



Fall Forage Production by Winter Wheat Varieties in Oklahoma

2007

Fall forage production by winter wheat is determined by several factors. Planting date and seeding rate are the two most influential factors that can be controlled by the farmer. Similarly, soil fertility plays a role in determining fall forage production by wheat. Environmental factors such as rainfall and temperature also play a heavy role in dictating how much fall forage is produced.

Wheat varieties differ in their ability to produce fall forage. To quantify these differences, the OSU small grains variety testing program measures fall forage production by wheat varieties. When evaluating these data it is important to remember that fall forage production is only part of the dual-purpose production system. First hollow stem, for example, will determine how long wheat can be grazed and has a large influence on the total amount of forage that might be harvested from a field.

Since occurrence of first hollow stem is so important, we also measure this phenological event at our Stillwater and El Reno locations (Table 1). Varieties differed by as much as 17 days in occurrence of first hollow stem in 2008. In 2007 we noted a delay in the onset of first hollow stem in our no-till plots at El Reno. While some differences were noted in 2008 too, the differences between conventional till and no-till were not as large as those recorded in 2007.

Table 1. Occurrence of first hollow stem (day of year) for winter wheat varieties sown in 2007 at El Reno and Stillwater, OK.

Seed source	Variety	Still-water	El	El	No-till diff
			Reno Con	Reno No Till	
-----DOY-----					
Oklahoma	Centerfield	78	83	83	0
Oklahoma	Custer	73	-	-	-
Kansas	Danby	80	-	-	-
Oklahoma	Deliver	75	77	77	0
AgriPro	Doans	73	74	77	3
Oklahoma	Duster	78	77	77	0
Oklahoma	Endurance	80	83	78	-5
AgriPro	Fannin	63	62	62	
Kansas	Fuller	64	74	72	-2
Oklahoma	Guymon	73	-	-	-
AgriPro	Jackpot	68	68	62	-6
AgriPro	Jagalene	78	80	74	-6
Kansas	Jagger	66	72	70	-2
Kansas	Lakin	80	-	-	-
Oklahoma	OK Bullet	75	80	78	-2
Oklahoma	Okfield	75	80	83	3
Kansas	Overley	64	74	72	-2
Westbred	Santa Fe	73	66	70	4
Westbred	Shocker	69	66	62	-4
AgriPro	TAM 111	75	-	-	-
Watley seed	TAM 112	67	-	-	-
AgriPro	TAM 203	66	-	-	-
Scott seed	TAM 304	67	-	-	-
Average		72	74	73	-1

Seed Treatment

We have evaluated the effect of various seed treatments on grain yield before, but this year we evaluated the effect of a fungicide seed treatment, Charter® from BASF, on forage yield (Figure 1.). Fungicide-treated wheat seed generally produced more forage than non-treated wheat seed. The increase associated with fungicide-seed-treatment was not always statistically significant, and varied by location. We will evaluate similar treatments in the future to see if this trend holds over time.

Fall Forage Data

Fall forage production ranged from 1,550 to 2,570 lb/ac at Stillwater and 1,180 to 3,000 lb/ac at El Reno (Table 2.). Centerfield, Duster, Okfield and TAM 304 were the top forage producers at Stillwater. Top forage producers at El Reno conventional till included Deliver, Doans, Duster, Endurance, Fannin, Jackpot and Santa Fe. OK Bullet, Overley and Shocker were also in the top grouping in the El Reno no-till test.

Regardless of the location, there were several varieties that produced acceptable forage yield. Several years of testing fall forage production by wheat have revealed that there are always a few shining stars at the top and a few varieties at the bottom, but most varieties fall in the middle range and have adequate forage production. Poor forage production by a variety can generally be overcome by planting earlier or increasing seeding rate. It is also important to view forage production data in conjunction with yield performance after grazing.

Figure 1. Effect of 3.1 fl oz per 100 wt Charter® fungicide seed treatment on fall forage production by four winter wheat varieties at El Reno and Stillwater, OK in 2007

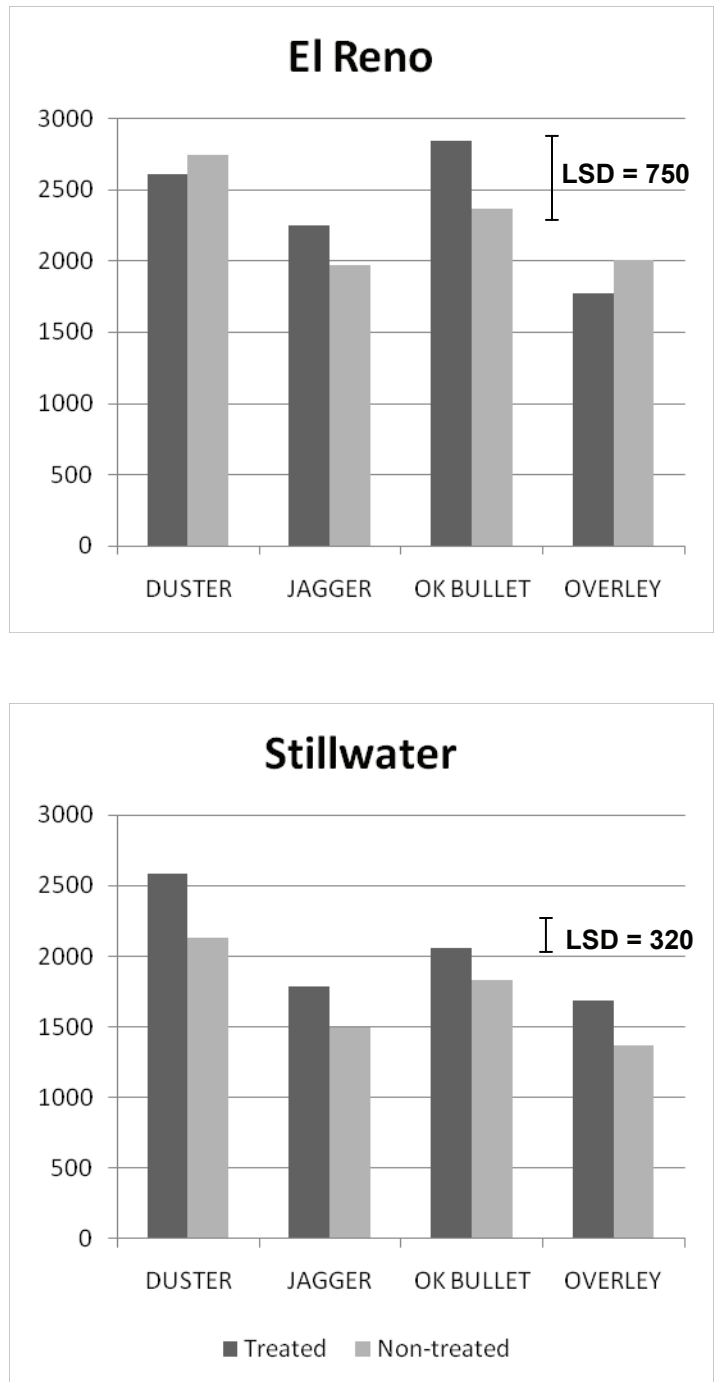


Table 2. Fall forage production by winter wheat varieties sown in 2007 at Stillwater and El Reno, OK

Seed source	Variety	Stillwater	El Reno Conv. Till	El Reno No-till	No-till Diff
-----lb/ac-----					
Oklahoma	Centerfield	2440 [†]	1880	1380	-500
Oklahoma	Deliver	2010	2800	2220	-580
AgriPro	Doans	1860	2800	1730	-1070
Oklahoma	Duster	2320	2740	1750	-990
Oklahoma	Endurance	1820	2810	1820	-990
AgriPro	Fannin	2050	3000	1890	-1110
Kansas	Fuller	1860	2140	1560	-580
AgriPro	Jackpot	1970	2840	1960	-880
AgriPro	Jagalene	1550	1980	1180	-800
Kansas	Jagger	1270	1970	1340	-630
Oklahoma	OK Bullet	2170	2370	1710	-660
Oklahoma	Okfield	2280	2270	1590	-680
Kansas	Overley	1950	2000	1720	-280
Westbred	Santa Fe	1580	2650	1620	-1030
Westbred	Shocker	1900	2220	1770	-450
AgriPro	TAM 111	2060	-	-	-
AgriPro	TAM 203	1740	-	-	-
Scott Seed	TAM 304	2570	-	-	-
Average		1970	2430	1680	-750
LSD		330	570		

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

This is the second year that our fall forage production has been less in no-till than in conventional-till plots. No-till plots produced an average of 750 lb/ac less forage than conventional till plots in 2007. When two-year average data are evaluated (Table 3—next page) no-till plots average 870 lb/ac less forage than conventional-till plots. Anecdotal evidence suggests the decreased forage production might be offset by increased load-bearing strength of no-till fields. This increased load bearing strength decreases the amount of mud created by hoof traffic and decreases the maintenance energy required for cattle to move through the field. This hypothesis is not tested in our current experiment, however, and our data show thus far that fall forage production is lower in no-till systems than in conventional-till systems. We will continue to measure this parameter in coming years to see if the trend reverses.

Table 3. Fall forage production by winter wheat varieties sown in 2006 and 2007 at Stillwater and El Reno, OK

Seed source	Variety	Stillwater	El Reno	El Reno	No-till Diff
			Conv. Till	No-till	
-----lb/ac-----					
Oklahoma	Centerfield	2410†	2630	1860	-770
Oklahoma	Deliver	2270	2990	2130	-860
AgriPro	Doans	2130	2990	1940	-1050
Oklahoma	Duster	2360	3060	2160	-900
Oklahoma	Endurance	2030	3000	2000	-1000
AgriPro	Fannin	2250	3290	1930	-1360
Kansas	Fuller	2160	2660	1780	-880
AgriPro	Jagalene	1930	2600	1640	-960
Kansas	Jagger	1730	2400	1730	-670
Oklahoma	OK Bullet	2220	2740	1980	-760
Oklahoma	Okfield	2380	2750	2010	-740
Kansas	Overley	2080	2490	1980	-510
Westbred	Santa Fe	1800	3010	1870	-1140
Westbred	Shocker	2050	2730	2070	-660
AgriPro	TAM 111	2180	2820	2070	-750
Average		2130	2810	1940	-870
LSD		270	450		

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



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About the OSU variety trials

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. Similar to previous years, the forage trials are conducted under the umbrella of the Oklahoma State University winter wheat variety trials.

Nonirrigated fall forage variety trials were sown at El Reno and Stillwater, OK. All plots were sown at 120 lb/A. Conventional-till plots received 50 lb/ac of 18-46-0 in furrow at planting and no-till plots received 5 gal/A of 10-34-0 at planting. Additional location information is listed below.

Location information

	Planting date	Sampling date	pH	P	K
El Reno	9-17-07	12-06-07	4.7	116	264
Stillwater	9-14-08	12-04-07	5.7	50	369

Cooperators

Jeff Edwards, Richard Austin, Brett Carver, Brad Tipton, Dillon Butchee, and Jerret Sanders, Oklahoma State University, Department of Plant and Soil Sciences.

Bornemann Farms, El Reno, Oklahoma

For more information visit the OSU small grains web site at www.wheat.okstate.edu

Jeff Edwards, PhD
Small Grains Extension Specialist, Oklahoma State University