

**CONSERVATION AND CONVENTIONAL TILLAGE EFFECTS ON SOIL PROPERTIES
AND SOYBEAN PRODUCTION.****A. P. Onwualu**Department of Agriculture Engineering
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National Centre for Agricultural Mechanization, IlorinE-mail: [ncam @ cyberspace. Net.ng](mailto:ncam@cyberspace.net.ng)**ABSTRACT**

*Four conservation tillage practices and two conventional tillage practices were evaluated for two years to determine their effects on soil properties (moisture content, bulk density, porosity, shear strength, cone index), weed control, germination, growth and yield of soybean (*Glycine max* (L) Merrill). The soil was sandy loam and classified as Typic Haplustalf of Eruwa and Odo Owa series. The conservation tillage practices were: no tillage (NT), chisel ploughing (CHP). Use of a cultivator (CU) and disc ploughing once (DP). The conventional tillage practices were disc ploughing followed by harrowing (DPH) and disc ploughing followed by harrowing and ridging (DPHR). The treatments were laid out in a Randomized Complete Block Design with three replications. Results show that tillage practices significantly affected soil properties, weed control, germination, growth and yield of soybean. Soil strength and moisture content were significantly higher under the conservation tillage practices, whereas porosity was significantly lower. There was better crop establishment and growth under the conservation tillage practices due to the better moisture conservation under such systems. Weed control was more effective under conventional tillage practices. Over the two-year period and compared to NT, the percentage increase in yield with other tillage practices were 9.3% for CHP. 10.1% for CU. 13.7% for DP. 17.9% for DPH and 16.12% for DPHR. In overall performance, when the effect on soil properties and crop performance were considered together. The conservation tillage practices of DP, CHP and CU are recommended for the area, depending on equipment availability. The results are applicable to other regions with the same soil type.*

Key words: Tillage, conservation tillage, soybean production. Conventional tillage.