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The Adoption of Efficient Irrigation Systems in Maize Production: A Three-Year Study in Northern Kenya's Agricultural Context,

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Abstract

Efficient irrigation systems are critical for enhancing maize production in arid regions like northern Kenya, where water scarcity is a significant constraint. A comprehensive search was conducted across academic databases using keywords related to maize production, irrigation technologies, and their socio-economic impacts. Studies published from onwards were considered for inclusion. Among the reviewed studies, a notable trend indicated that the adoption of drip irrigation systems led to an average yield increase of 15% in northern Kenya's agricultural context over three years. The review highlights the potential benefits of adopting efficient irrigation technologies in improving maize yields and sustainability in arid regions. Farmers should be encouraged to adopt drip irrigation systems, which have shown significant yield improvements. Policy makers could also consider subsidizing or promoting these technologies as a means to enhance agricultural productivity. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Kenya, Maize Production, Irrigation Systems, Adoption Studies, Agricultural Efficiency, Water Scarcity, Methodology*

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