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Methodological Assessment of Regional Monitoring Networks in Uganda: A Quasi-Experimental Approach to System Reliability Evaluation

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Abstract

Uganda's agricultural sector relies on effective monitoring networks to ensure timely interventions for disease control and management. A systematic review of existing literature will be conducted using predefined inclusion criteria to assess the methodologies used by various stakeholders. The analysis identified a significant variation (30-70%) in data transmission times across different monitoring nodes, necessitating improvements for system reliability. The quasi-experimental design successfully highlighted the need for standardised protocols and regular maintenance checks to enhance network functionality. Stakeholders should implement a unified reporting format and establish routine calibration exercises to reduce data discrepancies. Agriculture, Monitoring Networks, System Reliability, Quasi-Experimental Design The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agriculture, Geographic Information Systems (GIS), Methodological evaluation, Monitoring networks, Quasi-experimental design, Spatial analysis, System reliability assessment*

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