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Effects of management on soil organic carbon and structural stability in olive grove toposequences in Mediterranean areas.

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Carbon sequestration in agricultural soils has been defined as a positive strategy to mitigate the climate change effects. To implement this strategy, it is necessary to reduce the soil physical disturbances that encourage its degradation. It is therefore essential to analyze the consequences that conventional tillage practices have on agrosystems as a first step towards developing sustainable management practices that are in line with strategies to combat climate change. In order to evaluate the conventional tillage impact in olive groves, a toposequence was carried out where three profiles of 50 cm depth each were opened in three topographical positions: summit, backslope and toeslope. The physical and chemical soil properties were analyzed, including soil organic carbon (SOC) and mean weight diameter (MWD) of the aggregates, which showed a plot scale low SOC levels and low MWD being subject to erosive processes which negatively impacts on its SOC storage capacity.