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Avatar' remarks on the carbon input threshold in the sloping croplands

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The erosion processes has been recognized as a major treat to land degradation and to the sustainability of agriculture (Gulati and Rai, 2014; Cerda, 2010). Soil erosion by water causes significant ecological damage; it decreases soil fertility, affecting hydrological properties and soil aggregates stability, nutrients and biological activity and reducing soil carbon. The agricultural land degradation by erosion is, moreover, exacerbated by inappropriate soil management techniques. It is the case of most of Mediterranean vineyards where in addition to environmental factors (high slope, rainfall with high intensity), soil management with continuous tillage and absence of plant cover accelerate erosion process (Novara et al., 2011; Ruiz-Colmenero et al., 2012, Bochet et al., 2010; Ries, 2010; Martín-Moreno et al., 2013). For this reason in the last decades have been developed an alternative soil management such us cover crop under vineyard in order to reduce erosion and improve soil organic carbon level by the increase of carbon input into the soil. The avatar wonder: The loss of Carbon by water under alternative soil management could exceed the total C loss under conventional soil management? Is there a C threshold devised for each terrestrial ecosystem? If C input under alternative management increase, soil will reach a saturation C level? The soil science avatar will show the scenario of a conceptual model applied in a Mediterranean sloping vineyard.

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