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Rainwater Harvesting as a Sustainable Alternative for Ensuring Food Security

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Abstract

Rainwater harvesting (RWH) has been used since ancient times and started gaining popularity recently. As simple, cost effective and sustainable alternative for securing food, RWH offers stability in terms of water availability for agricultural output for smallholder farmers in arid and semi-arid areas. Although trivial forms of RWH exist in such areas, efficiency of water use might be doubtful. To be precise, poor water maintaining capacity, increased level of evaporation, absence of calculations of local precipitation levels and actual annual need for irrigation water weakens efficient use of this precious natural resource. Taking into account this assumption, the article seeks practical solutions for food security in the absence of water system infrastructure in rural areas. Our hypothesis states that even with annual precipitation less than 300 mm, it is possible to ensure and maintain rainfed agriculture. This work serves as a continuation of the previous research completed in April 2015 on kitchen gardens in this area. The theory and practice-based training sessions were provided for the farmers (n=15) in the Shybran village of Batken province in southern Kyrgyzstan, and took place at the end of dry and beginning of rainy season (August). Within this framework, farmers were informed about the chances to increase water supply, improve water use efficiency and employment of appropriate crops in terms of local climatic conditions. In addition, the farmers were given financial support to construct RWH structures. These RWH structures will increase water use efficiency, and their wider dissemination among rural farmers in southern Kyrgyzstan, will insure water sustainability, increase reliance on self-grown food, and eventually decrease youth migration from rural areas.

Keywords: Arid and semi-arid areas, climate change, local initiatives, water efficiency, water sustainability