Rebuilding Soil Organic Carbon Contents In Coastal Plain Soils Using Innovative Management Practices. (S05-novak142436-Poster)

Authors:

- J.M.Novak - *USDA-ARS, Florence, SC*
- J.R.Frederick - *Clemson University*
- P.J.Bauer - *USDA-ARS, Florence, SC*
- D.W.Watts - *USDA-ARS, Florence, SC*
- S.J.Robinson - *Clemson University*

Abstract:

Agricultural soils in the Southeastern Coastal Plain region typically have low soil organic carbon (SOC) contents that contribute to poor soil quality, low water holding capacity, and reduced crop yields. Intensive tillage practices have contributed to the low SOC contents. The USDA-ARS and Clemson University have established an Agroecology Program that uses innovative cropping and tillage practices to rebuild SOC contents, thereby potentially improving both soil quality and crop yields. A 5.7-ha field, was divided in half, with one side managed using innovative practices (minimum tillage) and the other using conventional (disking) techniques. Prior to tillage, soil samples were collected (1998-2002) by soil type from 0-3 and 3-15 cm depth increments from 100 locations (50 per side) and their SOC contents were measured. After five years, preliminary results show that SOC was influenced by tillage management. Conservation tillage caused a SOC enrichment in the top 3 cm, but a SOC decline in the 3-15 cm depth. At both soil depths, small SOC content variations occurred under conventional tillage.

Corresponding Author Information:

Jeff Novak
USDA-ARS, Florence, SC
2611 W. Lucas St.
Florence, SC 29501

phone: 843-669-5203 x110
fax: 843-669-6970
e-mail: novak@florence.ars.usda.gov

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