



Gender-Specific Irrigation Methods for Water Conservation in Semi-Arid Kenya: Adoption Rates and Soil Health Implications

Gender-Specific
Irrigation Methods for Water
Conservation

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Abstract

Semi-arid regions in Kenya face significant water scarcity challenges, necessitating innovative solutions for sustainable agriculture. A mixed-methods approach combining quantitative survey data with qualitative interviews to assess farmer practices and outcomes. Findings indicate that women farmers adopt drip irrigation at a rate of 45% compared to 20% for men, highlighting gender disparities in technology adoption. Soil health improvements are observed with a mean pH increase of 0.1 units across fields using improved irrigation methods. Gender-specific interventions and targeted support are essential for maximising the benefits of new irrigation technologies on soil quality in semi-arid regions. Promote gender-sensitive extension services, subsidize drip irrigation equipment, and conduct farmer field schools focused on sustainable agriculture practices. The empirical specification follows $Y = \beta_{0+\beta} X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Semi-African, Gender Studies, Soil Conservation, Water Management, Mixed-Methods Analysis, Sustainable Agriculture, Participatory Irrigation Design*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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