African Animal Welfare Studies (Agri/Animal Science)

Bayesian Hierarchical Model Evaluation in Field Research Stations: An Assessment of Clinical Outcomes in South African Agricultural Settings

Sipho Motshega[1], **Kgosiwe Ngubane**[2], **Mpho Modise**[3,4]

[1] Department of Agricultural Economics, University of Cape Town

[2] University of Cape Town

[3] Department of Soil Science, University of Cape Town

[4] SA Astronomical Observatory (SAAO)

Published: 22 August 2012 | **Received:** 24 April 2012 | **Accepted:** 09 July 2012

Correspondence: smotshega@yahoo.com

DOI: 10.5281/zenodo.18951367

Author notes

Sipho Motshega is affiliated with Department of Agricultural Economics, University of Cape Town and focuses on Agriculture research in Africa.

Kgosiwe Ngubane is affiliated with University of Cape Town and focuses on Agriculture research in Africa.

Mpho Modise is affiliated with Department of Soil Science, University of Cape Town and focuses on Agriculture research in Africa.

Abstract

Clinical outcomes in agricultural settings often require robust statistical models to ensure accurate evaluations of interventions and practices. The article employs Bayesian Hierarchical Models (BHMs) to analyse data collected from multiple sites across different regions of South Africa. The BHMs are designed to account for variability between sites while estimating treatment effects accurately. The study underscores the effectiveness and adaptability of BHMs for evaluating clinical outcomes in agricultural contexts. The results highlight the need for continued methodological refinement and wider adoption of these models in similar studies. Researchers are encouraged to use BHMs when conducting field research in agriculture, particularly focusing on enhancing model robustness through more comprehensive data collection and site-specific adjustments. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agricultural systems, Bayesian hierarchical models, clinical trials, econometrics, meta-analysis, randomized controlled trials, spatial statistics*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge