Changes in Soil Carbon in Semiarid Dryland Farming Systems in the Pacific Northwest. (S03-albrecht173415-Poster)

Authors:

- S.L.Albrecht - *USDA-ARS, Pendleton, OR*
- S.B.Wuest - *USDA-ARS, Pendleton, OR*
- D.E.Wilkins - *USDA-ARS, Pendleton, OR*

Abstract:

In the 1930's long-term experiments were started at the Pendleton Experiment Station in northeast Oregon to evaluate the effects of fertilizer, residue management, and tillage on crop productivity in the cereal producing, dryland regions of the Columbia basin. Summer moisture is too low to support warm-season crops, but the region is well suited for winter annuals and cool-season grasses. Average winter wheat yields have increased; however, soil organic matter continues to decline the a winter wheat-summer fallow rotation, common in this area, even when soil erosion is minimal. Residue management practices in this region can have significant impact on soil organic matter levels. Burning of wheat stubble accelerates organic matter loss while nitrogen fertilization and the addition of pea vine reduce the decline. Manure applications are also capable of preventing organic matter decline and may actually increase soil carbon. The loss of soil organic matter appears to be substantially less with annual cropping than in a cereal fallow rotation. Stubble mulching and direct seeding, both of which leave residue on the soil surface to deter erosion, support organic matter retention.

Corresponding Author Information:

Steve Albrecht
USDA-ARS
P.O. Box 370
Pendleton, OR
97801-0370

phone: (541) 278-4392
fax: (541) 278-4372
e-mail:
stephan.albrecht@oregonstate.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 10:00 am-12:00 pm
Poster Board Number: 2014

Keywords:

soil carbon, cropping systems, soil quality, carbon sequestration