



Precision Agriculture in Maize Production: Insights from Eastern Uganda

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Abstract

Precision agriculture involves advanced technologies such as GPS-guided tractors, variable-rate application systems, and remote sensing for crop monitoring to optimise resource use in farming. The study utilised semi-structured interviews with 50 farmers from Eastern Uganda's maize-producing regions to gather qualitative data on their experiences with precision farming technologies. Farmers reported an average increase of 25% in maize yields after implementing precision agriculture techniques, accompanied by a notable reduction (30%) in chemical fertiliser usage costs. The findings indicate that integrating precision agriculture into traditional farming practices can significantly enhance yield efficiency and profitability for smallholder farmers in Eastern Uganda's maize sector. Government agricultural extension services should promote training programmes on precision agriculture technologies to support smallholders' adoption, while financial institutions could introduce subsidies or credit facilities tailored for precision farming investments.

Keywords: *Precision Agriculture, Maize Production, GPS Navigation, Remote Sensing, Variable Rate Application, Geographic Information Systems (GIS), Yield Analysis*

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