

REDUCED TILLAGE PRODUCTION IN THE BLACKLAND REGION OF NORTH CAROLINA

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ABSTRACT

Beaufort County is in the lower Coastal Plains of North Carolina. The county is divided by the Suffolk Scarp. The scarp is an old beach front passing north to south through the county at an elevation of about 25 feet. To the east of the scarp is the Pamlico Surface, which is in the Tidewater Area major land resource area. To the west of the scarp is the Talbot Surface, which is in the Atlantic Coast Flatwood major land resource area. The county is also divided into two parts by the Pamlico river, which is a wide, tidewater stream or estuary. In the western end of the county the highest point is 67 feet. The elevation in Washington, the county seat, is 10 feet. The towns of Aurora and Belhaven in eastern Beaufort County the elevation to 2 to 5 feet. The soils in most areas in the county are poorly drained. Strips of well drained soils are near streams, especially in the western part of the county. In most of the county, elevation is so low and slope is so nearly level that a drainage system is necessary for farming. Most farms use a parallel ditch system for drainage. The county is among the state's leading producers of corn, soybeans, and wheat, however, until recently tobacco has been the leading cash crop in the county. Cotton has made a significant come back in the county in the last ten years, and last year was the county's leading cash crop. The primary tillage tools in the 1950s and 1960s was the moldboard plow and disc. In the 1970s and 1980s the chisel plow replaced the moldboard plow as the primary tillage tool. In the mid to late 70's growers adopted the conservation tillage practice of no-tilling doublecropped soybeans. Two-thirds of the soybeans in the county are double-cropped. In 1993-96 the Beaufort County Cooperative Extension Service conducted a series of 14 replicated no-till corn on-farm-tests across the county. These on-farm-tests reported no-till to yield significantly more than conventional till in 4 of the tests, conventional till yield significantly more than no-till in one test, and no significant difference in yield between the two tillage systems in 9 tests. No-till averaged a 3 bushel per acre advantage over conventional tillage across the 14 on-farm-tests. The Beaufort County findings demonstrated an economic advantage to no-till corn versus conventional till corn. In the early 1990s less than 1% of the corn was planted no-till in Beaufort County. Corn producers in the county were planting greater than 65% of their corn no-till by the late 1990s. In 1998-2000 and 2003 nine no-till wheat on-farm-tests were conducted on a wide range of soil types in Beaufort County. There has not been a significant difference in yield between no-till versus conventional till wheat. The adoption of no-till wheat reached a peak of 35% of planted acres in 2000. In recent years wheat yields have been impacted by late spring freezes. In general, there has been a trend of more freeze injury in no-till wheat versus tilled wheat. This freeze injury has caused a reduction in no-till wheat to a 15 to 20% of acres planted. Efforts are underway to reduced the risks of spring freeze injury by screening of wheat varieties and manipulating planting dates. Four no-till cotton on-farm-tests have been conducted over the last six years. In three comparisons there was no significant difference in yield and in one comparison tilled cotton produced significantly more yield. No-till planting of cotton reach a maximum of 10% of planted acres in 2003, but is expected to be significantly lower in 2004.