NO-TILLAGE WINTER WHEAT YIELD RESPONSE TO FUNGICIDE WITH DIFFERENT TIMES OF APPLICATION OF HIGH RATES OF NITROGEN FERTILIZER

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Research Objective:
Determine the need for fungicide with different application timing strategies for high rates of nitrogen fertilizer.

Methods:
Location: Fayette County/Spindletop
Soil Type and Drainage:
Loradale silt loam – well drained
Previous Crops: Soybean
Tillage: No-Tillage (Lilliston 9680)
Cultivars:
Cardinal and Southern States 8302
Planting Date: Oct. 26, 2004
Seeding Rate: 35 (Cardinal) and 41 (SS 8302) seed/sq. ft
Harvest Date: July 3, 2005
Fertilizer: Nitrogen – 90 and 135 lb N/acre as 34-0-0 on 3/21/05 (Feekes 3) and 4/11/05 (Feekes 5)
Herbicides:
Harmony – 0.5 oz/ac on 4/04/05
Brominal ME4 – 0.75 pint/ac on 4/04/05
Fungicides:
Folicur at 0 and 8 fl oz/ac on 5/22/05

Results:
Average of 4 replications - see Table 1, on next page.

Discussion/Conclusions:
The major objective of this study was to determine the impact of the fungicide and nitrogen (N) fertilizer rate and timing treatments on straw quality in both tall (Cardinal) and short (Southern State 8302) wheat varieties. Straw quality measurements are incomplete, so only yields will be reported upon here. Wheat yields were generally excellent, as they often are with no-tillage establishment into soybean residue. There was strong cultivar by fungicide interaction on yield, with the older Cardinal variety responding more positively to fungicide application. Disease pressure was not severe, however. The average response to fungicide usage was only +5.6 bushels/acre. There was a small, but significant average response (+3.5 bushels/acre) to using the greater rate of fertilizer N. There was little lodging in the experiment, suggesting that the lack of greater yield response to the higher rate of N was not due to this problem. There was no significant interaction between cultivars and N rate, fungicide use and N rate, or N timing and N rate. Splitting the fertilizer N between Feekes 3 and Feekes 5 was, on average, somewhat beneficial to grain yield (+ 5.6 bushels/acre) at these high N rates. There was no cultivar by N timing or fungicide by N timing interaction effect on grain yield. We conclude that there was a general benefit of fungicide, especially to the Cardinal variety, that was independent of the other treatment factors in this low disease pressure season.

Table 1. Effects of Cultivar, Fungicide and the Rate and Timing of Fertilizer N on Yield of No-Till Wheat

		Fertilizer	Fertilizer	
	Fungicide	N	N	Grain
Cultivar	Used?	Rate	Timing	Yield
		lb N / acre		bu / acre
Cardinal	no			89.7b
	yes			97.6ab
SS 8302	no			97.2ab
	yes			100.4a
		90		94.5b
		135		98.0a
			Feekes 3	94.0b
			Feekes 3 & 5	100.0a
			Feekes 5	94.8b