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# Different approaches to establish soil organic carbon saturation level

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Current estimates of potential organic carbon content in soil have been developed using linear or saturation models. Linear model assumes a first order kinetics for decomposition processes, and a linear relationship between C input level and soil organic carbon (SOC) level at equilibrium; while saturation model suggests little o no increase in steady state SOC stock with an increase of Carbon input. Our results from a long term experiment (20 years), carried out in a Mediterranean agro-ecosystem, showed no difference in carbon accumulation with an increase of carbon input, and seem to suggest that soil can become saturated.It is need additional research on which are the mathematical expressions that better describe SOC saturation in different environment and how quantify the carbon saturation level. In this research we propose three different approaches based on mathematical, economic and environmental criteria to establish the soil carbon storage potential.