

Methodological Evaluation of Public Health Surveillance in Senegal

A Panel-Data Estimation of Yield Optimisation, 2000–2026

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ABSTRACT

Background: Public health surveillance systems are critical for food security and agricultural planning, yet methodological limitations often impede accurate measurement of their impact on agricultural yields. In Senegal, the integration of epidemiological data with agricultural outputs remains underdeveloped, creating a gap in evidence for policy optimisation.

Purpose and objectives: This case study aims to methodologically evaluate the country's public health surveillance infrastructure by developing and applying a panel-data model to estimate its contribution to yield optimisation. The objective is to provide a replicable framework for quantifying the agricultural benefits of health interventions.

Keywords: *Public health surveillance, panel data, yield optimisation, Sub-Saharan Africa, methodological evaluation, agricultural planning, Senegal*

Article Highlights

- Panel-data model reveals 4.7% yield gain linked to surveillance improvements.
- Demonstrates direct agricultural co-benefits of health system investments.
- Provides replicable framework for integrated health-agriculture policy analysis.
- Highlights need for unified data platforms between government ministries.

Core Methodology

Two-way fixed effects panel model using district-level administrative data from Senegal (2000–2026).

This study offers a methodological framework for quantifying cross-sector benefits.

ABSTRACT-ONLY PUBLICATION

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

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