OKLAHOMA SMALL GRAINS VARIETY PERFORMANCE TESTS 2008-2009

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Protein data will be reported in a separate publication in August of 2009

This and other wheat-related publications can be found at:

www.wheat.okstate.edu

2009 WHEAT CROP OVERVIEW

The 2008-2009 Oklahoma wheat crop will go down as one of the smallest crops on record. Oklahoma weather can be tough, and it is not uncommon for Oklahoma wheat producers to face drought, flood, disease, hail, cool weather, heat, and late-spring freezes. It is uncommon, however, for them to face all of these events during the same wheat production season. This perfect storm of adverse weather conditions devastated the 2008-2009 wheat crop.

A few timely rainfalls in September and October meant that conditions for sowing were generally favorable in areas north of Highway 51. South of highway 51 the rainfall events were less frequent, so good timing and a lot of luck were required to obtain adequate stands of wheat. Once wheat emerged, growth was slowed by dry soil conditions, inadequate rainfall, and limited soil nitrogen. Combined, these made for a lackluster fall forage production season in most of the state. Rainfall data are presented in Figure 1, and more information on fall forage production by winter wheat varieties in 2008 can be found in OSU Current Report # 2141.

Nitrogen fertilizer prices were still relatively high during sowing in 2008, and many producers opted to forgo pre-plant nitrogen fertilizer. This choice resulted in nitrogen-hungry wheat fields and was compounded by poor root growth and inadequate soil moisture limiting availability of soil nitrogen. Nitrogen prices moderated somewhat by topdress time and most producers chose to apply some topdress nitrogen during winter. Reports from sensor-based nitrogen trials in growers' fields around the state, however, indicate that the nitrogen requirement for wheat this year was greater than normal, and most producers under fertilized.

Several insect pests were present during the 2008-2009 production year. Moderate to severe drought prevented wheat from outgrowing damage caused by winter grain mites and brown wheat mites in some areas of the state. Aphids were present across most of the state, and fields infected with barley yellow dwarf were easy to find after greenup in the spring of 2009. While wheat streak mosaic virus, high plains virus, and Triticum mosaic virus were present in the Panhandle, some fields infected with barley yellow dwarf virus were misdiagnosed as having one of the other three viruses. Tissue samples revealed that other fields were affected by a complex of two or more of these viral diseases.

Hessian fly was barely a blip on the radar screen of Oklahoma wheat producers five years ago. Increased adoption of conservation and no-tillage production practices, however, has made Hessian fly a force to be reckoned with in Oklahoma. In fact, there were several reports of fields being "zeroed out" in southwest Oklahoma due to Hessian fly damage. Growers impacted by Hessian fly in 2009 are now strongly encouraged to plant a variety with some level of resistance to Hessian fly, such as Duster, Centerfield, or Shocker.

It was a relatively quiet year for foliar diseases of wheat, with a few reports of powdery mildew and leaf rust. Fungal disease of wheat came back with a vengeance at flowering, however. Fusarium head blight (a.k.a. head scab) was a major factor in north-central and eastern Oklahoma. Corn and/or wheat residue provided the inoculant and Mother Nature provided the persistent cool, damp conditions during flowering that are required for infection. Properly-timed foliar fungicides likely reduced the level of infection in some fields but did not eliminate the problem. The end result was low test weight wheat with marketing losses issues due to vomitoxin.

Weather was the biggest story of the 2008-2009 wheat crop. While the freeze events in March and April of 2009 received the most attention, drought had already severely limited the potential of much of the Oklahoma wheat crop prior to the freeze events. It was common to see wheat heading at a total plant height of only 8 – 10 inches, and in areas south of I-40 the freeze finished off what the drought had started.

The first spring freeze injury to wheat occurred over the four-day period from 26 March to 30 March 2009. Temperatures dipped below freezing over most of the state and the cold snap resulted in various levels of injury, from cosmetic damage in northern Oklahoma to total sterility in some fields in southern Oklahoma. Most years Oklahoma wheat would not be far enough along by the end of March for such an event to be of great concern; however, the warm temperatures during February and the extreme drought stress sped the wheat crop along in 2009. As a result, much of the crop in southwest OK was starting to head when the freeze occurred.

The entire state of Oklahoma dipped below freezing once again on the nights of April 6 & 7. In fact, many areas fell into the lower 20's or upper teens for several hours. These types of temperatures placed the entire wheat crop in jeopardy. We stopped at several of the variety trial locations and split stems of the earliest wheat varieties. If significant freeze injury was present, random tiller samples (primary and secondary) were collected from Overley, OK Bullet, Jagger, Duster, Doans and Endurance. Twenty-five random tillers from each variety were split and checked for injury.

Moderate freeze injury was found at the Cherokee location, but only minor damage was found at Alva, Kildare, and Afton. Rick Kochenower reported similar findings in the Panhandle, with early-sown fields showing injury and later-sown fields showing little to no injury. Outside of this northern tier of counties, however, the freeze injury increased dramatically. There were 40 to 88% non-viable (i.e. dead) tillers in our Lahoma samples. Marshall plots had 52 to 92% non-viable heads, and it appears that grazing had little effect on survival. Our Kingfisher plots were severely injured and our plots at Apache were a complete loss.

Most agronomists agree that cool, moist conditions are beneficial after freeze events, as they promote survival of secondary tillers. The problem in 2009, though, was that the cool, wet conditions persisted for a 14 – 20 day period and many fields remained waterlogged. Waterlogged conditions were not restricted to terrace channels and low-lying areas. As a result, large areas of fields turned white, and yield potential was reduced or eliminated.

Harvest began just before Memorial Day, but proceeded at a crawl due to rain and green "sucker" heads low in the canopy. By mid June the rains subsided and 100 F temperatures quickly ripened the green heads that remained. Harvest then proceeded rapidly and was nearly complete by July 1. Harvested acreage was 3.6 million acres or 80% of the 2008 harvested acreage. This reduction in harvested acres was in spite of a 5% increase in planted acres. Statewide average yield was not finalized at the time of this report, but it is a certainty that total production will be only a fraction of that produced in 2008.

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. 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) 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
Doans
Fannin
Jackpot
Jagalene
TAM 111
TAM 203
OK Rising (W)

Husker Genetics
Mace

Kansas Wheat Alliance
Fuller
Jagger
Overley

Oklahoma Genetics, Inc.
Billings
Centerfield
Duster
Guymon (W)
OK Bullet
Pete

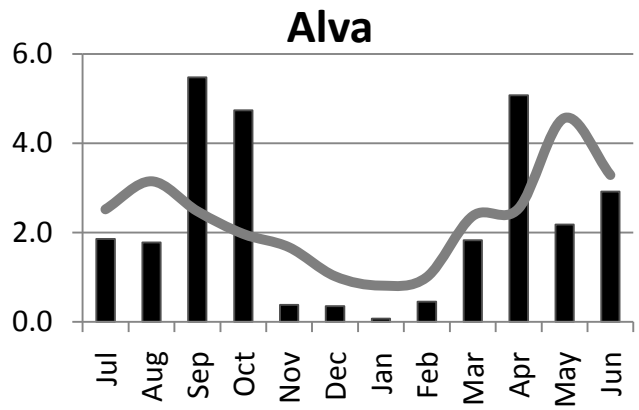
OK Foundation Seed
Deliver
Endurance

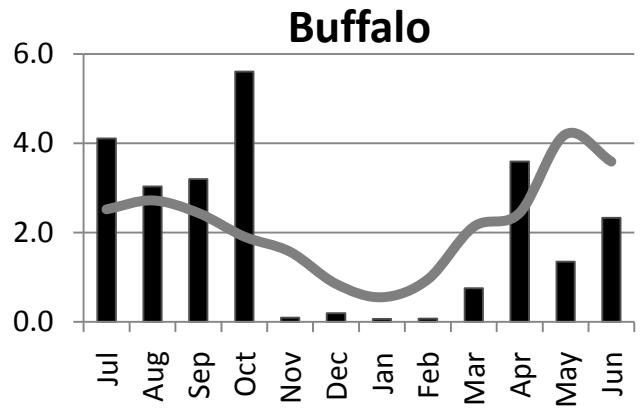
Scott Seed
TAM 304

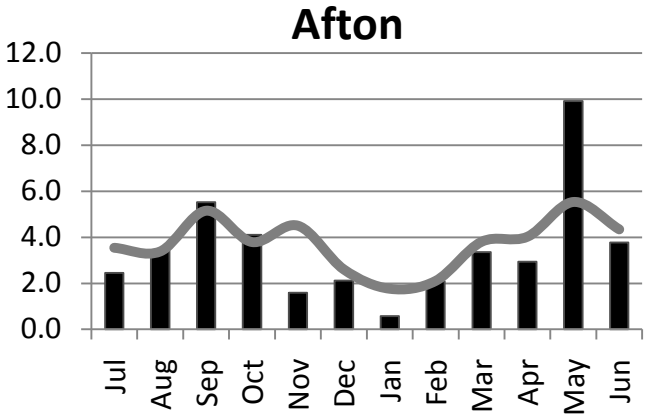
WestBred
Armour
Aspen (W)
Keota
Santa Fe
Shocker
Winterhawk

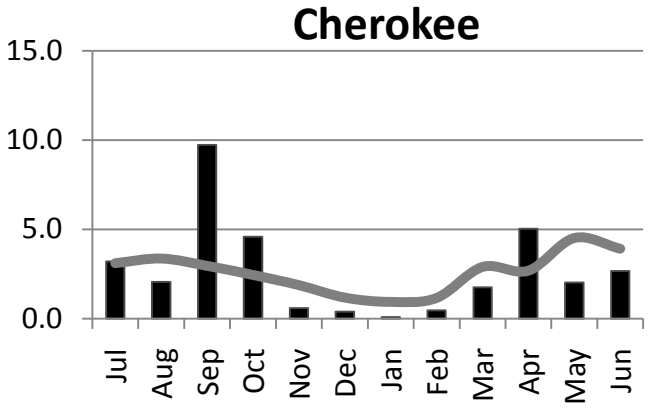
Whatley Seed
TAM 112

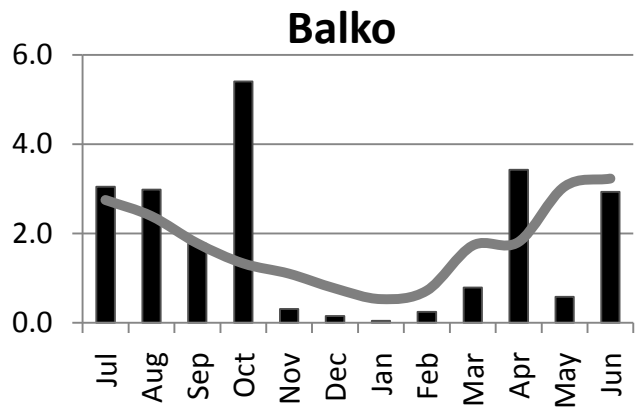
Figure 1. Rainfall (inches) during the 2008-09 wheat production season (bars) and 30-year average rainfall (smoothed lines) for wheat variety test sites

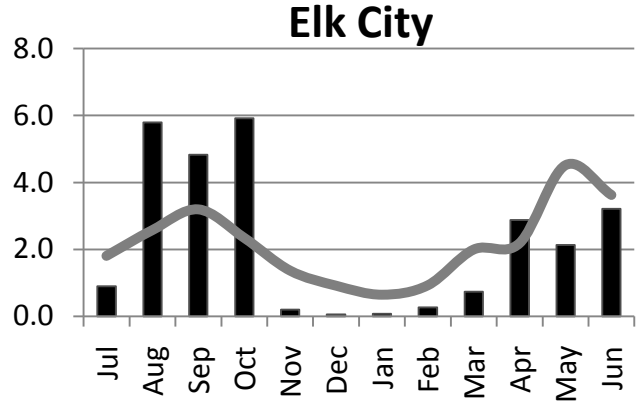












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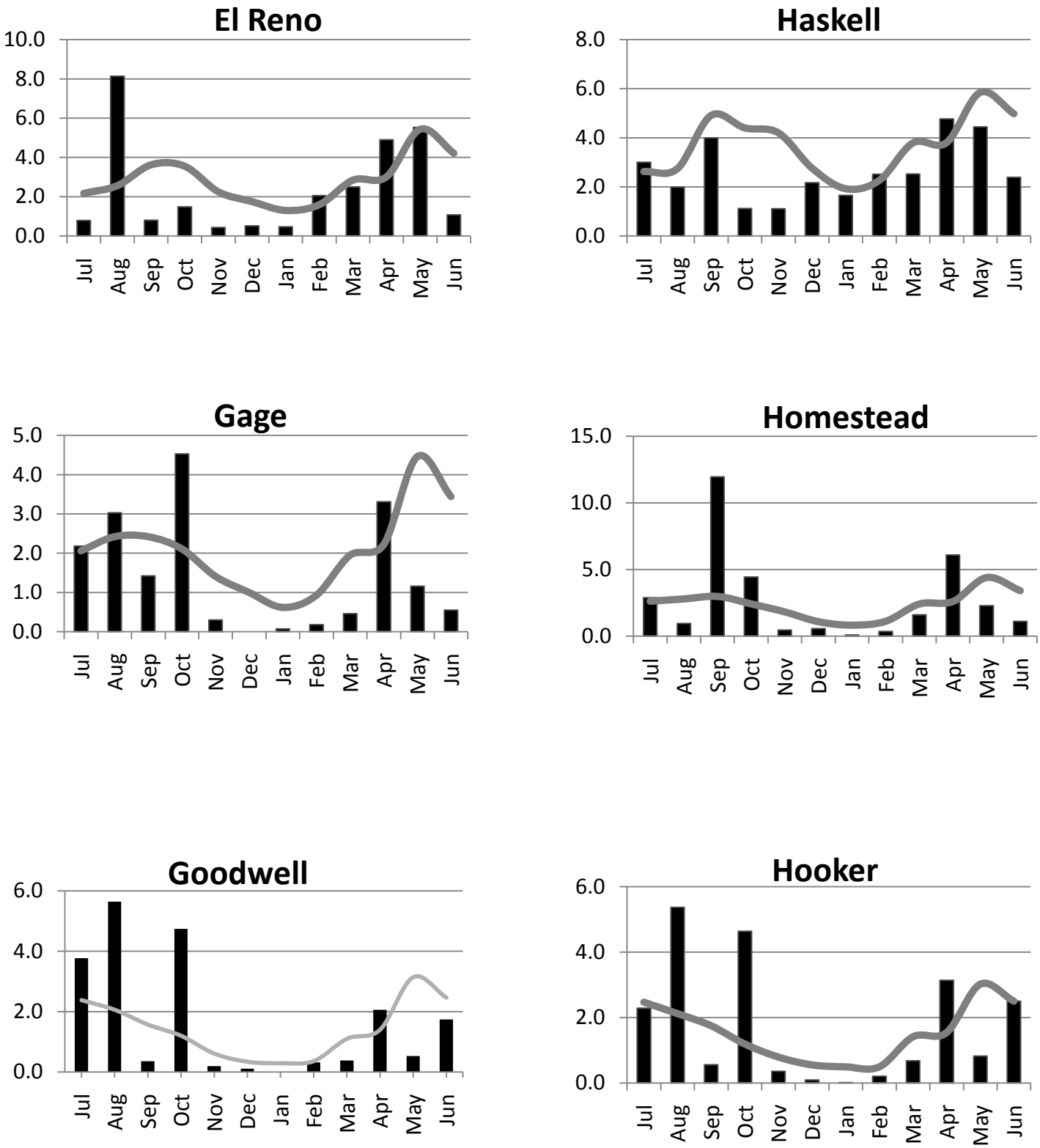

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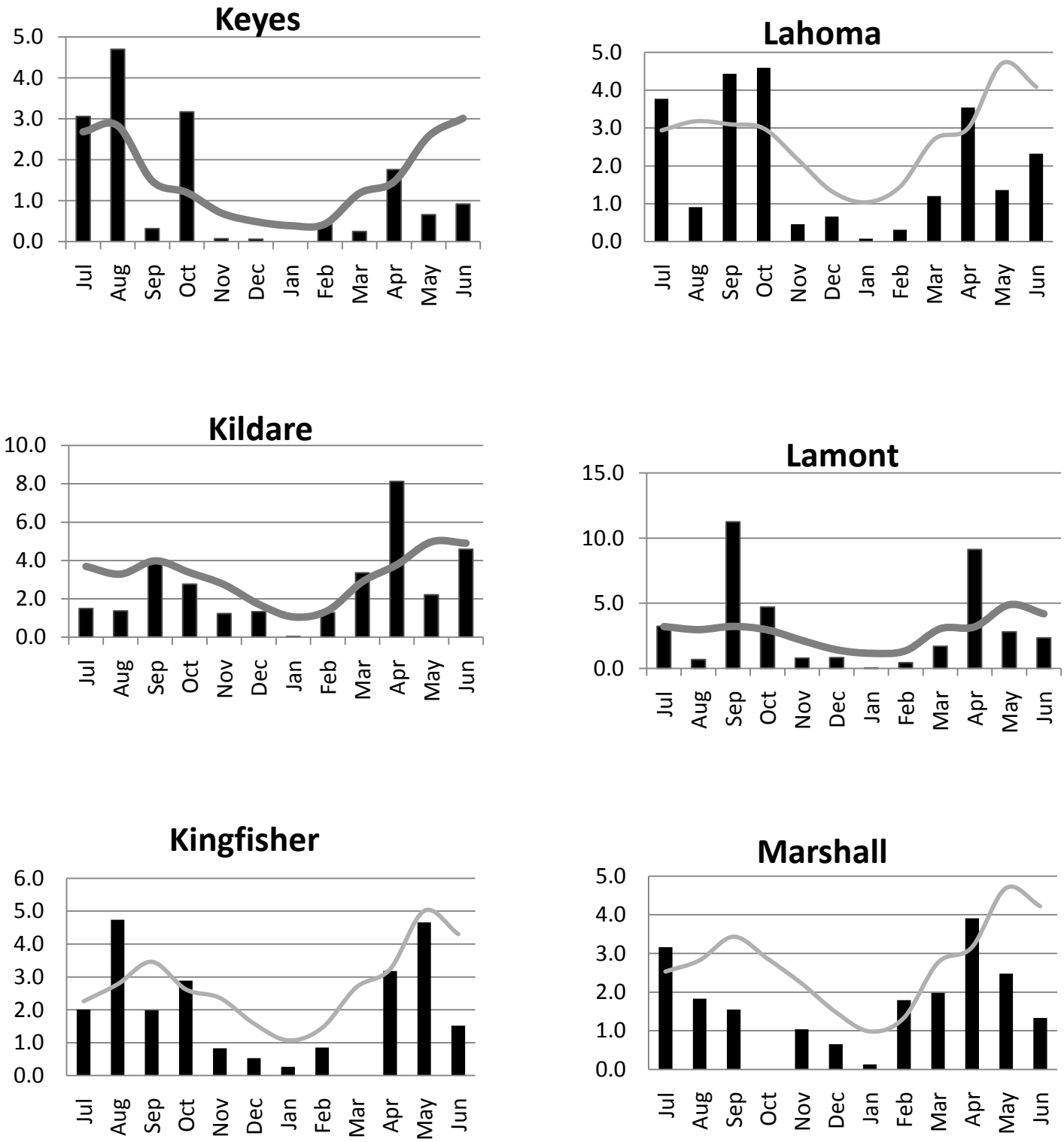

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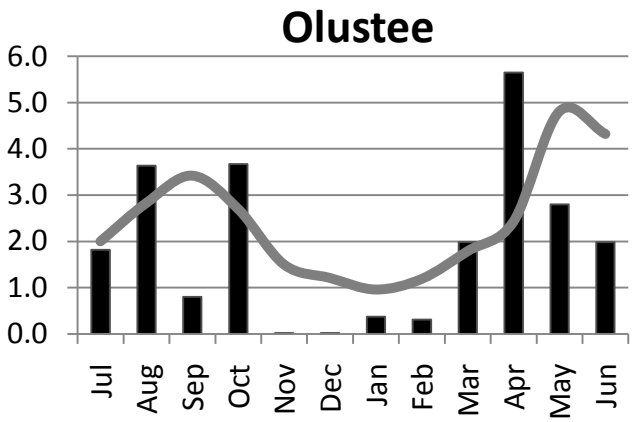

2009 Oklahoma Wheat Variety Trial Summary

Variety	Afton	Alva	Balko	Buffalo	Cherokee	Elk City	El Reno Conv Till DP	El Reno Conv Till GO	El Reno No Till DP	El Reno No Till GO	Gage	Goodwell NI
						bu/ac						
Armour	36	41	53	57	40	24	35	24	27	28	20	39
Aspen (W)	-	-	59	-	-	-	-	-	-	-	-	36
Billings	20	45	-	-	-	-	23	-	-	-	-	
Centerfield	22	44	46	61	38	24	30	36	25	28	26	33
Deliver	24	46	46	64	37	21	35	31	23	24	23	34
Doans	24	42	51	61	41	25	37	26	34	32	25	30
Duster	23	47	49	70	44	22	36	44	26	31	27	41
Endurance	31	51	59	74	48	26	43	36	31	31	29	44
Fannin	-	-	-	-	-	-	22	16	21	22	-	
Fuller	28	42	46	55	39	24	26	28	29	25	24	29
Guymon (W)	-	-	56	-	-	-	-	-	-	-	-	36
Jackpot	17	47	47	58	34	17	27	23	18	21	26	25
Jagalene	19	46	59	69	48	22	21	26	21	17	27	41
Jagger	24	45	54	54	36	22	19	15	20	16	27	29
Keota	-	41	49	69	41	21	-	-	-	-	29	41
Mace	-	-	55	-	-	-	-	-	-	-	-	29
OK Bullet	18	40	49	59	41	26	26	24	23	21	23	27
OK Rising (W)	16	40	47	53	33	21	22	26	19	19	19	24
Overley	14	44	52	61	36	21	22	19	19	14	25	39
Pete	12	45	50	-	37	16	15	-	-	-	23	33
Santa Fe	26	47	51	55	40	27	35	36	33	29	25	32
Shocker	23	42	49	49	31	22	26	13	28	25	21	25
TAM 111	-	41	55	65	39	27	-	-	-	-	26	38
TAM 112	-	45	58	63	40	27	-	-	-	-	30	44
TAM 203	29	48	54	63	44	27	33	38	27	29	26	34
TAM 304	16	-	-	-	-	-	-	-	-	-	-	40
Winterhawk	-	45	50	66	47	25	-	-	-	-	25	35
OK04315	-	-	-	-	-	26	29	-	-	-	-	
OK05312	-	-	60	-	-	-	-	-	-	-	-	38
OK05526	25	51	50	-	45	24	35	-	-	-	-	
OK05742W	-	-	-	-	-	24	-	-	-	-	-	
OK06114	-	-	-	-	-	-	-	-	-	-	-	
OK06729	-	-	-	-	-	-	-	-	-	-	-	
OK04525	-	49	-	-	-	25	-	-	-	-	-	
STARS 0601W	-	51	50	-	-	-	-	-	-	-	-	35
Mean	**22**	**45**	**52**	**61**	**40**	**23**	**28**	**27**	**25**	**24**	**25**	**34**
LSD (0.05)	**6**	**5**	**8**	**6**	**5**	**4**	**7**	**9**	**9**	**9**	**3**	6

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2009 Oklahoma Wheat Variety Trial Summary

	Haskell	Homestead Conv Till	Homestead No Till	Hooker	Keyes	Kildare	Kingfisher	Lamont	Lahoma	Lahoma fungicide	Marshall Dual Purpos	Marshall Grain Only	Olustee
Variety	----------	----------	----------	----------	----------	----------	**bu/ac**	----------	----------	----------	----------	----------	----------
Armour	24	35	35	10	36	31	34	37	62	69	6	25	24
Aspen (W)	-	-	-	16	48	-	-	-	-	-	-	-	-
Billings	15	-	-	-	-	31	29	36	49	52	4	16	-
Centerfield	19	36	38	17	38	30	36	46	54	58	7	22	23
Deliver	14	33	39	14	36	33	37	43	51	58	5	20	20
Doans	10	35	37	14	35	22	40	43	53	58	13	27	23
Duster	18	38	43	11	43	44	50	37	59	68	13	30	28
Endurance	20	39	40	18	50	32	44	46	62	67	8	31	23
Fannin	-	-	-	-	-	-	-	-	-	-	-	-	17
Fuller	18	35	37	10	36	34	32	38	50	56	10	21	25
Guymon (W)	-	-	-	16	37	-	-	-	-	-	-	-	-
Jackpot	12	34	32	11	32	32	34	37	50	51	7	17	23
Jagalene	17	32	36	11	44	30	41	43	51	65	5	13	27
Jagger	15	29	32	14	35	30	29	43	51	55	4	11	25
Keota	-	-	-	12	38	-	-	-	47	57	-	-	-
Mace	-	-	-	27	47	-	-	-	-	-	-	-	-
OK Bullet	18	36	33	14	33	30	40	38	48	57	10	17	29
OK Rising (W)	17	31	25	8	35	34	37	35	49	55	4	13	24
Overley	7	35	32	14	39	27	30	42	47	53	4	12	26
Pete	14	-	-	-	-	-	27	-	43	50	3	13	23
Santa Fe	18	38	37	9	34	39	40	48	67	61	10	25	27
Shocker	12	37	33	7	34	32	23	49	48	53	14	20	24
TAM 111	-	-	-	16	48	-	-	-	49	60	-	-	-
TAM 112	-	-	-	22	45	-	-	-	47	63	-	-	-
TAM 203	19	37	38	12	39	35	41	46	56	63	12	29	27
TAM 304	17	-	-	-	-	36	28	40	53	60	-	-	-
Winterhawk	-	-	-	19	37	-	-	-	59	57	-	-	-
OK04315	-	-	-	15	-	-	-	-	-	-	12	29	-
OK05312	-	-	-	-	43	-	-	-	-	-	-	-	-
OK05526	-	-	-	12	-	43	27	39	56	61	12	23	-
OK05742W	-	-	-	-	-	-	36	-	-	-	-	-	27
OK06114	-	-	-	-	-	32	-	42	53	61	-	-	-
OK06729	-	-	-	-	-	-	-	-	-	-	-	-	24
OK04525	-	-	-	-	-	36	-	-	-	-	-	-	23
STARS 0601W	-	-	-	-	-	-	-	-	-	-	-	-	17
Mean	**16**	**35**	**35**	**14**	**39**	**33**	**35**	**41**	**53**	**59**	**8**	**21**	**24**
LSD $_{(0.05)}$	**5**	**5**	**5**	**4**	**9**	**7**	**6**	**8**	**4**	**6**	**4**	**5**	**3**

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Afton Variety Trial

Cooperator: Greg Leonard **Tillage: Conventional till**
Soil type: Parsons silt loam **Management: Grain only**
Planting date: 10-14-08 **Previous crop: Corn**
Harvest date: 6-26-09 **Soil test information: pH = 6.9 , P = 104, K = 236**

Source	Variety	Grain Yield 2008-09	Test Weight 2008-09
		-----bu/ac----	-----lb/bu-----
WestBred	Armour	36	-
OSU	Endurance	31	-
TAMU	TAM 203	29	-
KSU	Fuller	28	-
WestBred	Santa Fe	26	-
OSU	Deliver	24	-
AgriPro	Doans	24	-
KSU	Jagger	24	-
WestBred	Shocker	23	-
OSU	Duster	23	-
OSU	Centerfield	22	-
OSU	Billings	20	-
AgriPro	Jagalene	19	-
OSU	OK Bullet	18	-
AgriPro	Jackpot	17	-
TAMU	TAM 304	16	-
OSU	OK Rising (W)	16	-
KSU	Overley	14	-
OSU	Pete	12	
Experimentals			
	OK05526	25	-
	Mean	22	-
	LSD $_{(0.05)}$	6	

(W) = Hard white wheat variety

Notes: Grain yield of all varieties was greatly reduced by waterlogged soil conditions and Fusarium head blight (scab). Grain yield was not sufficient to measure test weight.

Partial financial support provided by the Oklahoma Wheat Commission

Alva Variety Trial

Cooperator: Wes Mallory | **Tillage: Conventional till**
Soil type: Grant silt loam | **Management: Grain only**
Planting date: 10-29-08 | **Previous crop: Wheat**
Harvest date: 6-23-09 | **Soil test information: pH = 6.4, P = 71, K = 680**

Source	Variety	Grain Yield			Test Weight
		2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		---lb/bu---
OSU	Endurance	51	56	48	53
TAMU	TAM 203	48	-	-	52
WestBred	Santa Fe	47	54	47	51
OSU	Duster	47	56	49	52
AgriPro	Jackpot	47	56	-	53
AgriPro	Jagalene	46	52	41	53
OSU	Deliver	46	53	47	55
OSU	Billings	45	53	-	52
KSU	Jagger	45	52	42	51
TAMU	TAM 112	45	-	-	53
OSU	Pete	45	52	-	56
WestBred	Winterhawk	45	-	-	53
KSU	Overley	44	50	45	53
OSU	Centerfield	44	52	46	53
WestBred	Shocker	42	50	44	52
KSU	Fuller	42	55	48	52
AgriPro	Doans	42	52	46	56
WestBred	Keota	41	-	-	52
WestBred	Armour	41	-	-	50
TAMU	TAM 111	41	51	43	53
OSU	OK Bullet	40	50	45	54
OSU	OK Rising (W)	40	51	45	53
Experimentals					
	STARS 0601W	51	-	-	56
	OK05526	51	-	-	54
	OK04525	49	-	-	55
	Mean	45	53	45	53
	LSD $_{(0.05)}$	5	4	3	1

(W) = Hard white wheat variety

Partial financial support provided by the Oklahoma Wheat Commission

Balko Variety Trial

Cooperator: Kenton Patzkowsky **Tillage: No-till**
Soil type: Ulysses-Richfield complex **Management: Grain only**
Planting date: 9-24-08 **Previous crop: Wheat/fallow**
Harvest date: 6-25-09

Source	Variety	Grain Yield			Test Weight
		2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		---lb/bu---
OSU	Endurance	59	76	55	59
AgriPro	Jagalene	59	73	55	61
WestBred	Aspen (W)	59	-	-	61
TAMU	TAM 112	58	77	-	62
OSU	Guymon (W)	56	72	54	62
TAMU	TAM 111	55	76	57	60
UNL	Mace	55	-	-	60
TAMU	TAM 203	54	-	-	58
KSU	Jagger	54	69	51	59
WestBred	Armour	53	-	-	57
KSU	Overley	52	72	53	59
WestBred	Santa Fe	51	72	53	58
AgriPro	Doans	51	67	-	62
OSU	Pete	50	-	-	61
WestBred	Winterhawk	50	-	-	60
OSU	OK Bullet	49	70	54	61
WestBred	Shocker	49	65	-	58
WestBred	Keota	49	-	-	61
OSU	Duster	49	71	53	60
OSU	OK Rising (W)	47	-	-	60
AgriPro	Jackpot	47	-	-	60
KSU	Fuller	46	67	-	59
OSU	Centerfield	46	67	-	61
OSU	Deliver	46	65	47	61
Experimentals					
	OK05312	60	-	-	62
	OK05526	50	-	-	61
	STARS 0601W	50	-	-	62
	Mean	52	71	25	60
	LSD $_{(0.05)}$	8	6	4	1

(W) = Hard white wheat variety

Partial financial support provided by the Oklahoma Wheat Commission

Buffalo Variety Trial

Cooperator: NRCS | **Tillage: Conventional till**
Soil type: St. Paul silt loam | **Management: Grain only**
Planting date: 9-29-08 | **Previous crop: Wheat**
Harvest date: 6-22-09 | **Soil test information: pH = 7.3, P = 61, K = 592**

		Grain Yield			Test Weight
Source	Variety	2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		---lb/bu---
OSU	Endurance	74	69	58	57
OSU	Duster	70	67	57	57
WestBred	Keota	69	-	-	59
AgriPro	Jagalene	69	59	51	59
WestBred	Winterhawk	66	-	-	59
TAMU	TAM 111	65	62	52	56
OSU	Deliver	64	64	54	58
TAMU	TAM 112	63	-	-	57
TAMU	TAM 203	63	-	-	55
OSU	Centerfield	61	58	-	56
KSU	Overley	61	61	53	57
AgriPro	Doans	61	62	-	59
OSU	OK Bullet	59	61	52	58
AgriPro	Jackpot	58	-	-	56
WestBred	Armour	57	-	-	54
KSU	Fuller	55	60	-	56
WestBred	Santa Fe	55	60	-	54
KSU	Jagger	54	52	43	55
OSU	OK Rising (W)	53	58	-	57
WestBred	Shocker	49	54	-	54
	Mean	61	61	52	57
	LSD $_{(0.05)}$	6	3	3	1

(W) = Hard white wheat variety

Notes: Location not harvested in 2008 so 2 and 3-year averages use 2007 and 2006 data

Partial financial support provided by the Oklahoma Wheat Commission

Cherokee Variety Trial

Cooperator: Kenneth Failes **Tillage: Conventional till**
Soil type: Dale silt loam **Management: Grain Only**
Planting date: 10-1-08 **Previous crop: Wheat**
Harvest date: 6-23-09 **Soil test information: pH = 6.2, P = 66, K = 643**

		Grain Yield			Test Weight
Source	Variety	2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		-----lb/bu-----
OSU	Endurance	48	51	47	55
AgriPro	Jagalene	48	50	38	57
WestBred	Winterhawk	47	-	-	56
OSU	Duster	44	50	42	55
TAMU	TAM 203	44	-	-	54
WestBred	Keota	41	-	-	55
AgriPro	Doans	41	46	40	57
OSU	OK Bullet	41	45	40	57
WestBred	Armour	40	-	-	53
WestBred	Santa Fe	40	45	41	55
TAMU	TAM 112	40	-	-	56
TAMU	TAM 111	39	-	-	55
KSU	Fuller	39	43	40	55
OSU	Centerfield	38	43	40	55
OSU	Pete	37	-	-	56
OSU	Deliver	37	42	40	55
KSU	Overley	36	38	36	55
KSU	Jagger	36	43	36	55
AgriPro	Jackpot	34	41	-	54
OSU	OK Rising (W)	33	-	-	54
WestBred	Shocker	31	40	38	54
Experimentals					
	OK05526	45	-	-	56
	Mean	40	44	40	55
	LSD $_{(0.05)}$	5	5	4	1

(W) = Hard white wheat variety

Notes: Moderate freeze injury. Management was dual purpose in 2007-2008

Partial financial support provided by the Oklahoma Wheat Commission

Elk City Variety Trial

Cooperator: Carl Simon **Tillage: Conventional till**
Soil type: Grandfield sandy loam **Management: Grain Only**
Planting date: 9-30-08 **Previous crop: Wheat**
Harvest date: 6-15-09 **Soil test information: pH = 5.9, P = 38, K = 289**

		Grain Yield			Test Weight
Source	Variety	2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		-----lb/bu-----
TAMU	TAM 112	27	-	-	58
TAMU	TAM 203	27	-	-	56
TAMU	TAM 111	27	27	32	58
WestBred	Santa Fe	27	26	34	57
OSU	OK Bullet	26	28	38	59
OSU	Endurance	26	28	36	57
AgriPro	Doans	25	26	37	60
WestBred	Winterhawk	25	-	-	58
KSU	Fuller	24	27	36	58
OSU	Centerfield	24	25	32	57
WestBred	Armour	24	-	-	55
OSU	Duster	22	25	30	57
AgriPro	Jagalene	22	23	27	59
KSU	Jagger	22	23	29	57
WestBred	Shocker	22	21	33	56
KSU	Overley	21	20	29	58
OSU	Deliver	21	21	35	58
WestBred	Keota	21	-	-	58
OSU	OK Rising (W)	21	22	36	57
AgriPro	Jackpot	17	21	-	56
OSU	Pete	16	21	33	57
Experimentals					
	OK04315	26	-	-	58
	OK04525	25	-	-	59
	OK05526	24	-	-	57
	OK05742W (W)	24	-	-	58
	Mean	23	24	33	58
	LSD $_{(0.05)}$	4	2	1	1

(W) = Hard white wheat variety

Notes: Grain yield impacted by drought, freeze injury, and two hail storms after heading

Partial financial support provided by the Oklahoma Wheat Commission

El Reno Conventional Till Variety Trial

Cooperator: Bornemann Farms **Soil type: Pond creek silt loam** **Tillage:Conventional till**
Planting date: 9-25-08 **Management: Dual Purpose** **Previous crop: Canola**
Harvest date: 6-16-09 **Soil test information: pH = 5.6, P = 108, K = 362**

		Grain Yield									Test Weight		
		2008-09			2-year			3-year					
Source	Variety	Grazed	Non-grazed	*Diff.*	Grazed	Non-grazed	*Diff.*	Grazed	Non-grazed	*Diff.*	Grazed	Non-grazed	*Diff.*
		----------bu/ac----------									----------lb/bu----------		
OSU	Endurance	43	36	*-7*	58	55	*-3*	45	45	*0*	54	53	*-2*
AgriPro	Doans	37	26	*-11*	51	39	*-12*	41	33	*-8*	58	57	*-2*
OSU	Duster	36	44	*8*	62	64	*3*	47	52	*5*	53	55	*2*
WestBred	Santa Fe	35	36	*0*	50	52	*2*	38	42	*4*	54	57	*3*
OSU	Deliver	35	31	*-4*	51	42	*-9*	40	35	*-5*	55	57	*1*
WestBred	Armour	35	24	*-10*	-	-	-	-	-	-	52	53	*2*
TAMU	TAM 203	33	38	*4*	-	-	-	-	-	-	50	53	*3*
OSU	Centerfield	30	36	*5*	43	44	*0*	34	33	*-1*	52	56	*4*
AgriPro	Jackpot	27	23	*-4*	45	39	*-6*	-	-	-	51	54	*3*
WestBred	Shocker	26	13	*-13*	42	34	*-8*	33	30	*-3*	51	53	*1*
KSU	Fuller	26	28	*2*	48	49	*1*	37	41	*4*	53	58	*5*
OSU	OK Bullet	26	24	*-1*	42	45	*2*	34	37	*3*	53	53	*0*
OSU	Billings	23	-	-	-	-	-	-	-	-	51	-	-
KSU	Overley	22	19	*-3*	36	32	*-4*	29	32	*3*	51	56	*5*
AgriPro	Fannin	22	16	*-6*	34	36	*3*	25	31	*6*	53	56	*3*
OSU	OK Rising (W)	22	26	*4*	-	-	-	-	-	-	49	52	*3*
AgriPro	Jagalene	21	26	*5*	39	42	*3*	29	34	*5*	51	56	*5*
KSU	Jagger	19	15	*-4*	40	37	*-3*	29	31	*2*	49	52	*3*
OSU	Pete	15	-	-	-	-	-	-	-	-	50	-	-
	Experimentals												
	OK05526	35	-	-	-	-	-	-	-	-	55	-	-
	OK04315	29	-	-	-	-	-	-	-	-	53	-	-
	Mean	28	27	*-1*	46	43	*-3*	35	37	*2*	52	55	*3*
	LSD $_{(0.05)}$	7	9		7	7		5	5		2	4	

(W) = Hard white wheat variety

Notes: Non-grazed plots were sown earlier than recommended for grain-only production and do not represent full yield potential of varieties in a true grain-only system. Dual-purpose plots were grazed for 69 days. Stocking rate was 0.28 head per acre and average daily gain was 2.5 lb/hd/day.

Partial financial support provided by the Oklahoma Wheat Commission

El Reno No-Till Variety Trial

Cooperator: Bornemann Farms **Soil type: Pond creek silt loam** **Tillage: No-till**
Planting date: 9-25-08 **Management: Dual Purpose** **Previous crop: Canola**
Harvest date: 6-16-09 **Soil test information: pH = 5.1, P = 102, K = 279**

		Grain Yield								Test Weight		
		2008-09			2-year			3-year				
Source	Variety	Grazed	Non-grazed	*Diff.*	Grazed	Non-grazed	*Diff.*	Grazed	Non-grazed	*Diff.*	Grazed	Non-grazed	*Diff.*
		----------bu/ac----------									----------lb/bu----------		
AgriPro	Doans	34	32	*-2*	52	49	*-4*	45	42	*-3*	56	57	*2*
WestBred	Santa Fe	33	29	*-4*	59	56	*-3*	44	47	*3*	53	55	*2*
OSU	Endurance	31	31	*0*	56	54	*-2*	44	45	*1*	51	54	*3*
KSU	Fuller	29	25	*-4*	62	51	*-11*	48	44	*-4*	53	56	*4*
WestBred	Shocker	28	25	*-3*	53	47	*-6*	40	39	*-1*	51	55	*3*
TAMU	TAM 203	27	29	*2*	-	-	-	-	-	-	49	51	*3*
WestBred	Armour	27	28	*1*	-	-	-	-	-	-	49	51	*2*
OSU	Duster	26	31	*5*	60	59	*-1*	46	48	*2*	50	53	*3*
OSU	Centerfield	25	28	*4*	53	47	*-6*	39	35	*-4*	51	54	*3*
OSU	Deliver	23	24	*1*	53	48	*-5*	41	39	*-2*	51	55	*4*
OSU	OK Bullet	23	21	*-2*	52	50	*-2*	41	42	*1*	52	53	*1*
AgriPro	Fannin	21	22	*1*	40	40	*1*	29	34	*5*	53	55	*2*
AgriPro	Jagalene	21	17	*-4*	50	44	*-6*	37	36	*-1*	51	51	*0*
KSU	Jagger	20	16	*-4*	52	41	*-11*	38	34	*-4*	48	51	*3*
OSU	OK Rising (W)	19	19	*-1*	-	-	-	-	-	-	50	50	*-1*
KSU	Overley	19	14	*-5*	37	34	*-4*	31	33	*2*	50	52	*2*
AgriPro	Jackpot	18	21	*3*	52	46	*-7*	-	-	-	48	51	*3*
	Mean	25	24	*-1*	52	47	*-5*	40	40	*0*	51	53	*2*
	LSD $_{(0.05)}$	9	9		6	6		4	4		3	1	

(W) = Hard white wheat variety

Notes: Non-grazed plots were sown earlier than recommended for grain-only production and do not represent full yield potential of varieties in a true grain-only system. Dual-purpose plots were grazed for 69 days. Stocking rate was 0.28 head per acre and average daily gain was 2.5 lb/hd/day.

Partial financial support provided by the Oklahoma Wheat Commission

Gage Variety Trial

Cooperator: Curtis Torrance | **Tillage: Conventional till**
Soil type: St. Paul silt loam | **Management: Dual Purpose**
Planting date: 9-23-08 | **Previous crop: Wheat**
Harvest date: 6-24-09 | **Soil test information: pH = 7.8, P = 12, K = 464**

		Grain Yield			Test Weight
Source	Variety	2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		-----lb/bu-----
TAMU	TAM 112	30	-	-	59
OSU	Endurance	29	35	41	57
WestBred	Keota	29	-	-	59
AgriPro	Jagalene	27	34	36	59
KSU	Jagger	27	31	33	56
OSU	Duster	27	34	39	57
AgriPro	Jackpot	26	34	-	58
TAMU	TAM 111	26	33	38	58
OSU	Centerfield	26	31	34	57
TAMU	TAM 203	26	-	-	56
WestBred	Santa Fe	25	31	35	56
AgriPro	Doans	25	31	35	60
KSU	Overley	25	30	34	57
WestBred	Winterhawk	25	-	-	58
KSU	Fuller	24	32	40	56
OSU	OK Bullet	23	31	37	58
OSU	Pete	23	-	-	58
OSU	Deliver	23	28	35	57
WestBred	Shocker	21	27	31	56
WestBred	Armour	20	-	-	55
OSU	OK Rising (W)	19	28	34	56
	Mean	25	31	36	57
	$LSD_{(0.05)}$	3	2	2	1

(W) = Hard white wheat variety

Notes: Grain yield impacted by drought during fall and winter months. Plots were not grazed in 2006-07.

Partial financial support provided by the Oklahoma Wheat Commission

Goodwell Nonirrigated Variety Trial

Cooperator: OK Panhandle Research and Extension Center
Soil type: Richfield clay Loam **Tillage: No-till**
Planting date: 10-3-08 **Management: Grain only**
Harvest date: 6-19-09 **Previous crop: Wheat**

Source	Variety	Grain Yield		Test Weight
		2008-09	2-Year	2008-09
		-----bu/ac----		-----lb/bu-----
OSU	Endurance	44	61	60
TAMU	TAM 112	44	-	58
OSU	Duster	41	62	59
WestBred	Keota	41	-	59
AgriPro	Jagalene	41	58	59
TAMU	TAM 304	40	-	57
KSU	Overley	39	58	58
WestBred	Armour	39	-	58
TAMU	TAM 111	38	56	60
WestBred	Aspen (W)	36	-	59
OSU	Guymon (W)	36	52	61
WestBred	Winterhawk	35	-	60
TAMU	TAM 203	34	-	58
OSU	Deliver	34	53	59
OSU	Centerfield	33	46	60
OSU	Pete	33	-	60
WestBred	Santa Fe	32	52	59
AgriPro	Doans	30	47	60
KSU	Jagger	29	48	58
UNL	Mace	29	-	59
KSU	Fuller	29	54	58
OSU	OK Bullet	27	52	59
WestBred	Shocker	25	46	58
AgriPro	Jackpot	25	-	59
OSU	OK Rising (W)	24	49	59
Experimentals				
	OK05312	38	-	61
	STARS 0601W	35	-	59
	Mean	34	53	59
	LSD $_{(0.05)}$	6	8	1

(W) = Hard white wheat variety

Notes: Plots were not harvested in 2007-2008, so 2-year average includes 2006-2007 harvest year

Partial financial support provided by the Oklahoma Wheat Commission

Haskell Variety Trial

Cooperator: Eastern Research Station **Tillage: Conventional till**
Soil type: Taloka silt loam **Management: Grain only**
Planting date: 10-13-08 **Previous crop: Wheat**
Harvest date: 6-26-09 **Soil test information: pH = 6.4, P = 45, K = 209**

		Grain Yield			Test Weight
Source	Variety	2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		-----lb/bu-----
WestBred	Armour	24	-	-	-
OSU	Endurance	20	43	45	-
TAMU	TAM 203	19	-	-	-
OSU	Centerfield	19	35	38	-
KSU	Fuller	18	39	-	-
OSU	OK Bullet	18	34	38	-
OSU	Duster	18	40	43	-
WestBred	Santa Fe	18	35	38	-
OSU	OK Rising (W)	17	-	-	-
AgriPro	Jagalene	17	30	35	-
TAMU	TAM 304	17	37	-	-
OSU	Billings	15	-	-	-
KSU	Jagger	15	31	35	-
OSU	Deliver	14	35	35	-
OSU	Pete	14	-	-	-
AgriPro	Jackpot	12	32	-	-
WestBred	Shocker	12	29	-	-
AgriPro	Doans	10	31	-	-
KSU	Overley	7	26	32	-
	Mean	16	34	38	-
	$LSD_{(0.05)}$	5	4	2	

(W) = Hard white wheat variety

Notes: All plots had some bird damage and Overley was worst hit with > 60% injury. Grain yield of all varieties was greatly reduced by waterlogged soil conditions and Fusarium head blight (scab). Grain yield was not sufficient to measure test weight.

Partial financial support provided by the Oklahoma Wheat Commission

Homestead Variety Trial

Cooperator: Brook Strader
Soil type: Canadian fine sandy loam
Planting date: 11-3-08
Harvest date: 6-17-09

Management: Grain only
Tillage: Conventional till and No-till
Previous crop: Grain sorghum
Soil test information: pH = 6.0, P = 44, K = 451

		Grain Yield						Test Weight		
		2008-09			2-Year			2008-09		
Source	Variety	Conv. till	No till	*Diff.*	Conv. till	No till	*Diff.*	Conv. till	No till	*Diff.*
OSU	Duster	38	43	*4*	35	44	*9*	59	58	*-1*
OSU	Endurance	39	40	*1*	37	41	*4*	60	58	*-2*
OSU	Deliver	33	39	*6*	32	39	*7*	60	59	*-1*
TAMU	TAM 203	37	38	*1*	-	-	-	59	58	*-1*
OSU	Centerfield	36	38	*2*	35	39	*5*	59	58	*-1*
WestBred	Santa Fe	38	37	*-1*	38	39	*1*	60	59	*-2*
KSU	Fuller	35	37	*2*	36	43	*7*	58	57	*-1*
AgriPro	Doans	35	37	*2*	34	38	*5*	61	61	*0*
AgriPro	Jagalene	32	36	*5*	30	35	*5*	60	59	*-1*
WestBred	Armour	35	35	*0*	-	-	-	57	57	*0*
OSU	OK Bullet	36	33	*-3*	35	36	*1*	60	57	*-3*
WestBred	Shocker	37	33	*-4*	34	35	*2*	59	57	*-1*
KSU	Jagger	29	32	*3*	32	35	*4*	58	57	*-1*
AgriPro	Jackpot	34	32	*-2*	38	39	*1*	59	57	*-2*
KSU	Overley	35	32	*-3*	31	33	*2*	60	58	*-1*
OSU	OK Rising (W)	31	25	*-6*	-	-	-	58	55	*-4*
	Mean	35	35	*0*	34	38	*4*	59	58	*-1*
	LSD $_{(0.05)}$	5	4		5	5		1	2	

(W) = Hard white wheat variety

Partial financial support provided by the Oklahoma Wheat Commission

Hooker Variety Trial

Cooperator: Dan Herald
Soil type: Dalhart fine sandy loam
Planting date: 9-24-08
Harvest date:6-25-09

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

		Grain Yield				Test Weight
Source	Variety	2008-09	WSM rating	2-Year	3-Year	2008-09
				-----bu/ac----		-----lb/bu-----
UNL	Mace	27	1.0	25	-	58
TAMU	TAM 112	22	1.3	25	-	58
WestBred	Winterhawk	19	1.8	-	-	56
OSU	Endurance	18	3.3	23	40	55
OSU	Centerfield	17	3.0	-	-	57
TAMU	TAM 111	16	1.5	22	38	55
WestBred	Aspen (W)	16	4.0	-	-	55
OSU	Guymon (W)	16	2.8	21	-	58
KSU	Overley	14	2.3	-	-	55
AgriPro	Doans	14	3.5	-	-	58
OSU	Deliver	14	3.8	20	-	57
OSU	OK Bullet	14	1.5	21	38	56
KSU	Jagger	14	2.3	20	35	54
WestBred	Keota	12	2.0	-	-	55
TAMU	TAM 203	12	2.5	-	-	53
AgriPro	Jackpot	11	1.8	-	-	54
AgriPro	Jagalene	11	2.0	21	34	55
OSU	Duster	11	4.0	18	-	-
KSU	Fuller	10	2.5	20	-	51
WestBred	Armour	10	4.0	-	-	53
WestBred	Santa Fe	9	3.3	-	-	-
OSU	OK Rising (W)	8	2.3	-	-	-
WestBred	Shocker	7	3.8	-	-	-
Experimentals						
	OK04315	15	2.00	-	-	57
	OK05526	12	2.75	-	-	55
	Mean	14		21	37	55
	LSD $_{(0.05)}$	4		3	2	2

(W) = Hard white wheat variety

Wheat Streak Mosaic Virus ratings recorded by Dr. Bob Hunger on 05-14-2009. A 0-5 scale was used where:	
0=no symptoms/healthy	3=Moderate yellow and/or mosaic; some stunting
1=Very slight yellowing	4=Severe yellowiing and/or mosaic; moderate stunting
2=Mild yellow and/or mosaic; some stunting	5=Severe yellowing and/or mosaic; stunted; dead or nearly dead

Partial financial support provided by the Oklahoma Wheat Commission

Keyes Variety Trial

Cooperator: J.B. Stewart
Soil type: Richfield clay loam
Planting date: 9-29-08
Harvest date: 6-26-09

Tillage: Minimum-till
Management: Grain only
Previous crop: Grain sorghum

Source	Variety	Grain Yield			Test Weight
		2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		-----lb/bu-----
OSU	Endurance	50	38	48	59
TAMU	TAM 111	48	39	49	61
WestBred	Aspen (W)	48	-	-	60
UNL	Mace	47	35	-	60
TAMU	TAM 112	45	37	-	60
AgriPro	Jagalene	44	34	44	60
OSU	Duster	43	34	-	59
TAMU	TAM 203	39	-	-	58
KSU	Overley	39	-	-	58
OSU	Centerfield	38	-	-	60
WestBred	Keota	38	-	-	59
WestBred	Winterhawk	37	-	-	60
OSU	Guymon (W)	37	32	-	62
WestBred	Armour	36	-	-	58
OSU	Deliver	36	30	-	59
KSU	Fuller	36	27	-	59
OSU	OK Rising (W)	35	-	-	59
KSU	Jagger	35	24	37	58
AgriPro	Doans	35	-	-	60
WestBred	Shocker	34	-	-	58
WestBred	Santa Fe	34	-	-	58
OSU	OK Bullet	33	28	43	59
AgriPro	Jackpot	32	-	-	59
Experimentals					
	OK05312	43	-	-	60
	Mean	39	33	44	59
	LSD $_{(0.05)}$	9	5	3	2

(W) = Hard white wheat variety

Partial financial support provided by the Oklahoma Wheat Commission

Kildare Variety Trial

Cooperator: Don Schieber | **Tillage: No-till**
Soil type: Tabler Silt Loam | **Management: Grain only**
Planting date: 10-2-08 | **Previous crop: Soybean**
Harvest date: 6-25-09 | **Soil test information: pH = 5.8, P = 122, K = 414**

Source	Variety	Grain Yield		Test Weight
		2008-09	2-Year	2008-09
		-----bu/ac----		-----lb/bu-----
OSU	Duster	44	48	54
WestBred	Santa Fe	39	50	55
TAMU	TAM 304	36	46	52
TAMU	TAM 203	35	-	52
OSU	OK Rising (W)	34	36	55
KSU	Fuller	34	47	55
OSU	Deliver	33	41	56
WestBred	Shocker	32	44	55
AgriPro	Jackpot	32	41	53
OSU	Endurance	32	43	54
OSU	Billings	31	38	54
WestBred	Armour	31	-	53
AgriPro	Jagalene	30	38	55
OSU	Centerfield	30	38	55
KSU	Jagger	30	37	57
OSU	OK Bullet	30	35	55
KSU	Overley	27	35	55
AgriPro	Doans	22	35	55
Experimentals				
	OK05526	43	-	57
	OK04525	36	-	57
	OK06114	32	-	55
	Mean	33	41	55
	LSD $_{(0.05)}$	7	5	2

(W) = Hard white wheat variety

Partial financial support provided by the Oklahoma Wheat Commission

Kingfisher Variety Trial

Cooperator: Rodney Mueggenborg | **Tillage: Conventional till**
Soil type: Tillman silt loam | **Management: Grain only**
Planting date:10-9-08 | **Previous crop: Wheat**
Harvest date: 6-15-09 | **Soil test information: pH = 6.7, P = 29, K = 400**

Source	Variety	Grain Yield			Test Weight
		2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		-----lb/bu-----
OSU	Duster	50	57	56	59
OSU	Endurance	44	53	50	59
TAMU	TAM 203	41	48	-	57
AgriPro	Jagalene	41	51	46	61
WestBred	Santa Fe	40	48	48	59
AgriPro	Doans	40	49	45	60
OSU	OK Bullet	40	47	49	61
OSU	Deliver	37	43	42	60
OSU	OK Rising (W)	37	46	48	59
OSU	Centerfield	36	47	42	59
WestBred	Armour	34	-	-	57
AgriPro	Jackpot	34	47	-	59
KSU	Fuller	32	49	50	60
KSU	Overley	30	42	45	60
KSU	Jagger	29	42	42	59
OSU	Billings	29	43	45	59
TAMU	TAM 304	28	-	-	57
OSU	Pete	27	42	-	59
WestBred	Shocker	23	38	41	58
Experimentals					
	OK05742W	36	-	-	59
	OK05526	27	-	-	60
	Mean	35	47	46	59
	LSD $_{(0.05)}$	6	4	3	1

(W) = Hard white wheat variety

Partial financial support provided by the Oklahoma Wheat Commission

Lahoma Variety Trial

Cooperator: North Central Research Station
Soil type: Pond Creek Silt Loam
Planting date: 10-10-08
Harvest date: 6-18-09

Management: Grain only
Soil test information: pH = 6.4 , P = 32, K = 378
Previous crop: Wheat
Fungicide = 10 oz/A Stratego on 15 April 2009

		Grain Yield						Test Weight		
		2008-09			2-Year			2008-09		
Source	Variety	No Fungicide	Fungicide	*Diff.*	No Fungicide	Fungicide	*Diff.*	No Fungicide	Fungicide	*Diff.*
		bu/ac						lb/bu		
WestBred	Santa Fe	67	61	*-6*	70	69	*-1*	59	58	*-1*
OSU	Endurance	62	67	*5*	64	71	*7*	58	58	*0*
WestBred	Armour	62	69	*8*	-	-	-	58	58	*0*
WestBred	Winterhawk	59	57	*-2*	-	-	-	58	58	*0*
OSU	Duster	59	68	*9*	62	73	*11*	58	59	*1*
TAMU	TAM 203	56	63	*7*	67	73	*6*	56	57	*0*
OSU	Centerfield	54	58	*4*	57	63	*6*	57	58	*0*
TAMU	TAM 304	53	60	*7*	-	-	-	55	56	*1*
AgriPro	Doans	53	58	*5*	63	66	*3*	60	61	*1*
AgriPro	Jagalene	51	65	*14*	47	68	*21*	58	59	*1*
OSU	Deliver	51	58	*7*	59	67	*8*	59	59	*0*
KSU	Jagger	51	55	*5*	49	64	*15*	57	58	*0*
KSU	Fuller	50	56	*6*	62	68	*7*	58	59	*1*
AgriPro	Jackpot	50	51	*1*	65	73	*8*	58	58	*0*
OSU	Billings	49	52	*3*	63	65	*2*	57	56	*-1*
TAMU	TAM 111	49	60	*11*	-	-	-	57	59	*2*
OSU	OK Rising (W)	49	55	*7*	54	66	*12*	57	57	*0*
OSU	OK Bullet	48	57	*10*	50	65	*15*	59	60	*1*
WestBred	Shocker	48	53	*5*	64	68	*4*	57	58	*0*
WestBred	Keota	47	57	*10*	-	-	-	59	59	*0*
KSU	Overley	47	53	*6*	56	64	*8*	58	58	*1*
TAMU	TAM 112	47	63	*16*	-	-	-	58	60	*2*
OSU	Pete	43	50	*7*	-	-	-	59	59	*1*
Experimentals										
	OK05526	56	61	*5*	-	-	-	59	59	*0*
	OK06114	53	61	*8*	-	-	-	58	59	*1*
	Mean	53	59	*6*	60	68	*8*	58	58	*0*
	LSD $_{(0.05)}$	4	6		25	4		1	1	*NS*

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Lamont Variety Trial

Cooperator: Kirby Farms | **Tillage: Conventional till**
Soil type: Pond creek silt loam | **Management: Grain only**
Planting date: 11-4-08 | **Previous crop: Wheat**
Harvest date: 6-25-09 | **Soil test information: pH = 6.3 , P = 40, K = 459**

		Grain Yield			Test Weight
Source	Variety	2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		-----lb/bu-----
WestBred	Shocker	49	52	-	54
WestBred	Santa Fe	48	55	53	55
TAMU	TAM 203	46	-	-	53
OSU	Centerfield	46	46	44	56
OSU	Endurance	46	48	45	54
AgriPro	Doans	43	54	-	56
AgriPro	Jagalene	43	44	46	54
OSU	Deliver	43	45	42	55
KSU	Jagger	43	44	47	54
KSU	Overley	42	50	48	55
TAMU	TAM 304	40	52	-	52
KSU	Fuller	38	54	-	54
OSU	OK Bullet	38	43	45	56
AgriPro	Jackpot	37	54	-	55
WestBred	Armour	37	-	-	52
OSU	Duster	37	52	52	53
OSU	Billings	36	50	-	54
OSU	OK Rising (W)	35	42	43	55
Experimentals					
	OK06114	42	-	-	55
	OK05526	39	-	-	56
	Mean	41	49	46	55
	LSD $_{(0.05)}$	8	5	3	2

(W) = Hard white wheat variety

Partial financial support provided by the Oklahoma Wheat Commission

Marshall Variety Trial

Cooperator: Henry Fuxa | **Tillage: Conventional till**
Soil type: Kirkland silt loam | **Previous crop: Wheat**
Soil test information: pH = 5.3, P = 50, K = 386 | **Harvest date: 6-16-09**
Planting date: Dual purpose = 9-17-08; Grain only = 10-20-08

		Grain Yield								
		2007-08			2-Year			3-Year		
Source	Variety	Grain only	Dual purpose	*Diff.*	Grain only	Dual purpose	*Diff.*	Grain only	Dual purpose	*Diff.*
		----------bu/ac----------								
WestBred	Shocker	20	14	*-6*	39	34	*-5*	35	30	*-5*
AgriPro	Doans	27	13	*-13*	43	32	*-10*	40	28	*-12*
OSU	Duster	30	13	*-18*	48	36	*-11*	42	31	*-10*
TAMU	TAM 203	29	12	*-17*	47	37	*-10*	-	-	-
KSU	Fuller	21	10	*-11*	44	35	*-9*	42	29	*-13*
OSU	OK Bullet	17	10	*-7*	36	33	*-3*	36	29	*-8*
WestBred	Santa Fe	25	10	*-15*	41	32	*-9*	38	28	*-10*
OSU	Endurance	31	8	*-23*	46	34	*-13*	40	29	*-11*
OSU	Centerfield	22	7	*-15*	40	29	*-11*	34	23	*-12*
AgriPro	Jackpot	17	7	*-10*	42	34	*-8*	-	-	-
WestBred	Armour	25	6	*-19*	-	-	-	-	-	-
OSU	Deliver	20	5	*-15*	38	26	*-12*	36	24	*-12*
AgriPro	Jagalene	13	5	*-8*	25	26	*1*	24	21	*-3*
KSU	Overley	12	4	*-7*	36	32	*-5*	33	27	*-7*
KSU	Jagger	11	4	*-6*	27	31	*3*	25	24	*-2*
OSU	Billings	16	4	*-13*	38	30	*-8*	-	-	-
OSU	OK Rising (W)	13	4	*-9*	34	26	*-8*	41	24	*-17*
OSU	Pete	13	3	*-10*	-	-	-	-	-	-
Experimentals										
	OK04315	29	12	*-17*	-	-	-	-	-	-
	OK05526	23	12	*-10*	-	-	-	-	-	-
	Mean	21	8	*-13*	39	32	*-7*	36	27	*-9*
	LSD (0.05)	5	4		2	5		3	3	

Notes: Recovery from grazing impacted by drought. Grain yields were insufficient to obtain test weight measurements. Dual purpose plots were grazed from 4 December 2008 to 6 March 2009 (92 days). Average initial cattle weight was 534 lb and cattle were stocked at 0.446 head per acre. ADG was 2.52 lb/head/day.

Partial financial support provided by the Oklahoma Wheat Commission

Olustee Variety Trial

Cooperator: David Bush | **Tillage: Conventional till**
Soil type: Tillman silt loam | **Management: Grain only**
Planting date: 10-23-08 | **Previous crop: Wheat**
Harvest date: 6-8-09 | **Soil test: pH = 8.0, P = 21, K = 1040**

		Grain Yield			Test Weight
Source	Variety	2008-09	2-Year	3-Year	2008-09
			-----bu/ac----		-----lb/bu-----
OSU	OK Bullet	29	42	50	62
OSU	Duster	28	39	44	61
AgriPro	Jagalene	27	42	47	62
WestBred	Santa Fe	27	42	50	61
TAMU	TAM 203	27	43	-	59
KSU	Overley	26	41	50	61
KSU	Fuller	25	42	51	60
KSU	Jagger	25	41	48	60
WestBred	Armour	24	-	-	59
OSU	OK Rising (W)	24	-	-	60
WestBred	Shocker	24	39	46	59
OSU	Centerfield	23	37	43	60
AgriPro	Doans	23	37	44	61
OSU	Endurance	23	38	45	60
AgriPro	Jackpot	23	40	-	61
OSU	Pete	23	38	47	61
OSU	Deliver	20	39	45	58
AgriPro	Fannin	17	33	41	60
Experimentals					
	OK05742W	27	-	-	60
	OK06729	24	-	-	63
	OK04525	23	-	-	61
	STARS 0601W	17	-	-	60
	Mean	24	40	47	60
	LSD $_{(0.05)}$	3	3	2	1

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Hulless Barley Trials

Newkirk Cooperator: Don Merz **Marshall Cooperator: Henry Fuxa**
Buffalo Cooperator: NRCS

	Grain Yield			
Variety	Buffalo	Marshall Dual-Purpose	Marshall Grain Only	Newkirk
	----------bu/ac----------			
VA 125	33	14	34	25
EVE	29	23	38	24
VA03H-61	-	-	-	40
TAMBAR 501 check	-	-	-	18
Jagger Check	54	5	14	-
Duster Check	70	16	35	-
Mean	47	15	30	27
$LSD_{(0.05)}$	7	5	2	10

Notes: All yields, including barley, calculated using a 60 lb bushel weight

Partial financial support provided by the Oklahoma Wheat Commission

Plant height, lodging score, and heading date for selected variety trials in Oklahoma in 2009

	Plant Height											Lodging		Heading date	
	Balko	Buffalo	Keyes	El Reno Conv Till DP	El Reno Conv Till GO	El Reno No Till DP	El Reno No-till GO	Kingfisher	Lahoma	Lamont	Olustee	Alva	Buffalo	Lahoma	Stillwater early-sown
Variety	----------inches----------											0 - 10 scale†			
Armour	24	24	24	24	24	23	22	22	28	24	19	3	1	21-Apr	15-Apr
Aspen (W)	26	-	25	-	-	-	-	-	-	-	-	-	-	-	15-Apr
Billings	-	-	-	23	-	-	-	23	26	27	-	2	-	20-Apr	16-Apr
Centerfield	28	24	26	22	23	24	22	26	27	28	20	2	1	22-Apr	18-Apr
Deliver	28	26	28	24	28	26	22	24	31	30	20	3	2	25-Apr	17-Apr
Doans	28	28	36	24	26	25	23	25	30	29	20	2	2	21-Apr	19-Mar
Duster	29	25	28	24	27	24	23	25	29	28	23	4	3	23-Apr	18-Apr
Endurance	28	28	28	25	26	25	24	26	32	30	23	2	2	24-Apr	18-Apr
Fannin	-	-	-	22	24	22	22	-	-	-	20	-	-	-	14-Apr
Fuller	26	22	26	24	26	24	24	25	29	29	21	3	1	19-Apr	16-Apr
Guymon (W)	29	-	26	-	-	-	-	-	-	-	-	-	-	-	19-Apr
Jackpot	27	26	26	25	26	24	22	24	28	28	21	2	2	19-Apr	17-Apr
Jagalene	28	27	29	24	26	25	24	25	30	27	23	2	1	23-Apr	19-Mar
Jagger	26	24	26	22	25	23	21	24	27	28	21	5	3	20-Apr	17-Apr
Keota	31	29	30	-	-	-	-	-	32	-	-	2	2	25-Apr	18-Apr
Mace	30	-	28	-	-	-	-	-	-	-	-	-	-	-	21-Apr
OK Bullet	30	28	29	25	28	25	27	26	29	30	23	1	1	24-Apr	18-Apr
OK Rising (W)	28	27	28	24	26	25	24	26	29	30	22	1	1	23-Apr	17-Apr
Overley	30	24	29	23	24	24	23	24	30	30	22	2	1	22-Apr	15-Apr
Pete	26	-	-	24	-	-	-	21	28	-	19	2	-	16-Apr	14-Apr
Santa Fe	26	24	26	24	24	23	23	26	29	30	21	4	2	22-Apr	16-Apr
Shocker	28	23	27	23	24	23	22	23	29	32	21	3	2	21-Apr	15-Apr
TAM 111	30	26	29	-	-	-	-	-	30	-	-	1	2	24-Apr	20-Apr
TAM 112	26	26	28	-	-	-	-	-	29	-	-	5	4	17-Apr	17-Apr
TAM 203	28	25	26	25	26	25	22	24	29	30	22	2	2	25-Apr	18-Apr
TAM 304	-	-	-	-	-	-	-	23	27	24	-	-	-	19-Apr	15-Apr
Winterhawk	28	26	26	-	-	-	-	-	28	-	-	2	2	21-Apr	16-Apr
OK04315	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-
OK05312	30	-	28	-	-	-	-	-	-	-	-	-	-	-	18-Apr
OK05526	30	-	-	25	-	-	-	27	31	29	-	2	-	19-Apr	15-Apr
OK05742W	-	-	-	-	-	-	-	25	-	-	23	-	-	-	16-Apr
OK06114	-	-	-	-	-	-	-	-	27	28	-	-	-	20-Apr	14-Apr
OK06729	-	-	-	-	-	-	25	-	-	-	20	-	-	-	16-Apr
STARS 0601W	31	-	-	-	-	-	-	-	-	-	21	1	-	-	17-Apr

† Scale of 0 - 10 with 0 representing no lodging and 10 representing severe lodging

OKLAHOMA COOPERATIVE EXTENSION SERVICE CR-2141
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Current Report

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Fall forage production and date of first hollow stem in winter wheat varieties during the 2008-2009 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 winter wheat variety trials at the El Reno, Okla. and Stillwater, Okla. test sites. Weather data for these sites are provided in Figures 1 and 2.

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 lbs/acre. Conventional till plots received 50 lbs/acre of 18-46-0 in furrow at planting and no-till plots received 5 gal/acre of 10-34-0 at planting. Fertility, planting date and harvest date information are provided in Table 1.

Figure 1. Average daily temperature and rainfall from Sept. 1, 2008 to Dec 31, 2008, Stillwater, Okla.

Figure 2. Average daily temperature and rainfall from Sept. 1, 2008 to Dec 31, 2008, El Reno, Okla.

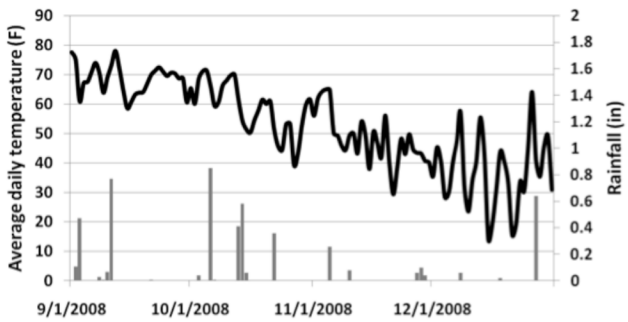

Table 1. Location information.

	Planitng date	*Sampling date*	*pH*	*P*	*K*
El Reno Conventional till	9/25/2008	12/11/2008	5.6	108	362
El Reno No-till	9/25/2008	12/11/2008	5.1	102	279
Stillwater	9/16/2008	12/02/2008	5.6	39	341

Results

There were no statistically-significant differences in fall forage production among wheat varieties within a location in 2008 (Table 2). Average fall forage production by conventionally-tilled winter wheat plots was 1,690 lbs/acre more at the Stillwater site than the El Reno site in 2008 (Table 2). This was partially due to a nine-day earlier planting date for the Stillwater site but also was attributable to greater plant-available moisture at the Stillwater location.

The lack of differences in forage yield among varieties further illustrates that most commercially-available wheat varieties can produce adequate fall forage when managed properly. While most varieties can produce adequate fall forage, the two and three-year averages (Tables 3 and 4) clearly show that some varieties routinely produce more forage than others when placed under similar management. This does not mean, however, that a high-yielding variety from our test will produce a bumper crop of forage when not managed properly. Similarly, some of the mid-tier and even lower-tier varieties in our test are excellent dual-purpose varieties due to traits such as late first hollow stem and prolific tillering.

Conventionally-tilled wheat plots produced 660 lbs/acre more forage yield than no-tillage plots at the El Reno site

Table 2. Fall forage production by winter wheat varieties sown in 2008 at Stillwater and El Reno. No statistical differences were observed among varieties.

Source	*Variety*	*Stillwater*	*El Reno Conv. till*	*El Reno No-till*	*No-till Difference*
		lbs dry forage/acre			
WestBred	Armour	3,400	1,660	900	-760
Oklahoma	Centerfield	3,340	1,610	950	-660
Oklahoma	Deliver	3,020	1,550	990	-560
AgriPro	Doans	3,220	1,840	860	-980
Oklahoma	Duster	3,620	1,700	1,160	-540
Oklahoma	Endurance	2,960	1,500	1,120	-380
AgriPro	Fannin	3,540	1,440	900	-540
Kansas	Fuller	3,280	1,800	960	-840
AgriPro	Jackpot	3,370	1,520	690	-830
AgriPro	Jagalene	3,180	1,720	910	-810
Kansas	Jagger	3,270	1,400	940	-460
WestBred	Keota	3,420	-	-	-
USDA-ARS	Mace	3,400	-	-	-
Oklahoma	OK Bullet	3,340	1,690	1,040	-650
Oklahoma	OK Rising	3,410	1,770	1,180	-590
Kansas	Overley	3,390	1,860	1,060	-800
WestBred	Santa Fe	3,160	1,420	680	-740
WestBred	Shocker	3,640	1,490	880	-610
Texas	TAM 111	3,350	-	-	-
Texas	TAM 112	3,280	-	-	-
Texas	TAM 203	2,990	1,420	840	-580
Texas	TAM 304	3,370	-	-	-
WestBred	Winterhawk	2,940	-	-	-
Average		3,300	1,610	950	-670
LSD		NS†	NS	NS	

† NS = differences among varieties within a location were nonsignificant at P = 0.05.

in 2008 (Table 2). Similar trends were observed in the two (710 lbs/acre difference) and three (790 lbs/acre difference) year data. These data were collected as part of a three-year, comprehensive experiment comparing no-till and conventional till wheat production practices, so it is important to reserve judgment on the two systems until final grain yield data are in and economic analyses performed. Nevertheless, our data have consistently shown less forage production in no-till plots than in conventional till plots.

The lesser forage production in no-till was probably due to several factors. Emergence was delayed in no-till plots in two years of the experiment due to drier soil conditions in the top 1.5 inches of the profile. In this situation, the final tillage operation brought enough moisture to the surface to allow for germination and adequate subsoil moisture was present to fuel early-season plant growth. Had adequate subsoil moisture not been present, the results would likely have been reversed. Other probable causes include cooler soil temperatures and shallow soil compaction, which may actually benefit grazing conditions by keeping cattle out of muddy conditions. It also is important to note that grain yields have been greater in no-till plots than conventional till plots some years of the experiment.

As mentioned previously, occurrence of first hollow stem dictates when cattle are removed from wheat pasture; therefore, fall forage numbers provided in this document describe the amount of forage available, but date of first hollow stem dictates how long the forage can be utilized. There was a 17-day difference between the earliest (Fannin) and latest (Centerfield & Mace) first hollow stem varieties at Stillwater in 2008. Unlike previous years, however, we observed no difference in date of first hollow stem between conventional till and no-till plots at El Reno.

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Table 3. Two-year average fall forage production by winter wheat varieties sown in 2007 and 2008 at Stillwater and El Reno.

Source	*Variety*	*Stillwater*	*El Reno Conv. till*	*El Reno No-till*	*No-till Difference*
		lbs dry forage/acre			
Oklahoma	Centerfield	**2,890**†	1,740	1,170	-570
Oklahoma	Deliver	2,520	**2,180**	**1,610**	-570
AgriPro	Doans	2,540	**2,320**	**1,290**	-1,030
Oklahoma	Duster	**2,970**	**2,220**	**1,450**	-770
Oklahoma	Endurance	2,390	**2,160**	**1,470**	-690
AgriPro	Fannin	**2,790**	**2,220**	**1,400**	-820
Kansas	Fuller	2,570	**1,970**	1,260	-710
AgriPro	Jackpot	2,670	**2,180**	**1,320**	-860
AgriPro	Jagalene	2,360	1,850	1,050	-800
Kansas	Jagger	2,270	1,690	1,140	-550
Oklahoma	OK Bullet	**2,760**	**2,030**	**1,370**	-660
Kansas	Overley	2,670	1,930	**1,390**	-540
WestBred	Santa Fe	2,370	**2,040**	1,150	-890
WestBred	Shocker	**2,770**	1,850	**1,320**	-530
Texas	TAM 203	2,370	-	-	-
Texas	TAM 304	**2,970**	-	-	-
Average		2,620	2,030	1,310	-710
LSD		290	360	330	

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

Table 4. Three-year average fall forage production by winter wheat varieties sown in 2006, 2007 and 2008 at Stillwater and El Reno.

Source	*Variety*	*Stillwater*	*El Reno Conv. till*	*El Reno No-till*	*No-till Difference*
		lbs dry forage/acre			
Oklahoma	Centerfield	**2,650†**	2,190	1,510	-680
Oklahoma	Deliver	2,390	**2,580**	**1,870**	-710
AgriPro	Doans	2,330	**2,650**	1,620	-1,030
Oklahoma	Duster	**2,670**	**2,640**	**1,810**	-830
Oklahoma	Endurance	2,210	**2,580**	**1,740**	-840
AgriPro	Fannin	**2,520**	**2,760**	**1,660**	-1,100
Kansas	Fuller	2,360	2,310	1,520	-790
AgriPro	Jagalene	2,150	2,230	1,340	-890
Kansas	Jagger	2,000	2,040	1,440	-600
Oklahoma	OK Bullet	**2,490**	2,380	**1,680**	-700
Kansas	Overley	2,370	2,210	**1,690**	-520
WestBred	Santa Fe	2,090	**2,530**	1,510	-1,020
WestBred	Shocker	2,410	2,290	**1,700**	-590
Average		2,360	2,410	1,620	-790
LSD		180	240	230	

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

Table 5. Occurrence of first hollow stem (day of year) for winter wheat varieties sown in 2009 at Stillwater and El Reno.

Variety	*Stillwater*	*El Reno Conv. till*	*El Reno No-till*	*Variety*	*Stillwater*	*El Reno Conv. till*	*El Reno No-till*
	day of year				*day of year*		
Fannin	52	-	-	OK Rising	63	-	-
Shocker	54	66	64	TAM 304	63	-	-
Billings	56	-	-	Pete	65	-	-
Jackpot	57	68	64	Aspen	66	-	-
Fuller	58	62	62	Deliver	66	68	75
Jagger	58	60	66	Doans	66	66	68
TAM 112	58	-	-	Duster	66	72	68
TAM 203	58	72	68	Keota	66	62	64
Santa Fe	59	62	66	TAM 111	66	-	-
OK Bullet	61	66	66	Winterhawk	66	64	68
Overley	61	64	66	Endurance	67	75	75
STARS 0601W	61	-	-	Centerfield	69	75	75
Armour	63	64	64	Mace	69	-	-
Guymon	63	-	-				
Jagalene	63	68	68	Average	62	67	67

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2009 Wheat Variety Comparison

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Oklahoma Cooperative Extension Fact Sheets are also available on our website at:
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Importance of Variety Selection

Variety selection will dictate many of the decisions made in producing a wheat crop. Reactions to foliar diseases or insects, for example, will determine which pesticides are needed and when. Therefore, wheat farmers should carefully review variety characteristics and choose varieties that match their management style. This publication is designed to help wheat farmers make educated decisions about which varieties to grow. Additional information on yield potential of varieties can be found at www.wheat.okstate.edu

Variety Source

The variety source listed in this Fact Sheet indicates the breeding program that released the variety. This may or may not be the same organization marketing the variety. The Oklahoma Crop Improvement Association (www.okcrop.com) can be contacted to obtain a listing of certified seed producers in Oklahoma.

Lodging

Lodging ratings are based on a 1 – 4 scale with 1 indicating good straw strength and 4 indicating a greater propensity for lodging. This rating represents the genetic propensity for lodging and does not account for environmental factors, such as excessive nitrogen fertilization, which can also lead to lodging.

First Hollow Stem

First hollow stem is the stage of growth when cattle should be removed from dual-purpose wheat pasture. A variety with a very late (VL) rating would offer one to two weeks more grazing in most years than a variety with a very early (VE) rating.

Maturity

Maturity ratings are based on observations within the OSU wheat breeding and variety testing programs. Spreading acreage among a range of wheat maturities is a good way to hedge against spring freeze injury, some wheat diseases, and to spread harvest workload.

High Temperature Germination Sensitivity

Some varieties do not germinate well in hot soils and are not good candidates for early sowing. This chart uses a 1 – 4 scale to rate varieties with a 1 indicating a variety that will germinate well in hot soils and a 4 indicating a variety that does not germinate well in hot soils and should not be sown before October 1. For more information on this topic consult OSU Extension Fact Sheet PSS-2256 "Factors Affecting Wheat Germination and Stand Establishment in Hot Soils."

Coleoptile Length

The coleoptile is a rigid, protective structure that covers the emerging shoot to aid it in reaching the soil surface. If the coleoptile does not reach the soil surface, the plant will die. Therefore, coleoptile length should dictate planting depth. Coleoptile length is highly correlated to plant height at maturity and is shortened by hot soil conditions. In this chart, a rating of 1 indicates a relatively long coleoptile and a rating of 4 indicates a relatively short coleoptile. For more information on this topic consult OSU Extension Facts PSS-2256 "Factors Affecting Wheat Germination and Stand Establishment in Hot Soils."

Hessian Fly

Hessian fly is an increasing problem in Oklahoma wheat fields. Hessian fly overwinters and oversummers in wheat residue, so it is most prevalent in, but not restricted to, continuous no-till wheat fields. Therefore growers who no-till wheat after wheat should consider sowing varieties that have a resistant (R) or at least partially resistant (PR) rating. Likewise, growers who sow prior to 1 October might benefit from a variety with an R or PR rating, as early-sowing is a risk factor for Hessian fly. For more information on best management practices for no-till wheat production, refer to OSU Extension Fact Sheet PSS-2132 "No-till Wheat Production in Oklahoma."

Acid Soil Tolerance

When soil pH drops below 5.5, essential plant nutrients can become unavailable while, some elements such as

aluminum, can become toxic. This publication uses a 1 – 5 scale, with 1 being most tolerant to low soil pH and 5 being least tolerant. Table 1 shows acceptable acid soil tolerance ratings for a range of pH conditions and production systems. It is also important to note in-furrow application of phosphorus at planting will increase early-season growth in most low-pH settings regardless of acid soil tolerance.

Table 1. Recommended acid soil tolerance ratings for given soil pH and production systems.

soil pH	*Grain only*	*Dual Purpose*
< 5.0	1	1
5.0 - 5.4	1-2	1
5.5 - 5.9	1-4	1-3
≥ 6.0	1-5	1-5

Wheat Streak Mosaic

Wheat streak mosaic virus is transmitted by the wheat curl mite. Mites oversummer on host crops such as corn, volunteer wheat, and many grassy weeds. Wheat curl mites have a life span of about 7 to 10 days, so the best way to combat this virus is to make sure that any host crops are completely dead (not just sprayed) at least two weeks prior to sowing. Tolerance ratings are on a 1 – 4 scale with 1 indicating tolerance and 4 indicating no tolerance. Wheat streak mosaic virus ratings adapted from Kansas State Publication MF-991. For more information on wheat streak mosaic virus, refer to OSU Extension Fact PSS-2136 "Considerations When Rotating Wheat Behind Corn."

Soil-borne Mosaic

Soil-borne mosaic virus is most prevalent in areas east of a line from Altus to Alva. Once a field has been infested with soil-borne mosaic, the only alternative is to plant resistant varieties. Susceptibility ratings are on a 1 – 4 scale with 1 being the most resistant and 4 indicating the least resistant. Fields with a history of soil-borne mosaic virus should only be sown to varieties with a 1 or a 2 rating.

Septoria and Tan Spot

Septoria and tan spot are two foliar diseases of wheat that become more prevalent with adoption of conservation and no-till farming practices. These diseases rarely reach economic threshold levels in tilled Oklahoma wheat fields, but growers employing conservation or no-till farming practices should avoid planting varieties highly susceptible to these diseases. Ratings are on a 1 – 4 scale with 1 indicating the most resistance and 4 indicating the least resistance.

Powdery Mildew

Powdery mildew is a very common foliar disease in Oklahoma, but one that rarely justifies a fungicide application by itself. Powdery mildew is generally most prevalent in early-sown wheat fields with adequate nitrogen fertility and dense plant canopies. Varieties with a 1 or 2 rating are not likely to be significantly impacted by powdery mildew. Varieties with a rating of 3 can have moderate amounts of powdery mildew if conditions are favorable for disease development. Varieties with a rating of 4 are most likely to have severe powdery mildew infestations and may require treatment.

Leaf Rust

Leaf rust probably has more impact on wheat yield in Oklahoma than any other foliar disease. While less aggressive than stripe rust, leaf rust occurs more frequently than stripe rust. For this reason, some producers choose to apply fungicides to control leaf rust if the crop yield potential and price warrant control. Ratings for leaf rust are on a 1 to 4 scale with 1 representing the greatest resistance to current disease races. It is important to note disease races can shift. So planting a variety with a rating of 1 will not eliminate the possibility of leaf rust, but will greatly decrease the likelihood that leaf rust reaches economic threshold levels. For more information on control of foliar diseases in wheat, consult OSU Extension Current Report CR-7668 "Foliar Fungicides and Wheat Production in Oklahoma."

Stripe Rust

Stripe rust is the most aggressive of the foliar diseases listed in this publication. Fortunately, stripe rust is not a widespread problem every year. This makes it difficult, however, to accurately track genetic resistance to stripe rust. Ratings for stripe rust are on a 1 to 4 scale with 1 representing the greatest resistance to current disease races. It is important to note disease races can shift. So planting a variety with a rating of 1 will not eliminate the possibility of stripe rust, but will greatly decrease the likelihood that stripe rust reaches economic threshold levels. For more information on control of foliar diseases in wheat, consult OSU Extension Current Report CR-7668 "Foliar Fungicides and Wheat Production in Oklahoma."

Variety Protection

Varieties listed as having PVP protection can only be sold as a certified class of seed. For more information on PVP protection laws, visit www.farmersyieldinitiative.com

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Wheat Variety Comparison Chart

Source	Entry	Lodging	First Hollow Stem	Maturity	High-temp germination sensitivity	Coleoptile Length	Acid Soil Tolerance	Hessian Fly	Wheat Streak Mosaic	Septoria	Soil-borne Mosaic	Leaf Rust	Stripe Rust	Powdery Mildew	Tan Spot	Variety Protection
HARD RED WINTER WHEAT VARIETIES																
AgriPro	AP502 CL	3	VE	VE	2	1	4	S	3	3	3	4	4	1	2	Y
AgriPro	Cutter	4	VE	M	4	3	1	S	3	3	1	4	1	4	4	Y
AgriPro	Doans	2	M	M	2	-	1	S	-	2	2	1	1	2	-	Y
AgriPro	Dumas	1	E	E	2	4	4	S	4	2	4	3	4	3	2	Y
AgriPro	Fannin	2	VE	VE	3	1	2	-	-	-	1	1	1	2	-	Y
AgriPro	Jagalene	2	E	E	3	2	1	S	3	2	1	4	1	4	3	Y
AgriPro	Jackpot	1	VE	E	2	-	1	-	-	-	1	1	-	-	-	Y
AGSECO	7853	3	VE	M	3	4	2	S	3	2	1	3	-	2	3	N
CSU	Above	2	VE	VE	2	2	4	S	3	3	4	4	4	1	2	Y
CSU	Hatcher	3	M	M	-	2	3	PR	4	3	3	3	2	-	3	Y
CSU	Ripper	1	VE	VE	-	2	4	S	3	-	-	4	4	-	-	Y
KSU	Karl 92	3	E	E	2	4	3	-	4	3	1	4	3	1	2	Y
KSU	2137	1	L	L	3	4	1	S	3	2	2	3	4	2	3	Y
KSU	2145	2	E	E	2	2	3	PR	4	2	1	1	2	3	4	Y
KSU	Fuller	2	VE	E	3	-	4	-	3	3	1	1	1	3	3	Y
KSU	Ike	3	VL	L	2	2	4	PR	4	3	4	4	3	2	4	Y
KSU	Jagger	3	VE	VE	1	2	1	S	3	1	1	4	1	4	2	Y
KSU	Overley	1	VE	VE	4	3	1	S	3	2	1	3	1	4	2	Y
UN-L	Scout 66	4	L	L	-	1	4	-	3	3	4	4	-	3	4	N
UN-L	Mace	1	VL	VL	-	-	-	-	-	-	3	-	-	-	-	-
OSU	Triumph 64	4	L	M	4	1	4	-	-	4	4	4	-	3	1	N
OSU	2174	1	VL	L	4	3	2	PR	4	2	1*	2	2	1	4	Y
OSU	Billings	2	E	E	1	3	2	-	4	2	1	1	1	2	3	Y
OSU	Chisholm	2	L	E	3	3	2	PR	-	3	4	4	1	3	4	N
OSU	Centerfield	2	VL	M	4	3	2	R	-	-	2	2	2	1	4	Y
OSU	Custer	2	E	E	1	3	4	-	-	3	4	3	4	1	3	N
OSU	Deliver	3	L	M	2	4	4	-	4	2	1	1	1	1	3	Y
OSU	Duster	3	M	M	1	3	1	R	4	3	1	1	2	2	4	Y
OSU	Endurance	2	VL	M	1	2	1	S	4	3	2*	2	2	2	3	Y
OSU	OK Bullet	1	E	E	1	2	2	S	3	3	2	3	1	3	3	Y
OSU	Ok101	2	E	VE	1	4	1	S	-	3	2	3	3	4	4	N
OSU	Ok102	1	VL	L	4	1	2	PR	-	3	1	2	4	2	4	N
OSU	Okfield	2	M	L	4	1	3	PR	-	3	4	3	3	1	3	Y
OSU	Pete	1	M	M	1	2	2	-	3	2	1	1	3	2	3	Y
TAMU	Lockett	4	E	VL	1	-	2	S	-	-	4	2	3	-	-	Y
TAMU	TAM 107	3	E	M	3	2	4	-	2	3	4	4	-	1	3	P
TAMU	TAM 110	2	VE	VE	2	1	4	S	3	3	4	4	4	1	4	Y
TAMU	TAM 111	3	M	M	3	1	4	S	4	2	3	3	4	4	3	Y
TAMU	TAM 112	4	VE	E	1	1	1	S	3	2	4	3	4	1	3	Y
TAMU	TAM 203	-	VE	E	4	-	4	-	-	-	1	2	2	3	-	Y
TAMU	TAM 304	-	M	M	3	-	2	-	-	-	2	1	2	2	-	Y
WestBred	Armour	1	E	M	-	3	1	S	3	3	1	1	3	1	2	Y
WestBred	Keota	1	L	L	-	2	2	S	4	3	1	4	2	4	4	Y
WestBred	Shocker	2	VE	E	4	3	1	PR	4	2	1	1	2	2	2	Y
WestBred	Santa Fe	2	VE	E	2	2	2	S	3	1	1	1	2	3	2	Y
WestBred	Winterhawk	2	L	L	-	3	3	S	4	3	1	3	2	3	3	Y
HARD WHITE WHEAT VARIETIES																
KSU	Danby	3	VL	M	4	3	3	-	3	4	4	4	1	4	4	Y
KSU	Heyne	3	VE	M	1	-	1	-	2	2	1	1	-	2	3	Y
KSU	Lakin	2	VL	M	1	4	3	-	3	4	2	3	4	4	3	Y
KSU	RonL	3	L	M	-	3	4	S	1	4	1	3	1	3	4	Y
KSU	Trego	4	L	M	2	3	4	S	3	3	2	4	4	3	4	Y
OSU	Guymon	3	VE	L	1	4	4	S	-	2	1	3	4	3	3	Y
OSU	Intrada	4	E	E	1	3	3	S	-	3	2	3	3	4	2	N
OSU	OK Rising	1	E	E	1	2	2	S	3	3	1	2	2	2	2	Y

General
1 = Excellent
4 = Poor

Maturity & FHS
VE = Very Early
E = Early
M = Medium
L = Late
VL = Latest

High-temp germ. sensitivity
1 = less sensitive
4 = very sensitive

Coleoptile
1 = Longest
4 = Shortest

Hessian Fly
S = Susceptible
PR = Partially resistant
R = Resistant

Variety Protection
N = Not protected
Y = PVP-Protected

* Reaction presented is to soilborne mosaic; reaction to spindle streak is a '3.'