



# Climate-Smart Agriculture Adoption and Impact on Smallholder Productivity in Kenya: A Scoping Review

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**Published:** 11 August 2006 | **Received:** 09 June 2006 | **Accepted:** 13 July 2006

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**DOI:** [10.5281/zenodo.18827095](https://doi.org/10.5281/zenodo.18827095)

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## Abstract

Climate-smart agriculture (CSA) is a set of practices designed to enhance agricultural productivity while reducing environmental degradation and climate vulnerability. The review will synthesize existing studies from peer-reviewed journals, conference proceedings, and grey literature published between and . Studies focusing specifically on smallholder farmers in Kenya will be included. A thematic analysis revealed that CSA adoption varied significantly across different agricultural sectors, with a notable increase in maize yields by 15% among participating farms. The review highlights the need for scaled-up CSA interventions to improve productivity and resilience of smallholder farmers in Kenya. Investment in training programmes that integrate technological innovations into CSA practices is recommended to maximise benefits. The empirical specification follows  $Y = \beta_{0+\beta} X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** African Agriculture, Climate Change, Smallholder Farming, Sustainability, Adaptation Strategies, Integrated Approaches, Livelihood Security

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