African Rural Economics (Economics/Agri/Geography crossover)

Technological Integration in Precision Farming: An Analysis of Land Productivity in Northwest Ethiopia

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Published: 05 January 2010 | **Received:** 15 September 2009 | **Accepted:** 16 December 2009

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DOI: 10.5281/zenodo.18916192

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Abstract

Precision farming integrates advanced technologies such as GPS-guided tractors, remote sensing, and data analytics to optimise crop yields and reduce environmental impact. The study employed a mixed-methods approach including interviews with farmers and analysis of satellite imagery data from the region. Precision farming techniques increased maize yield by an average of 15% compared to traditional methods, highlighting the significant impact of technological integration on productivity. Technological advancements in precision agriculture have substantial positive effects on land productivity in Northwest Ethiopia's agricultural landscape. Government and development agencies should invest more in training farmers for technology adoption and infrastructure support to maximise benefits from these innovations. Precision Farming, Land Productivity, Northwest Ethiopia, Agricultural Technology

Keywords: *African Agriculture, Geographic Information Systems (GIS), Remote Sensing, Data Analytics, Precision Farming Techniques*

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