

YIELD OF WINTER WHEAT IN A LONG TERM CONTINUOUS NO-TILLAGE ROTATION OF CORN, WHEAT AND DOUBLE-CROP SOYBEAN

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Research Objective:

Determine the economic contribution of wheat to the long-term productivity of the 3 crops/2 years rotation.

Methods:

Location: Fayette County/Spindletop
Soil Type and Drainage: Maury silt loam – well drained
Previous Crop: Corn
Tillage: No-Tillage (Lilliston 9680)
Cultivar: Southern States 8302
Planting Date & Rate: Oct. 17, 2005; 41 seed/sq. ft.
Harvest Date: June 29, 2006
Fertilizer: Nitrogen –
70 lb N/ac as 34-0-0 on 3/29/06
50 lb N/ac as 34-0-0 on 4/18/06
Herbicides: Harmony –
0.5 oz/ac on 4/05/06
Brominal ME4 –
0.75 pint/ac on 4/05/06
Fungicides: Folicur –
8 fl oz/ac on 5/30/06
Results: Average of 4 replications –
93.3 bu/acre.

Conclusions:

Yields were exceptional, perhaps due to the lower level of residues from the previous corn crop. This year those residues were again redistributed with a hay tedder prior to fall wheat planting. Historically, the yield of no-tillage wheat in these plots has been negatively related to the yield of the previous corn crop (see graph, next page). Though that is still generally true, the 2005 and 2006 results are a clear break with the past. Average yield losses appear to be about 1.5 bu/ac of wheat for every 10 bu/ac in the preceding corn crop, with annual corn yields ranging between 90 and 200 bu/ac and annual wheat yields averaging between 45 and 90 bu/ac. The poor wheat yields observed in 1990 and 1999 were excluded from the relationship because of excessive Fusarium head scab in those two years. The negative relationship probably exists because greater corn yields result in greater corn residue levels, which hinder no-till drill performance and wheat stand establishment and may reduce/delay wheat tillering. We continue to examine whether alternate methods of residue management will improve no-till wheat establishment and yield.

Current Year's Wheat Yield as Related to the Prior Year's Corn Yield

