

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 Crop: Soybean
Tillage: No-Tillage (Lilliston 9680)
 Aeration Tillage/No-Tillage
Cultivar: Cardinal and Southern States 8302
Planting Date: Oct 20, 2005
Seeding Rate: 45 (Allegiance) & 40 (Pioneer 26R58)
 Seed/Sq. Ft.
Harvest Date: June 30, 2006
Fertilizer: Nitrogen – 90 and 135 lb N/acre
 as 34-0-0 on 3/29/06 (Feekes 3)
 and 4/18/06 (Feekes 5)
Herbicides: Harmony – 0.5 oz/ac on 4/05/06
 Brominal ME4 – 0.75 pint/ac on
 4/05/06
Fungicides: Folicur – 0 and 8 fl oz/ac on 5/31/06
Results: Avg. of 4 replications – see Table 1.

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 (KAS Allegiance) and short (Pioneer 26R58) 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 a

strong impact of cultivar choice on yield, with the Allegiance outyielding the 26R58. Disease pressure was not severe, however. The average response to fungicide usage was only +4.9 bushels/acre. There was a significant N rate by N timing interaction, where the lower N rate (90 lb N/acre) was least effective when all was applied at Feekes 5 and the greater N rate (135 lb N/acre) was most beneficial to yield when all was applied at Feekes 5. 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, cultivars and fungicide use, and fungicide use and N rate on grain yield. Splitting the fertilizer N between Feekes 3 and Feekes 5 was, on average, somewhat beneficial to grain yield, relative to applying all the N at Feekes 3. 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 that was independent of the other treatment factors in this low disease pressure season.

Cultivar	Fungicide Used?	Fertilizer N Rate	Fertilizer N Timing	Grain Yield
		Lb N/acre		Bu/acre
Allegiance				82.8 a
P26R58				77.9 b
	No			77.9 b
	Yes			82.8 a
		90	Feekes 3	79.3 a
			Feekes 3 & 5	83.9 ab
			Feekes 5	71.5 c
		135	Feekes 3	77.1 bc
			Feekes 3 & 5	83.9 ab
			Feekes 5	86.5 a