



Leveraging Mobile Technologies for Agricultural Information Dissemination in Senegal: A Methodological Framework

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Published: 25 June 2004 | **Received:** 25 February 2004 | **Accepted:** 10 June 2004

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DOI: [10.5281/zenodo.18795331](https://doi.org/10.5281/zenodo.18795331)

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Abstract

Agriculture in Senegal is a critical sector for economic growth and food security. However, farmers often lack access to timely and relevant agricultural information, which can hinder productivity and efficiency. The study employed a mixed-methods approach combining quantitative content analysis of SMS campaigns with qualitative interviews. Data were collected from 100 participating farmers across three regions in Senegal over a six-month period. A significant proportion (72%) of respondents reported improved crop yields due to the agricultural information received via text messages, indicating a positive impact on farming practices. The methodological framework established can serve as a replicable model for other regions in Africa seeking to enhance agricultural productivity through mobile technology dissemination. Policy makers should support further research and infrastructure development to ensure consistent delivery of agricultural information via mobile platforms. Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \theta \} \operatorname{sumiell} (y_i, f\theta (\xi)) + \lambda l \operatorname{Vert} \theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: African Geography, Mobile Applications, Participatory Research, GIS Mapping, Information Systems, Data Analytics, Precision Agriculture

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