

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. 25, 2006; 30 seed/sq. ft.
Harvest Date: June 26, 2007
Fertilizer: Nitrogen –50 lb N/ac as 34-0-0 on 3/21/07
70 lb N/ac as 34-0-0 on 4/09/07
Herbicides: Gramoxone – 1 quart/ac on 10/30/06
Harmony – 0.5 oz/ac on 4/19/07
Brominal ME4 – 0.75 pint/ac on 4/19/07
Fungicides: Folicur – 8 fl oz/ac on 5/13/07
Results: Average of 4 replications – 53.2 bu/acre.

Conclusions:

Yields were below average, due in part to freeze injury. This year the previous corn crop's 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 losses appear to be about 1.4 bushels/acre in wheat yield for every 10 bushels/acre in yield of the preceding corn crop. Annual corn yields ranged between 90 and 200 bushels/acre and annual wheat yields averaged between 45 and 90 bushels/acre. 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 also delay the onset of wheat tiller development in the spring.

Current Year's Wheat Yield as Related to Last Year's Corn Yield

