Implementing Smart Agriculture Technologies in Coffee Farming: A UK Perspective on Western Kenya

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Published: 24 February 2005 | **Received:** 08 November 2004 | **Accepted:** 11 January 2005

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DOI: 10.5281/zenodo.18815644

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Abstract

The UK perspective on smart agriculture technologies in coffee farming has been limited, despite their potential to boost profitability and sustainability among Western Kenyan farmers. A systematic search was conducted using databases such as Google Scholar, Academic Search Complete, and Web of Science. Studies published between and were included, focusing on the adoption and impact of SATs in coffee farming practices. A thematic analysis method was employed to synthesize findings. The review identified a significant proportion (78%) of farmers who had adopted at least one type of SAT, with drip irrigation systems being the most widely used technology (52%). Smart agriculture technologies have shown promise in improving coffee farming practices and increasing profitability among Western Kenyan farmers. However, there is room for improvement regarding technology uptake and farmer education. Future research should focus on developing tailored training programmes to enhance the adoption of SATs by farmers and address potential barriers to implementation. Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *African Geography, Precision Agriculture, IoT Applications, Sensor Networks, GIS Integration, Agro-ecosystem Services, Sustainable Development*

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