



Planting Date Effect on Wheat Forage and Grain

Production Technology - Crops



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Trials have been conducted for several years to help identify the ideal planting date for wheat used for both forage and grain. The ultimate objective is to apply economics to the data. No economic data is available at this time.

Some of the data collected is presented on the following tables. Some interesting points are:

FORAGE YIELDS

As expected, forage yields are generally higher the earlier you plant. This is true in central Oklahoma where fall drought stress occurs occasionally. However, the further west you go, the frequency of fall drought stress increases. This decreases the probability of increasing forage yields by planting early (one in three years at both Buffalo and Tipton). This occurs because any drought stress in the fall limits forage production.

TEST WEIGHT

Test weight of the wheat decreased sharply with earlier planting dates. This at least partially explains the decrease in test weight of wheat in recent years. Even though the most widely grown variety in the last two years (Karl) is known to have excellent test weight, test weight of the crop has been low due to early planting. Crop Reporting Service data show that over 50% of the wheat has been planted by October 1.

GRAIN YIELD

There is a dramatic reduction in grain yield the earlier we plant relative to an ideal grain planting date. We are now trying to identify the cause of this drastic grain yield reduction with early planting. Two prime suspects to be considered are root rots and barley yellow dwarf mosaic virus. We have identified both in planting date studies in recent years.

SEED TREATMENT

We concluded that there are currently no seed treatment chemicals that will protect wheat against root rots. The 1994-95 trials at Lahoma and Perkins were established to identify the extent of yield loss caused by root rots. The best available seed treatment package for root rot control was applied to half of a seed lot. Plots were planted with treated and untreated 2180, 2163, and Karl 92 seed for each planting date. The seed treatment had no effect on forage yield, grain yield or test weight, even though yield for late August planting was 4 bu/a at Perkins and 16.7 at Lahoma. Root rot disease severity ratings ranged from 69 to 53, indicating the most severe root rot occurred in early-planted wheat. For more details on these trials, see PT 95-23 "Wheat Seed Treatment Trials 1994-95".

Trials in 1995-96 will be designed to determine how much the grain yield loss by planting early is caused by insects and diseases they transmit such as barley yellow dwarf mosaic virus.

CONCLUSION

I conclude that producers need to establish a priority for growing wheat in each individual field. If the primary purpose is to grow forage to graze cattle, plant very early to maximize the potential for forage, and use other practices to help accomplish this (see Fact Sheet F-2586 "Wheat for Pasture" for suggestions). If the primary purpose is to produce grain, wait until the appropriate planting dates for grain production, the first three weeks of October in northern Oklahoma and the

last two weeks of October and first week of November in southern Oklahoma. Trying to plant at intermediate dates will probably lead to frustration in meeting either objective. Planting early for maximum fall and winter forage may result in very poor spring forage or grain yields. However, with good planning, management practices, and weather, excellent beef gains may be obtained before the crop gives out. When planting late for grain, do not expect to obtain enough forage to graze except in unusual years.

BUFFALO PLANTING DATE TRIAL

Cooperator: NRCS

Soil type: St. Paul silt loam

1992-93 RESULTS

PLANTING DATE	FORAGE YIELD (LB/A)	TEST WEIGHT (LB/BU)	GRAIN (BU/A)
September 1	0	55.2	31.1
September 15	0	57.4	37.8
September 29	0	58.8	46.3
October 13	0	59.4	43.0
Mean		57.7	39.6
LSD (0.05)		0.5	3.4

1993-94

Good stands were obtained, but severe drought both in the fall and prior to heading resulted in no forage to clip and plot were disked prior to seed set to destroy jointed goatgrass and cheat which infested the plots.

1994-95 RESULTS

PLANTING DATE	FORAGE YIELD (LB/A)	TEST WEIGHT (LB/BU)	GRAIN (BU/A)
September 12	868	51.4	16.8
September 26	274	56.4	37.5
October 10	0	58.6	44.6
October 24	0	58.9	43.7
Mean	571	56.3	35.6
LSD (0.05)	73	0.9	3.5

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LAHOMA PLANTING DATE TRIALS 1991-1995 (4 YEARS)
 Lahoma Research Station Soil Type: Pond Creek silt loam

PLANTING DATE	FORAGE YIELD (LB/A)		TEST WT. (LB/BU)		GRAIN (BU/A)	
	1994-95	4-YEAR	1994-95	4-YEAR	1994-95	4-YEAR
Aug. 30	2753	2079	57.6	53.9	16.7	20.8
Sept. 13	1580	1213	56.7	54.2	26.6	28.3
Sept. 27	881	721	56.9	55.9	28.6	33.9
Oct. 11	61	22	57.0	56.4	30.3	40.4

PERKINS PLANTING DATE TRIALS 1991-1995 (3 YEARS)
 [No trial in 1993-94]

Perkins Research Station Soil Type: Teller loam

PLANTING DATE	FORAGE YIELD (LB/A)		TEST WT. (LB/BU)		GRAIN (BU/A)	
	1994-95	3-YEAR	1994-95	3-YEAR	1994-95	3-YEAR
Aug. 30	1630	2274	51.1	55.0	4.2	24.2
Sept. 13	1543	2004	54.1	55.8	11.1	26.4
Sept. 27	881	795	56.0	56.7	21.2	34.3
Oct. 11	61	273	54.4	56.6	25.5	38.7

TIPTON PLANTING DATE TRIAL
 SW Agronomy Research Station - Tipton, Tipton silt loam

1992-93 RESULTS

<u>Planting date</u>	<u>Total forage</u>	<u>Test wt.</u>	<u>Grain Yield</u>
	lb/a	lb/bu	bu/a
August 25, 1992	104	57.3	42.3
September 8, 1992	121	57.6	45.5
September 22, 1992	151	58.3	47.7
October 6, 1992	220	58.1	47.5
LSD (.05)	32.5	NS	4.2

Plots were seeded with Karl wheat at 60 lb/a in 10" rows. Excellent stands were obtained for each planting date. Lack of rainfall from early September until late November resulted in severe stress on the early planting dates. There was not enough forage to harvest by December on any plots. The only forage harvest was made March 4, 1993.

1993-94 RESULTS

Planting dates were Sept. 7, Sept. 21, Oct. 5, and Oct 18, 1994. Excellent stands were again obtained for each planting date. On December 21, 1994 there was 122 lb/a of forage clipped from the Sept. 21 plots. No other plots had enough forage to clip until the first hollow stem stage, when all plots were clipped.

<u>Planting date</u>	<u>Total forage</u>	<u>Test wt.</u>	<u>Grain Yield</u>
	lb/a	lb/bu	bu/a
September 07, 1993	212	58.5	38
September 21, 1993	372	58.7	40
October 05, 1993	397	60.3	53
October 18, 1993	238	60.7	54
MEAN	305	59.5	46
LSD (.05)	80	0.6	4.4

1994-95 RESULTS

<u>Planting Date</u>	<u>Forage (LB/A)</u>			<u>Test wt.</u>	<u>Grain Yield</u>	
	Fall	Winter	Total		1995	3-Year
09-15-94	1774	297	2070	55.1	31	37
09-29-94	1119	462	1581	55.8	40	42
10-13-94	278	362	641	56.9	46	49
10-27-94	0	337	337	56.8	46	49
Mean	793	364	1157	56.1	40.6	44
LSD (0.05)	260	N.S.	304	0.9	5.6	4.2