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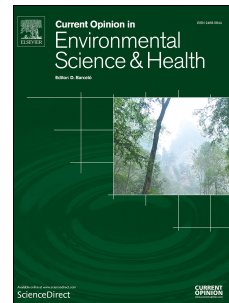
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Sustainable vineyard floor management: an equilibrium between water consumption and soil conservation

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Abstract

Sustainable vineyards soil management can help to mitigate the negative effect of intensive agriculture on soil ecosystem for the achievement of the sustainable development goals. Cover crops use as cover management in vineyard could be considered as nature based solution for soil restoration and proper water management. Cover crops (CC) provide many ecosystem services through carbon sequestration and climate change regulation, water purification and soil protection. However, a holistic approach is needed to understand the maximum potential ecosystem service that can be provided in different soil and climatic condition also considering vineyard needs. The current knowledge of CC management on soil erosion, water content and soil C sequestration in flat and slope field is reviewed. Results of this analysis suggest that the sustainable intensification, due to alternative vineyard soil management, could represent a strategic option for nature based solution but, contemporary, tactical choices must be taken into account to obtain a real environmental, social and economic benefit. Further studies are necessary to correlate the environmental factor (climatic characteristic), hydraulic properties and management (CC species, type of CC) with the global ecosystem service of CC management in economic and environmental terms, in order to provide for each environment clear guidelines. This step could be important to favour the spreading of CC in vineyard as a proper strategic management.

Keywords: Cover crop, vineyard, soil erosion, water budget, soil organic carbon, slope.

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