Geophysical Research Abstracts
Vol. 18, EGU2016-13462, 2016
EGU General Assembly 2016

Nitrogen input effectiveness on carbon sequestration in rainfed cropping system

Agata Novara, Luciano Gristina, and Ignazio Poma
Università degli Studi di Palermo, Dipartimento di Scienze Agrarie e Forestali, Italy (agata.novara@unipa.it)

The combined effect of total N and C/N ratio had a large influence on the decomposition rate and consequently on potential soil organic carbon sequestration.
The aim of the work was to evaluate Carbon sequestration potentiality under three mineral N fertilization levels in interaction with two cropping systems characterized by addition of N input due to leguminous species in the rotation. The study was carried out in the semiarid Mediterranean environment in a 18years long-term experiment. Is well know that in the semiarid environment the excess of N fertilization reduces biomass yield and the consequent C input. On the contrary, both N and C input determine high difference in C/N input ratio and faster organic matter mineralization.
Results showed no influence of N fertilization on SOC sequestration and a reduction of SOC stock due to crop rotation due to lower C input. Crop residue quality of durum wheat-pea crop rotation characterized by a faster decomposition rate could explain the lower ability of crop rotation to sequester C in the semiarid environment.