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

John H. Grove, Agronomy Department

OBJECTIVE:

Determine the economic contribution of wheat to the long-term productivity of the 3 crops/2years 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 2552
Planting Date & Rate: Nov. 5, 1998; 26.5 seed/sq.ft.
Harvest Date: June 21, 1999
Fertilizer: Nitrogen - 40 lb N/ac as 34-0-0 on 12/15/98
40 lb N/ac as 34-0-0 on 3/2/99
80 lb N/ac as 34-0-0 on 4/5/99
Herbicides: Gramoxone Extra - 1 qt/ac on 10/23/98
Harmony Extra - 0.7oz/ac on 4/7/99
Brominal ME4 - 0.75 pt/ac on 4/7/99
Fungicides: Tilt 3.2EC - 4 fl oz/ac on 5/15/99
Results: Average of 4 replications - 39.0 bu/acre

CONCLUSIONS:

Yields were poor, primarily because later planting caused crop development to be more greatly influenced by the drought. Both vegetative growth and kernel size were below expectations. Historically, the yield of no-tilllage wheat in these plots has been negatively related to the yield of the previous corn crop. Average yield losses appear to be about 1 bu/ac of wheat for every 10 bu/ac in the preceding corn crop, with annual corn yields ranging between 90 and 190 bu/ac and annual wheat yields averaging between 40 and 80 bu/ac. The poor wheat yields observed in 1990 and 1999 were excluded from the relationship. This 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.