Soil Organic Matter Pools Under Different Crop Covers in Texas. (S03-hons132159-Poster)

Authors:

- F.Dou* - *Texas A and M University, College Station, TX*
- F.M.Hons - *Texas A and M University, College Station, TX*
- W.R.Ocumpaugh - *Texas A and M University*
- J.C.Read - *Texas A and M University*
- M.A.Hussey - *Texas A and M University*
- J.P.Muir - *Texas A and M University*

Abstract:

The rate of plant litter input into and soil disturbance of agroecosystems can influence soil organic matter pools. Switchgrass (Panicum virgatum L.) has been proposed as a potential bioenergy crop because of its high yield potential and adaptation to marginal sites. A better understanding of the short- and long-term effects of biomass production practices on soil properties is needed to assess sustainability. Our objective was to compare C and N dynamics in different soils under switchgrass with that under other forage grasses and cultivated cropping systems. Soil samples were collected at College Station, Stephenville, and Dallas, TX in March 2001 at depths of 0-5, 5-15, and 15-30 cm. Soil organic C, total N, microbial biomass C and N, mineralizable C and N, and particulate organic matter C occurred in the order: perennial pasture (>25 years) > forages planted in 1992 > forage planted in 1997 > or equal to cultivated cropping systems. Soil organic C under grasses increased with time, and to a 30-cm depth was 10 to 186% greater

than that of cultivated cropping systems, except for switchgrass planted in 1997 at College Station. Particulate organic matter C was more sensitive than other fractions to management changes. The capacity of these soils to sequester organic C has not been attained.

Corresponding Author Information:

Frank Hons
Texas A and M University
Dep. of Soil and Crop Sciences, 2474 TAMU
College Station, TX 77843-2474

phone: 979/845-4620
fax: 979/845-0456
e-mail: f-hons@tamu.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 10:00 am-12:00 pm
Poster Board Number: 2011

Keywords:

soil organic carbon, particulate organic matter, soil organic matter pools, cropping systems