Simulation of soil organic matter dynamics as affected by land use and agricultural practices in semiarid Cordoba. (S06-apezteguia101244-Poster)

Authors:

- H.P.Apezteguia - *Universidad Nacional de Cordoba*
- R.C.Izaurralde - *Joint Global Change Research Institute*
- R.Sereno - *Universidad Nacional de Cordoba*

Abstract:

Soil organic matter plays a key role in ensuring agroecosystem productivity and long-term conservation of soil resources. We tested the ability of the EPIC model, equipped with new soil C algorithms, for simulating soil organic C (SOC) dynamics in soils of central Cordoba (Argentina) and assessed whether they are sources or sinks of atmospheric CO2. Modeling results were compared against measurements made in a spatially distributed chronosequence of deforested land and in tillage and crop rotation studies. The EPIC results adequately described the observed SOC dynamics. In the chronosequence, the observed mass of SOC lost over 40 y of cultivation was 41 Mg/ha (48% of original) while EPIC simulated a loss of 35 Mg/ha (41%). Measurements and simulations suggest that SOC is approximating steady state conditions after 40 y. The EPIC simulations captured the observed trends of increasing SOC content with decreasing tillage intensity but underestimated SOC changes with depth. Simulation and measurement results suggest that crop rotations practiced with conservation tillage (especially no tillage) can induce C sequestration in soils.

Corresponding Author Information:

Hernan Apezteguia
Universidad Nacional de Cordoba
Avda. Valparaiso s/n
Cordoba, CB 5000
Argentina

phone: +54 351 433 4116
e-mail: hernanynenina@infovia.com.ar

Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 9:30-11:30 am

Poster Board Number: 1327

Keywords:
tillage, corn, soybean