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"Reconcile land system changes
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Micro water harvesting integrated with agroecological practices: The case study of re-farm project

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Abstract

RE-FARM - Research on agroecological innovations for increasing resilience to climate change in Cuanza Sul and Benguela is a 4-year cooperation project (2021–2026), funded by the €OPE-AID program, based on participatory research with ten farmers' communities, located in the provinces of Cuanza Sul and Benguela, in Angola. Food production is concentrated in smallholder agriculture, which relies on manual labour, lacks production technology and has low productivity. These factors result in a high exposure to climatic phenomena that affect production yields and food availability for the country. RE-FARM is addressing this issue with a participatory research methodology, involving Italian and Angolan researchers, state and NGO extension workers, university lecturers and students, and family farming communities. The objective of this study is to evaluate how 6 micro-water harvesting techniques, in combination with 4 different agro-ecological practices, contributes to improving the resilience of Angolan family agriculture to climate change, which is characterised by two rainy seasons (Long rainy season and Short rainy season in local language) interspersed with periods of drought. The variables analysed are soil moisture (RH%) and actual crop yield (Ya), specifically maize yield. Data are collected on the yield cycles of 3 rainy seasons. The analysis is carried out on 3 treatments - water harvesting with agroecology, agroecology, and control plot - each with 3 replications. The results show that the weight of the ear obtained from the plots with micro-water harvesting structures is 38 % higher than the weight of the ear collected in the plots without water harvesting. About soil moisture, the values show variations over time, while the differences between the three treatments are insignificant. The study's findings indicate that the combination of different water harvesting techniques with the same agro-ecological practice on the same crop have different impacts on the moisture values recorded.

Keywords: Agroecology, drought, water harvesting

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