

**Tillage & Nitrogen Management for Wheat
Planted at Different Dates**
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Research Objective:

Determine whether no-tillage wheat following corn requires an earlier planting date and greater attention to early N applications (both fall and early spring) than wheat planted in a tilled seedbed.

Method:

Location	Fayette County/Spindletop
Soil Type and Drainage	Donerail silt loam - moderately well drained
Previous Crop	Corn
Tillage	No-Tillage (Lilliston 9680) - Chisel Plow + Secondary Discing
Cultivar	Pioneer 2568
Planting Dates	Oct. 16, 1997; Oct. 30, 1997; Nov. 25, 1997
Seeding Rate	41 seed/sq. ft
Harvest Date	July 3, 1998
Fertilizer:	Nitrogen - Fall - 0& 40 lb N/acre as ammonium nitrate (34- 0-0) on 11/28/97 Early Spring - 0& 40 lb N/acre as ammonium nitrate (34- 0-0) on 3/16/98 Late Spring - 80& 120 lb N/acre as ammonium nitrate (34- 0-0) on 4/20/98
Herbicide:	Harmony - 0.6 oz/ac on 3/19/98
Fungicides:	Bayleton 50WP - 4 oz/ac on 4/24/98 Tilt 3.2EC - 4 fl oz/ac on 5/11/98
Results:	Average of 4 reps. - See Table 1, below.

Conclusions:

Stand establishment was excellent at all planting dates in this experiment (Table 1). The last planting date gave the greatest plant density at harvest time, but the fewest number of heads per plant. Kernels per head were greater at the later two planting dates, and as kernel size was generally not affected by late planting, yields were similar across all planting dates (ave. 78 bu/ac). This was unexpected, but a cool spring contributed to improved grainfilling in the later planted

wheat. Chisel plow tillage generally improved yields (+5 bu/ac), but this response was not explained by any of the yield components (Table 1). There was no interaction between planting date and tillage, i.e. **no-till wheat was not more inferior with later planting**.

Fall application of nitrogen slightly improved yield (+3 bu/ac), but again the response was not explained by any of the yield components (Table 1). Early spring N applications resulted in a large yield increase (+11 bu/ac), which was associated with slightly greater final plant stands, greater kernel numbers per head and a modest reduction in kernel size. Late spring N did not raise wheat yield, probably because the modest increase in kernels per head was offset by the decline in kernel size.

Table 1. Effect of Planting Date, Tillage and N Timing on Wheat Stands, Development and Grain Yields

	Planting Date	Tillage System	Fall N (#)	Early Spring N (#)	Late Spring N (#)	Final Stand (#/M2)	Heads / Plant (#)	Kernels / Plant (#)	Kernel Size (mg)	Grain Yield (bu/ac)
Main Effect of Planting Date										
	1	-	-	-	-	359 b	2.4 a	21 b	29 a	77 a
	2	-	-	-	-	393 b	2.2 b	24 a	27 a	79 a
	3	-	-	-	-	508 a	1.6 c	24 a	28 a	79 a
Main Effect of Tillage System										
	-	NT	-	-	-	421 a	2.1 a	22 a	27 a	76 b
	-	Ch	-	-	-	419 a	2.0 a	24 a	29 a	81 a
Main Effect of Fall N Rate										
	-	-	0	-	-	419 a	2.1 a	23 a	28 a	77 b
	-	-	40	-	-	421 a	2.1 a	23 a	28 a	80 a
Main Effect of Early Spring N Rate										
	-	-	-	0	-	407 b	2.1 a	21 b	29 a	73 b
	-	-	-	40	-	433 a	2.0 a	25 a	27 b	84 a
Main Effect of Late Spring N Rate										
	-	-	-	-	80	412 a	2.1 a	22 b	29 a	78 a
	-	-	-	-	120	428 a	2.1 a	24 a	27 b	79 a