Oklahoma Small Grains Variety Performance Tests 2011 - 2012

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www.wheat.okstate.edu

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2012 WHEAT CROP OVERVIEW

The extreme drought and widespread crop failure of 2011 was followed by a bumper wheat crop in 2011-2012 for most Oklahoma farmers. At the time of writing this report, 2012 Oklahoma wheat production is estimated to be approximately 159.1 million bushels, which is roughly double the 2010-2011 production (Table 1). The production increase came as a result of an approximate 1.1 million acre increase in harvested acres and a 68% increase in average yield.

Table 1. Oklahoma wheat production for 2011 and 2012 as estimated by OK NASS, June 2012

	2011	2012
Harvested Acres	3.2 million	4.3 million
Yield (bu/ac)	22	37
Total bushels	70.4 million	159.1 million

The 2011-2012 wheat production season started slowly. The extreme drought of 2011 completely depleted soil moisture reserves in most of Oklahoma. Oklahoma farmers and ranchers entered the month of September 2011 with almost no soil moisture and extreme heat that quickly dissipated the little rainfall that occurred. Hay supplies were gone along with any remaining pastures, so the desperate need for forage of any kind pushed most producers to roll the dice and dust in wheat for pasture. A break from the extreme heat and a few timely rains in late September allowed wheat to establish itself but did not provide much opportunity for growth. The pattern of just enough moisture to survive persisted throughout the winter in western Oklahoma and the Panhandle.

Central and west-central Oklahoma was a different story. What began as a slow wheat forage year turned into one of the best wheat pasture years in recent memory for farmers and ranchers in this region. Timely rainfall throughout October, November, and December, combined with one of the warmest winters on record, resulted in rapid forage production and outstanding average daily gains. Residual soil nitrogen left by failed crops in 2011 sometimes exceeded 150 lb/ac and spurred wheat forage production onward. In fact, many producers were unable to secure sufficient stocker cattle to keep up with wheat forage.

Temperatures during the 2011-2012 season were never cold enough to hold wheat back more than a day or two. Wheat came out of winter dormancy earlier than normal with an abundance of tillers. Tiller counts of 700 – 1,000 tillers/yd^2 were not uncommon versus the Oklahoma norm of 400 to 600 tillers/yd^2. The abnormally early crop and lush growth in March had everyone concerned about the possibility of a late spring freeze. Outside of the Panhandle, the freeze bullet was dodged with only light injury occurring in a few isolated areas. Temperatures reached 21F the morning of March 20, 2012 causing some damage to wheat heads and injury to wheat stems (see Goodwell Irrigated data). This injury contributed to, but was not the only cause, of lodging at this site.

Weed problems such as feral rye, Italian ryegrass, and rescuegrass were certainly present in 2011-2012 but weed problems were not as severe as previous years. Oklahoma still has a long way to go, however, before we can say our weed control and the associated yield losses are at acceptable levels.

As mentioned previously, the failed crops of 2011 left a great deal of residual nitrogen in the soil profile. The absence of rainfall meant that this nitrogen was easily accessible to the wheat crop. In addition, the favorable outlook in terms of yield and price resulted in many farmers deciding to make an investment in topdress nitrogen. In many cases a heavy nitrogen investment was well justified. In some instances, though, the topdress nitrogen, combined with high levels of residual soil nitrogen and excessive tillering, resulted in a lodged crop.

Other than winter grain mite activity in some of the drier areas of the state, the fall of 2011 was relatively insect free. A flush of bird cherry oat aphids seemed to appear overnight in mid-to-late March, and many producers chose to spray. This aphid flush resulted in widespread barley yellow dwarf virus (BYDV) symptoms at heading. Symptoms were mostly restricted to yellowing/purpling of flag leaves with no stunting or reduction in plant height. A legion of armyworms invaded just prior to harvest and some producers were compelled to spray an insecticide, but in many cases the rapid ripening of the wheat crop negated the need for pesticide application.

A significant shift in the predominant stripe rust race made it a game-changing foliar disease in 2011-2012. While stripe rust was present statewide, the epicenter for stripe rust was in central Oklahoma. Among our locations, Marshall Grain Only had the highest stripe rust incidence and severity. As evidenced by the results and confirmed by visual observation, the

resistance genes in Armour, Everest, and Pete offered little protection against the stripe rust onslaught. Even some of varieties fresh off the assembly line, such as Garrison, succumbed to stripe rust, although to a lesser degree. Fortunately, varieties such as Gallagher, Billings, Iba, WB-Cedar and CJ seemed to weather the stripe rust storm fairly well. Foliar diseases such as tan spot, septoria, powdery mildew, and leaf rust were also present in 2012 but never reached the severity of stripe rust. The combination of all of these foliar diseases led to a 10 bu/ac average yield advantage for fungicide-treated wheat at Lahoma and an 8 bu/ac advantage at Apache.

A wave of heat hit Oklahoma in mid April and soil moisture reserves were quickly depleted. This was especially true in areas south of Hwy 51 and west of Hwy 81 where fields quickly took on a blue cast. Temperatures moderated and moisture returned by early May, but the damage had already been done. White heads and aborted tillers quickly began to appear. In a few instances these were due to dryland root rot and/or take-all, but by and large the white heads were due to drought and heat stress combined.

Harvest was in full swing by mid May, approximately 65% complete by June 1, and essentially finished by the second week of June. Yields were better than expected in most locations and reports of field averages in the 60 – 80 bu/ac range in central Oklahoma were not uncommon. Lodging combined with delayed harvest resulted in low test weights in a few locations and some isolated pre-harvest sprouting. Low test weights were also common in many areas of western Oklahoma due to shrived grain caused by excessive heat and drought stress during grainfill.

Methods

Cultural Practices. Conventional plots were eight rows wide with six-inch row spacing. No-till plots were seven rows wide with 7.5-inch row spacing. Plots were 20 feet long and wheel tracks were included in the plot area for yield calculation. Conventional till plots received 50 lb/ac of 18-46-0 in-furrow at planting. No-till plots received 5 gal/ac of 10-34-0 at planting. The El Reno and Marshall dual-purpose (DP) trials were sown at 120 lb/ac. All other locations were sown at 60 lb/ac. Grazing pressure, nitrogen fertilization, and insect and weed control decisions were made on a location-by-location basis and reflect standard management practices for the area.

Additional information on the Web

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

www.wheat.okstate.edu

Marketing rights

Breeding programs responsible for varietal release are indicated as the "source" in results tables. In many cases, however, a separate entity has the marketing rights for these varieties. For this reason, a list of wheat seed companies and the varieties they market is provided below.

AgriPro
AP503CL2
CJ
Doans
Greer
Fannin
Jackpot
TAM 111
TAM 203
TAM 401

AGSECO
TAM 113

CO Wheat Res. Found.
Bill Brown
Hatcher

Husker Genetics
Mace

Kansas Wheat Alliance
Everest
Fuller
Jagger

Limagrain Cereal Seeds
T153
T158

OK Foundation Seed
2174
Deliver
Endurance

Oklahoma Genetics
Billings
Centerfield
Duster
Gallagher
Garrison
Iba
OK Bullet
Pete
Ruby Lee

WestBred
Armour
Santa Fe
WB-Cedar
Winterhawk

Watley Seed
TAM 112

More information available on the web:

www.wheat.okstate.edu

Twitter:
@OSU_small grains

Facebook:
facebook.com/OSUsmallgrains

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2012 Oklahoma Wheat Variety Trial Yield Summary

Variety	Afton	Alva	Apache	Apache Fungicide	Balko	Buffalo	Chattanooga	Cherokee	El Reno	Gage	Goodwell Irrigated	Goodwell Nonirrigated
	grain yield (bu/ac)											
2174	-	-	-	-	-	-	-	-	-	-	-	-
AP503CL2	-	48	-	-	-	19	-	-	-	23	-	-
Armour	44	48	50	60	24	25	38	45	40	16	40	14
Bill Brown	-	-	-	-	27	-	-	-	-	-	32	15
Billings	42	51	60	68	26	30	40	48	44	40	65	16
Centerfield	-	46	-	-	-	31	-	46	-	32	-	-
CJ	39	45	-	-	27	33	-	43	45	29	39	16
Deliver	-	-	48	53	-	-	38	47	37	-	-	-
Doans	43	46	47	51	28	31	34	41	50	31	41	16
Duster	27	51	36	51	28	29	40	52	34	28	48	15
Endurance	24	48	39	50	28	28	34	46	38	33	41	15
Everest	58	52	59	66	-	32	39	49	49	27	-	-
Fannin	-	-	36	41	-	-	37	-	30	-	-	-
Fuller	46	46	60	62	-	25	38	48	52	24	-	-
Gallagher	53	56	57	64	29	30	41	56	45	-	64	18
Garrison	43	49	44	57	23	24	37	47	35	14	41	12
Greer	24	41	46	54	25	24	38	50	36	26	42	13
Hatcher	-	-	-	-	29	-	-	-	-	-	43	13
Iba	32	51	42	50	30	32	39	55	35	-	56	15
Jackpot	25	46	51	60	26	27	42	45	46	29	48	14
Jagger	28	44	51	62	24	24	39	47	35	20	41	15
Mace	-	-	-	-	19	-	-	-	-	-	23	7
OK Bullet	30	44	48	55	-	25	33	48	35	29	-	-
Pete	-	-	47	68	-	-	37	47	38	-	-	-
Ruby Lee	39	57	57	64	31	36	49	48	54	27	54	16
Santa Fe	20	-	-	-	-	-	-	49	39	-	-	-
T153	-	-	-	-	30	-	-	-	-	-	61	16
T158	-	-	-	-	27	-	-	-	-	-	62	16
TAM 111	-	49	-	-	26	25	-	-	-	20	40	9
TAM 112	-	48	-	-	27	22	-	-	-	18	35	16
TAM 113	-	49	-	-	26	20	-	-	-	26	38	13
TAM 203	-	-	51	59	-	-	45	-	-	-	-	-
TAM 401	-	-	53	60	-	-	44	43	45	-	-	-
WB-Cedar	46	-	-	-	-	-	-	-	59	-	74	-
Winterhawk	-	53	-	-	28	31	-	57	-	26	58	16
OCW00S063S-1B	-	-	-	-	-	-	-	-	-	-	-	16
OK05312	-	-	-	-	27	-	-	-	-	-	32	11
OK08229	-	-	-	-	27	-	-	-	-	24	31	12
OK08328	-	53	48	52	26	23	31	-	43	22	46	14
OK08413	27	-	-	-	-	-	-	-	-	-	-	-
OK08707W	-	-	-	-	28	-	-	-	-	-	36	13
OK09125	-	-	-	-	-	-	-	-	-	-	-	11
OK09634	-	51	60	63	-	-	-	-	36	-	-	-
OK0986146W	-	-	-	-	-	-	-	-	-	-	27	-
OK09915C	-	50	-	-	-	22	-	-	44	30	-	-
Mean	37	49	49	58	27	27	39	48	42	26	47	14
LSD $_{(0.05)}$	14	5	8	10	3	3	8	7	6	5	8	3

2012 Oklahoma Wheat Variety Trial Yield Summary

Variety	Homestead	Hooker	Keyes	Kildare	Kingfisher	Lahoma	Lahoma Fungicide	Lamont	Marshall DP	Marshall GO	McLoud	Olustee	Thomas
	grain yield (bu/ac)												
2174	-	-	-	-	-	-	-	-	-	-	57	-	-
AP503CL2	-	-	-	-	-	-	-	-	-	-	-	-	-
Armour	50	28	26	43	53	30	53	36	22	14	72	29	18
Bill Brown	-	33	24	-	-	-	-	-	-	-	-	-	-
Billings	59	33	19	54	64	52	63	36	37	53	72	26	37
Centerfield	-	-	-	-	52	-	-	-	-	-	-	-	-
CJ	43	36	20	42	63	50	55	29	46	51	64	-	-
Deliver	48	-	-	43	51	49	50	33	38	42	-	29	28
Doans	47	36	21	41	56	46	48	37	47	45	56	26	36
Duster	44	35	21	46	58	46	59	28	49	46	55	27	26
Endurance	47	37	21	46	55	51	56	31	44	47	62	29	16
Everest	58	-	-	62	55	47	58	35	39	40	73	29	30
Fannin	-	-	-	-	-	-	-	-	-	-	-	25	25
Fuller	59	-	-	48	62	51	55	34	41	44	62	30	21
Gallagher	60	35	20	53	66	57	63	33	37	56	75	29	23
Garrison	44	32	18	59	49	33	65	31	20	22	73	24	20
Greer	54	26	20	55	60	52	61	30	31	42	71	27	21
Hatcher	-	32	21	-	-	-	-	-	-	-	-	-	-
Iba	57	38	24	62	58	54	63	31	48	51	67	25	45
Jackpot	57	37	26	52	62	54	64	36	38	42	69	31	27
Jagger	50	35	23	41	61	50	58	33	28	39	66	33	13
Mace	-	31	15	-	-	-	-	-	-	-	-	-	-
OK Bullet	49	-	-	45	54	46	52	35	31	37	63	23	21
Pete	43	-	-	49	43	35	58	27	18	14	-	31	20
Ruby Lee	57	37	24	63	64	43	65	44	38	39	77	31	29
Santa Fe	54	-	-	50	55	49	55	40	39	41	52	-	-
T153	-	37	23	-	-	-	-	-	-	-	-	-	-
T158	-	29	24	-	-	-	-	-	-	-	-	-	-
TAM 111	-	33	17	-	-	-	-	-	-	-	-	-	-
TAM 112	-	33	29	-	-	-	-	-	-	-	-	-	-
TAM 113	-	30	24	-	-	-	-	-	-	-	-	-	-
TAM 203	-	-	-	-	-	-	-	-	-	-	-	31	26
TAM 401	45	-	-	43	59	49	51	29	37	47	-	26	34
WB-Cedar	60	-	-	57	63	60	71	47	45	65	71	-	-
Winterhawk	-	34	26	-	-	-	-	-	-	-	-	30	34
OCW00S063S-1B	-	-	22	-	-	-	-	-	-	-	-	-	-
OK05312	-	34	22	-	-	-	-	-	-	-	-	-	-
OK08229	-	34	23	-	-	-	-	-	-	-	-	-	-
OK08328	61	34	20	-	59	48	59	-	43	-	62	29	34
OK08413	-	-	27	57	-	-	-	-	-	-	60	-	-
OK08707W	-	-	-	-	-	-	-	-	-	-	-	-	-
OK09125	-	-	-	-	-	-	-	-	-	-	-	-	-
OK09634	-	-	-	-	72	52	60	-	-	47	-	-	-
OK0986146W	-	32	15	-	-	-	-	-	-	-	-	-	-
OK09915C	-	-	-	-	56	53	62	-	-	46	-	-	-
Mean	52	34	22	50	57	48	58	34	37	42	66	28	26
LSD $_{(0.05)}$	5	5	7	6	6	5	5	10	7	7	13	5	18

Partial financial support provided by the Oklahoma Wheat Commission and the Oklahoma Wheat Research Foundation

Balko Wheat Variety Trial

Cooperator: Craig Frantz | **Tillage: No-till**
Soil type: Ulysses-Richfield complex | **Management: Grain only**
Planting date: 10-05-11 | **Previous crop: Sorghum/Fallow**
Harvest date: 06-11-12 | **Soil test: pH = 6.7, P = 41, K = 1080**

		Grain Yield			Test Weight
Source	Variety	2011-12	2-Year	3-Year	2011-12
		----------bu/ac----------			-----lb/bu-----
OSU	Ruby Lee	31	-	-	57.1
OSU	Iba	30	-	-	56.3
LCS	T153	30	-	-	56.2
OSU	Gallagher	29	-	-	54.3
CSU	Hatcher	29	36	-	56.6
AgriPro	Doans	28	33	45	57.2
OSU	Duster	28	37	51	56.1
WestBred	Winterhawk	28	37	51	58.1
OSU	Endurance	28	36	46	55.4
LCS	T158	27	34	-	55.0
TAMU	TAM 112	27	35	48	56.2
CSU	Bill Brown	27	34	-	55.5
AgriPro	CJ	27	-	-	56.9
OSU	Billings	26	32	46	53.9
AgriPro	Jackpot	26	34	47	55.7
TAMU	TAM 113	26	-	-	56.2
TAMU	TAM 111	26	34	51	56.6
AgriPro	Greer	25	34	-	54.2
WestBred	Armour	24	35	-	54.0
KSU	Jagger	24	31	43	55.9
OSU	Garrison	23	31	45	56.1
UNL	Mace	19	28	40	55.0
Experimentals					
	OK08707W	28	-	-	55.0
	OK08229	27	-	-	54.5
	OK05312	27	36	51	56.5
	OK08328	26	-	-	52.2
	Mean	27	34	47	55.6
	LSD $_{(0.05)}$	3	3	2	1.8

Partial financial support provided by the Oklahoma Wheat Commission and the Oklahoma Wheat Research Foundation

Goodwell Irrigated Wheat Variety Trial

Cooperator: OK Panhandle Research & Extension Center **Tillage: Conventional till**
Soil type: Richfield clay loam **Management: Grain only**
Planting date: 10-03-11 **Total irrigation: 14.5 in** **Previous crop: Wheat/Fallow**
Harvest date: 06-15-12 **Total rainfall: 9.1 in** **Soil test: pH = 7.6, P = 49, K = 1200**

		Grain Yield					Test Weight
Source	Variety	2011-12	Freeze Inj.*	Lodging**	2-Year	3-Year	2011-12
		---bu/ac---			----------bu/ac----------		-----lb/bu-----
WestBred	WB-Cedar	74	L	0	-	-	57.8
OSU	Billings	65	H	7	50	56	55.7
OSU	Gallagher	64	L	2	51	-	54.1
LCS	T158	62	L	2	51	-	53.5
LCS	T153	61	L	0	-	-	55.4
WestBred	Winterhawk	58	H	2	48	54	51.2
OSU	Iba	56	L	3	-	-	53.0
OSU	Ruby Lee	54	L	7	-	-	53.7
OSU	Duster	48	L	6	44	52	51.4
AgriPro	Jackpot	48	L	4	38	46	53.2
CSU	Hatcher	43	H	3	42	-	52.3
AgriPro	Greer	42	L	3	36	46	49.6
OSU	Endurance	41	M	3	39	45	47.5
KSU	Jagger	41	L	7	37	43	49.4
OSU	Garrison	41	L	2	-	-	48.1
AgriPro	Doans	41	L	5	36	43	54.2
WestBred	Armour	40	L	3	41	-	51.0
TAMU	TAM 111	40	M	3	40	51	50.2
AgriPro	CJ	39	L	1	-	-	53.3
TAMU	TAM 113	38	H	9	-	-	49.5
TAMU	TAM 112	35	H	8	39	48	52.1
CSU	Bill Brown	32	M	1	32	-	46.8
UNL	Mace	23	L	1	29	40	43.3
Experimentals							
	OK08328	46	M	4	-	-	45.5
	OK08707W	36	M	5	-	-	46.8
	OK05312	32	H	6	-	-	43.2
	OK08229	31	L	3	-	-	41.2
	OK0986146W	27	L	0	-	-	43.0
	Mean	45			41	48	50.2
	LSD $_{(0.05)}$	8			6	5	1.8

* Temperatures reached 21F on March 20, 2012. Freeze injury ratings of low (L), medium (M), or high (H) were recorded March 31, 2012. Injury symptoms were mostly restricted to node damage and lodging

**Lodging notes taken at time of harvest using a 0 - 10 scale with 0 representing no lodging and 10 representing complete lodging

Partial financial support provided by the Oklahoma Wheat Commission and the Oklahoma Wheat Research Foundation

Goodwell Nonirrigated Wheat Variety Trial

Cooperator: OK Panhandle Research & Extension Center **Tillage: No-till**
Soil type: Richfield clay loam **Management: Grain only**
Planting date: 09-23-11 **Previous crop: Wheat/Fallow**
Harvest date: 06-01-12 **Soil test: pH = 7.9, P = 44, K = 936**

Source	Variety	Grain Yield 2011-12	Test Weight 2011-12
		---bu/ac---	-----lb/bu-----
OSU	Gallagher	18	58.7
OSU	Ruby Lee	16	57.8
TAMU	TAM 112	16	57.9
LCS	T153	16	57.4
WestBred	Winterhawk	16	59.1
AgriPro	Doans	16	58.4
OSU	Billings	16	57.0
LCS	T158	16	56.4
AgriPro	CJ	16	57.1
CSU	Bill Brown	15	59.0
OSU	Iba	15	58.0
KSU	Jagger	15	56.0
OSU	Endurance	15	58.1
OSU	Duster	15	59.0
AgriPro	Jackpot	14	56.5
WestBred	Armour	14	56.5
CSU	Hatcher	13	58.9
AgriPro	Greer	13	55.3
TAMU	TAM 113	13	57.9
OSU	Garrison	12	55.8
TAMU	TAM 111	9	56.3
UNL	Mace	7	55.9
Experimentals			
	OCW00S063S-1B	16	58.1
	OK08328	14	58.0
	OK08707W	13	57.8
	OK08229	12	57.4
	OK09125	11	58.8
	OK05312	11	56.1
	Mean	14	57.5
	LSD $_{(0.05)}$	3	NS

Notes: Grain yield affected by season-long drought.

Partial financial support provided by the Oklahoma Wheat Commission and the Oklahoma Wheat Research Foundation

Hooker Wheat Variety Trial

Cooperator: Dan and Earnest Herald
Soil type: Dalhart fine sandy loam
Planting date: 09-30-11
Harvest date: 06-05-12

Tillage: No-till
Management: Grain only
Previous crop: Failed sorghum

Source	Variety	Grain Yield			Test Weight
		2011-12	2-Year	3-Year	2011-12
		----------bu/ac----------			--lb/bu--
OSU	Iba	38	-	-	52.3
AgriPro	Jackpot	37	29	49	52.3
OSU	Ruby Lee	37	-	-	51.7
OSU	Endurance	37	29	42	52.3
LCS	T153	37	-	-	54.6
AgriPro	Doans	36	29	43	54.9
AgriPro	CJ	36	-	-	53.4
KSU	Jagger	35	27	45	52.7
OSU	Gallagher	35	-	-	51.8
OSU	Duster	35	28	43	50.4
WestBred	Winterhawk	34	-	-	55.6
TAMU	TAM 112	33	29	46	53.1
CSU	Bill Brown	33	29	-	48.4
TAMU	TAM 111	33	27	44	50.5
OSU	Billings	33	26	46	47.3
OSU	Garrison	32	-	-	53.6
CSU	Hatcher	32	28	-	50.2
UNL	Mace	31	27	41	51.1
TAMU	TAM 113	30	-	-	50.3
LCS	T158	29	26	-	48.2
AgriPro	Armour	28	25	-	51.1
AgriPro	Greer	26	-	-	48.3
Experimentals					
	OK05312	34	30	39	53.8
	OK08328	34	-	-	47.2
	OK08229	34	-	-	48.7
	OK0986146W	32	-	-	50.0
	Mean	34	28	44	51.3
	LSD $_{(0.05)}$	5	3	2	2.5

Notes: Grain yield affected by season-long drought. Low test weights are the result of extreme late-season drought and heat.

Partial financial support provided by the Oklahoma Wheat Commission and the Oklahoma Wheat Research Foundation

Keyes Wheat Variety Trial

Cooperator: J. B. Stewart | **Tillage: No-till**
Soil type: Richfield clay loam | **Management: Grain only**
Planting date: 09-30-11 | **Previous crop: Wheat/Fallow**
Harvest date: 06-12-12 | **Soil test: pH = 7.7, P = 14, K = 918**

		Grain Yield			Test Weight
Source	Variety	2011-12	2-Year	3-Year	2011-12
		----------bu/ac----------			-----lb/bu-----
TAMU	TAM 112	29	31	34	58.7
AgriPro	Jackpot	26	24	31	58.1
WestBred	Winterhawk	26	-	-	61.5
WestBred	Armour	26	23	-	58.0
OSU	Ruby Lee	24	-	-	58.5
LCS	T158	24	24	-	56.8
TAMU	TAM 113	24	-	-	58.7
OSU	Iba	24	-	-	58.5
CSU	Bill Brown	24	22	-	59.5
LCS	T153	23	-	-	57.1
KSU	Jagger	23	22	29	57.5
CSU	Hatcher	21	20	-	58.6
OSU	Endurance	21	20	26	59.3
AgriPro	Doans	21	24	29	57.4
OSU	Duster	21	22	28	58.6
AgriPro	Greer	20	-	-	57.1
AgriPro	CJ	20	-	-	58.2
OSU	Gallagher	20	-	-	58.4
OSU	Billings	19	19	25	54.0
OSU	Garrison	18	-	-	57.5
TAMU	TAM 111	17	20	26	56.1
UNL	Mace	15	16	23	57.2
Experimentals					
	OK09125	27	-	-	57.6
	OK08229	23	-	-	55.4
	OK05312	22	23	30	59.4
	OCW00S063S-1B	22	-	-	59.9
	OK08328	20	-	-	58.5
	OK0986146W	15	-	-	55.6
	Mean	22	22	28	57.9
	LSD $_{(0.05)}$	7	4	3	2.3

Notes: Grain yields were reduced approximately 10% by spring freeze injury just prior to flowering.

Partial financial support provided by the Oklahoma Wheat Commission and the Oklahoma Wheat Research Foundation

Plant height at harvest for selected 2012 Oklahoma wheat variety trials

Variety	Alva	Apache	Balko	Buffalo	Chattanooga	Gage	Homestead	Hooker	Keyes	Kildare	Kingfisher	Lahoma	Marshall DP	Marshall GO	Olustee	Thomas
	plant height (inches)															
AP503 CL2	31	-	-	26	-	23	-	-	-	-	-	-	-	-	-	-
Armour	31	29	18	27	29	23	35	28	20	31	33	28	27	30	22	34
Bill Brown	-	-	20	-	-	-	-	28	17	-	-	-	-	-	-	-
Billings	31	32	22	27	28	29	36	30	16	31	33	29	26	33	23	40
Centerfield	32	-	-	28	-	26	-	-	-	-	35	-	-	-	-	-
CJ	34	-	26	28	-	26	39	30	19	35	38	30	33	36	-	-
Deliver	-	32	-	-	26	-	37	-	-	33	35	33	31	31	24	34
Doans	33	32	23	28	25	28	37	30	21	35	35	34	33	34	21	37
Duster	31	28	19	30	30	26	35	31	18	31	34	31	28	31	22	33
Endurance	32	31	21	29	26	27	37	30	20	33	37	34	29	33	23	34
Everest	28	31	-	27	23	24	36	-	-	30	30	33	28	33	21	36
Fannin	-	28	-	-	27	-	-	-	-	-	-	-	-	-	23	28
Fuller	32	31	-	27	28	26	39	-	-	34	34	30	31	35	23	34
Gallagher	31	33	22	29	24	-	35	29	19	33	34	31	32	33	22	35
Garrison	32	33	18	27	26	23	37	29	20	32	35	35	27	32	22	36
Greer	29	33	23	28	26	28	35	26	19	35	35	32	28	33	24	32
Hatcher	-	-	19	-	-	-	-	26	18	-	-	-	-	-	-	-
Iba	30	32	22	29	26	-	34	28	19	32	34	33	31	33	23	33
Jackpot	30	32	25	28	25	26	38	29	20	35	36	36	30	34	24	37
Jagger	32	31	24	30	27	25	37	29	20	33	31	34	28	34	24	34
Mace	-	-	23	-	-	-	-	29	17	-	-	-	-	-	-	-
OK Bullet	33	35	-	30	26	28	40	-	-	36	36	36	32	37	23	37
Pete	-	30	-	-	24	-	37	-	-	30	29	31	28	32	22	36
Ruby Lee	36	31	24	30	35	28	40	33	21	34	36	35	30	36	25	38
Santa Fe	-	-	-	-	-	-	37	-	-	31	35	37	30	33	-	-
T153	-	-	21	-	-	-	-	29	16	-	-	-	-	-	-	-
T158	-	-	21	-	-	-	-	27	18	-	-	-	-	-	-	-
TAM 111	32	-	23	29	-	26	-	28	18	-	-	-	-	-	-	-
TAM 112	32	-	20	29	-	26	-	30	22	-	-	-	-	-	-	-
TAM 113	32	-	18	28	-	26	-	29	20	-	-	-	-	-	-	-
TAM 203	-	31	-	-	27	-	-	-	-	-	-	-	-	-	24	34
TAM 401	-	30	-	-	25	-	38	-	-	33	33	34	29	34	24	33
WB-Cedar	-	-	-	-	-	-	35	-	-	28	34	28	25	32	-	-
Winterhawk	31	-	23	28	-	27	-	27	20	-	-	-	-	-	24	32
OCW00S063S-1B	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-
OK05312	-	-	19	-	-	-	-	26	17	-	-	-	-	-	-	-
OK08229	-	-	20	-	-	25	-	28	17	-	-	-	-	-	-	-
OK08328	30	28	24	28	24	24	37	26	16	-	34	28	26	-	24	34
OK08413	-	-	-	-	-	-	-	-	-	34	-	-	-	-	-	-
OK08707W	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-
OK09125	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-
OK09634	32	32	-	-	-	-	-	-	-	-	36	32	-	37	-	-
OK0986146W	-	-	-	-	-	-	-	25	18	-	-	-	-	-	-	-
OK09915C	31	-	-	29	-	29	-	-	-	-	37	34	-	34	-	-

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Fall forage production and date of first hollow stem in winter wheat varieties during the 2011-2012 crop year

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Introduction

Fall forage production potential is just one consideration in deciding which wheat variety to plant. Dual-purpose wheat producers, for example, may find varietal characteristics such as grain yield after grazing and disease resistance to be more important selection criteria than slight advantages in forage production potential. Forage-only producers might place more importance on planting an awnless wheat variety or one that germinates readily in hot soil conditions. Ultimately, fall forage production is generally not the most important selection criteria used by Oklahoma wheat growers, but it is one that should be considered.

Fall forage production by winter wheat is determined by genetic potential, management, and environmental factors. The purpose of this publication is to quantify some of the genetic differences in forage production potential and grazing duration among the most popular wheat varieties grown in Oklahoma. Management factors such as planting date, seeding rate, and soil fertility are very influential and are frequently more important than variety in determining forage production. Environmental factors such as rainfall and temperature also play a heavy role in dictating how much fall forage is produced. All of these factors along with yield potential after grazing and the individual producer's preferences will determine which wheat variety is best suited for a particular field.

Site descriptions and methods

The objective of the fall forage variety trials is to give producers an indication of the fall forage production ability of wheat varieties commonly grown throughout the state of Oklahoma. The forage trials are conducted under the umbrella of the Oklahoma State University Small Grains Variety Performance Tests at our El Reno and Stillwater, OK test sites. Weather data for these two sites are provided in Figures 1 and 2. Please note the difference in scale on the rainfall data.

A randomized complete block design with four replications was used at each site. Forage was measured by hand clipping two 1-m by 1-row samples at random sites within each plot. Samples were then placed in a forced-air dryer for approximately 7 days and weighed. All plots were sown at 120 lb/A in a conventionally-tilled seedbed and received 50 lb/ac of 18-46-0 in furrow at planting. Fertility, planting date, and harvest date information are provided in Table 1.

Results

Extremely hot and extremely dry. There is no other way to describe the summer of 2011. Oklahoma farmers and ranchers entered the month of September 2011 with almost no soil moisture and extreme heat that quickly dissipated the little rainfall that occurred. Hay supplies were gone along with any remaining pastures, so the desperate need for forage of any kind pushed most producers to roll the dice and dust in wheat for pasture. A break from the extreme heat and a few timely rains in late September allowed wheat to establish itself but did not provide much opportunity for growth. The pattern of just enough moisture to survive persisted throughout the winter in western Oklahoma and the Panhandle.

Central and west-central Oklahoma was a different story. What began as a slow wheat forage year turned into one of the best wheat pasture years in recent memory for farmers and ranchers in this region. Timely rainfall throughout October, November, and December combined with one of the warmest winters on record resulted in rapid forage production and outstanding average daily gains. High levels of residual soil nitrogen (Table 1) left by failed crops in 2011 also spurred wheat forage production onward. In fact, many producers were unable to secure sufficient stocker cattle to keep up with wheat forage.

Fall forage production at Stillwater ranged from 2,980 lbs/ac (TAM 203) to 4,020 lbs/ac (Gallagher) with average

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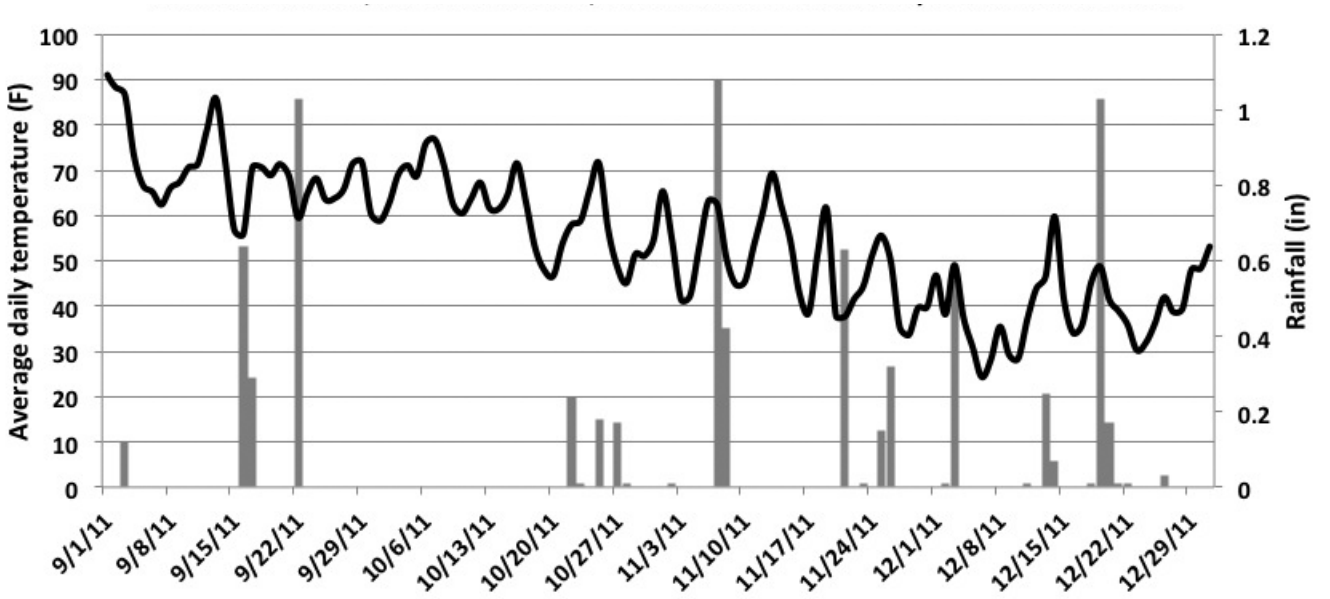

Figure 1. Average daily temperature (line graph) and rainfall (bar chart) from September 1 to December 31, 2011 at Stillwater, OK. Weather data courtesy Oklahoma Mesonet.

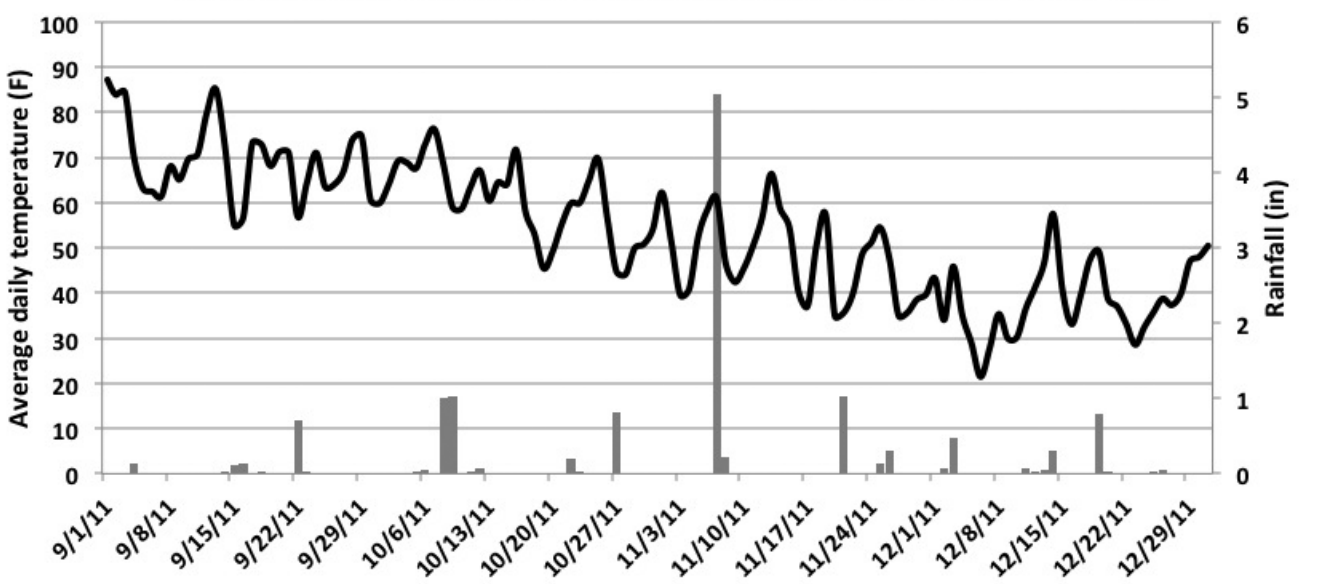

Figure 2. Average daily temperature (line graph) and rainfall (bar chart) from September 1 to December 31, 2011 at El Reno, OK. Weather data courtesy Oklahoma Mesonet.

Table 1. Location information for 2010-2011 OSU wheat forage trials.

	Planting date	*Sampling date*	*pH*	*N*	*P*	*K*
El Reno	09/27/11	01/06/12	6.8	119	71	337
Stillwater	09/20/11	12/12/11	5.7	286	157	373

Table 2. Fall forage production by winter wheat varieties at Stillwater, OK in 2011.

Source	*Variety*	*2011*	*2-Year*	*3-Year*	*4-Year*
		----------lbs dry forage/acre----------			
OSU	Gallagher	4,020†	-	-	-
UNL	Mace	3,870	3,230	-	-
CSU	Hatcher	3,830	3,380	-	-
OSU	Endurance	3,770	3,300	3,020	3,000
AgriPro	Fannin	3,760	3,320	3,130	3,240
OSU	Centerfield	3,730	3,260	2,930	3,030
KSU	Jagger	3,680	3,040	2,800	2,910
AgriPro	Doans	3,640	3,240	2,980	3,040
TAMU	TAM 111	3,640	3,170	2,870	2,990
LCS	T153	3,580	-	-	-
OSU	Duster	3,560	3,190	3,060	3,200
OSU	Iba	3,550	3,340	-	-
TAMU	TAM 401	3,520	3,090	2,920	-
OSU	Deliver	3,510	3,090	2,840	2,890
LCS	T-158	3,490	3,150	-	-
OSU	Ruby Lee	3,480	3,210	2,980	-
WestBred	Winterhawk	3,480	3,180	2,830	2,860
OSU	Pete	3,440	3,150	2,880	-
OSU	Garrison	3,430	3,070	2,660	-
KSU	Everest	3,400	2,910	2,600	-
OSU	Billings	3,360	3,160	2,930	-
TAMU	TAM 113	3,340	-	-	-
CSU	Bill Brown	3,330	3,250	-	-
AgriPro	CJ	3,330	-	-	-
AgriPro	Jackpot	3,330	3,040	2,860	2,990
WestBred	Armour	3,310	3,170	2,930	3,050
WestBred	Santa Fe	3,310	3,010	2,870	2,950
WestBred	WB-Cedar	3,280	2,990	-	-
TAMU	TAM 112	3,220	3,070	2,830	2,940
AgriPro	Greer	3,210	3,050	2,750	-
OSU	OK Bullet	3,190	2,950	2,870	2,990
KSU	Fuller	3,120	2,910	2,750	2,880
TAMU	TAM 203	2,980	2,800	2,810	2,850
	Average	**3,480**	**3,130**	**2,870**	**2,990**
	LSD	580	420	290	260

† Shaded numbers are not statistically different from the highest-yielding variety within a column.

Table 3. Fall forage production by winter wheat varieties at El Reno, OK in 2011.

Source	*Variety*	*2011*	*2-Year†*	*3-Year*
		----------lbs. dry forage/acre----------		
OSU	Ruby Lee	2,840‡	-	-
KSU	Jagger	2,770	2,760	2,310
AgriPro	Fannin	2,750	3,300	2,680
WestBred	Armour	2,700	3,190	2,680
OSU	Iba	2,670	-	-
AgriPro	Greer	2,660	3,100	-
KSU	Fuller	2,660	2,820	2,480
OSU	Deliver	2,600	2,880	2,440
WestBred	Santa Fe	2,580	2,850	2,370
OSU	OK Bullet	2,550	3,170	2,680
TAMU	TAM 401	2,540	2,960	-
OSU	Gallagher	2,520	2,670	-
OSU	Pete	2,480	2,720	-
OSU	Billings	2,400	3,060	-
OSU	Duster	2,380	2,940	2,530
OSU	Garrison	2,350	-	-
WestBred	WB-Cedar	2,350	2,730	-
AgriPro	CJ	2,270	-	-
KSU	Everest	2,270	2,800	-
OSU	Endurance	2,240	2,560	2,210
AgriPro	Jackpot	2,160	2,710	2,310
AgriPro	Doans	2,110	2,570	2,330
	Average	**2,490**	**2,880**	**2,460**
	LSD	550	460	370

† Data were not reported in 2009. 2-year averages include 2010 and 2011 data. 3-year averages include 2008, 2010, and 2011 data.
‡ Shaded cells within a column are not statistically different from the greatest value within that column

production of 3,480 lbs/ac (Table 2). Fall forage production at El Reno was slightly less, but still impressive, and ranged from 2,110 lbs/ac (Doans) to 2,840 lbs/ac (Ruby Lee) with average production of 2,490 lbs/ac (Table 3). As with previous years, there was a large grouping of high-yielding varieties with statistically equal forage production at both sites. This was true for both the single year results and the multi-year averages. Given the wide selection of varieties with suitable fall forage production, dual-purpose producers should also place heavy emphasis on the dual-purpose grain yield potential of these varieties and use grain yield after grazing as a selection tool for choosing among top forage producers.

First hollow stem data are reported in 'day of year' (day) format (Table 4). To provide reference, keep in mind that March 1 is day 61 (2012 is a leap year). Average occurrence of first hollow stem at Stillwater and El Reno in 2012 was day 52 and 55, respectively. This was eleven and nine days earlier than in 2011 and was the result of the warm winter, adequate rainfall, and high levels of residual nitrogen (Table 1, Figures 1 and 2). There was a 39-day range in occurrence of first hollow stem at Stillwater and a 17-day range at El Reno. The wider range of dates of first hollow stem at Stillwater was the result of a broader selection of varieties and more frequent early-season sampling. Even with this variation in date of first hollow stem between locations, the relative rankings of varieties (i.e. early, medium, or late) were fairly consistent.

Table 4. Occurrence of first hollow stem (day of year) for winter wheat varieties sown in 2011 and measured in 2012 at Stillwater and El Reno, OK.

Source	*Variety*	*Stillwater*	*El Reno*
		-----day of year-----	
AgriPro	Fannin	28	49
KSU	Jagger	33	50
AgriPro	Greer	40	55
TAMU	TAM 112	40	-
CSU	Hatcher	40	-
OSU	Gallagher	40	52
OSU	Billings	46	49
TAMU	TAM 401	46	47
KSU	Fuller	49	45
WestBred	Armour	49	55
OSU	Garrison	49	55
AgriPro	Jackpot	49	55
AgriPro	TAM 203	49	-
CSU	Bill Brown	49	-
WestBred	Santa Fe	51	55
KSU	Everest	51	50
TAMU	TAM 113	51	-
LCS	T153	51	-
OSU	Ruby Lee	52	58
WestBred	Winterhawk	53	-
AgriPro	CJ	53	55
OSU	OK Bullet	55	55
WestBred	WB-Cedar	55	55
AgriPro	Doans	55	69
OSU	Pete	55	58
OSU	Deliver	56	61
OSU	Duster	58	58
OSU	Iba	58	58
TAMU	TAM 111	60	-
AgriPro	AP503 CL2	60	-
OSU	Endurance	62	66
LCS	T158	62	-
OSU	Centerfield	64	-
OSU	2174	64	-
UNL	Mace	67	-
Experimentals			
	OCW00S063S-1B	28	-
	OK09634	33	-
	OK0986146W	51	-
	OK09125	55	-
	OK08229	56	-
	OK08707W	58	-
	OK08413	60	-
	OK05312	60	-
	OK08328	62	-
	OK09915C	62	-
	Average	**52**	**55**

Acknowledgments

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Seed donated by:

AgriPro Wheat, Vernon, TX
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Husker Genetics, Lincoln, NE
Kansas Wheat Alliance, Manhattan, KS
Limagrain Cereal Seeds, Ft. Collins, CO
Oklahoma Genetics Inc, Stillwater, OK
Watley Seed Company, Spearman, TX
WestBred LLC, Haven, KS

Seed Source Abbreviations

CSU = Colorado State University
KSU = Kansas State University
LCS = Limagrain Cereal Seeds
OSU = Oklahoma State University
UNL = University of Nebraska-Lincoln
TAMU = Texas AgriLife Research