

**Tillage and the Nitrogen Requirement of Wheat
Following Full-Season Soybean
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Research Objective:

Determine whether the soil management system (no-tillage vs. chisel plowing) will influence the fertilizer nitrogen requirement of wheat following full-season soybean.

Method:

Location	Fayette County/Spindletop
Soil Type and Drainage	Maury silt loam - well drained
Previous Crop	Soybean
Tillage	No-Tillage (Lilliston 9680) Chisel Plow + Secondary Discing
Cultivar	Foster
Planting Date/Rate	Oct. 23, 1997; 29 seed/sq. ft
Harvest Date	June 27, 1998
Fertilizer:	Nitrogen - 20% of all N rates as 34-0-0 on 11/28/97 20% of all N rates as 34-0-0 on 3/15/98 60% of all N rates as 34-0-0 on 4/13/98
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.

Table 1. Effect of Tillage and Fertilizer Nitrogen on Wheat Yields

<u>Fall</u>	<u>Fertilizer N (lb/ac)</u>		<u>Yield (bu/ac)</u>	
	<u>Spring</u>	<u>Total</u>	<u>Chisel</u>	<u>No-Till</u>
0	0	0	39.9 c	38.3 c
10	40	50	63.2 b	61.6 b
20	80	100	71.1 a	70.6 a
30	120	150	70.5 a	75.6 a

Conclusions:

In this, the first year of this experiment, wheat following chisel plowed soybean residues averaged 61.2 bu/ac, while no-till wheat was not significantly different, averaging 61.5 bu/ac. There was a good response (+31.8 bu/ac) to fertilizer nitrogen, with yields increasing with greater fertilizer N rate, up to a total N rate of 100 lb N/ac (80 lb N/ac in the spring). Interestingly, tillage had no influence on the observed pattern in wheat yield response to fertilizer N.