

LATE NITROGEN MANAGEMENT FOR NO-TILLAGE WHEAT FOLLOWING CORN OR FULL-SEASON SOYBEAN

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RESEARCH OBJECTIVE:

Determine how the grain yield levels in no-tillage wheat cultivars following corn or soybean will differ with management of late season fertilizer N rates and timings.

METHODS:

Location	Fayette County/Spindletop
Soil Type and Drainage	Loradale silt loam – well drained
Previous Crop	Corn or Soybean
Tillage	No-Tillage (Lilliston 9680)
Cultivar	Pioneer 25R37 and Pioneer 25W33
Planting Date/Rate	Oct 31, 2001
Seeding Rate	40.2 (P25R37 and 41.9 (P25W33) seed/sq ft
Harvest Date	July 2-3, 2002
Fertilizer:	Basic Nitrogen (all plots) 25 lb N/ac as urea on 3/7/02 50 lb N/ac as urea on 4/5/02 Late Nitrogen (wheat after full-season Soybeans) 0, 20, 40 lb N/ac as urea on 4/26 0, 20, 40 lb N/ac as urea on 5/3 0, 20, 40 lb N/ac as urea on 5/10 0, 20, 40 lb N/ac as urea on 5/22
Herbicides:	Harmony – 0.5 oz/ac on 4/16/02 Brominal ME4 – 0.75 pint/ac on 4/16/02
Fungicides:	Tilt 3.2EC – 6 fl oz/ac on 5/11/02
Results:	Average of 4 replications – See Table 1 & 2

CONCLUSIONS:

Wheat after corn again exhibited erratic tillering and stand development and was not used in the late N nutrition study. Wheat after corn yielded much less than wheat after soybean that did not receive late N (Table 1). There was a slight interaction between cultivar and prior crop. There was little difference between the two varieties when grown after corn, but Pioneer 25R37 yield increased less (+14.3 bu/acre) when planted after soybean than did Pioneer 25W33 (+21.5 bu/acre).

The first of the late N applications to wheat after soybean was made between flag leaf emergence and “boot” growth stages (Feekes 9.5). The second was made during flowering (Feekes 10.2), while the third and fourth were made one and two weeks after flowering. All late N was broadcast over the top of the crop. Late fertilizer N rate did not positively influence yield (Table 2), and earlier (Feekes 9.5 and 10.2) applications were detrimental to yield, probably because of enhanced disease pressure. There was no interaction between late N fertilizer rate and cultivar or the date that the late N application was made.

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Table 1. Effect of Previous Crop and Cultivar on Yield of No-Tillage Wheat			
	<i>Wheat Yield - by Cultivar</i>		
<i>Previous</i>	<i>Pioneer</i>	<i>Pioneer</i>	<i>Crop</i>
<i>Crop</i>	<i>25R37</i>	<i>25W33</i>	<i>Average</i>
	<i>Grain Yield (bu/acre)</i>		
Corn	48.0	45.7	46.8b
Soybean	62.3	67.2	64.8a
Cultivar average	55.2a	56.5a	

Table 2. Main Effects of Cultivar and the Rate and Timing of Late Fertilizer N on Yield of No-Till Wheat Following Full-Season Soybean			
<i>Cultivar</i>	<i>Late N Date</i>	<i>Late N Rate</i>	<i>Grain Yield</i>
		<i>Lb N/Ac</i>	<i>Bu/Ac</i>
P25R37			60.7b
P25W33			68.4a
	26-Apr		64.8ab
	3-May		61.9b
	10-May		66.6a
	22-May		64.9ab
		0	64.7a
		20	66.2a
		40	62.7a