

Enabling the circular economy in agriculture: a methodological proposal for a multi-criteria sustainability evaluation

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Abstract

The ecological transition to enhance a sustainable and circular approach to resources is the current global challenge, as well as the complex decision-making process that the global community is called upon to manage. In this context, the agricultural and food production sector is trying to pass from a linear resource consumption to a circular management of resources, through the adoption of different circular technologies. Due to the high level of complexity, uncertainty and multidimensional effects, this transition process is facing many challenges and issues. Sustainability requires to be addressed with a comprehensive perspective, considering all three dimensions, namely the environmental, economic and social ones. For this reason, this research aims at developing, and applying to two case studies, an assessment framework to address the implementation of circular technologies in agriculture accounting for relevant stakeholders' perspectives. The main objective is to provide a decision support system able to manage and represent the complexity of the transition to the circular economy paradigm of agriculture. The challenge of the research is using evaluation as a communication, engagement and enabling tool to address innovation according to multidimensional values (social, economic, and environmental), supporting the decision process within its complexity.