



Precision Agriculture Technologies in Madagascar: Adoption Dynamics and Success Factors Among Farmers

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Abstract

Precision agriculture technologies (PATs) have been introduced in Madagascar to enhance agricultural productivity and sustainability. A mixed-method approach combining quantitative surveys with qualitative interviews was employed to analyse data from a sample of 150 farmers. The study identified that 60% of farmers adopted at least one type of precision technology, with GPS-guided tractors being the most widely used (35%). Farmers in Madagascar value technical support and training as key success factors for adopting PATs. Investment in farmer education programmes and improved access to technology should be prioritised to increase adoption rates. Precision Agriculture Technologies, Adoption Dynamics, Success Factors, Farmers, Madagascar The empirical specification follows $Y = \beta_{0+\beta} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Madagascar, Precision Agriculture Technologies, GIS, Remote Sensing, Participatory Approach, Yield Gap Analysis, Farmer Adoption Dynamics*

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