Recovery of Peanut Yield from Short Rotations after Six Years of Corn, Cotton, Soybean, and Wheat Cropping Systems

B.B. SHEW*, Department of Plant Pathology, North Carolina State University, Raleigh, NC 27695; and D.L. JORDAN and P.D. JOHNSON, Department of Crop Science, North Carolina State University, Raleigh, NC 27695; R.L. BRANDENBURG, Department of Entomology, North Carolina State University, Raleigh, NC 27695; and T. CORBETT and C. BOGLE, North Carolina Department of Agriculture and Consumer Services, Raleigh, NC 27699.

Rotation can play a major role in disease and plant parasitic nematode development and peanut yield. Trials were established in 1997 and maintained through 2006 with rotations ranging from continuous peanut to only two years of peanut during that time period. Corn, cotton, and soybean were included in various combinations as rotational crops. As expected, nematode population in soil increased when fewer years separated peanut plantings or when soybean was included in the rotation. Peanut yield was affected by rotation, with higher peanut yields observed when more crops other than peanut separated peanut plantings. In 2007, a rotation sequence of corn (2007), wheat-soybean (2007-2008), corn (2009), wheat-soybean (2009-2010), corn (2011), and cotton (2012) were grown over the entire test area to determine the degree of peanut yield recovery from the rotations imposed from 1997-2006. Plant parasitic nematode population in soil was reduced dramatically from 2006 to 2013 to levels that most likely would not affect peanut yield. In contrast to the wide range of differences in peanut yield noted during 2006 when comparing rotations, peanut yield did not differ in 2013 regardless of previous rotation. These data suggest that adverse effects of short rotations can be minimized or eliminated using good rotation practices for 6 years with crops other than peanut.