Effects of Potato-barley Rotations on Chemical and Physical Properties of Sandy Coarse Soils. (S06-delgado082107-Poster)

Authors:

- J.A.Delgado - *USDA-ARS-Soil Plant Nutrient Research*
- R.T.Sparks - *USDA-NRCS*
- R.Bowman - *USDA-ARS*

Abstract:

Potential wind erosion can contribute to the removal of nutrients and fine soil particles, especially after harvesting crops such as potato (Solanum tuberosum L.) that leave small amounts of crop residue. An assessment of the effects of small grain in a potato-small grain rotation and its effects on chemical and physical properties was conducted for South Central Colorado. We selected sites, with similar agricultural practices and soil type that decades ago were converted from rangeland into cultivated irrigated sites. The main variability at these sites was the amount of straw returned into the surface soil. Soil samples were collected in the cultivated area and in adjacent rangeland. At these sites we measured several carbon and phosphorous pools, and other macro and micro nutrients. Soil texture was also measured. The losses of fine particles such as silt and clay are reduced by the incorporation of small grains into the crop rotation ($P<0.05$). After decades of cultivation, the cultivated sites had higher P, Zn, Fe, CU and Mn content than the rangeland. Potassium was lower in the cultivated sites. Comparisons within cultivated sites show that soil organic matter content increased with greater amounts of straw returned into the system ($P<0.05$).

Corresponding Author Information:

Jorge Delgado
USDA-ARS-Soil Plant Nutrient Research Unit
Federal Building P.O. Box E 301
S. Howes
Fort Collins, CO 80522

phone: 970-490-8260
fax: 970-490-8213
e-mail: jdelgado@lamar.colostate.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002

Presentation Time: 1:30-3:30 pm
Poster Board Number: 2014

Keywords:
Carbon, Micronutrients, Erosion, Phosphorous