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# Long-term effects of agronomic practices on soil organic carbon and crop productivity in the internal hills of Sicily

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In the hilly areas of Mediterranean environment the high intensity of autumnal rains determines high level of soil erosion losses in agricultural field reducing the soil fertility in the long run. In Sicily region this phenomenon have been emphasized by the crop management and by the orography of the territory. The experimental farm of UNICT for the collection of surface runoff is located in the c.da Manca di Geracello, Enna (550 m a.s.l, 37° 21'N, 14°16'E). The establishment consists of 12 plots. In the last sixteen years (1996-2011) the study of the impact assessment of various herbaceous cropping systems, both in terms of crop rotation (one crop, alternating different crops), crop habit (annual or perennials), types of soil tillage (traditional, minimum tillage, no tillage) on the dynamics of soil organic matter was carried out. The soil organic matter content, according to the depth of measurement (0-30 and 31-60 cm), the portion on the plot where the sample was taken (high, medium, low), and the season (winter and summer), was found significantly different according to the different cropping systems. The variation of organic matter in time was depending upon the soil tillage (plowing or not and sod seeding), the habitus of crop (annual or perennial). In the case of perennial the organic matter increased from 1.2 to 2.2%. The sod seeding allowed to take the organic matter around 1.8-2.0%