



Mechanization and Appropriate Technologies on Small Farms in Mali: A Meta-Analysis

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Abstract

In Mali, smallholder farmers face challenges in adopting mechanization and appropriate technologies to improve agricultural productivity. A systematic review and meta-analysis approach was employed using data from 10 studies covering a period from to . Studies were selected based on inclusion criteria focusing on yield improvements, adoption rates of mechanization, and technological interventions. The analysis revealed that integrated use of appropriate technologies with mechanization led to an average yield increase of 15% compared to conventional farming methods. The findings suggest that combining mechanical assistance with targeted agricultural innovations can significantly enhance crop yields on small farms in Mali. Policy makers and extension services should promote a package approach including both mechanization and technology adoption as key strategies for enhancing agricultural productivity among small farmers. The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African, Smallholder, Meta-Analysis, Mechanization, Technologies, Productivity, Review*

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