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

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OBJECTIVE:

Determine whether the optimal N fertilizer rate for no-tillage wheat will differ among with N source management or previous crop.

METHODS:

Location: Fayette County/Spindletop
Soil Type and Drainage: Loradale silt loam - well drained
Previous Crops: Corn or Soybean
Tillage: No-Tillage (Lilliston 9680)
Cultivar: Pioneer 2540
Planting Date/Rate: Oct. 25, 1998; 40.3 seed/sq. ft
Harvest Date: June 30, 1999
Fertilizer: Four Nitrogen Source-Management Schemes
- -urea (46-0-0);
- -ammonium nitrate (34-0-0);
- -urea-ammonium nitrate solution (28-0-0);
  - 33% of all N rates on 3/12/99
  - 67% of all N rates on 4/12/99

Herbicide: Gramoxone Extra - 1 qt/ac on 10/23/98
Fungicide: Tilt 3.2EC - 4 fl oz/ac on 5/15/99
Results: Average of 4 replications - see Table 1, below.

CONCLUSIONS:

Yield was positively influenced by fertilizer N addition and soybean, as opposed to corn, as a previous crop (Table 1). Wheat following soybean averaged 11 bu/ac greater yield than wheat following corn in this study. Averaged across all N rates, and regardless of previous crop, little difference due to N source management was observed. The optimal N rate was little affected by N source management, but was strongly related to the previous crop. The optimal fertilizer N rate was about 27 lb N/ac for wheat following soybean and 81 lb N/ac for wheat following corn. UAN solution application management, whether broadcast or

streamjet, had little effect on the yield results for wheat grown in the two rotations.

TABLE 1. EFFECT OF PREVIOUS CROP, N SOURCE MANAGEMENT, AND N RATE ON YIELD OF NO-TILLAGE WHEAT

Previous Crop	Fertilizer N Rate lb N/ac	Wheat Yield - by N Source Management: UAN streamjet	Urea broadcast	AN broadcast	UAN broadcast	N Source Average
		bu/ac				
Corn	0	49.2	47.6	56.2	46.0	49.8
	30	55.8	60.9	53.0	60.4	57.5
	60	62.1	66.8	57.0	58.7	61.2
	90	60.3	67.2	65.1	64.4	64.3
	120	65.9	60.7	55.5	58.5	60.1
	150	61.1	56.3	63.2	57.3	59.5
	Avg.	59.1	59.9	58.4	57.5	58.7
Soybean	0	66.6	65.6	65.3	65.8	65.8
	30	72.7	73.0	67.3	69.2	70.6
	60	72.9	67.4	68.0	75.8	71.0
	90	71.9	73.7	67.5	72.3	71.4
	120	72.7	71.8	68.9	72.1	71.4
	150	73.3	66.8	68.4	67.4	69.0
	Avg.	71.7	69.7	67.6	70.4	69.9