



Precision Agriculture Adoption among Ethiopian Coffee Farmers: A Theoretical Framework

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Published: 10 August 2003 | **Received:** 14 May 2003 | **Accepted:** 12 July 2003

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DOI: [10.5281/zenodo.18778697](https://doi.org/10.5281/zenodo.18778697)

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Abstract

Precision agriculture involves the use of advanced technology to optimise crop yields while minimising environmental impact. In Ethiopia, coffee farming is a significant contributor to the economy and environment, yet there is limited research on how precision agriculture techniques can be effectively adopted by smallholder farmers. Theoretical development will be guided by existing literature on precision agriculture, smallholder farming practices, and socio-economic conditions in Ethiopia. A mixed-methods approach combining qualitative interviews with quantitative surveys will inform the framework's design. The theoretical framework provides a comprehensive understanding of factors affecting precision agriculture adoption among Ethiopian coffee farmers. It offers actionable recommendations for policy makers and agricultural development programmes aiming to enhance sustainable farming practices in Ethiopia. Developed policies should prioritise investment in infrastructure, education, and community engagement initiatives to facilitate wider dissemination of precision agriculture techniques among smallholder coffee farmers in Yirimadjo District.

Keywords: *Sub-Saharan, GIS, STS, RCM, SLM, CAP, TDM*

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