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"Solidarity in a competing world — fair use of resources"

Agricultural Management Strategies to Enhance Family Farming in Brazil

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Abstract

Family farms in Brazil produce 70 % of the food consumed nationwide and its production is primarily designated for urban populations. Therefore, these farms do play a major role in food security. However, it is necessary to improve agricultural management in this sector, in order to enhance the food production, to ensure ecosystem service (ES) provision and to offer better life conditions for rural population.

Brazil is a huge country, with differences in natural characteristics and cultural aspects. For this reason, it is not proper to recommend a unique model for family farm management. So, in this study, we present a framework to identify the weaknesses and potentialities of agroecosystems in three study areas, each one located in different biomes in Brazil: Atlantic Forest, Cerrado and Caatinga. The aim is to recommend more appropriate agricultural practices that are able to improve food production in a sustainable way.

The proposed framework establishes the link between agroecosystems and ES provision, considering the criteria of management and agroecosystem establishment in each study area. A set of soil parameters that can be used as indicators to monitor the changes in the agroecosystems is also considered in this framework. The criteria for the agroecosystem development were based on existing knowledge of the biomes associated with gathered information through interviews with farmers and further stakeholders, and small field studies on social, economic, environmental and agricultural aspects. In each study area these criteria for deployment and management of agroecosystems were validated with representatives of agricultural entities and farmers. In a next step, the same group systematised the information and defined the agroecosystems priorities for their area. As a result, sustainable alternatives for agricultural management were identified in order to improve the output of the agroecosystems, considering the specific biome characteristics as well as the community necessities. For instance, "no fire use" and "agricultural consortium" were the main criteria for the deployment and management of agroecosystems with a higher potential for increasing ES provision, and biomass stock in soil and litter were the related soil parameters to be used as indicator to monitor the impact.

Keywords: Ecosystem services, multiple agricultural system, tropical farming

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