



Current Report

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Fall forage production and date of first hollow stem in winter wheat varieties during the 2014-2015 crop year

Jeff Edwards
Small Grains Extension Specialist

Robert Calhoun
Senior Agriculturalist

Matt Knori
Research Technician

Romulo Lollato
Graduate Research Assistant

Giovana Cruppe
Graduate Research Assistant

Introduction

Fall forage production potential is just one consideration in deciding which wheat variety to plant. Dual-purpose wheat producers 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 Chickasha and Stillwater test sites. Weather data for these two 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 approximately ½ inch above the soil surface 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/A of 18-46-0 in furrow at planting. Fertility, planting date and harvest date information are provided in Table 1.

Results

A few timely rains make a world of difference for fall wheat forage production. Most wheat was sown into limited topsoil moisture with little or no subsoil moisture to serve as a backup. There were few large rainfall events in the fall of 2014, but the smaller, timely rainfalls that fell across much of Oklahoma were just enough to build and maintain an adequate bumper fall wheat forage crop. Average fall forage production at Stillwater was 2,700 lb/A, approximately 500 lb/A less than in 2013 (Table 2). Average fall forage production at Chickasha was 3,520 lb/A approximately 1,000 lb/A more than in 2013 (Table 3). While the forage production at both locations (approximately 90 miles apart) would be considered very good by any standards, the difference in production between the locations illustrates that slight differences in planting date and rainfall can have an impact on forage production.

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 60. Average occurrence of first hollow stem at Stillwater in 2015 was day 65. This was 12 days earlier than 2014 and seven days earlier than in 2013. In 2014, there was only 14 days difference between the earliest and latest varieties in terms of first hollow stem. In contrast, there was 30 days separating the earliest and latest varieties in 2015 and some varieties reached first hollow stem earlier (e.g. Winterhawk) or later (e.g. Pete) than normal. Occurrence of first hollow stem is governed by several variety specific factors, so it is difficult to identify a single cause for the deviation from normal in first hollow stem rankings.

Acknowledgments

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Seed Sources and Abbreviations

AGSECO = AGSECO Inc.
KWA = Kansas Wheat Alliance
LCS = Limagrain Cereal Seeds
OGI = Oklahoma Genetics Inc.
OSU = Oklahoma State University
PlainsGold = PlainsGold Seeds
Syngenta = Syngenta Seeds
TAMU = Texas Agrilife Research
Watley = Watley Seeds

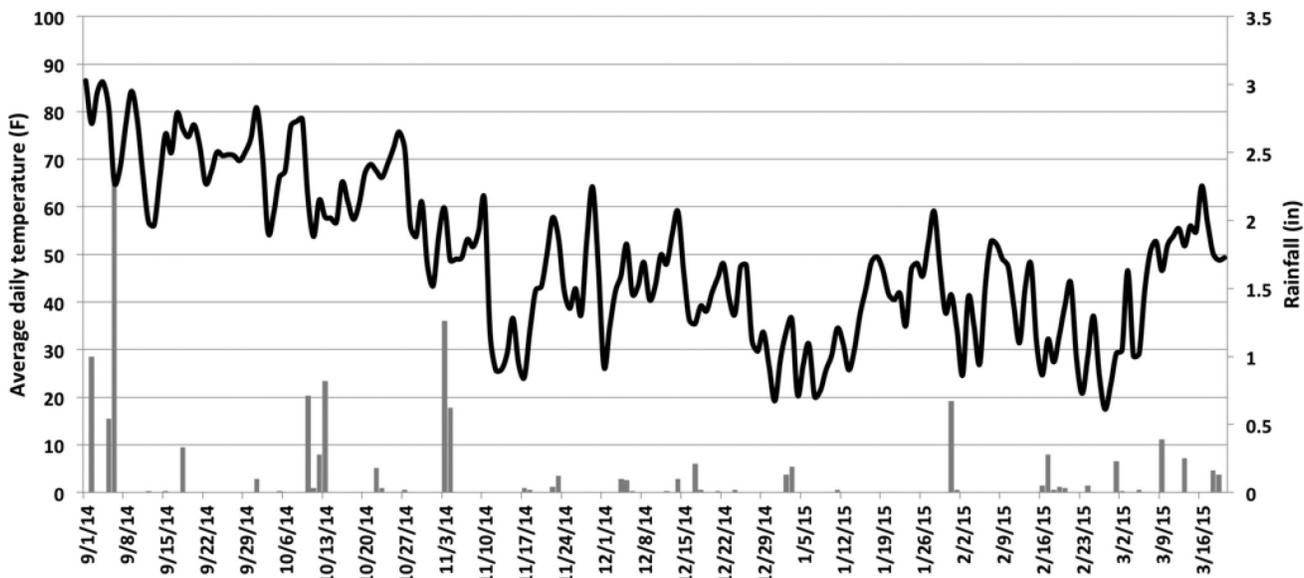


Figure 1. Average daily temperature (line graph) and rainfall (bar chart) from September 1, 2014 to March 20, 2015 at Stillwater, OK. Weather data courtesy Oklahoma Mesonet.

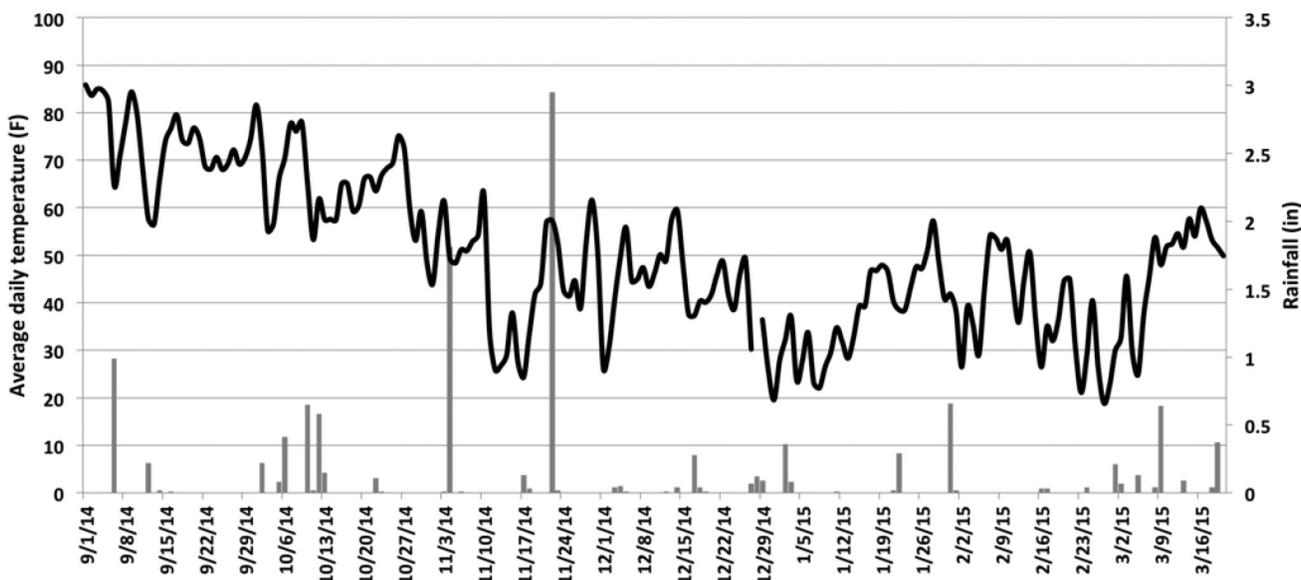


Figure 2. Average daily temperature (line graph) and rainfall (bar chart) from September 1, 2014 to March 20, 2015 at Chickasha, OK. Weather data courtesy Oklahoma Mesonet.

Table 1. Location information.

	<i>Planting date</i>	<i>Sampling date</i>	<i>pH</i>	<i>N</i>	<i>P</i>	<i>K</i>
Chickasha	09/17/14	12/08/14	6.9	151	65	404
Stillwater	09/24/14	12/11/14	5.5	133	58	283

Table 2. Fall forage production by winter wheat varieties at Stillwater, OK during the 2014-2015 production year.

Source	Variety	2014-2015	2-Year	3-Year
-----lbs dry forage/acre-----				
OGI	Gallagher	3,920	3,770	3,420
TAMU	TAM 114	3,440	-	-
OGI	OK Rising	3,350	2,990	-
KWA	1863	3,290	-	-
OGI	Billings	3,150	3,550	3,190
Syngenta	SY Llano	3,130	3,680	-
Watley	TAM 112	3,090	3,170	-
LCS	T158	3,090	3,050	2,850
LCS	T153	3,060	3,000	2,900
OGI	Garrison	3,040	3,220	3,080
OGI	Duster	3,010	3,390	3,130
OSU	Endurance	2,990	3,040	3,050
LCS	LCS Wizard	2,980	3,060	2,990
LCS	LCS Mint	2,940	3,370	2,980
LCS	LCH13DH-14-91	2,870	-	-
Syngenta	Greer	2,840	2,950	2,840
KWA	Oakley CL	2,810	-	-
Watley	TAM 204	2,810	-	-
OGI	Ruby Lee	2,800	2,900	2,670
OGI	Centerfield	2,790	2,960	2,810
OGI	Doublestop CL Plus	2,780	3,020	2,950
Syngenta	Jackpot	2,760	3,240	2,980
OSU	Deliver	2,730	3,150	2,760
PlainsGold	Byrd	2,720	2,690	2,630
OGI	Pete	2,670	2,950	2,770
AGSECO	TAM 113	2,670	3,480	3,020
PlainsGold	Brawl CL Plus	2,650	2,840	2,800
OGI	NF101	2,590	-	-
OGI	Iba	2,580	2,780	2,720
AGSECO	Hot Rod	2,580	-	-
LCS	LCS Pistol	2,550	2,830	2,960
WestBred	Winterhawk	2,540	3,070	2,720
KWA	Everest	2,520	2,820	2,730
LCS	LCH13DH-20-87	2,470	-	-
Syngenta	SY Southwind	2,470	2,820	-
WestBred	WB-Grainfield	2,400	2,690	2,780
KWA	KanMark	2,380	-	-
WestBred	WB-Redhawk	2,370	2,640	2,530
WestBred	WB-Cedar	2,360	3,040	3,000
LCS	T154	2,300	3,070	2,840
WestBred	WB4458	2,270	3,030	2,740
Syngenta	SY Flint	2,270	-	-
Syngenta	SY Monument	2,160	-	-
PlainsGold	CO11D174	2,030	-	-
OSU Experimentals				
	OK10126	3,160	-	-
	OK11D25056	2,610	-	-
	OK13625	2,600	-	-
	OK09125	2,430	2,640	2,510
	OK12621	2,090	-	-
	OK1059060-2C14	1,870	-	-
	OK11231	1,770	-	-
Average		2,700	3,060	2,870
LSD (0.05)		940	590	430

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

Table 3. Fall forage production by winter wheat varieties at Chickasha, OK during the 2014-2015 production year.

Source	Variety	2014-		
		2015	2-Year	3-Year
-----lbs dry forage/acre-----				
LCS	T154	3,990	-	-
OGI	Gallagher	3,890	3,400	3,310
Syngenta	SY Llano	3,800	-	-
OGI	NF101	3,790	-	-
WestBred	WB-Redhawk	3,770	-	-
OGI	Duster	3,730	3,330	3,190
OGI	Doublestop			
CL Plus		3,720	3,210	-
OGI	Garrison	3,670	2,920	2,700
KWA	Everest	3,640	3,190	3,040
PlainsGold	Byrd	3,630	3,090	-
OSU	Endurance	3,610	3,120	2,950
PlainsGold	Brawl CL Plus	3,570	3,200	-
WestBred	WB-Cedar	3,550	3,070	2,940
LCS	LCS Pistol	3,540	-	-
LCS	LCS Wizard	3,530	2,990	-
OGI	Pete	3,480	-	-
Watley	TAM 204	3,310	-	-
OGI	Billings	3,270	2,850	-
OGI	Iba	3,220	2,840	2,720
WestBred	WB4458	3,210	2,860	-
Syngenta	Jackpot	3,200	2,870	2,710
Syngenta	Greer	3,180	2,780	2,710
OGI	Ruby Lee	2,740	2,580	2,540
OSU Experimentals				
	OK09125	3,500	3,130	-
	OK1059060-2C14	3,450	-	-
Average		3,520	3,030	2,880
LSD		760	400	280

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

Table 4. Occurrence of first hollow stem (day of year) for winter wheat varieties sown in 2014 and measured in 2015 at Stillwater, OK.

Source	Variety	Stillwater	
		--day of year--	
LCS	LCH13DH-14-91	49	
Syngenta	SY Llano	49	
WestBred	WB-Cedar	49	
WestBred	WB-Redhawk	49	
KWA	Everest	57	
OGI	Gallagher	57	
OGI	Iba	57	
LCS	LCS Pistol	57	
LCS	T153	57	
LCS	T154	57	
Watley	TAM 112	57	
WestBred	Winterhawk	57	
PlainsGold	Byrd	61	
OGI	NF101	61	
WestBred	WB4458	61	
KWA	1863	64	
PlainsGold	CO11D174	64	
LCS	LCS Mint	64	
AGSECO	TAM 113	64	
Watley	TAM 204	64	
Syngenta	Greer	68	
Syngenta	Jackpot	68	
Syngenta	SY Flint	68	
Syngenta	SY Southwind	68	
TAMU	TAM 114	68	
OGI	Billings	71	
PlainsGold	Brawl CL Plus	71	
OGI	Duster	71	
AGSECO	Hot Rod	71	
KWA	KanMark	71	
LCS	LCH13DH-20-87	71	
LCS	LCS Wizard	71	
KWA	Oakley CL	71	
WestBred	WB-Grainfield	71	
OSU	Deliver	75	
OGI	Doublestop CL Plus	75	
OGI	Garrison	75	
OGI	Ruby Lee	75	
Syngenta	SY Monument	75	
LCS	T158	75	
OGI	OK Rising	78	
OGI	Centerfield	79	
OSU	Endurance	79	
OGI	Pete	79	
OSU Experimentals			
	OK12621	49	
	OK13625	49	
	OK1059060-2C14	57	
	OK10728W	57	
	OK11D25056	61	
	OK08P707W-19C13	64	
	OK11755W	64	
	OK09125	71	
	OK0986130-7C13	75	
	OK10126	75	
	OK11231	75	
Average		65	

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