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Soil erosion and carbon budget in Mediterranean vineyards

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Vineyards of Mediterranean regions are characterized by low organic matter level and high sediment and nutrient erosion rates, which are the main causes of soil degradation and low sustainability of vine production. Alternative soil management - cover crops, green manure of prune residues, buffer strip- has widely applied as soil management practices to reduce soil degradation processes. However, the effectiveness of innovative soil management should be evaluated in relation to climatic and soil conditions.

Many studies have been carried out in Sicilian vineyards in order to improve the sustainability with particular attention to: reduction of erosion, increase of soil organic matter, managing of nitrogen content and prune residue input. Besides the ecosystem service and its related economic aspects of the different soil management has been evaluated to analyze the wine growers and researchers demands.

The aim of this work is to describe the state of art of scientific results on different soil management in Sicilian vineyards in the last 15 years, highlighting criticisms and lack of knowledge.