African Equine Veterinary Studies

Water Harvesting Structures and Their Impact on Cattle Health and Milk Production in Semi-Arid Sudanese Regions

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Abstract

Semi-arid regions in Sudan are characterized by erratic rainfall patterns, leading to water scarcity and its impact on livestock health and productivity. Agricultural experts conducted a randomized controlled trial across five villages, assessing WHs' impact using baseline data for comparison. Water harvesting significantly improved milk yield by an average of 15% (95% CI: 8-23%) in the treated villages compared to control areas. The study supports the implementation of WHs as a crucial intervention for enhancing livestock productivity in semi-arid regions. Farmers should be encouraged to adopt water harvesting structures, and further research is recommended to explore long-term sustainability. The empirical specification follows $Y = \vec{\beta_{0+\beta}} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sudanese, Geographical, Hydrology, Livestock, Irrigation, Sustainability, Precision Agriculture*

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