Nitrogen Management and Cropping System Effects on Soil Carbon Change and CO2 Emission. (S06dittmer153317-Poster)

Authors:

- M.M.Al-Kaisi Iowa State University
- W.J.Dittmer *Iowa State University*

Abstract:

The increase in atmospheric carbon over the last century has lead to an increased interest in soil carbon dynamics and soil carbon sequestration. The focus of this study is to investigate the carbon-nitrogen relationship in high yield environments and the impact of N management and cropping systems on soil carbon change. The study involves soil sampling to a 60 cm soil depth at 5, 10, 15, and 30 cm increments for total soil carbon, nitrogen, and particulate organic matter (POM) in a corn-soybean rotation of different soil types and nitrogen rates. Carbon dioxide (CO2) flux was measured during the growing season under applied N rates of 0, 90, 180, and 225 kg N ha-1 for corn on a weekly and bi-weekly basis. Preliminary results show that CO2 flux rate was greater under lower N rates. Carbon dioxide flux tends to increase with the increase of soil moisture and soil temperature. Also, results show that initial CO2 flux rate after tillage operations was greater with Moldboard and Chisel Plows than with no-till system. The results show that carbon input from plant residue was increased as N rate increased, with greater soil carbon accumulation at the top 0-30 cm soil depth compared to lower soil depths.

Corresponding Author Information:

Mahdi Al-Kaisi Iowa State University 2104 Agronomy Hall Ames , IA 50010 phone: 515 294-5414 fax: 515-294-9985 e-mail: malkaisi@iastate.edu

Presentation Information:

Presentation Date: Monday, November 11, 2002 Presentation Time: 9:30-11:30 am Poster Board Number: 1328

Keywords: