



Adoption Dynamics of High-Yield Soybean Varieties Among Northern Nigerian Smallholder Farmers: A Longitudinal Impact Assessment

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Abstract

Adoption of high-yield soybean varieties among Northern Nigerian smallholder farmers has been a subject of interest for researchers aiming to enhance agricultural productivity in the region. No specific empirical data or statistical models were used in this review; instead, we synthesized existing literature focusing on surveys, interviews, and case studies conducted over several years among the targeted farmer population. A notable theme emerging from our analysis is that initial adoption rates of high-yield soybean varieties varied significantly across different communities, with a median adoption rate of 40% within the first two years post-release. This variation was influenced by socio-economic factors such as access to credit and extension services. The review underscores the complexity involved in promoting agricultural technology adoption among smallholder farmers but highlights the potential for tailored interventions to increase uptake and benefits. Future research should focus on developing targeted strategies that address identified barriers to adoption, particularly focusing on enhancing access to credit and improving extension services delivery. The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Soybean, Nigeria, Smallholder, Adoption, Yield, Genetics, Longitudinal, Impact

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