17	17.08

Table 3. Characteristics of Corn Hybrids in Blackwell Corn Performance Trial, 2003.

Company	Hybrid	Plant Characteristics				MATURITY	
		SV	SS	SG	EP	Days	GDD*
Garst Seed Company	8543Bt/IT	5	3	4	M	90-110	<2600
Garst Seed Company	8590RR	3	1	3	M	90-110	<2600
Garst Seed Company	9476Bt	3	2	2	M	90-110	<2600
NC+ Hybrids	4573B	3	3	3	M	111-120	2600-2699
NC+ Hybrids	5021B	3	3	3	M	111-120	2600-2699

Table 4. Characteristics of Corn Hybrids in Panhandle Corn Performance Trials, 2003

Company	Hybrid	Plant Characteristics				MATURITY	
		SV	SS	SG	EP	Days	GDD*
Garst Seed Company	8383YGI	2	3	3	M-H	110-120	2600-2699
Garst Seed Company	8288	2	3	2	H	110-120	2600-2699
Garst Seed Company	8270 RR	3	2	2	H	110-120	2600-2699
Garst Seed Company	8371	2	3	3	M	110-120	2600-2699
Frontier Hybrids, Inc.	F-3175	1	1	2	M	110-120	2600-2699
Frontier Hybrids, Inc.	F-3250	1	1	2	M	110-120	2600-2699
Dekalb Genetics	DKC 63-79 YGCB	3	4	2	M	110-120	2600-2699
Dekalb Genetics	DKC 69-70 YGCB	3	2	3	H	110-120	2600-2699
Dekalb Genetics	DKC 60-17 RR	3	4	5	M-S	110-120	2600-2699
Asgrow Seed	RX730YG	2	4	4	M	110-120	2600-2699
Asgrow Seed	RX752YG	3	4	5	M	110-120	2600-2699
Triumph Seed Co., Inc	1866Bt	2	2	2	H	110-120	2600-2699
Triumph Seed Co., Inc	1416 Bt	2	2	2	M	110-120	2600-2699
Triumph Seed Co., Inc	1302 Rw	2	2	2	M	110-120	2600-2699
NC+ Hybrids	6962R	3	1	3	M	110-120	2600-2699
NC+ Hybrids	4992RB	3	3	4	M	110-120	2600-2699
NC+ Hybrids	5433RB	3	2	3	M	110-120	2600-2699

***** Plant Characteristics: SV - Seedling Vigor; SS - stalk strength; SG - stay green; EP - ear placement (Low, Medium, High)
Rating scale for above characteristics except ear placement 1 = excellent - 9 = poor

Table 5. Grain Yield and Harvest Parameters from Blackwell location Oklahoma Corn Performance Trials, 2003

Company Brand Name	Entry Designation	Maturity	Grain Yield bu/ac	Test Weight lb/bu	Harvest Moisture	Plant Population plants/ac
Garst Seed Company	8590RR	106	69.3	52.1	11.7	27,200
Garst Seed Company	8543Bt/IT	108	57.4	51.4	12.1	25,500
NC+ Hybrids	4573B	111	56.6	52.5	13.8	28,200
Garst Seed Company	9476Bt	108	55.0	49.3	10.3	28,200
NC+ Hybrids	5021B	111	48.4	50.5	13.0	27,800
	Mean		57.3	51.2	12.2	27,400
	CV%		18.9	0.8	7.6	8.0
	L.S.D.		NS	0.8	1.7	NS

Cooperator: Larry Young
Soil Series: Tabler Silt Loam No-Tillage Practices: Following soybean in 2002
Soil Test: N: 32 lbs/ac P: 93 lbs/ac K: 366 lbs/ac pH: 4.9 Fertilizer: N: 75 lbs/ac P: 0 K: 0
Planting Date: April 2, 2003 Harvest Date: Grain August 18, 2003 Herbicide: Gallon Fieldmaster/ac (Preemergence)

Table 6. Grain Yield and Harvest Parameters from OPREC location Oklahoma Corn Performance Trials, 2003

Company Brand Name	Entry Designation	Grain Yield bu/ac		Test Weight lb/bu		Harvest Moisture	Plant Population plants/ac
		2003	Two year	2003	Two year		
Garst Seed Company	8288	196.5	186.9	56.1	56.1	20.5	28,500
Garst Seed Company	8383YGI	198.7	170.9	57.6	56.8	17.9	29,300
Triumph Seed Co., Inc	1866Bt	206.8	166.1	58.9	57.2	17.6	26,800
Dekalb Genetics	DKC 60-17 RR	186.1	165.7	57.7	56.4	16.6	27,800
Asgrow Seed	RX730YG	180.7	164.6	56.4	55.1	16.9	30,900
Frontier Hybrids, Inc.	F-3250	192.9	161.8	58.9	57.2	18.2	28,800
Frontier Hybrids, Inc.	F-3175	184.1	157.1	59.2	56.8	18.0	27,600
NC+ Hybrids	5433RB	211.8	----	57.9	----	17.9	30,300
Garst Seed Company	8371	207.9	----	55.9	----	18.3	27,900
Triumph Seed Co., Inc	1416 Bt	202.5	----	56.9	----	16.3	29,100
Asgrow Seed	RX752YG	202.2	----	57.8	----	16.9	28,600
Dekalb Genetics	DKC 69-70 YGCB	187.6	----	56.1	----	21.8	25,400
Dekalb Genetics	DKC 63-79 YGCB	185.5	----	60.0	----	15.7	26,700
Garst Seed Company	8270 RR	184.5	----	56.4	----	17.8	28,200
Triumph Seed Co., Inc	1302 Rw	181.2	----	57.6	----	14.9	30,300
NC+ Hybrids	4992RB	179.2	----	58.2	----	17.3	28,600
	Mean	193.0	167.6	57.6	56.5	17.7	28,400
	CV%	8.0	----	1.2	----	3.4	10
	L.S.D.	22.0	NS	1.0	1.3	0.9	NS

Cooperator: Oklahoma Panhandle Research and Extension Center
Soil Series: Richfield Clay Loam Convention tillage Practices: Following soybean in 2002
Soil Test: N: 45 lbs/ac P: 26 lbs/ac K: 1192 lbs/ac pH: 7.5 Fertilizer: N: 200 lbs/ac P: 40 lbs P_2O_5/ac K: 0
Planting Date: April 14, 2003 Harvest Date: Grain September 24, 2003 Herbicide: Cinch ATZ Lite @ 1.5qt/ac (Preemergence

Table 7. Grain Yield and Harvest Parameters from Joe Webb location Oklahoma Corn Performance Trials, 2003

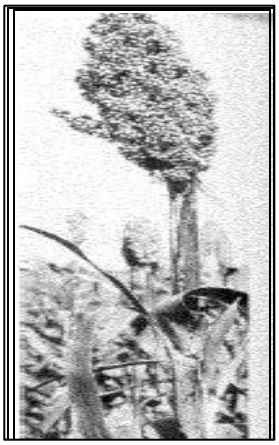
Company Brand Name	Entry Designation	Grain Yield bu/ac		Test Weight lb/bu		Harvest Moisture	Plant Population plants/ac
		2003	Two year	2003	Two year		
Frontier Hybrids, Inc.	F-3175	177.9	199.2	57.9	57.6	19.9	37,500
Asgrow Seed	RX730YG	192.0	197.1	57.3	57.6	18.7	37,800
Dekalb Genetics	DKC 60-17 RR	195.1	194.8	57.4	57.9	18.9	38,600
Garst Seed Company	8288	183.0	192.9	54.7	55.7	24.2	36,500
Triumph Seed Co., Inc	1866Bt	167.5	184.9	56.9	56.9	20.2	36,400
Frontier Hybrids, Inc.	F-3250	168.4	171.6	57.4	57.7	19.9	36,000
Garst Seed Company	8383YGI	156.0	169.3	56.9	57.3	19.6	37,800
Dekalb Genetics	DKC 63-79 YGCB	190.1	----	57.5	----	20.2	38,200
Triumph Seed Co., Inc	1416 Bt	182.0	----	57.3	----	18.7	37,500
Triumph Seed Co., Inc	1302 Rw	178.5	----	56.9	----	17.6	35,400
Asgrow Seed	RX752YG	176.0	----	56.3	----	20.6	37,200
Garst Seed Company	8371	168.0	----	56.7	----	19.2	36,300
NC+ Hybrids	4992RB	162.5	----	57.3	----	18.9	39,000
NC+ Hybrids	5433RB	161.6	----	56.6	----	20.7	38,700
Garst Seed Company	8270 RR	160.7	----	54.3	----	22.5	36,200
Dekalb Genetics	DKC 69-70 YGCB	154.2	----	54.6	----	25.3	36,800
	Mean	173.3	187.1	56.6	57.2	20.3	37,200
	CV%	7.9	----	1.1	----	4.2	7.2
	L.S.D.	19.6	19.5	0.85	0.9	1.2	NS

Cooperator: Joe Webb
Soil Series: Richfield Clay Loam Conventional Tillage Practices: Grain sorghum in 2002
Soil Test: None
Fertilizer: N: 200 lbs/ac P: 15 tons/ac Manure applied fall of 2002 K: 0
Planting Date: April 17, 2003 Harvest Date: Grain September 17, 2003
Herbicide: Harness Extra @ 1.7qt/ac (Preemergence)

Table 8. Ensilage Yields and Quality Panhandle Corn Performance Trial, 2003.

Company Brand Name	Entry Designation	YIELD Tons/ac	ADF * %	TDN * %	Energy Values *Mcal/lb		
					Maint.	Lact.	Gain
Garst Seed Company	8270 RR	28.0	37.5	59.7	0.59	0.61	0.33
NC+ Hybrids	6962R	27.0	38.9	58.6	0.57	0.60	0.32
Triumph Seed Co., Inc	1866Bt	25.9	31.6	64.3	0.66	0.66	0.39
NC+ Hybrids	5433RB	25.7	29.3	66.1	0.69	0.68	0.42
Triumph Seed Co., Inc	1416 Bt	25.3	28.8	66.5	0.69	0.69	0.42
NC+ Hybrids	4992RB	24.6	30.7	65.0	0.67	0.67	0.40
Garst Seed Company	8383YGI	24.5	34.7	61.9	0.62	0.64	0.36
Frontier Hybrids, Inc.	F-3175	24.4	35.4	61.4	0.61	0.63	0.35
Dekalb Genetics	DKC 60-17 RR	24.3	29.1	66.2	0.69	0.68	0.42
Frontier Hybrids, Inc.	F-3250	24.1	34.1	62.3	0.63	0.64	0.37
Dekalb Genetics	DKC 69-70 YGCB	24.0	37.3	59.8	0.59	0.61	0.33
Triumph Seed Co., Inc	1302 Rw	23.4	31.0	64.7	0.67	0.67	0.40
Dekalb Genetics	DKC 63-79 YGCB	23.3	28.7	66.6	0.69	0.69	0.42
Garst Seed Company	8371	23.0	29.3	66.0	0.68	0.68	0.42
Asgrow Seed	RX752YG	22.8	30.7	65.0	0.67	0.67	0.40
Asgrow Seed	RX730YG	21.5	31.4	64.4	0.66	0.66	0.39
Garst Seed Company	8288	20.5	28.9	66.4	0.69	0.69	0.42
	Mean	24.3	32.2	63.8	0.65	0.66	0.39
	CV%	8.9	12.4	4.9	7.1	5.3	10.8
	L.S.D.	3.6	6.6	5.2	0.08	0.06	0.07

* Dry Matter Basis



GRAIN SORGHUM PERFORMANCE TRIALS IN OKLAHOMA, 2003

PRODUCTION TECHNOLOGY CROPS

OKLAHOMA COOPERATIVE EXTENSION SERVICE
DEPARTMENT OF PLANT AND SOIL SCIENCES
DIVISION OF AGRICULTURAL SCIENCES & NATURAL RESOURCES
OKLAHOMA STATE UNIVERSITY

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TRIAL OBJECTIVES AND PROCEDURES

Each year, performance trials for hybrid grain sorghums are conducted by the Oklahoma Cooperative Extension Service to provide producers, extension educators, industry representatives, and researchers with information for hybrid grain sorghums marketed in Oklahoma.

Performance trials are conducted at six locations in Oklahoma: Altus, Blackwell, Enid, Goodwell, Keyes, and Tipton. Dry-land trials are conducted at all locations, with an additional irrigated trial at Goodwell. The Enid location is a unique trial to evaluate certain hybrids (generally early and medium maturity) for planting in late April. In 2003 the trial was abandoned because of poor weed control, since the herbicide was not activated due to lack of precipitation. The Blackwell trial was planted later than desired. The short season hybrids were not planted at an ideal time; they should have been planted either earlier or later. Therefore, the short season hybrids didn't perform as well as expected. **Seed companies would not recommend short season hybrids planted at this date so consult with seed representative when utilizing yield data from this trial location.**

NEW IN 2003

Two hybrids Dekalb Genetics Corp. DK-44 and Sorghum Partners Inc. KS-585 were planted at all locations with and without seed applied insecticide treatments (Gaucho and Cruiser). In 2002 at the Blackwell location, DK-44 had a yield 35.6 bu/ac higher in a seeding rate study than in the hybrid performance trial at the same location. Chinch bug activity was severe in 2002 and was determined to cause the yield reduction. DK-44 in performance trial had no insecticide treatment, while seeding rate seed trial was treated with insecticide.

Grain sorghum hybrids entered (Table 1) were assigned by companies to their respective maturity groups (early, medium, and late) and trial locations, therefore, all hybrids are not in all locations. Hybrids tested at the Enid location where determined by Oklahoma State University. Companies submitted all hybrid characteristics presented in Table 1. This information was not determined or verified by Oklahoma State University. Company participation was voluntary; therefore some hybrids marketed in Oklahoma were not included in the test. Each maturity group was tested in a randomized complete block design with four replications. Plots were 2 rows: (40-inches wide at Tipton and Altus, with 30-inch rows at all other locations) by 25 feet. Plots are trimmed to 20 feet prior to harvest.

Target populations are listed with results of respective locations. Cooperating producers, fertilization, cultural practices, soil series, and herbicide use on all trials are listed with the results tables. Rainfall data from the nearest Mesonet site are also listed. All trials are within five miles of a mesonet site except for the Enid and Keyes locations. Tractor powered cone planters were used to plant all trials with seeding rates adjusted for trial location. Trials were harvested with a (Massey-Ferguson 8) plot combine.

GROWING CONDITIONS

Moisture

Soil moisture conditions were good during the planting season for most of the state. In the panhandle, planting delay's occurred due to rainfall in late May and June, this period is when most sorghum is planted. As the season progressed rainfall was spotty statewide with some areas receiving enough for outstanding yields (Blackwell location). Other areas received little or no rainfall after the first of July and yields were adversely affected or trials not harvested at all (Altus, Keyes, Tipton). **When looking at rainfall totals at each location notice the extreme differences between June and July.** Weed problems occurred in areas due to lack of rainfall after planting to activate herbicide and some post emergence chemical treatments were used.

Insects

Statewide no major insect problems occurred or were reported in 2003.

RESULTS

Lodging and drought reduced yields at the Altus location. Lodging was due to charcoal rot. Grain yields and test weights were outstanding at the Blackwell location with the highest yields obtained since 1999. The Enid location was not harvested due to weed pressure, which severely reduced growth. The Keyes location was planted and emerged but due to drought conditions was later abandoned. The dry land trial at OPREC had significant bird damage, which made some of the yield data too variable to report. The irrigated trial at OPREC had outstanding yields. The trial at Tipton had acceptable yields for the environmental conditions that occurred.

Grain yields are reported both as pounds per acre and bushel per acre threshed grain, adjusted to moisture content of 14.0% (Tables 2-6). Test weight, plant population, and the number of heads per acre at harvest are also reported. Bird damage and lodging are also reported when present at a location. Different plant populations at each location precluded comparison between locations. Comparisons across maturity groups were not conducted. Producers should note that late maturing hybrids will generally yield more than early and medium maturity hybrids. However, the availability of moisture at critical crop development periods often influences yield more than the yield differences associated with maturity groups.

When choosing a maturity group, the type of cropping system, planting date, planting rate and potential moisture should be taken into consideration. For more information consult Fact Sheet **No. 2034** Grain Sorghum Planting Rates and Dates, and Fact Sheet No. **2113** Grain Sorghum Production Calendar.

Small differences in yield or other characteristics among hybrids should not be overemphasized. Least Significant Difference (L.S.D.) is a statistical test of yield differences and are shown at the bottom of each table. Unless two hybrids differ by at least the L.S.D. shown, little confidence can be placed in one hybrid being superior to another and the difference is probably not real.

The coefficient of variation (C.V.) is provided as an estimate of the precision of the data with respect to the mean for that location and maturity group. To provide some indication of yield stability, 2 and 3-year mean for yield and test weight is provided where trials have been conducted more than one year (Tables 8-10) and more than 3 entries per maturity group. Producers interested in comparing hybrids for consistency of yield in a specific area should consult these tables.

The following people have contributed to this report by assisting in crop production, data collection, and publication: Dona George, Lawrence Bohl, Rocky Thacker, Toby Kelly, Alton Young, Mike LaMar, Roger Don Gribble, Chad Fowler, Scott Gillen, Bart Cardwell, and Chuck Strasia. Their efforts are greatly appreciated. Also would like to thank the ***Oklahoma Grain Sorghum Commission*** *for their financial support.*

Table 1. Seed source and hybrid characteristics of grain sorghums in the Oklahoma Grain Sorghum Performance Trials, 2003. All hybrids are susceptible to birds and are single cross.

Company Brand Name	Hybrid	Seed Color	Endo-sperm	Days to Mid-bloom	Greenbug Resistance	Trial Location
Early Maturity						
Frontier Hybrids, Inc	F-303C	C	Y	59	E	1
Asgrow Seed	Seneca	Bz	HY	59	C	2
Sorghum Partners Inc	KS 310	BZ	HY	58	C&E	1
Sorghum Partners Inc	K35-Y5	Y	HY	59	C&E	1
Dekalb Genetics Corp.	DKS 36-00	Bz	HY	59	C,E,I	2
Asgrow Seed	Pulsar	Bz	HY	60	C,E,I	2
Monsanto	X210	Bz	HY	60	C,E,I	2
Frontier Hybrids, Inc	F-270E	Bz	Y	58	E	1
Medium Maturity						
Sorghum Partners Inc	KS 585	Bz	HY	67	C, E	1
Garrison & Townsend Inc.	SG-97619	R	HY	65	C & E	3
Garrison & Townsend Inc.	SG-99478	R	N	68	E	1
Dekalb Genetics Corp.	DK 44	Bz	HY	67	C, E	1
Seed Resource	SR 251	Bz	Hy	62	C & E	1
Seed Resource	SR 420	Bz	HY	66	C & E	1
NC+ Hybrids	5B89	Bz	HY	61	C	1
NC+ Hybrids	6B50	Bz	HY	62	None	1
NC+ Hybrids	7C22	C	HY	68	None	1
Dekalb Genetics Corp.	DK 40y	Y	Y	63	C,E	2
Garst Seed Company	5460	Bz	HY	68	E	4
NC+ Hybrids	7W51	W	N	69	C,E	1
NC+ Hybrids	6B73	Bz	HY	65	C	1
Garrison & Townsend Inc.	SG-22612	Bz	HY	63	E	3
Sorghum Partners Inc	NK 5418	Bz	HY	66	C,E	1
Sorghum Partners Inc	1486	Y	HY	63	C,E,I	1
Seed Resource	SR 510	BZ	HY	66	C,E	1
Late Maturity						
Frontier Hybrids, Inc	F-700E	R	R	70	E	1
Sorghum Partners Inc	K 73-J6	R	Y	73	C & E	1
Dekalb Genetics Corp.	DKS 54-00	Bz	HY	72	C,E,I	4
Asgrow Seed	A571	Bz	HY	72	None	4
NC+ Hybrids	8R18	R	W	75	None	4
Sorghum Partners Inc	NK 8828	W	HY	75	C & E	1
Seed Resource	SR 544	R	HY	70	C & E	4
Dekalb Genetics Corp.	DKS 53-11	Bz	HY	71	C,E,I	4
Garst Seed Company	0479	Bz	HY	70	E	4
NC+ Hybrids	7R83	R	N	72	None	4
Sorghum Partners Inc	KS 955	R	N	75	None	1
Sorghum Partners Inc	NK 7633	Bz	HY	73	None	1
Sorghum Partners Inc	NK 7655	Y	HY	72	C	1

Trial locations: 1 – all; 2 – panhandle only; 3 – (Altus, Tipton, Blackwell); 4 – irrigated only
Seed Color: Br – Brown; W – White; Y – Yellow; Bz – Bronze; R – Red; C – Cream
Endosperm: HW – heterowaxy; W – waxy; HY – Heteroyellow; Y – Yellow; N – Non-waxy
Maturity group: Early (less than 60 days to mid-bloom); Medium (60 – 70 days to mid-bloom); Late – (70+ days to mid-bloom)
Greenbug Resistance: Biotype hybrid is resistance too

Table 2. Results from Altus Grain Sorghum Performance Trial, 2003

Company Brand Name	Entry Designation	Grain Yield bu/ac		Test weight lb/bu		Head Population heads/ac	Harvest Moisture
		2003	Two-year	2003	Two-year		
Early							
Sorghum Partners Inc	KS 310	44.3	47.6	53.6	54.9	39,600	10.8
Sorghum Partners Inc	K35-Y5	27.9	39.4	52.5	54.8	39,400	10.0
Frontier Hybrids, Inc	F-303C	21.3	36.8	51.8	54.3	30,300	10.5
Frontier Hybrids, Inc	F-270E	27.8		50.9		30,600	11.0
	Mean	30.3	41.3	52.2	54.7	35,000	10.6
	C.V.%	16.9	19.0	2.9	2.4	15.6	5.1
	L.S.D.	8.2	8.4	NS	NS	NS	NS

Note: No plant count from Altus in 2003

Company Brand Name	Entry Designation*	Grain Yield bu/ac		Test weight lb/bu		Head Population heads/ac	Harvest Moisture	Lodging %
		2003	Two-year	2003	Two-year			
Medium								
Garrison & Townsend Inc.	SG-99478	34.2	47.7	55.4	57.1	32,100	11.0	0.0
Dekalb Genetics Corp.	DK 44w	39.8	47.5	53.8	55.7	35,100	12.2	0.0
NC+ Hybrids	6B50	31.4	47.1	48.7	51.4	37,600	10.4	0.0
Sorghum Partners Inc	KS 585w	33.4	39.2	55.3	55.2	37,100	10.7	15.0
Seed Resource	SR 251	37.1	38.4	53.5	54.9	36,000	10.9	52.5
Garrison & Townsend Inc.	SG-97619	33.0	38.0	51.6	54.1	37,100	10.9	50.0
NC+ Hybrids	5B89	30.3	37.5	51.3	53.0	41,600	10.4	7.5
NC+ Hybrids	7C22	25.1	36.7	51.4	54.3	35,000	10.5	17.5
Seed Resource	SR 420	30.3	36.4	52.1	54.9	36,800	10.9	37.5
Dekalb Genetics Corp.	DK 44	36.7		52.4		40,300	10.6	0.0
Sorghum Partners Inc	KS 585	36.6		53.4		37,000	10.1	27.5
Garrison & Townsend Inc.	SG-22612	34.8		53.0		37,000	11.5	17.5
NC+ Hybrids	6B73	34.7		52.4		37,200	10.2	0.0
Sorghum Partners Inc	1486	33.1		51.0		34,000	11.2	0.0
Sorghum Partners Inc	NK 5418	30.1		52.1		37,900	10.7	5.0
Seed Resource	SR 510	25.0		53.1		33,200	13.0	52.5
	Mean	32.9	40.9	52.4	54.5	36,600	10.9	----
	C.V.%	14.6	46.9	2.5	2.2	11.5	6.3	----
	L.S.D.	6.8	6.9	1.8	1.2	NS	1.0	----

* Hybrid with w following is treated with insecticide

Table 2. Results from Altus Grain Sorghum Performance Trial, 2003 continued.

Company Brand Name	Entry Designation	Grain Yield bu/ac		Test weight lb/bu		Head Population heads/ac	Harvest Moisture	Lodging %
		2003	Two-year	2003	Two-year			
				Late				
Sorghum Partners Inc	K 73-J6	42.7	55.1	48.7	52.8	39,000	9.6	0.0
Frontier Hybrids, Inc	F-700E	26.9	38.2	53.5	55.5	32,900	11.2	19.0
Sorghum Partners Inc	NK 8828	15.5	29.3	53.0	54.8	28,300	11.6	5.0
Sorghum Partners Inc	NK 7633	31.1		50.9		36,500	10.1	0.0
Sorghum Partners Inc	KS 955	29.1		52.7		39,400	11.4	0.0
Sorghum Partners Inc	NK 7655	21.1		51.9		32,300	10.5	0.0
	Mean	27.7	40.9	51.8	54.4	34,800	10.7	----
	C.V.%	19.0	14.0	2.7	3.3	18	4.5	----
	L.S.D.	8.0	6.1	2.1	1.9	NS	0.7	----

Cooperator: Southwest Research and Extension Center

Soil Series: Tillman Hollister Clay Loam

No-till Practices: Sorghum-wheat-fallow rotation

Soil Test: N: 54 lbs/ac P: 70 lbs/ac K: 966 lbs/ac pH: 5.6

Fertilizer: N: 69 lb N/ac P: none K: none

Herbicide: Preplant Roundup WeatherMax 30 oz/ac + DyneAmic Nonionic Adjuvant 0.5 % v/v
Preemergence Peak 0.75 oz/ac

Planting Date: May 7, 2003 Target Population: 35,000 plants/ac

Harvest Date: August 28, 2003

Monthly Rainfall (in.)

	2002			2003									
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	**Total**
	4.89	0.62	2.70	0.00	0.71	0.59	2.52	0.76	7.26	0.07	4.66	0.48	**25.26**
Long term mean:	2.37	1.31	0.91	0.84	1.10	1.56	1.92	4.23	3.51	1.76	2.45	3.44	**25.40**

Table 3. Results from Blackwell Grain Sorghum Performance Trial, 2003.

Company Brand Name	Entry Designation	Grain Yield bu/ac	Test weight lb/bu	Plant Population plants/ac	Head Population heads/plant	Harvest Moisture
Early						
Monsanto	X210	87.0	55.6	35,100	1.17	15.6
Asgrow Seed	Pulsar	73.6	54.4	34,600	1.19	15.0
Frontier Hybrids, Inc	F-303C	72.6	54.7	34,600	1.35	14.9
Asgrow Seed	Seneca	72.5	56.8	38,100	1.23	14.7
Dekalb Genetics Corp.	DKS 36-00	69.8	54.5	39,100	1.08	15.1
Sorghum Partners Inc	K35-Y5	60.3	53.2	32,500	1.14	14.8
Frontier Hybrids, Inc	F-270E	57.7	53.6	33,000	1.21	15.6
Sorghum Partners Inc	KS 310	44.0	52.4	35,700	1.20	16.4
	Mean	67.2	54.4	35,300	1.19	15.2
	C.V.%	10.4	1.1	9.6	10.4	1.9
	L.S.D.	10.3	0.9	NS	NS	0.4

Note: No two-year data because some hybrids had insecticide treatment in 2002 and others did not.

Company Brand Name	Entry Designation*	Grain Yield bu/ac	Test weight lb/bu	Plant Population plants/ac	Head Population heads/plant	Harvest Moisture
Medium						
Seed Resource	SR 510	105.1	57.4	34,200	1.21	15.4
Sorghum Partners Inc	KS 585w	94.1	58.7	38,400	1.16	15.3
NC+ Hybrids	6B73	92.3	56.9	36,500	1.18	15.4
NC+ Hybrids	7C22	91.9	57.0	32,600	1.28	15.5
Dekalb Genetics Corp.	DK 44w	90.7	57.1	36,100	1.21	14.6
Sorghum Partners Inc	NK 5418	90.7	56.2	36,600	1.08	15.0
Garrison & Townsend Inc.	SG-97619	89.6	57.0	34,300	1.29	16.5
Garrison & Townsend Inc.	SG-22612	87.8	56.8	39,200	1.12	15.7
Sorghum Partners Inc	KS 585	85.9	58.0	33,200	1.14	15.4
Seed Resource	SR 420	84.2	58.7	29,300	1.08	15.2
NC+ Hybrids	6B50	84.0	53.3	39,600	1.13	15.2
Dekalb Genetics Corp.	DK 40y	83.6	56.2	34,000	1.21	15.0
Seed Resource	SR 251	83.3	56.8	39,000	1.15	15.8
Dekalb Genetics Corp.	DK 44	79.6	57.6	36,200	1.11	15.1
NC+ Hybrids	5B89	75.6	54.4	39,800	1.18	15.6
Sorghum Partners Inc	1486	64.8	53.9	37,100	1.15	14.8
Garrison & Townsend Inc.	SG-99478	55.6	53.5	33,600	1.08	19.4
	Mean	84.6	56.4	35,900	1.16	15.6
	C.V.%	9.9	2.0	9.6	9.1	5.0
	L.S.D.	11.9	1.6	4,900	NS	1.1

* Hybrid with w following is treated with insecticide

Table 3. Results from Blackwell Grain Sorghum Performance Trial, 200 continued.

Company Brand Name	Entry Designation	Grain Yield bu/ac	Test weight lb/bu	Plant Population plants/ac	Head Population heads/plant	Harvest Moisture
			Late			
Frontier Hybrids, Inc	F-700E	94.6	57.9	31,700	1.25	15.0
Sorghum Partners Inc	K 73-J6	99.4	57.2	40,000	1.11	14.9
Sorghum Partners Inc	NK 8828	79.1	56.3	39,100	1.00	16.9
Sorghum Partners Inc	KS 955	68.0	51.7	38,500	1.11	22.5
Sorghum Partners Inc	NK 7633	93.9	57.0	36,500	1.21	16.3
Sorghum Partners Inc	NK 7655	98.4	56.0	40,600	1.09	14.8
	Mean	88.9	56.0	37,700	1.13	16.8
	C.V.%	14.0	2.2	7	9.9	7.3
	L.S.D.	18.8	1.9	3,900	0.17	1.8

Cooperator: Bill and Louise Rigdon

Soil Series: Kirkland Silt Loam

No-till Practices: Followed Soybean in 2002

Soil Test: N: NA P: NA K: NA pH: NA

Fertilizer: N: 80 lbs/ac P: 0 K: 0

Herbicide: 56 oz/ac Leadoff (Preemergence)

Planting Date: June 11, 2003 Target Population: 35,000 plants/ac

Harvest Date: November 8, 2003

Monthly Rainfall (in.)

	2002			2003									
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	**Total**
	4.99	0.31	1.74	0.12	0.87	2.94	4.34	5.43	4.13	0.01	3.17	3.67	**31.72**
Long term mean:	2.60	2.59	1.19	1.08	1.27	2.38	3.28	5.83	4.05	2.68	3.19	3.59	**34.11**

Table 4. Results from OPREC dryland Grain Sorghum Performance Trial, 2003.

Company Brand Name	Entry Designation	Grain Yield bu/ac	Test weight lb/bu	Plant Population plants/ac	Head Population heads/plant	Harvest Moisture	Bird Damage %
Early							
Asgrow Seed	Seneca		58.6	21,700	1.46	12.2	40.0
Asgrow Seed	Pulsar		56.1	23,700	1.69	13.4	50.0
Frontier Hybrids, Inc	F-303C		55.9	20,600	1.61	13.2	37.0
Monsanto	X210		54.6	23,400	1.15	17.9	37.0
Dekalb Genetics Corp.	DKS 36-00		53.9	26,700	1.29	16.0	50.0
Sorghum Partners Inc	K35-Y5		53.1	18,700	2.64	13.4	67.0
Frontier Hybrids, Inc	F-270E		52.7	19,900	1.32	12.8	70.0
Sorghum Partners Inc	KS 310		46.0	20,100	2.23	19.7	87.0
	Mean	39.8	53.9	21,900	1.68	14.8	----
	C.V.%	24.5	5.0	7.7	15.3	14.8	----
	L.S.D.	----	4.7	3,000	0.45	3.9	----

Note: When no data is present variability is to high to use

Company Brand Name	Entry Designation*	Grain Yield bu/ac	Test weight lb/bu	Plant Population plants/ac	Head Population heads/plant	Harvest Moisture	Bird Damage %
Medium							
Seed Resource	SR 420		58.0	17,000		11.2	13.0
Sorghum Partners Inc	KS 585		56.9	21,200		11.3	0.0
NC+ Hybrids	6B73		56.9	19,800		11.8	0.0
Seed Resource	SR 510		56.8	21,100		11.1	17.0
Dekalb Genetics Corp.	DK 44w		56.4	22,400		11.3	20.0
NC+ Hybrids	7C22		56.1	18,900		10.5	7.0
Sorghum Partners Inc	KS 585w		55.6	21,000		10.0	17.0
Seed Resource	SR 251		55.6	22,100		11.8	63.0
Dekalb Genetics Corp.	DK 40y		55.5	21,900		11.3	30.0
Dekalb Genetics Corp.	DK 44		55.2	19,800		12.6	7.0
NC+ Hybrids	6B50		54.9	19,400		10.3	17.0
Sorghum Partners Inc	NK 5418		54.9	22,400		10.1	13.0
Sorghum Partners Inc	1486		52.3	17,000		14.6	17.0
Garrison & Townsend Inc.	SG-99478		50.9	2,400		19.9	7.0
NC+ Hybrids	5B89		48.5	20,700		12.9	17.0
	Mean	38.5	55.0	20,600	1.4	12.0	----
	C.V.%	32.4	3.3	10.3	21.3	10.9	----
	L.S.D.	----	3.0	3,600	----	2.2	----

* Hybrid with w following is treated with insecticide

Table 4. Results from OPREC Grain Sorghum Performance Trial, 2003 continued

Company Brand Name	Entry Designation	Grain Yield bu/ac	Test weight lb/bu	Plant Population plants/ac	Head Population heads/plant	Harvest Moisture
			Late			
Frontier Hybrids, Inc	F-700E	58.1	57.7	19,800	1.47	10.7
Sorghum Partners Inc	K 73-J6	28.6	56.9	20,500	1.09	14.2
Sorghum Partners Inc	NK 8828	32.0	54.8	21,500	0.84	10.4
Sorghum Partners Inc	KS 955	10.7	49.0	20,900	0.31	24.1
Sorghum Partners Inc	NK 7633	67.8	57.5	20,500	1.96	11.3
Sorghum Partners Inc	NK 7655	39.0	55.0	19,900	1.39	12.6
	Mean	39.4	55.1	20,500	1.18	13.9
	C.V.%	15.2	1.1	8.0	9.1	4.1
	L.S.D.	10.9	1.1	NS	0.19	1.0

Cooperator: Oklahoma Panhandle Research and Extension Center

Soil Series: Richfield Clay Loam

No-Till Practices: Wheat-Sorghum-Fallow

Soil Test: N: 128 lbs/ac P: 55 K: 1058 pH: 7.8

Fertilizer: N:0 P: 0 K: 0

Herbicide: Cinch ATZ Lite 1.5qts/ac (Preemergence)

Planting Date: May 23, 2003 Target Population: 18,000 plants/ac

Harvest Date: October 21, 2003

Monthly Rainfall (in.)

	2002			2003									
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	**Total**
	3.41	0.11	0.89	0.03	0.21	1.33	0.55	1.84	5.26	1.87	1.19	1.62	**18.31**
Long term mean:	1.03	0.77	0.31	0.30	0.46	0.95	1.33	3.25	2.86	2.58	2.28	1.77	**17.89**

Table 5. Results from OPREC irrigated Grain Sorghum Performance Trial, 2003

Company Brand Name	Entry Designation	Grain Yield bu/ac	Test weight lb/bu	Plant Population plants/ac	Head Population heads/plant	Harvest Moisture
Early						
Frontier Hybrids, Inc	F-303C	154.3	59.3	49,500	1.38	13.6
Frontier Hybrids, Inc	F-270E	136.3	58.3	40,800	1.82	13.9
Sorghum Partners Inc	K35-Y5	118.8	58.4	45,100	1.74	13.5
Sorghum Partners Inc	KS 310	113.8	57.1	50,100	1.43	13.2
	Mean	130.8	58.3	46,400	1.59	13.5
	C.V.%	5.3	1.2	13.5	19.8	4.3
	L.S.D.	11.1	1.1	NS	NS	NS

Note: Not enough entries for two-year data

Company Brand Name	Entry Designation	Grain Yield bu/ac		Test weight lb/bu		Plant Population plants/ac	Head Population heads/ac	Harvest Moisture
		2003	Two-year	2003	Two-year			
Medium								
Seed Resource	SR 420	151.5	151.5	59.5	58.5	48,800	1.10	14.4
Sorghum Partners Inc	KS 585w	148.4	151.1	60.5	59.4	44,300	1.51	13.6
Dekalb Genetics Corp.	DK 44w	148.7	148.0	58.9	58.4	50,300	1.08	14.4
Seed Resource	SR 251	149.4	144.6	60.2	59.8	46,200	1.35	12.9
NC+ Hybrids	7W51	168.7		57.2		47,700	1.41	14.7
Garst Seed Company	5460	167.6		58.6		48,400	1.15	15.0
Seed Resource	SR 510	163.0		59.3		47,800	1.25	14.0
Sorghum Partners Inc	KS 585	158.0		60.7		48,300	1.31	13.5
NC+ Hybrids	6B73	152.8		59.5		47,700	1.38	13.6
NC+ Hybrids	7C22	151.5		59.9		50,400	1.10	14.1
Garrison & Townsend Inc.	SG-99478	151.2		58.4		47,500	1.26	14.8
Dekalb Genetics Corp.	DK 44	146.2		59.2		49,400	1.08	14.2
NC+ Hybrids	6B50	146.0		58.5		44,300	1.32	13.6
Sorghum Partners Inc	1486	132.2		57.3		47,000	1.34	14.3
Sorghum Partners Inc	NK 5418	131.3		58.4		46,400	1.56	13.8
NC+ Hybrids	5B89	124.8		58.4		47,000	1.34	13.2
	Mean	149.5	148.8	59.0	59.0	47,600	1.29	14.0
	C.V.%	5.7	6.2	0.8	2.2	11.0	16.60	2.6
	L.S.D.	12.2	NS	0.7	NS	NS	NS	NS

* Hybrid with w following is treated with insecticide

Table 5. Results from OPREC Grain Sorghum Performance Trial, 2003 continued.

Company Brand Name	Entry Designation	Grain Yield bu/ac		Test weight lb/bu		Plant Population plants/ac	Head Population heads/ac	Harvest Moisture
		2003	Two-year	2003	Two-year			
Late								
Dekalb Genetics Corp.	DKS 54-00	167.7	163.5	58.3	58.0	50,000	1.28	14.5
NC+ Hybrids	8R18	166.3	160.5	58.5	58.2	48,600	1.14	14.8
Seed Resource	SR 544	152.4	151.8	59.0	59.0	53,900	1.04	14.1
Asgrow Seed	A571	155.0	148.4	57.6	55.9	49,000	1.20	14.0
Sorghum Partners Inc	K 73-J6	154.9	146.4	58.8	58.3	47,900	1.15	14.8
Frontier Hybrids, Inc	F-700E	148.6	141.3	59.1	58.7	49,500	1.18	14.0
Sorghum Partners Inc	NK 8828	141.5	136.0	58.2	57.8	50,600	1.12	14.5
Dekalb Genetics Corp.	DKS 53-11	165.0		59.6		53,700	1.05	14.5
NC+ Hybrids	7R83	161.7		58.1		52,400	1.14	13.8
Sorghum Partners Inc	KS 955	157.3		56.8		51,300	1.16	15.5
Sorghum Partners Inc	NK 7633	151.7		59.4		48,200	1.27	14.1
Sorghum Partners Inc	NK 7655	149.4		58.3		50,500	1.07	13.9
Garst Seed Company	0479	140.2		58.1		49,000	1.18	14.4
	Mean	154.8	149.7	58.4	58.0	50,300	1.15	14.4
	C.V.%	6.1	7.1	0.9	1.8	8.2	13.9	3.9
	L.S.D.	13.6	10.8	0.8	1.1	NS	NS	0.8

Cooperator: Oklahoma Panhandle Research and Extension Center

Soil Series: Richfield Clay Loam

Conventional Tillage Practices: Planted on fallow soil

Soil Test: N: 45 lbs/ac P: 26 K: 1192 pH: 7.5

Fertilizer: N: 200 lbs N/ac P: 40 lbs P_2O_5/ac K: 0

Herbicide: Cinch ATZ Lite 1.5qts/ac (Preemergence)

Planting Date: June 17, 2003 Target Population: 70,000 plants/ac

Harvest Date: November 4, 2003

Monthly Rainfall (in.)

	--------- 2001 --------			---------- 2002 ----------									
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	**Total**
	3.41	0.11	0.89	0.03	0.21	1.33	0.55	1.84	5.26	1.87	1.19	1.62	**18.31**
Long term mean:	1.03	0.77	0.31	0.30	0.46	0.95	1.33	3.25	2.86	2.58	2.28	1.77	**17.89**

------- Irrigation (in.) -------

May	Jun.	Jul.	Aug.	Sept.
0.0	0.0	3.0	5.0	5.0

Table 6. Results from Tipton dry land Grain Sorghum Performance Trial, 2003.

Company Brand Name	Entry Designation	Grain Yield bu/ac		Test weight lb/bu		Head Population heads/ac	Harvest Moisture
		2003	Two-year	2003	Two-year		
Early							
Sorghum Partners Inc	K35-Y5	43.9	80.5	51.9	55.5	56,300	8.8
Frontier Hybrids, Inc	F-303C	41.9	68.8	52.7	55.9	37,700	8.9
Sorghum Partners Inc	KS 310	58.4	63.5	54.8	56.6	46,100	9.3
Frontier Hybrids, Inc	F-270E	51.2		53.1		36,000	9.1
	Mean	48.8	70.9	53.1	56.0	44,000	9.0
	C.V.%	15.4	19.9	1.6	2.2	14.2	4.8
	L.S.D.	12.1	17.2	1.4	NS	10,000	NS

Note: No plant count from Tipton in 2003

Company Brand Name	Entry Designation*	Grain Yield bu/ac		Test weight lb/bu		Head Population heads/ac	Harvest Moisture	Lodging %
		2003	Two-year	2003	Two-year			
Medium								
NC+ Hybrids	6B50	62.9	85.4	50.7	54.0	47,500	8.1	15.0
Garrison & Townsend Inc.	SG-99478	52.1	77.1	53.7	56.3	41,300	9.5	0.0
Dekalb Genetics Corp.	DK 44w	56.0	76.9	52.8	55.8	41,500	8.8	0.0
NC+ Hybrids	5B89	60.9	75.8	52.1	55.3	51,800	8.6	0.0
Sorghum Partners Inc	KS 585	55.2	75.0	54.2	56.7	49,100	8.3	0.0
NC+ Hybrids	7C22	50.8	73.3	51.7	55.6	46,000	8.7	6.0
Seed Resource	SR 251	58.8	68.3	54.5	56.2	42,700	8.3	6.0
Seed Resource	SR 420	46.9	67.6	54.1	56.9	47,400	9.3	19.0
Garrison & Townsend Inc.	SG-97619	45.9	66.6	52.7	55.3	50,700	8.4	39.0
Sorghum Partners Inc	KS 585w	67.8		56.3		51,900	9.9	0.0
Dekalb Genetics Corp.	DK 44	63.9		53.0		40,600	8.9	0.0
Garrison & Townsend Inc.	SG-22612	63.2		53.2		42,600	9.2	5.0
Sorghum Partners Inc	1486	54.3		51.2		45,600	8.7	0.0
Sorghum Partners Inc	NK 5418	53.0		51.8		55,000	8.0	0.0
NC+ Hybrids	6B73	50.1		52.9		42,300	8.4	0.0
Seed Resource	SR 510	46.8		54.3		49,400	9.4	44.0
	Mean	55.5	73.9	53.1	55.8	46,600	8.8	----
	C.V.%	14.8	12.2	2.1	1.9	10.6	8.1	----
	L.S.D.	11.7	9.0	1.6	1.1	7,000	1.0	----

* Hybrid with w following is treated with insecticide

Table 6. Results from Tipton dry land Grain Sorghum Performance Trial, 2003 continued.

Company Brand Name	Entry Designation	Grain Yield bu/ac		Test weight lb/bu		Head Population heads/ac	Harvest Moisture	Lodging %
		2003	Two-year	2003	Two-year			
Late								
Sorghum Partners Inc	K 73-J6	68.5	90.2	53.6	56.2	49,200	8.9	0.0
Frontier Hybrids, Inc	F-700E	48.9	66.3	55.0	56.1	46,100	8.8	26.0
Sorghum Partners Inc	NK 8828	46.6	54.6	51.6	55.0	39,000	8.2	8.0
Sorghum Partners Inc	NK 7633	69.8		55.5		47,900	9.1	0.0
Sorghum Partners Inc	KS 955	57.0		52.7		44,800	9.2	0.0
Sorghum Partners Inc	NK 7655	56.8		51.0		46,700	8.5	0.0
	Mean	57.9	70.4	53.2	55.8	45,600	8.8	----
	C.V.%	9.3	17.8	1.8	2.5	6.3	5.6	----
	L.S.D.	8.1	13.5	1.5	NS	4,400	NS	----

Cooperator: Southwest Research and Extension Center

Soil Series: Tipton Silt Loam

Conventional Tillage Practices: Sorghum-fallow-sorghum rotation

Soil Test: N: 12 lbs/ac P: 53 K: 639 pH: 6.2

Fertilizer: N: 120 lbs/ac P: 0 K: 0

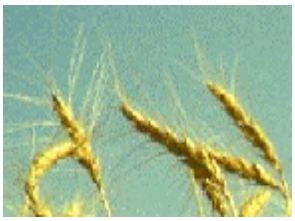
Herbicide: Preplant Roundup WeatherMax 30 oz/ac + DyneAmic Nonionic Adjuvant 0.5 % v/v
Preemergence Peak 0.75 oz/ac

Planting Date: May 6, 2003 Target Population: 30,000 plants/ac

Harvest Date: August 27, 2003

Monthly Rainfall (in.)

	2002			2003									
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	**Total**
	5.02	0.65	2.86	0.03	0.81	0.85	1.63	2.56	6.93	0.15	1.53	0.41	**23.43**
Long term mean:	2.65	1.60	1.03	0.91	1.29	2.07	2.30	4.30	3.45	2.08	2.71	3.58	**27.97**



OKLAHOMA PANHANDLE WHEAT VARIETY TRIALS, 2002-03

PRODUCTION TECHNOLOGY CROPS

OKLAHOMA COOPERATIVE EXTENSION SERVICE
DEPARTMENT OF PLANT AND SOIL SCIENCES
DIVISION OF AGRICULTURAL SCIENCES & NATURAL RESOURCES
OKLAHOMA STATE UNIVERSITY

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The 2002-03 Panhandle wheat crop may have been one of the most variable in recent history. Dryland and irrigated yields both were highly variable, with reported dryland yields ranging from 10 to 50 bu/ac and irrigated yields ranging from 55 to 104 bu/ac. Most wheat was planted with good to excellent soil moisture, and with fall precipitation outstanding fall forage yields were obtained **(PT 2003-2)**. The lack of rainfall in February, March, and April reduced dryland yields of earlier planted wheat.

Trial Locations

There were 5-variety tests in the panhandle region this year. The dry-land variety test at the Oklahoma Panhandle Research and Extension Center (OPREC, Goodwell) was a wheat-grain sorghum-fallow rotation. The dry-land grain trial at Balko was wheat-fallow-wheat. One irrigated trial was established at Boise City as grain only. Two trials were established in Guymon, one grain only and the other a dual-purpose trial. The trials at Balko, OPREC dryland, and at Boise City were abandoned due to drought stress and hail damage.

Growing Conditions

Most wheat was planted with excellent soil moisture in September or early October. With excellent growing conditions outstanding fall forage yields were obtained and many dryland acres were grazed. With the amount of fall forage produced, many acres of dryland wheat exhibited nitrogen deficiency symptons when growth resumed in the spring. Irrigated wheat required less irrigation than normal in the fall due to rains in the August through October time frame (Table 1). Producers that irrigated in February, March, and April reported yields over 100 bu/ac.

Grain-filling Conditions

Temperatures were near the long-term averages during the grain-filling period. The mean high temperature for Goodwell was 80° F while the long-term mean is 78.5° F. The long-term mean number of days with high temperatures above 90° F is 4.5. In 2003 there were 4 days above 90° F. Test weights were outstanding (65 lb/bu for Intrada) for wheat harvested before delays due to rain, test weights were lower when harvesting resumed. Trial test weights were lower than expected due to delays in harvesting.

New Varieties for 2002-03

Varieties included in the trials for the first time were AgriPro AP 502 CL - a Clearfield® wheat, Avalanche - a Colorado released hard white wheat, AgriPro Platte - another hard white wheat, Cisco - a Goertzen red wheat, and TAM 111.

Experimental Lines Included

For the fifth year, we included several OSU candidate cultivars that have potential for release in the next year or two. These were included to evaluate their capability at sites not normally used as test locations in the OSU wheat breeding program. Five hard red winter wheat lines called OK94P549-11, OK94P549-21, OK95616-56, OK96705-38, and OK98699 were included. Characteristics of each of these are available by selecting candidate cultivars on the web at http://www.wit.okstate.edu.

Testing and Reporting Procedures

All plots were planted in 7.5-inch rows with seeding rate indicated in the tables. The purpose of this testing program is to provide Oklahoma wheat producers with performance data on varieties that are presently grown or available in Oklahoma. Within each table varieties are listed in decreasing order for 3-year grain yield average, if available, followed by varieties with 2-year averages, and then varieties having data only for the current year. It is recommended that specific emphasis be given to multi-year averages when selecting varieties. Varieties that consistently rank high over 3-year averages are good choices.

Small differences in yield should not be overemphasized. Least Significant Differences (L.S.D.) are a statistical test of yield differences and are shown at the bottom of each table. Unless two entries differ by at least the L.S.D. shown, little confidence can be placed in one being superior to the other.

Additional Information on Web

For information on coleoptile length and other characteristics of varieties grown in Oklahoma see the "Wheat Variety Characteristic Chart" under Variety information on the Wheat Improvement Team web page at **http://clay.agr.okstate.edu/wheat/wit.html.** This information is updated regularly to give the latest in disease ratings. From the above address you can also connect to the latest fall and full-season forage data.

Cooperation Acknowledged

These data result from cooperative efforts of the Oklahoma Agricultural Experiment Station, Oklahoma Cooperative Extension Service, Oklahoma Wheat Commission, and cooperating producers. The following people have contributed to this report by assisting in crop production, data collection, and publication: Lawrence Bohl, Craig Chesnut, Matt LaMar, Mike LaMar Chad Fowler, and Josh Morris. Their efforts are greatly appreciated.

Table 1. Long-term average and 2001-02 panhandle precipitation data.

PERIOD	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	TOT
BEAVER													
Average	2.84	3.14	2.01	1.25	1.17	0.74	0.50	0.92	1.65	1.75	3.28	3.64	22.89
2002-03	2.31	5.32	1.03	3.54	0.17	0.76	0.00	0.43	1.11	1.93	1.67	6.41	24.68
CIMARRON													
Average	2.85	2.55	1.97	0.97	0.79	0.43	0.34	0.54	0.99	1.28	2.76	2.92	18.39
2002-03	0.36	4.75	1.82	2.54	0.26	0.73	0.00	0.22	0.94	0.75	1.08	2.93	16.38
TEXAS													
Average	2.58	2.28	1.77	1.03	0.77	0.31	0.30	0.46	0.95	1.33	3.25	2.86	17.89
2002-03	4.02	4.00	2.46	3.41	0.11	0.89	0.03	0.21	1.33	0.55	1.84	5.26	24.11

Financial Support by the Oklahoma Wheat Commission

Guymon Irrigated Grain-Only Wheat Variety Trial

Cooperator: Larry Wiggins, Soil Type: Richfield clay loam

SOURCE	ENTRY	PROTEIN[1] %	TEST WEIGHT (LB/BU) 2002-03	TEST WEIGHT (LB/BU) 2-YEAR	TEST WEIGHT (LB/BU) 3-YEAR	YIELD (BU/A) 2002-03	YIELD (BU/A) 2-YEAR	YIELD (BU/A) 3-YEAR
KANSAS	TREGO (W)[2]	12.6(28)	58.3(3)[3]	59.5(2)	59.8(3)	73.9(6)	73.0(1)	70.4
AGRIPRO	CORONADO	12.7(27)	56.4(25)	58.0(15)	58.2(14)	72.5(8)	63.4(8)	65.7
OKLAHOMA	Ok101	12.1(32)	57.2(17)	58.5(11)	58.8(8)	74.8(5)	66.5(3)	65.4
KANSAS	LAKIN (W)	13.3(21)	57.2(17)	58.2(14)	58.4(12)	77.3(3)	65.0(5)	65.4
OKLAHOMA	Ok102	14.6(4)	57.6(12)	58.8(8)	59.1(7)	65.4(25)	63.9(7)	65.4
TEXAS	TAM 302	13.6(17)	55.1(32)	56.4(24)	56.5(20)	68.4(14)	66.3(4)	64.8
OKLAHOMA	CUSTER	13.2(23)	58.3(3)	58.5(11)	58.7(11)	76.8(4)	64.7(6)	64.0
OKLAHOMA	2174	13.7(16)	57.5(14)	59.0(5)	59.5(5)	66.6(20)	60.2(9)	61.6
TEXAS	TAM 110	12.5(30)	55.4(31)	56.8(22)	57.0(19)	66.6(20)	59.5(11)	61.4
AGRIPRO	DUMAS	13.5(20)	57.8(10)	59.1(4)	59.5(5)	65.2(26)	56.1(17)	60.1
KANSAS	2137	12.6(28)	56.1(28)	57.8(16)	58.0(15)	63.1(30)	59.2(12)	59.6
OKLAHOMA	CHISHOLM	13.3(21)	57.7(11)	58.3(13)	58.8(8)	67.7(16)	59.0(13)	58.7
OKLAHOMA	INTRADA (W)	14.4(8)	58.1(6)	59.4(3)	60.0(1)	63.4(29)	56.6(16)	58.2
GOERTZEN	KALVESTA	14.7(3)	56.2(27)	56.5(23)	57.2(18)	67.2(18)	54.9(18)	58.2
AGRIPRO	CUTTER	14.3(9)	55.5(29)	57.6(19)	58.4(12)	66.2(22)	54.8(19)	57.3
GOERTZEN	ENHANCER	13.0(25)	56.5(23)	57.7(18)	57.4(17)	66.1(24)	56.7(15)	56.2
GOERTZEN	G1878	15.4(1)	58.2(5)	59.6(1)	59.9(2)	59.0(33)	51.9(21)	56.0
KANSAS	JAGGER	14.5(7)	56.3(26)	57.3(21)	57.7(16)	66.2(22)	52.5(20)	54.6
GOERTZEN	VENANGO	14.6(4)	57.4(16)	59.0(5)	58.8(8)	53.0(34)	46.0(23)	51.6
AGRIPRO	THUNDERBOLT	14.6(4)	58.1(6)	59.0(5)	59.6(4)	60.6(32)	42.7(24)	46.2
COLORADO	ABOVE	12.2(31)	55.5(29)	57.4(20)	-	81.2(1)	70.6(2)	-
GOERTZEN	COSSACK	14.2(10)	57.0(20)	58.6(10)	-	64.9(27)	59.9(10)	-
AGRIPRO	JAGALENE	13.9(15)	58.0(8)	58.8(8)	-	70.2(10)	56.9(14)	-
KANSAS	2145	14.2(10)	56.9(21)	57.8(16)	-	62.3(31)	51.7(22)	-
OKLAHOMA	OK94P549-21	13.2(23)	58.4(2)	-	-	80.2(2)	-	-
OKLAHOMA	OK95616-56	12.1(32)	54.0(34)	-	-	73.8(7)	-	-
OKLAHOMA	OK94P549-11	12.9(26)	56.5(23)	-	-	70.8(9)	-	-
AGRIPRO	PLATTE (W)	15.2(2)	58.0(8)	-	-	69.7(11)	-	-
TEXAS	TAM 111	13.6(17)	57.6(12)	-	-	69.1(12)	-	-
COLORADO	AVALANCHE (W)	14.0(13)	57.2(17)	-	-	69.1(12)	-	-
AGRIPRO	AP 502 CL	12.0(34)	54.9(33)	-	-	68.1(15)	-	-
OKLAHOMA	OK98699	14.2(10)	56.7(22)	-	-	67.6(17)	-	-
GOERTZEN	CISCO	13.6(17)	57.5(14)	-	-	66.8(19)	-	-
OKLAHOMA	OK96705-38	14.0(13)	58.7(1)	-	-	64.1(28)	-	-
MEAN		13.3	57.0	58.2	58.6	68.2	58.8	60.0
LSD(0.05)		1.1	1.1	0.9	0.7	9.0	6.7	5.5

[1]Wheat protein on 12% moisture basis. [2](W) = White wheat variety.

[3]Number in() is rank within column.

Planted 10/17/02 at 94 lb/a, received 8" of irrigation, harvested 6/30/03.

Partial financial suport by the Oklahoma Wheat Commission

Guymon Irrigated Graze Plus Grain Wheat Variety Trial
Cooperator: Joe Webb, Soil Type: Richfield clay loam

SOURCE	ENTRY	LODGING %	HEIGHT INCHES	PROTEIN[1] %	TEST WEIGHT (LB/BU)	YIELD (BU/A)
KANSAS	2137	20	31.8	10.7(27)[2]	57.7(17)	95.1
TEXAS	TAM 302	0	31.0	12.0(20)	56.2(25)	94.5
KANSAS	LAKIN (W)[3]	0	31.5	12.1(17)	58.7(10)	93.1
KANSAS	TREGO (W)	6	30.5	12.1(17)	59.1(7)	92.8
OKLAHOMA	OK94P549-21	6	30.3	12.3(15)	58.4(12)	92.2
OKLAHOMA	Ok101	2	31.0	11.3(25)	57.6(19)	90.7
GOERTZEN	ENHANCER	18	32.5	12.0(20)	57.6(19)	90.5
GOERTZEN	CISCO	0	31.0	13.5(2)	58.1(15)	89.9
OKLAHOMA	CHISHOLM	0	32.3	12.7(11)	59.4(3)	88.9
TEXAS	TAM 111	0	32.0	11.8(22)	59.0(8)	88.4
GOERTZEN	VENANGO	0	33.3	12.3(15)	58.8(9)	86.5
OKLAHOMA	OK94P549-11	0	30.8	11.3(25)	57.7(17)	86.1
COLORADO	AVALANCHE (W)	18	32.8	12.5(13)	58.3(13)	86.0
OKLAHOMA	OK96705-38	0	32.8	12.9(6)	60.5(1)	85.7
KANSAS	2145	0	29.3	12.8(8)	58.1(15)	85.6
TEXAS	TAM 110	6	33.0	11.6(24)	56.5(23)	84.3
OKLAHOMA	Ok102	0	32.5	13.2(4)	58.2(14)	83.8
OKLAHOMA	OK98699	2	30.8	12.5(13)	57.0(22)	83.6
GOERTZEN	G1878	0	35.3	12.9(6)	59.9(2)	82.5
OKLAHOMA	OK95616-56	2	30.3	11.7(23)	54.6(27)	81.7
GOERTZEN	KALVESTA	20	32.8	13.5(2)	57.5(21)	81.4
KANSAS	JAGGER	25	30.5	12.6(12)	56.2(25)	81.4
OKLAHOMA	2174	0	33.8	13.0(5)	59.2(4)	79.9
OKLAHOMA	CUSTER	0	33.0	12.8(8)	59.2(4)	79.8
GOERTZEN	COSSACK	0	33.5	12.8(8)	58.5(11)	79.7
COLORADO	ABOVE	0	30.8	12.1(17)	56.5(23)	72.1
OKLAHOMA	INTRADA (W)	26	31.7	13.7(1)	59.2(4)	72.0
	Mean	5	31.9	12.4	58.1	85.5
	LSD(0.05)	22.5	3.8	0.6	1.1	12.2

[1]Wheat protein on 12% moisture basis. [2]Number in() is rank within column.
[3](W) = White wheat variety.
Planted 9/3/02 at 94 lb/a, grazed from 11/1/01 until 3/10/03, removing about 200 lb of beef per acre, harvested 6/27/03.

Partial financial support by the Oklahoma Wheat Commission

PRODUCTION TECHNOLOGY--CROPS

PERFORMANCE OF FORAGE BERMUDAGRASS VARIETIES IN OKLAHOMA TESTS, 1998-2003

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BERMUDAGRASS, *Cynodon dactylon* (L.) Pers., is used for pasture and hay over much of the southern USA. This introduced, perennial, sod-forming grass serves as the principal forage base for many livestock enterprises because of its high forage production capability and the management flexibility that it provides. Bermudagrass varieties may differ in performance characteristics relating to establishment, adaptation, forage production and forage quality. Varieties poorly adapted to an area decline in stand density and productivity one or more years following establishment. Conversely, stands of well-adapted varieties will last indefinitely. Varieties also may differ substantially in forage production capability, and to a lesser degree, in forage quality characteristics. Consequently, deciding which bermudagrass variety to plant is important. To aid in selecting varieties, comparative performance data are reported from field tests conducted over the past few years. Data are also reported for experimental bermudagrass varieties included in performance testing.

DESCRIPTION OF THE TESTS

Forage yield data are reported from five field tests conducted at three sites. Locations and details of the tests are given in Table 1. Information about the bermudagrass varieties in the tests is given in Table 2. The recently released Midland 99 and Ozark varieties were listed in reports preceding their release by their experimental designations 74X 21-6 and 74X 12-6, respectively. Plots in all tests were started by transplanting greenhouse-grown plants about 2 feet apart in each of two rows. The rows were spaced 2 feet apart equidistant from the center of the plot. Yield determinations were made by harvesting growth from an area about 3 feet in width and 10 to 15 feet in length through the middle of each plot. All tests were dryland except Test 1997-1 at the Oklahoma Panhandle Research and Extension Center at Goodwell, OK. Test 1997-1 was irrigated with approximately six acre-inches of water per month through the growing season. All tests received nitrogen fertilizer in the amount of 300 pounds N/acre/year, split into three applications of 100 pounds N/acre. Nitrogen was first applied when the bermudagrasses initiated growth in the spring, usually in mid-April. The second and third N applications followed the first and second harvests, respectively, which usually occurred in early June and early July. Soil pH, phosphorus, and potash levels were maintained at recommended levels based on soil test results. This fertilizer program provided a high yield environment in the absence of yield limiting factors such as low soil moisture, disease and winter injury. The high yield environment was provided so that the bermudagrass varieties could express their genetic potential for forage yield.

RESULTS

Weather Data. Precipitation amounts received at the respective test sites during the reported test years (1998-2003) are given in Table 3. Precipitation received during 2003 at both the Chickasha and Haskell dryland sites was slightly over 13 inches below their respective normals of 34.8 and 47.2 inches. Dry periods occurred at each site during the growing season that resulted in reduced growth. However, prolonged severe drought has not occurred at either site over the duration of the tests. Severity of winters has been mild to average. The 1998-99, 1999-2000, and 2002-2003 winters at all three locations were mild resulting in minimal low temperature stress to the bermudagrass varieties. The severity of the 2000-2001 and 2001-2002 winters was closer to normal, resulting in substantially greater low-temperature stress to plants compared to the previous few winters.

Winter Survival. Visual ratings of 2003 early-season growth (green-up and height) of bermudagrass varieties are given in Tables 4, 7, and 12 for Test 1997-1 at Goodwell and Tests 1998-1 and 2001-1 at Haskell, respectively. Differences among varieties in date and rate of green-up following stressful winters generally are predictive of the relative cold tolerance of the varieties. However, differences among varieties in green-up may vary among locations because of variety by location interactions. Goodwell typically has the coldest winters of the test sites.

Forage Yields. Forage yield data are given in Tables 5 and 6 (Test 1997-1), 8 and 9 (Test 1998-1), 10 and 11 (Test 1998-2), 13 and 14 (Test 2000-1), and 15 and 16 (Test 2001-2). The high biomass yields reflect the high yield environment management imposed on the tests. Bermudagrass varieties differed significantly ($P<0.05$) for seasonal total forage yield in all tests for all test years. In Test 1997-1 at Goodwell, the 6-year mean yield of Ozark (12.11 tons/dm/ac/yr) was significantly higher than those of all other commercial varieties. Midland 99 and Hardie had respective mean yields of 10.94 and 10.83 tons dm/ac/yr that significantly exceeded the yields of all other commercial varieties except Ozark. The experimental varieties at Goodwell with the highest 6-year mean yields were ERS 94X 2-8, 84X 16-66, and LCB 84X 19-16. In Test 1998-1 at Haskell, the 5-year mean forage yield of Midland 99 was greater than that of Tifton 44, which was greater than Greenfield. The 5-year mean yields in Test 1998-2 for the three commercial varieties were Midland 99=Tifton 44>Greenfield. Midland 99 and Tifton 44 have yielded approximately 4 tons/acre/year more dry matter than Greenfield in Test 1998-2. Midland 99 and Tifton 44 have similar 2-year mean yields in Tests 2001-1 (Haskell) and 2001-2 (Chickasha). In Test 2001-1 the mean 2-year yield of Ozark was significantly higher than that of Tifton 44, but not significantly different from that of Midland 99. The yields of Midland 99, Ozark, and Tifton 44 did not differ significantly in 2003 in Test 2001-2 at Chickasha. The experimental variety A12245 has performed exceptionally well in Tests 2001-1 and 2001-2.

DISCUSSION

Of the commercial varieties tested, Midland has been grown in Oklahoma since the 1950's and is a proven dependable variety, particularly for central and western portions of the state. Greenfield, also released in the 1950's, has been grown most extensively in the eastern half of the state. Its popularity stems from good establishment capability and sustained productivity

over many soil types and management conditions. In eastern Oklahoma, producers generally feel that Midland is suited for production on well-drained soils, but performs less well than Greenfield on finer textured soils that tend to be less well drained. Hardie has high yield potential and superior forage quality, but is limited by susceptibility to leaf spotting disease and intolerance to low soil pH (<5.5). Each of these conditions can result in stand thinning and loss of productivity of Hardie. Tifton 44 has high yield potential and relatively broad adaptation to the state. Midland 99 is a new variety indicated by extensive testing to have good adaptation to Oklahoma, high forage production potential, and good forage quality. Ozark is a new variety indicated by extensive testing to have good adaptation to the northern part of the bermudagrass use zone where it has demonstrated high forage yield capability and good stand persistence.

Quickstand and Greenfield have excellent cold tolerance, aggressive establishment capability, and form dense sods. These are often referred to as "grazing type" varieties because of their shorter stature and denser sod relative to varieties like Midland, Midland 99, Tifton 44, and Ozark, which are referred to as "hay types". The "grazing type" and the "hay type" varieties are used both for grazing and haying. The shorter stature "grazing type" varieties will typically spread faster during establishment and achieve a complete cover more rapidly than the named "hay type" varieties. However, once mature stands are achieved the "grazing type" varieties have lower forage yield potential than the "hay type" varieties. The greater yield potential of the "hay type" varieties compared to the "grazing type" varieties is realized to the greatest extent in high yield environments. Mature stands of the more dense "grazing type" varieties generally resist weed invasion better than mature stands of the less dense "hay type" varieties. Faster stands of varieties like Midland, Midland 99, Tifton 44, and Ozark are usually achieved by planting 30 or more bushels of sprigs per acre in comparison to lower sprig planting rates.

The substantial differences among seeded bermudagrass varieties in cold tolerance and forage yield potential are important considerations for producers. Guymon and Wrangler have a level of cold tolerance sufficient for the northern part of the bermudagrass use zone. Many seeded bermudagrass varieties currently being marketed have moderate to low freeze tolerance and are less well adapted to northern latitudes where bermudagrass is used. The choices of using a seeded vs. clonal variety and which seeded variety to use should be made taking into account the average severity of winters for a given site and the forage yield goal. Seed of bermudagrass varieties is frequently blended in an attempt to combine the desirable traits of the different varieties. Such blends are usually sold under a brand name. Some additional information on seeded bermudagrass variety performance was included in previous reports (PT 2002-3 and PT 2003-3).

Table 1. Location and characteristics of the bermudagrass tests from which data are reported herein.

Test 1997-1	
Location	Oklahoma Panhandle Research and Extension Center, Goodwell, OK
Date Planted	June 3, 1997
Soil Type	Richfield clay loam
Treatments	19 varieties
Experimental Design	Randomized complete block, 4 replications
Irrigated or Dryland	Irrigated
Test 1998-1	
Location	Eastern Research Station, Haskell, OK
Date Planted	May 12, 1998
Soil Type	Taloka silt loam
Treatments	12 varieties
Experimental Design	Randomized complete block, 4 replications
Irrigated or Dryland	Dryland
Test 1998-2	
Location	South Central Research Station, Chickasha, OK
Date Planted	May 6, 1998
Soil Type	McLain silt loam
Treatments	12 varieties
Experimental Design	Randomized complete block, 4 replications
Irrigated or Dryland	Dryland
Test 2001-1	
Location	Eastern Research Station, Haskell, OK
Date Planted	May 16, 2001
Soil Type	Taloka silt loam
Treatments	17 varieties
Experimental Design	Randomized complete block, 4 replications
Irrigated or Dryland	Dryland
Test 2001-2	
Location	South Central Research Station, Chickasha, OK
Date Planted	May 24, 2001
Soil Type	McLain silt loam
Treatments	17 varieties
Experimental Design	Randomized complete block, 4 replications
Irrigated or Dryland	Dryland

Table 2. Information on commercial and experimental varieties included in bermudagrass tests.

Variety or Brand	Date Released	How Planted	Origin/Owner
COMMERCIAL VARIETIES - AVAILABLE FOR FARM USE			
CD90160	2000	Seed	Cebeco International Seeds, Halsey, OR
Greenfield	1954	Sprigs	Oklahoma AES[1]
Guymon	1982	Seed	Oklahoma AES
Hardie	1974	Sprigs	Oklahoma AES
Midland	1953	Sprigs	Oklahoma AES & USDA-ARS[2]
Midland 99	1999	Sprigs	Oklahoma, Arkansas, Kansas, & Missouri AESs; USDA-ARS & Noble Foundation
Ozark	2001	Sprigs	Missouri, Oklahoma, Arkansas & Kansas AESs; Noble Foundation & USDA-ARS
Quickstand	1993	Sprigs	Kentucky AES & USDA-NRCS[3]
Tifton 44	1978	Sprigs	USDA-ARS & Georgia AES
Wrangler	1999	Seed	Johnston Seed Co., Enid, OK
EXPERIMENTAL VARIETIES – NOT AVAILABLE FOR FARM USE			
A12199	NA	Sprigs	Oklahoma AES
A12244	NA	Sprigs	Oklahoma AES
A12245	NA	Sprigs	Oklahoma AES
A12246	NA	Sprigs	Oklahoma AES
ERS-C	NA	Sprigs	Oklahoma AES
ERS 16S-1	NA	Sprigs	Oklahoma AES
ERS 16S-2	NA	Sprigs	Oklahoma AES
ERS 16S-3	NA	Sprigs	Oklahoma AES
ERS 16S-4	NA	Sprigs	Oklahoma AES
ERS 16S-5	NA	Sprigs	Oklahoma AES
ERS 16S-6	NA	Sprigs	Oklahoma AES
ERS 16S-7	NA	Sprigs	Oklahoma AES
ERS 16S-8	NA	Sprigs	Oklahoma AES
ERS 16S-9	NA	Sprigs	Oklahoma AES
ERS 16S-10	NA	Sprigs	Oklahoma AES
SCRS-C	NA	Sprigs	Oklahoma AES
LCB 84X 16-66	NA	Sprigs	Oklahoma AES
LCB 84X 19-16	NA	Sprigs	Oklahoma AES
ERS 94X 2-8	NA	Sprigs	Oklahoma AES
ERS 94X 5-12	NA	Sprigs	Oklahoma AES
ERS 94X 6-13	NA	Sprigs	Oklahoma AES
ERS 94X 13-9	NA	Sprigs	Oklahoma AES

[1]AES=Agricultural Experiment Station. [2]ARS=Agricultural Research Service. [3]NRCS=Natural Resources. Conservation Service. [4]Blend of Cheyenne and Giant seed. [5]Blend of Common and Giant seed.

Table 3. Precipitation amounts (inches) received by month for the test locations and test years.

Month	1998	1999	2000	2001	2002	2003	1998	1999	2000	2001	2002	2003
	ERS[1]						OPREC[2]					
January	4.91	2.62	0.71	4.20	2.41	0.15	0.10	0.73	0.20	0.47	0.22	0.03
February	0.63	2.25	1.52	4.97	0.80	2.79	0.70	0.05	0.05	1.04	0.36	0.21
March	5.17	5.05	4.03	0.89	3.12	3.62	1.69	1.96	5.39	1.82	0.00	1.28
April	2.25	8.86	3.20	2.19	4.46	1.37	0.81	4.77	1.93	1.00	0.52	0.53
May	3.70	11.07	1.53	9.13	8.70	6.20	0.73	1.82	1.01	1.09	2.06	1.84
June	3.08	6.81	6.88	2.64	2.32	3.12	0.87	2.85	2.29	0.61	1.37	5.26
July	2.14	0.00	1.72	0.04	3.46	0.29	4.13	0.20	0.76	0.00	2.63	1.87
August	2.63	2.07	0.00	2.50	3.54	5.36	2.57	0.75	1.09	0.66	0.28	1.19
September	6.32	7.66	2.61	2.43	1.14	3.49	0.24	0.36	0.03	0.27	2.46	1.62
October	8.43	2.07	10.85	6.86	4.18	3.16	6.77	2.27	5.68	0.00	3.41	0.14
November	3.61	1.45	3.32	5.96	1.03	2.19	0.87	0.00	0.02	0.72	0.11	0.56
December	2.30	3.61	1.45	2.66	3.76	1.86	0.47	0.27	0.14	0.12	0.89	0.18
	SCRS[3]											
January	6.29	1.92	1.99	3.35	2.23	0.06						
February	0.54	1.29	3.05	2.87	0.89	1.13						
March	5.96	3.90	3.25	0.79	1.98	1.55						
April	4.11	6.61	3.96	0.71	4.97	2.23						
May	0.86	3.69	8.31	5.12	2.12	2.99						
June	2.10	4.66	9.20	0.61	4.03	5.32						
July	0.00	0.42	2.98	0.49	3.18	1.01						
August	0.68	1.98	0.00	3.39	1.67	4.38						
September	0.92	2.26	3.12	2.45	3.32	1.02						
October	3.82	2.06	5.30	1.56	8.05	0.40						
November	3.40	0.04	4.46	1.07	0.49	0.78						
December	1.58	3.35	1.26	1.19	2.35	0.84						

[1]Eastern Research Station, Haskell, OK; [2]Oklahoma Panhandle Research & Extension Center, Goodwell, OK.
[3]South Central Research Station, Chickasha, OK.

Table 4. Notes taken on bermudagrass Test 1997-1, Oklahoma Panhandle Research & Extension Center, Goodwell, OK. 2003.

Variety				
Commercial Varieties – Available for Farm Use				
Greenfield	5	18	100	8.50
Guymon	18	28	93	7.75
Hardie	10	30	65	2.25
Midland	28	45	95	5.75
Midland 99	10	15	75	6.50
Ozark	8	23	90	8.50
Quickstand	5	8	80	7.50
Tifton-44	18	35	75	3.25
Wrangler	20	40	90	8.00
Experimental Varieties – Not Available for Farm Use				
A-12199	0	8	80	8.00
CD 90160	18	33	75	7.00
ERS 94X 13-9	5	10	68	6.25
ERS 94X 2-8	8	20	63	2.75
ERS 94X 5-12	3	3	50	5.00
ERS 94X 6-13	5	10	53	3.75
ERS-C	5	18	98	8.75
LCB 84X 16-66	13	33	85	8.25
LCB 84X 19-16	28	45	90	7.00
SCRS-C	13	28	83	6.25
Mean	11	23	79	6.37
CV (%)	74	49	15	22
5% LSD	12	16	17	2.03

[1]Visually estimated percent of plot area with new growth.
[2]Overall appearance related to growth, stand density and cover, absence of weeds, etc. using a rating scale 1 to 9, with 9 being best.

Table 5. Forage yields (tons dry matter/acre) of commercial and experimental bermudagrass varieties in Test 1997-1, Oklahoma Panhandle Research and Extension Center, Goodwell, OK. 2003.

Variety	2003 Harvest Dates[1] 6/12	7/8	8/5	9/9	Total
Commercial Varieties – Available for Farm Use					
Ozark	1.92	4.93*	5.79*	2.47	15.11*
Midland 99	1.52	4.54*	4.91	2.50	13.47
Greenfield	1.71	5.26**	4.19	1.99	13.15
Midland	1.83	4.10*	4.16	2.57	12.66
Tifton 44	1.71	3.47	5.11	2.05	12.34
Guymon	1.64	4.36*	3.88	2.31	12.19
Hardie	1.35	2.48	5.32	2.67	11.82
Wrangler	1.59	4.35*	3.60	2.12	11.66
Quickstand	1.62	4.12*	2.70	2.30	10.74
Experimental Varieties – Not Available for Farm Use					
ERS 94X 2-8	1.68	4.63*	6.90**	2.75	15.96**
ERS 94X 13-9	1.82	5.20*	6.24*	2.27	15.53*
LCB 84X 16-66	1.88	4.69*	5.48*	2.44	14.49*
LCB 84X 19-16	1.80	4.38*	5.47*	2.37	14.02*
ERS 94X 5-12	1.60	4.68*	4.84	2.45	13.57
CD 90160	2.11	4.46*	4.58	2.20	13.35
ERS-C	1.79	5.17*	4.01	2.16	13.13
SCRS-C	1.55	3.85*	4.06	2.47	11.93
A-12199	1.38	5.06*	3.05	2.04	11.53
ERS 94X 6-13	1.32	3.67	3.60	2.69	11.28
Mean	1.67	4.39	4.62	2.35	13.05
CV (%)	18	23	23	15	13
5% LSD	N.S.	1.44	1.53	N.S.	2.39

[1]All plots were mowed in mid-May because of cool-season grass infestation in some plots. Consequently, the 6/12/03 harvest yields of varieties were reduced, with the greatest reductions likely for the varieties with the best early growth.

**Highest numerical value in column.

*Not significantly different from the highest numerical value in the column based on 5% LSD.

N.S. = No significant difference among varieties at the 95% confidence level.

Table 6. Forage yields (tons dry matter/acre) of commercial and experimental bermudagrass varieties in Test 1997-1, Oklahoma Panhandle Research and Extension Center, Goodwell OK. 1998-2003.

Variety	Harvest Year						6-yr Mean
	1998	1999	2000	2001	2002	2003	
Commercial Varieties – Available for Farm Use							
Ozark	11.84*	8.00*	9.94*	14.53*	13.25*	15.10*	12.11*
Midland 99	10.16	7.60	8.53	13.00	12.86	13.48	10.94
Hardie	12.99**	8.03*	7.98	13.21	10.94	11.82	10.83
Midland	8.64	5.32	7.47	11.85	12.06	12.66	9.66
Guymon	9.65	4.49	5.51	11.16	11.60	12.20	9.23
Tifton 44	9.23	5.48	6.98	10.39	11.00	12.34	9.10
Wrangler	10.00	4.59	5.55	10.25	11.76	11.66	8.97
Quickstand	9.86	5.77	6.04	10.76	9.17	10.74	8.72
Greenfield	8.91	4.18	5.24	9.73	10.86	13.15	8.68
Experimental Varieties – Not Available for Farm Use							
ERS 94X 2-8	11.65*	8.99*	10.29**	13.10	14.80**	15.97**	12.46**
LCB 84X 16-66	11.93*	8.60*	8.86	16.07*	14.51*	14.49*	12.41*
LCB 84X 19-16	11.59*	9.74**	8.51	16.24**	13.89*	14.02*	12.33*
CD 90160	11.75*	6.85	7.56	13.30	13.67*	13.35	11.08
ERS 94X 13-9	9.48	6.45	7.95	13.00	13.30*	15.53*	10.95
SCRS-C	10.61	5.85	7.39	11.43	10.98	11.93	9.70
ERS 94X 5-12	9.23	5.57	6.31	11.10	12.29	13.57	9.66
ERS-C	8.82	4.76	5.50	9.75	11.00	13.14	8.83
A-12199	7.61	5.03	5.20	9.95	9.94	11.53	8.21
ERS 94X 6-13	8.08	5.07	6.13	7.69	9.04	11.28	7.88
Mean	10.11	6.33	7.21	11.91	11.94	13.05	10.09
CV (%)	16	20	11	15	13	13	15
5% LSD	2.34	1.77	1.09	2.60	2.14	2.39	0.85

**Highest numerical value in column.
*Not significantly different from the highest numerical value in the column based on 5% LSD.

Table 7. Spring growth of bermudagrass varieties in Test 98-1, Eastern Research Station, Haskell, OK. 2003.

Variety	April 17		May 20	
	Greenup[1]	Height (In)[2]	Greenup[1]	Height (In)[2]
Commercial Varieties – Available for Farm Use				
Midland 99	85	2.50	100	13.50
Tifton 44	93	2.00	99	11.00
Greenfield	100	2.00	100	6.50
Experimental Varieties – Not Available for Farm Use				
ERS 94X 2-8	55	2.50	76	13.50
LCB 84X 19-16	93	9.00	100	16.00
ERS 94X 13-9	90	2.00	99	10.50
LCB 84X 16-66	70	2.25	93	7.00
SCRS-C	100	2.00	100	7.50
ERS 94X 5-12	80	2.25	95	5.50
ERS 94X 6-13	6	0.50	78	3.75
ERS-C	100	2.00	100	6.50
A12199	100	1.75	100	3.00
Mean	81	2.56	95	8.69
CV (%)	8	14	4	18
5% LSD	9	4.23	6	2.21

[1]Visually estimated percent of plot area with new growth.
[2]Mean height of new growth in inches.

Table 8. Forage yields (tons dry matter/acre) of commercial and experimental bermudagrass varieties in Test 1998-1, Eastern Research Station, Haskell, OK. 2003.

Variety	2003 Harvest Dates				
	5/27	7/1	8/27	10/15	Total
Commercial Varieties – Available for Farm Use					
Midland 99	2.44*	2.63	2.39	1.64	9.10*
Tifton 44	2.43*	2.31	2.54*	1.07	8.35
Greenfield	1.91	1.86	0.60	0.98	5.35
Experimental Varieties – Not Available for Farm Use					
ERS 94X 13-9	2.27*	2.43	2.84**	1.82	9.36**
ERS 94X 2-8	1.55	2.61	2.39	2.10*	8.65*
LCB 84X 19-16	2.61**	2.35	1.90	1.75	8.61*
ERS 94X 6-13	0.52	3.22**	1.47	2.33**	7.54
SCRS-C	2.32*	2.35	1.61	1.17	7.45
ERS 94X 5-12	1.66	2.17	2.00	1.49	7.32
LCB 84X 16-66	1.37	1.89	1.29	1.88	6.43
ERS-C	2.09	1.92	0.72	0.98	5.71
A-12199	1.14	2.23	0.76	0.63	4.76
Mean	1.86	2.33	1.71	1.48	7.38
CV (%)	13	7	14	12	8
5% LSD	0.34	0.23	0.36	0.26	0.89

** Highest numerical value in column.
* Not significantly different from the highest numerical value in the column based on 5% LSD.

Table 9. Forage yields (tons dry matter/acre) of commercial and experimental bermudagrass varieties in Test 1998-1, Eastern Research Station, Haskell, OK. 1999-2003.

Variety	Harvest Year					5-Yr Mean
	1999	2000	2001	2002	2003	
Commercial Varieties – Available for Farm Use						
Midland 99	9.03*	8.47	7.38**	8.73**	9.10**	8.54**
Tifton 44	7.57	7.93	5.65	7.82*	8.35*	7.46
Greenfield	6.52	5.65	3.69	6.10	5.35	5.46
Experimental Varieties – Not Available for Farm Use						
ERS 94X 2-8	10.24**	9.82**	5.99	7.91*	8.65*	8.52*
LCB 84X 19-16	8.71	9.16*	7.11*	8.56*	8.61*	8.43*
ERS 94X 13-9	7.09	7.93	6.37	7.95*	9.36*	7.74
LCB 84X 16-66	8.70	7.51	5.58	6.76	6.43	7.00
SCRS-C	6.83	7.17	5.78	7.66	7.45	6.98
ERS 94X 5-12	7.26	7.28	4.75	7.61	7.32	6.84
ERS 94X 6-13	7.76	7.62	5.16	6.11	7.54	6.84
ERS-C	5.78	5.93	3.43	6.46	5.71	5.46
A12199	5.23	5.95	3.71	6.00	4.76	5.13
Mean	7.56	7.53	5.38	7.30	7.38	7.03
CV (%)	13	9	13	9	8	10
5% LSD	1.38	0.94	0.97	0.94	0.89	0.45

**Highest numerical value in column.
*Not significantly different from highest numerical value in the column based on the 5% LSD.

Table 10. Forage yields (tons dry matter/acre) of bermudagrass varieties in Test 1998-2, South Central Research Station, Chickasha, OK. 2003.

Variety	2003 Harvest Dates			Total
	5/29	7/7	9/15	
Commercial Varieties – Available for Farm Use				
Midland 99	1.16	3.96	3.30	8.42*
Tifton 44	1.99*	3.54	2.87	8.40*
Greenfield	0.82	3.87	0.98	5.67
Experimental Varieties – Not Available for Farm Use				
ERS 94X 13-9	1.34	4.19**	4.04**	9.57**
SCRS-C	1.83*	3.54	3.29	8.66*
LCB 84X 19-16	2.35**	3.24	2.71	8.30*
LCB 84X 16-66	2.15*	3.28	2.50	7.93
ERS 94X 2-8	0.98	3.40	3.10	7.48
ERS 94X 6-13	0.82	3.33	3.10	7.25
ERS 94X 5-12	0.41	3.34	2.99	6.74
A12199	0.64	3.77	2.06	6.47
ERS-C	0.87	2.60	1.05	4.52
Mean	1.28	3.51	2.66	7.45
CV (%)	35	18	16	16
5% LSD	0.64	N.S.	0.62	1.69

**Highest numerical value in column.
*Not significantly different from the highest numerical value in the column based on the 5% LSD.
N.S.= No significant difference among varieties at the 95% confidence level.

Table 11. Forage yields (tons dry matter/acre) of bermudagrass varieties in Test 1998-2, South Central Research Station, Chickasha, OK. 1999 -2003.

Variety	Harvest Year					5-Yr Mean
	1999	2000	2001	2002	2003	
Commercial Varieties – Available for Farm Use						
Midland 99	13.12*	10.97*	9.28**	9.14**	8.43*	10.18**
Tifton 44	12.03	12.26**	7.65	8.45*	8.40*	9.76*
Greenfield	8.91	6.73	4.04	5.52	5.67	6.17
Experimental Varieties – Not Available for Farm Use						
ERS 94X 2-8	14.21**	10.31*	8.68	6.80	7.48	9.50*
ERS 94X 13-9	10.95	10.38*	8.53	8.02*	9.57**	9.48*
LCB 84X 19-16	11.72	10.10*	8.41	7.92*	8.30*	9.29
SCRS-C	11.69	10.40*	7.35	7.26	8.67*	9.07
LCB 84X 16-66	13.00	7.46	6.08	6.82	7.93*	8.26
ERS 94X 6-13	10.43	8.90	6.20	4.99	7.25	7.55
A12199	8.56	7.21	6.03	6.15	6.47	6.88
ERS 94X 5-12	9.01	6.82	5.72	6.02	6.74	6.86
ERS-C	8.81	4.98	3.32	4.32	4.52	5.19
Mean	11.03	8.87	6.77	6.78	7.45	8.18
CV (%)	13	18	14	18	16	16
5% LSD	2.05	2.30	1.39	1.79	1.69	0.81

**Highest numerical value in column.
*Not significantly different from the highest numerical value in the column based on the 5% LSD.

Table 12. Greenup and height notes for bermudagrass varieties in Test 2001-1, Eastern Research Station, Haskell, OK. 2003.

Variety	April 17		May 20	
	Commercial Varieties – Available for Farm Use			
Midland 99	88	2.3	98	16.5
Ozark	90	2.0	95	14.0
Tifton-44	88	2.3	100	15.5
	Experimental Varieties – Not Available for Farm Use			
A-12244	85	3.5	89	13.5
A-12245	90	2.5	100	15.5
A-12246	92	2.8	98	9.5
ERS 16S-1	88	2.0	99	12.0
ERS 16S-2	88	3.5	100	18.0
ERS 16S-3	95	2.3	100	16.0
ERS 16S-4	90	2.5	98	14.5
ERS 16S-5	100	2.0	100	5.5
ERS 16S-6	88	2.5	100	10.0
ERS 16S-7	85	2.0	99	8.5
ERS 16S-8	92	2.5	95	10.0
ERS 16S-9	87	2.8	100	10.5
ERS 16S-10	80	2.0	97	10.5
LCB 84X 16-66	88	3.8	99	13.5
Mean	89	3	98	12
CV (%)	5	21	2	12
5% LSD	6	0.8	3	2

[1]Visually estimated percentage of plot with living plant material.
[2]Height of new growth in inches.

Table 13. Forage yields (tons dry matter/acre) of commercial and experimental bermudagrass varieties in Test 2001-1, Eastern Research Station, Haskell, OK. 2003.

Variety	2003 Harvest Dates				Total
	5/28	7/2	8/28	10/16	
	Commercial Varieties – Available for Farm Use				
Ozark	2.89	2.71	3.43*	1.77	10.80*
Midland 99	2.79	2.97	3.37*	1.19	10.32
Tifton 44	3.23**	2.89	3.26*	0.84	10.22
	Experimental Varieties – Not Available for Farm Use				
A-12245	3.15*	2.93	3.21*	2.15*	11.44**
ERS 16S-4	2.73	2.75	3.38*	2.24**	11.10*
ERS16S-2	2.84	2.69	2.86*	1.84	10.23
ERS 16S-9	2.25	2.78	3.55**	1.39	9.97
ERS 16S-10	2.12	2.97	3.37*	1.38	9.84
LCB 84X 16-66	2.79	2.61	2.47	1.80	9.67
ERS 16S-3	2.75	2.85	2.97*	0.87	9.44
A-12246	2.29	2.73	3.51*	0.85	9.38
ERS16S-6	2.22	3.05**	3.05*	0.83	9.15
ERS 16S-1	2.44	2.77	3.09*	0.80	9.10
ERS 16S-7	2.12	2.93	3.15*	0.86	9.06
ERS 16S-8	2.31	2.63	2.32	1.22	8.48
ERS 16S-5	1.89	2.81	2.74	0.57	8.01
A-12244	2.23	2.15	2.37	0.78	7.53
Mean	2.53	2.78	3.07	1.26	9.63
CV (%)	9	5	10	15	6
5% LSD	0.33	0.21	0.43	0.26	0.81

**Highest numerical value in column.
*Not significantly different from the highest numerical value in the column based on 5% LSD.

Table 14. Forage yields (tons dry matter/acre) of commercial and experimental bermudagrass varieties in Test 2001-1, Eastern Research Station, Haskell, OK. 2002-2003.

Variety	Harvest Year		2-Yr Mean
	2002	2003	
Commercial Varieties – Available for Farm Use			
Ozark	11.71**	10.80*	11.25*
Midland 99	11.49*	10.32	10.90*
Tifton 44	10.90*	10.22	10.56
Experimental Varieties – Not Available for Farm Use			
A-12245	11.44*	11.44**	11.44**
ERS 16S-4	10.97*	11.10*	11.03*
ERS 16S-10	11.31*	9.84	10.58
ERS16S-2	10.61	10.23	10.42
ERS 16S-9	10.61	9.97	10.29
ERS 16S-7	10.89*	9.06	9.98
A-12246	10.51	9.38	9.95
ERS16S-6	10.20	9.15	9.67
ERS 16S-3	9.89	9.44	9.66
LCB 84X 16-66	9.61	9.68	9.64
ERS 16S-1	9.73	9.10	9.41
ERS 16S-8	9.29	8.48	8.89
A-12244	9.03	7.53	8.28
ERS 16S-5	8.13	8.01	8.07
Mean	10.37	9.63	10.00
CV (%)	7	6	6
5% LSD	1.02	0.81	0.63

**Highest numerical value in column.
*Not significantly different from the highest numerical value in the column based on 5% LSD.

Table 15. Forage yields (tons dry matter/acre) of bermudagrass varieties in Test 2001-2, South Central Research Station, Chickasha, OK. 2003.

Variety	2003 Harvest Dates			Total
	5/29	7/7	9/15	
Commercial Varieties – Available for Farm Use				
Midland 99	2.19	4.00	4.72**	10.91*
Ozark	2.45*	4.06*	3.85	10.36*
Tifton 44	2.82*	4.18*	3.19	10.19*
Experimental Varieties – Not Available for Farm Use				
ERS 16S-3	2.82	4.26*	4.14*	11.22**
A12245	3.04**	4.30*	3.71	11.05*
A12246	2.42*	4.50*	4.03*	10.95*
ERS 16S-4	2.57*	4.09*	3.48	10.14*
ERS 16S-8	2.13	4.35*	3.19	9.67
ERS 16S-1	1.91	3.62	3.71	9.24
ERS 16S-5	0.61	4.67**	3.77	9.05
LCB 84X 16-66	2.50	3.71	2.53	8.74
A12244	1.90	3.87	2.53	8.30
Mean	2.28	4.13	3.57	9.98
CV (%)	21	10	16	10
5% LSD	0.69	0.62	0.84	1.49

**Highest numerical value in column.
*Not significantly different from the highest numerical value in the column based on the 5% LSD.

Table 16. Forage yields (tons dry matter/acre) of bermu dagrass varieties in Test 2001-2, South Central Research Station, Chickasha, OK. 2002-2003.

Variety	Harvest Year		2-Yr Mean
	2002	2003	
Commercial Varieties – Available for Farm Use			
Tifton 44	11.72*	10.19*	10.84*
Midland 99	10.97*	10.91*	10.93*
Ozark[1]	--	10.36*	--
Experimental Varieties – Not Available for Farm Use			
A12246	12.04*	10.95*	11.50**
A12245	11.82*	11.05*	11.44*
ERS 16S-3	11.44*	11.22**	11.33*
ERS 16S-4	12.44**	10.14*	10.91*
ERS 16S-8	9.98	9.67	9.77
ERS 16S-1	10.37	9.24	9.73
ERS 16S-5	9.79	9.05	9.37
LCB 84X 16-66	10.08	8.74	9.19
A12244	9.73	8.30	8.78
Mean	11.07	9.95	10.41
CV (%)	10	10	10
5% LSD	1.62	1.49	1.00

[1]Ozark was not harvested in 2002 due to herbicide injury on plots. The plots had recovered from the injury by 2003.

**Highest numerical value in column.

*Not significantly different from the highest numerical value in the column based on the 5% LSD.

Additional information on forage bermudagrass and related topics is contained in these publications available from your Cooperative Extension Office:

PT 2003-3	Performance of Forage Bermudagrass Varieties in Oklahoma Tests, 1998-2002.
PT 2002-3	Performance of Forage Bermudagrass Varieties in Oklahoma Tests, 1998-2001.
PT 2001-9	Performance of Forage Bermudagrass Varieties in Oklahoma Tests, 1998-2000.
PT 2000-8	Performance of Forage Bermudagrass Varieties in Oklahoma Tests, 1995-99.
PT 96-9	Performance Of Forage Bermudagrass Varieties In Oklahoma Tests, 1992-1995.
PT 1998-14	Performance Of Forage Bermudagrass Varieties In Oklahoma Tests, 1995-1997.
F-2117	Forage Quality Interpretations
F-2568	Protein-Nitrogen Relationships in Forages
F-2583	Bermudagrass Varieties for Oklahoma
F-2587	Bermudagrass for Grazing or Hay

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Goodwell
Soybean Variety Tests
2003

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Table 5. Early Season Roundup Ready Soybean Production Goodwell, OK 2003.[2]

Variety[4]	Maturity Group	Harvest Date	Height in Inches	Shattering[3] Score	Lodging[3] Score	Seeds/ Lb.	Yield in[1] Bu/Acre
93M80	III		23	1	0	3150	60.3
Asgrow AG3905	III		25	0	1	3200	59.4
Asgrow AG3202	III		22	0	0	3250	59.0
DKB 44-51	IV		30	0	0	3350	57.3
DKB 40-51	IV		31	0	0	3200	56.3
93B85	III		22	0	0	3200	54.5
DKB 38-52	III		24	1	0	3450	50.9
DKB 37-51	III		22	0	1	3400	48.6
Asgrow AG3801	III		21	0	0	3250	46.8
Asgrow AG3701	III		23	0	0	3500	42.4

[1]Mean yield = 53.6 Bu/acre. LSD @ .05 = 17.9 Bu/acre. C.V. = 19.4%
[2]Planted April 30, 2003 on a 30" row spacing. Supplemental irrigation used as needed at this location. Harvested all plots as ready.
[3]0 = no shattering or lodging, 5 = very severe shattering or lodging.
[4]Varieties 93B85 and 93M80 are from Pioneer Hi-Bred International Inc.; Asgrow AG3202, AG3701, AG3801, AG3905, Dekalb DKB 37-51, DKB 38-52, DKB 40-51, and DKB 44-51 are from Monsanto.

Table 5. Full Season Roundup Ready Soybean Variety Test Goodwell, OK 2003[2]

Variety[4]	Maturity Group	Height in Inches	Shattering[3] Score	Lodging[3] Score	Seeds/ Lb.	Yield in[1] Bu/acre
5812 RR/N	V	35	0	1	3150	42.4
DYNAGRO 3600NRR	V	38	0	1	3650	41.9
DKB 46-51	IV	34	0	1	3450	41.1
AG4502	IV	29	0	0	3050	38.8
MORSOY 4480	IV	31	0	0	3450	38.4
MORSOY 4809	IV	31	0	0	3550	36.3
AG5605	V	36	0	1	4800	36.1
95B96	V	36	0	2	3450	35.6
95B42	V	38	0	1	4000	35.4
MORSOY 4802	IV	29	0	0	3450	34.6
DYNAGRO 3583NRR	V	35	0	1	3650	34.1
DYNAGRO 3518NRR	V	34	0	0	4300	34.0
AG5301	V	31	0	1	3650	33.9
DYNAGRO 3521NRR	V	31	0	0	4150	33.4
DYNAGRO 33B52	V	29	0	1	3650	33.0
AG5501	V	29	0	0	3900	32.9
DYNAGRO 38K57	V	37	0	2	4350	31.9
MORSOY 5252	V	30	0	2	4300	31.3
DYNAGRO 3562NRR	V	29	0	2	3750	28.8
DYNAGRO 3535NRR	V	34	0	3	3900	26.5
MORSOY 5553	V	35	0	1	3800	25.3

[1]Mean yield = 34.6 Bu/acre. LSD@.05= 9.0 Bu/acre. C.V.= 15.8%.
[2]Planted May 19, 2003 on a 30" row spacing. Supplemental irrigation used as needed at this location. Harvested all plots ? 2003.
[3]0= no shattering or lodging, 5= very severe shattering or lodging.
[4]Variety 5812 RR/N is from Garst Seed Co.; 95B96 and 95B42 are from Pioneer Hi-Bred International Inc.; ASGROW AG4502, AG5301, AG5501, AG5601, and DEKALB 46-51 are from Monsanto; MORSOY 4480, 4802, 4809, 5252, and 5553 are from Cashe River Valley Seed LLC; DYNAGO 3518NRR, 33B52, 3521NRR, 3535NRR, 3562NRR, 38K57, 3583NRR, and 3600NRR are from UAP Midsouth Dyna Gro Seed.

OKLAHOMA PANHANDLE LIMITED IRRIGATION SORGHUM SILAGE PERFORMANCE TRIAL, 2003

PRODUCTION TECHNOLOGY CROPS

OKLAHOMA COOPERATIVE EXTENSION SERVICE
DEPARTMENT OF PLANT AND SOIL SCIENCES
DIVISION OF AGRICULTURAL SCIENCES & NATURAL RESOURCES
OKLAHOMA STATE UNIVERSITY

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TRIAL OBJECTIVES AND PROCEDURES

In 2003 the Oklahoma Cooperative Extension Service established a sorghum silage performance trial in the Oklahoma panhandle to evaluate sorghum silages when irrigation is limited. Limited irrigation has many definitions the most common being one half of normal irrigation or less. For the purpose of this trial eight inches of irrigation was defined as being the maximum to be applied. In the coming years with natural gas prices rising and the possibility of water supplies diminishing, sorghum silage may replace corn silage in the panhandle region. Sorghum being more drought tolerant than corn requires less water, therefore less irrigation is required. Many seed companies have increased efforts to bring higher quality sorghum silage hybrids to market. Among these are brown mid-rib, photoperiod sensitive, conventional forage sorghums, and sorghum/sudan hybrids.

This trial provides producers, extension educators, industry representatives, and researchers with information on silage sorghum hybrids marketed in Oklahoma. Company or brand name, entry designation, plant characteristics, and maturity information, was provided by the companies (Table 1). Oklahoma State University did not verify this information. Company participation was voluntary, therefore some hybrids marketed in Oklahoma were not included in the test.

Limited irrigated test plots were established at the Oklahoma Panhandle Research and Extension Center (OPREC), Goodwell. Two rows 25 feet long were seeded at the target population of 50,000 plants/ac for brown mid-rib, and a target of 70,000 plants/ac for all other entries. The lower population for brown midribs may help with lodging associated with these hybrids. Experimental design was a randomized complete block with four replications. Prior to harvest five-foot alleys were cut to facilitate harvest. Five feet of one row was hand harvested, weighed and three plants were randomly selected to run through a chipper shredder. Samples where then dried at 65° C until weight was constant for two consecutive days. Maturity was checked periodically to monitor development so plots could be harvested when most entries were between soft and hard dough. Photoperiod sensitive hybrids were harvest on the last date. Ensilage production is reported as tons/ac adjusted to 65% moisture. This is consistent with current ensiling practices.

- Planting date: June 17, 2003
- Harvest dates: October 3 to October 18, 2003
- Previous crop: Soybean
- Soil type: Richfield Clay Loam
- Soil Test: N: 45 lbs/ac P: 26 lbs/ac K: 1192 lbs/ac pH: 7.5
- Fertilizer applied: N: 175 lbs/ac P: 40 lbs P_2O_5/ac K: 0
- Herbicide: Cinch ATZ Lite @ 1.5 qt/ac (Preemergence)
- Tillage Conventional tillage
- Irrigation: Sprinkler irrigated 2 inches in July and 3 inches in August
- Rainfall:

May	June	July	Aug.	Sep.	Total
1.84	5.26	1.87	1.19	1.62	11.78

Data Collected

Lodging:	scale 1 – 4; 1-no lodging, 2-less than 25%, 3-25 – 50%, 4-greater than 50%
Plant population:	Plants/ac

All nutrient analysis are reported on dry matter basis

Crude protein:	6.25 * % total nitrogen
ADF:	% acid detergent fiber; constituent of the cell wall includes cellulose And lignin; inversely related to energy
NDF:	Neutral Detergent Fiber; cell wall fraction of forage
Lignin:	Undigestible plant component gives cell wall strength reduces digestibility
TDN%	sum of crude protein, (fat * 2.25), carbohydrates, and digestible NDF
IVTD48/ac:	% true digestibility followed by incubation period in hours %IVTD * forage yield (DM/ac)
RFQ:	Relative Forage Quality score given based on (CP, ADF, NDF, NDFD48, fat, and ash). Utilizes same scale as RFV, the higher the score the better
NEl:	Estimate of Net Energy for lactation
NEm:	Estimate of Net Energy for maintenance
NEg:	Estimate of Net Energy for gain

Results

In 2003 the planting date was delayed due to rainfall in late May and early June, therefore yields of some hybrids may have been reduced. Emergence was less than anticipated due to rainfall after planting. With the late planting it was determined not to replant. The reduced stand may have also reduced yields of some hybrids more than the late planting. With the abundant rainfall of May and June, less irrigation was applied than anticipated, therefore only five inches of irrigation was applied. Yields of the higher yielding hybrids were equal to or better than corn silage yields at same location see **PT 2003-16.** These yields were obtain with less irrigation than utilized on the corn trial where 16 inches of irrigation water was applied, compared to the 5 inches for the irrigation sorghum silage trial.

Small differences in yield or other parameters should not be overemphasized. Least Significant Differences (L.S.D.) are shown at the bottom of each table. Unless two entries differ by at least the L.S.D. shown, little confidence can be placed in one being superior to another. The coefficient of variability (C.V.) is provided as an estimate of the precision of the data with respect to the mean.

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Table 1. Characteristics of Sorghum Silage Hybrids in OPREC Performance Trial, 2003.

Company Brand Name	Entry Designation	Sorghum Type	Maturity	Males Sterile	Brown Mid-rib
Garst Seed Company	BMR 344	Forage	ML	No	Yes
Garst Seed Company	BMR 348	Forage	ML	No	Yes
Garst Seed Company	325	Forage	ML	No	No
NC+ Hybrids	Nutri-Choice II	Forage	ML	Yes	No
NC+ Hybrids	Nutri-Cane II	Forage	M	No	No
NC+ Hybrids	8R18	Forage	ML	No	No
Sorghum Partners, Inc.	NK 300	Forage	EM	No	No
Sorghum Partners, Inc.	SS 405	Forage	L	No	No
Sorghum Partners, Inc.	SS 506	Forage	L	No	No
Sorghum Partners, Inc.	1990	Forage	L	Photo	No
Sorghum Partners, Inc.	Sordan 79	Sorghum-sudan	M	No	No
Sorghum Partners, Inc.	Sordan headless	Sorghum-sudan	M	Photo	No
Sorghum Partners, Inc.	Trudan 8	Hybrid-sudan	M	No	No
Sorghum Partners, Inc.	Trudan Headless	Hybrid-sudan	M	Photo	No
Seed Resource	Fame	Forage	M	No	No
Seed Resource	FS 515 HQ	Forage	M	No	No
Seed Resource	FS 517	Forage	M	No	No
Seed Resource	FS 555	Forage	L	No	No
Seed Resource	BMR 100	Forage	M	No	Yes
Seed Resource	BMR 106	Forage	M	No	Yes

Table 2. Ensilage Yields and and harvest parameters for OPREC Sorghum Silage Performance Trial, 2003.

Company Brand Name	Entry Designation	Yield Tons/ac	Harvest Moisture	Plant Population plants/ac	Lodging
Sorghum Partners, Inc.	SS 506	30.6	0.64	36,800	2.0
Seed Resource	FS 555	26.7	0.69	45,600	2.0
Sorghum Partners, Inc.	1990	25.9	0.66	44,600	1.0
NC+ Hybrids	Nutri-Cane II	25.5	0.69	37,500	1.0
NC+ Hybrids	Nutri-Choice II	25.0	0.71	40,700	1.0
Garst Seed Company	BMR 348	24.6	0.69	42,500	1.0
Garst Seed Company	325	24.4	0.72	37,800	1.0
Garst Seed Company	BMR 344	23.3	0.65	40,600	4.0
Seed Resource	BMR 100	23.3	0.62	47,900	3.0
Sorghum Partners, Inc.	Sordan headless	23.1	0.72	49,600	1.0
Seed Resource	FS 517	23.0	0.63	35,300	1.7
Sorghum Partners, Inc.	SS 405	21.8	0.69	41,800	1.3
Sorghum Partners, Inc.	Sordan 79	21.2	0.66	37,000	1.7
Seed Resource	FS 515 HQ	20.8	0.71	39,500	1.0
Sorghum Partners, Inc.	Trudan Headless	20.7	0.74	39,500	1.3
Seed Resource	BMR 106	19.4	0.67	43,300	1.0
Sorghum Partners, Inc.	NK 300	18.6	0.71	31,500	1.0
Seed Resource	Fame	18.5	0.65	46,300	1.3
Sorghum Partners, Inc.	Trudan 8	14.4	0.67	44,700	1.0
NC+ Hybrids	8R18	14.2	0.67	33,700	1.0
	Mean	22.2	0.68	40,800	1.5
	C.V.%	13.7	4.9	12.5	19.8
	L.S.D.	5.0	0.06	8,400	0.5

Table 3. Ensilage Quality OPREC Sorghum Silage Performance Trial, 2003.

Company Brand Name	Entry Designation	CP	Ca %	P %	ADF %	NDF %	Lignin	TDN %	IVTD % DM lbs/ac	Relative Forage Quality	NEl	NEm	NEg
Garst Seed Company	BMR 344	11.0	0.36	0.22	43.3	62	7.15	50.0	13,600	92	0.45	0.40	0.16
Garst Seed Company	BMR 348	9.7	0.32	0.21	37.35	57.4	4.65	57.5	14,600	120	0.53	0.52	0.26
Garst Seed Company	325	7.7	0.30	0.17	37.7	56.65	5.95	54.5	11,000	108	0.51	0.63	0.22
NC+ Hybrids	Nutri-Choice II	8.7	0.29	0.12	37.4	63.05	5.9	52.5	14,100	103	0.46	0.44	0.19
NC+ Hybrids	Nutri-Cane II	10.0	0.42	0.15	36.7	55.6	5.65	54.0	14,000	111	0.51	0.46	0.21
NC+ Hybrids	8R18	10.1	0.36	0.23	37.3	56.2	5.45	57.0	7,200	120	0.54	0.51	0.26
Sorghum Partners, Inc.	NK 300	8.1	0.30	0.15	35.3	62.3	4.9	54.0	12,100	105	0.47	0.46	0.21
Sorghum Partners, Inc.	SS 405	8.6	0.36	0.18	44.15	66.8	7.05	47.5	11,600	81	0.39	0.35	0.11
Sorghum Partners, Inc.	SS 506	11.7	0.41	0.18	44.55	64.2	8.35	49.5	18,500	86	0.43	0.39	0.15
Sorghum Partners, Inc.	1990	10.0	0.44	0.18	41.65	62.95	6.65	47.0	16,300	87	0.41	0.35	0.11
Sorghum Partners, Inc.	Sordan 79	8.3	0.29	0.18	40.7	60.45	8.5	42.5	8,000	75	0.38	0.28	0.07
Sorghum Partners, Inc.	Sordan headless	9.5	0.34	0.16	46.6	67.4	7.1	44.5	11,100	73	0.37	0.31	0.07
Sorghum Partners, Inc.	Trudan 8	8.9	0.32	0.15	39.9	61.35	7.1	48.0	6,900	90	0.42	0.37	0.12
Sorghum Partners, Inc.	Trudan Headless	8.4	0.30	0.11	45.25	67.25	7.2	45.5	12,600	77	0.37	0.33	0.08
Seed Resource	Fame	8.9	0.31	0.18	41.05	60.25	6.4	47.0	10,500	85	0.43	0.35	0.10
Seed Resource	FS 515 HQ	9.0	0.29	0.21	35.5	57.7	5.3	54.0	10,000	110	0.50	0.46	0.21
Seed Resource	FS 517	10.1	0.35	0.18	35.15	49.8	6.5	52.0	11,600	101	0.51	0.44	0.19
Seed Resource	FS 555	8.4	0.31	0.15	44.1	67.6	6.4	47.0	18,300	81	0.38	0.35	0.11
Seed Resource	BMR 100	10.4	0.37	0.17	42.7	63.1	7.05	52.5	15,600	97	0.45	0.43	0.18
Seed Resource	BMR 106	10.5	0.36	0.20	35.5	56.25	4.6	58.0	9,600	125	0.55	0.52	0.27

Note: Due to handling errors during drying phase all quality based on average of two replications