

Farm Gas from Switchgrass

With America's energy consumption constantly increasing and oil production at a plateau, developing alternatives to fossil fuels is essential. An increase in atmospheric carbon dioxide (CO₂) and global warming have led to strong interest in assessing the effects of land use and management practices on soil organic carbon (SOC).

Research information about the impact of growing bioenergy crops on SOC pools and their distribution depth is scanty and fragmented at best. Therefore, preliminary research has been initiated at Texas A&M University- Commerce by Dr. Rocky Lemus, Professor of Cropping Management Systems. This research will be used in a grant application for the U.S. Department of Energy (USDOE) and U.S. Department of Agriculture's Biomass Research and Development Initiative.

Switchgrass (*Panicum virgatum* L.) is the favored bioenergy crop of the USDOE because of its large biomass production potential, and also because of its possible carbon sequestration ability. Carbon sequestration is nothing more than a plants ability to remove CO₂ from the atmosphere.

Long-term agroecological sites are a valuable tool in assessing management-induced changes in SOC pools. The principle objective of this study is to assess SOC and nitrogen (N) pools under switchgrass when compared to other cropping systems (pasture and cropland) in different soil types. Samples have already been collected from the Carroll Jones' farm in Fannin County near Ravenna. Soils from switchgrass pastures on farms in Hunt and Collin Counties will be sampled as well.

Soil samples will be collected to a 6-inch depth and used to determine soil bulk density, volumetric water content, pH, carbon and nitrogen levels, and cation-exchange capacity (CEC). This information will be used to make comparisons to which soil has higher carbon sequestration capacity and what cropping system is contributing the most.

This article was contributed by Lawrence "Chase" Garcia, Soil Conservationist Student Trainee with the Natural Resources Conservation Service in Greenville, Texas..