Stable carbon isotopic composition of pedogenic carbonates in the Russian Chernozem under different management regimes. (S05-post093538-Poster)

Authors:

- E.A.Mihailova Clemson University
- B.Smith Clemson University
- C.J.Post Clemson University

Abstract:

Chernozems (Mollisols) play an important role in the global carbon cycle, but their contribution to the soil inorganic carbon (SIC) storage is poorly understood. The objective of this study was to evaluate carbonate storage and stable carbon isotopic composition of carbonate in the Russian Chernozem (fine-silty, mixed, frigid Pachic Hapludoll) (predominantly C3 vegetation) under different management regimes: a native grassland field (not cultivated for at least 300 years), an adjacent 50-year continuous-fallow field, the V.V. Alekhin Central-Chernozem Biosphere State Reserve in the Kursk region of Russia, and a continuously cropped field in the Experimental Station of the Kursk Institute of Agronomy and Soil Erosion control. Storage of disseminated soil carbonate in 0-200 cm was: 957.70 (378.82) Mg/ha for the native grassland field, 2035.90 (186.47) Mg/ha for the continuously cropped field, and 1758.30 (194.75) Mg/ha for the 50-year continuous-fallow field. Secondary calcium carbonate accumulations in the form of white spherical concretions contained 0.05% N, 6.4% C (533.32 g/kg CaCO3 equivalent) and had a 13C value of -10.9%.

Corresponding Author Information:

Christopher Post Clemson University 261 Lehotsky Hall Clemson, SC 29634 phone: 864-656-6939 e-mail: cpost@clemson.edu

Presentation Information:

Presentation Date: Monday, November 11, 2002 Presentation Time: 9:00-11:00 am Poster Board Number: 2024

Keywords: Chernozem, stable carbon isotopic , carbonates, Russia