

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

John H. Grove, Agronomy Department

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	Pioneer 25R37
Planting Date/Rate	Oct 31, 2001: 40.2 seeds/sq ft
Harvest Date	July 2, 2002
Fertilizer:	Nitrogen – 40 lb N/ac as 46-0-0 on 3/7/02; 80 lb N/ac as 46-0-0 on 4/5/02
Herbicides:	Harmony – 0.5 oz/ac on 4/16/02 Brominal ME4 – 0.75 pint/ac on 4/16/02
Fungicides:	Tilt 3.2EC – 6 fl oz/ac on 5/11/02
Results:	Average of 4 replications – 46.7 bu/ac

CONCLUSIONS:

Yields were only fair, partly due to delayed planting, primarily because heavy residues interfered with early vegetative development (stand and tillering). Historically, the yield of no-tillage wheat in these plots has been negatively related to the yield of the previous corn crop (see graph below). Average yield losses appear to be about 2 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 50 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 wheat stand establishment and may reduce/delay wheat tillering.

Wheat Yield as Related to the Previous Year's Corn Yield

