Impact of cultivation on soil carbon fractions in a semiarid area of southeast of Spain.

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Conversion of forest to cropland influences a number of soil properties. One of the most pronounced and widespread changes that occur is the decline in soil C, which is attributed to a number of factors. First, C inputs in agricultural systems are usually lower than those in native systems and, on the other hand, agricultural management practices may help to enhance decomposition by creating soil conditions that are more conducive to greater biological activity.

The preliminary results of an experiment to evaluate the impact of land use change on carbon dynamic are presented.

The experimental area is located at Northeast of Murcia region in Southeast of Spain. The annual average precipitation is about 300 mm and the temperature, is relatively high, 16.6ºC leading to a high evapotranspiration rate (about 800 mm). Three land uses have been selected: forest, olive cropland and a recovering natural area, which was cultivated with pasture about 15 years ago. The carbon pools (particulate organic matter, mineral-associated organic matter, humic substances and soluble carbon) in four soil fractions ($>2000\mu$, $2000\text{-}250\mu$, $250\text{-}50\mu$ and $<50\mu$) are analysed.

The soil in the three study areas is a petrocalcic xerosol with high percentage of stones in the forest and natural recovering area. The soil texture is silt loam with 17.2% of clay, 60.4% of silt and 22.4% of sand in the forest and recovering area and more content of coarse material (38.4% of sand) in the olive cropland. The total soil organic carbon content in the forest area is next to three times higher compare to the cultivated one (2.69% and 0.98% for forest and cultivated, respectively).