

The impact of knowledge sources for climate-smart agriculture on farmers' income stability in northern Togo

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Introduction

- Knowledge sources and gaps are crucial for understanding the adoption of climate-smart agricultural practices and technologies (CSAPT).
- Farmers in northern Togo rely on traditional knowledge from previous generations and observational practices. Meanwhile, the government and partners promote innovative CSAPT knowledge focused on current agricultural technologies.
- Our study compares how both sources of CSAPT knowledge affect farmers' agricultural income, focusing on which sources best increase income and reduce risk.

Methods

- Multistage random sampling was used to select 539 farm households for a survey conducted from January to March 2023.
- Farmers' initial knowledge sources about CSAPT were classified into traditional knowledge and innovative knowledge.
- An Endogenous Switching Regression model was employed to control for self-selectivity bias, as access to innovative information is not random.
- A Moment-Based Approach was employed to measure downside risk, a proxy for the likelihood of losses.
- A household's access to state reserve community land was used as the instrument.

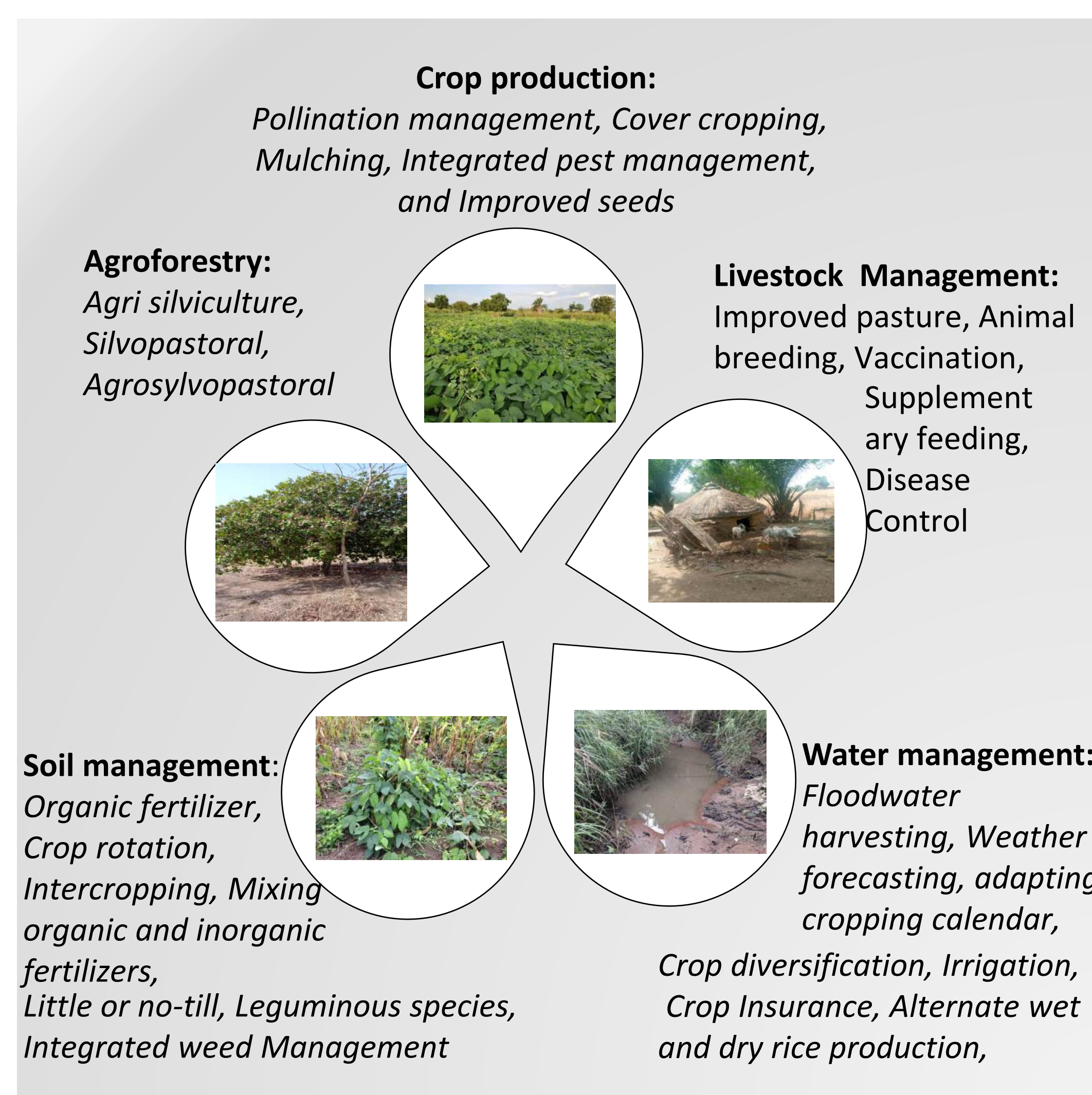
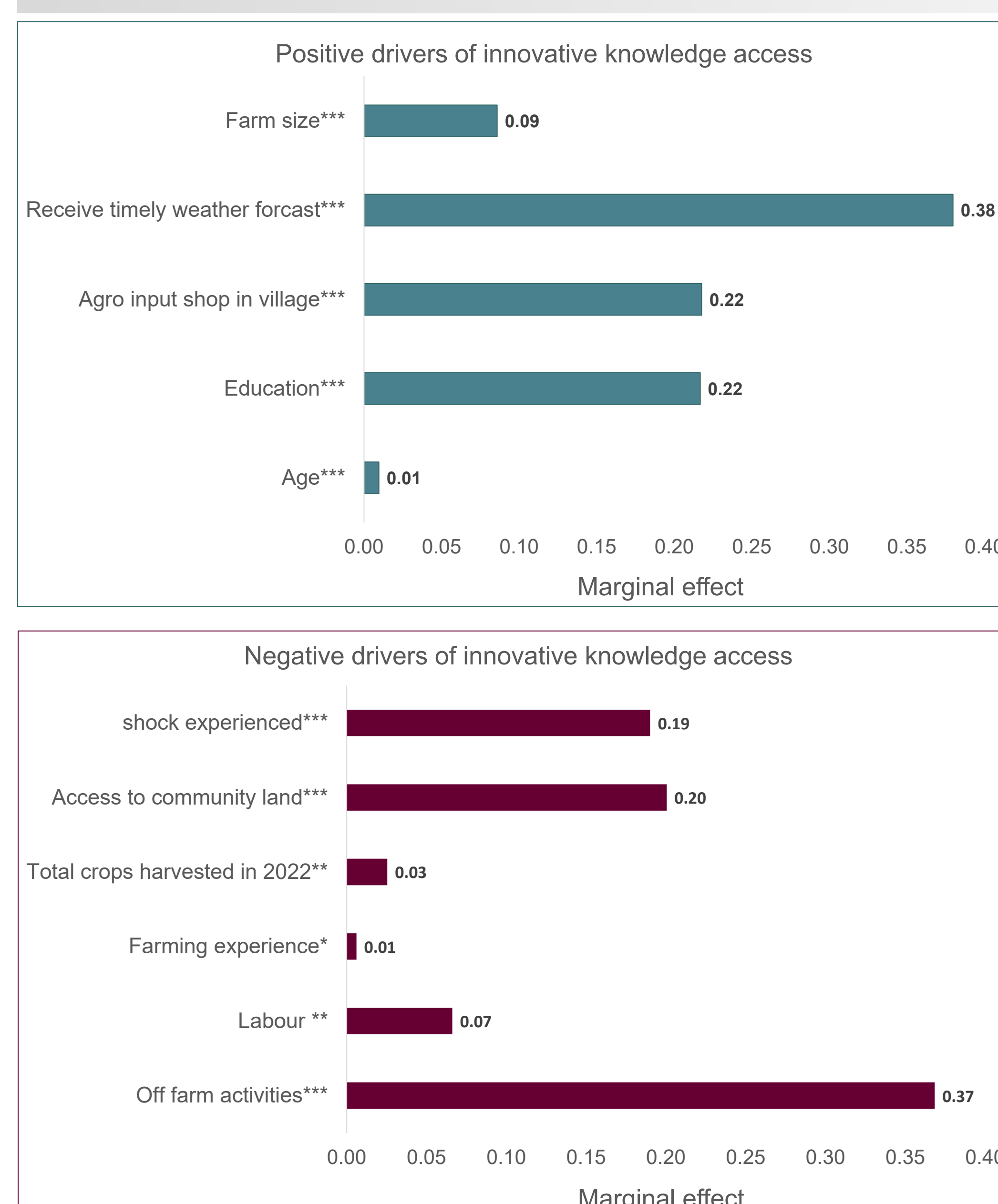


Fig. 1: Portfolio of CSAPT studied

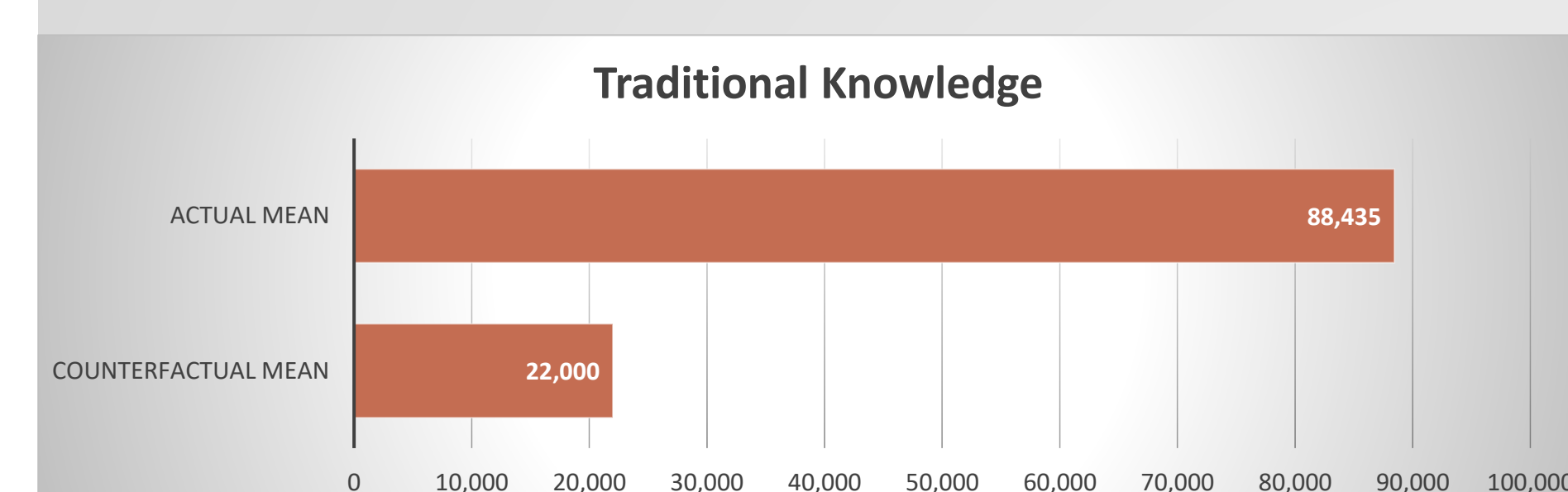
Results

- Our study identified key household and environmental factors that are significantly correlated with the adoption of innovative knowledge sources.

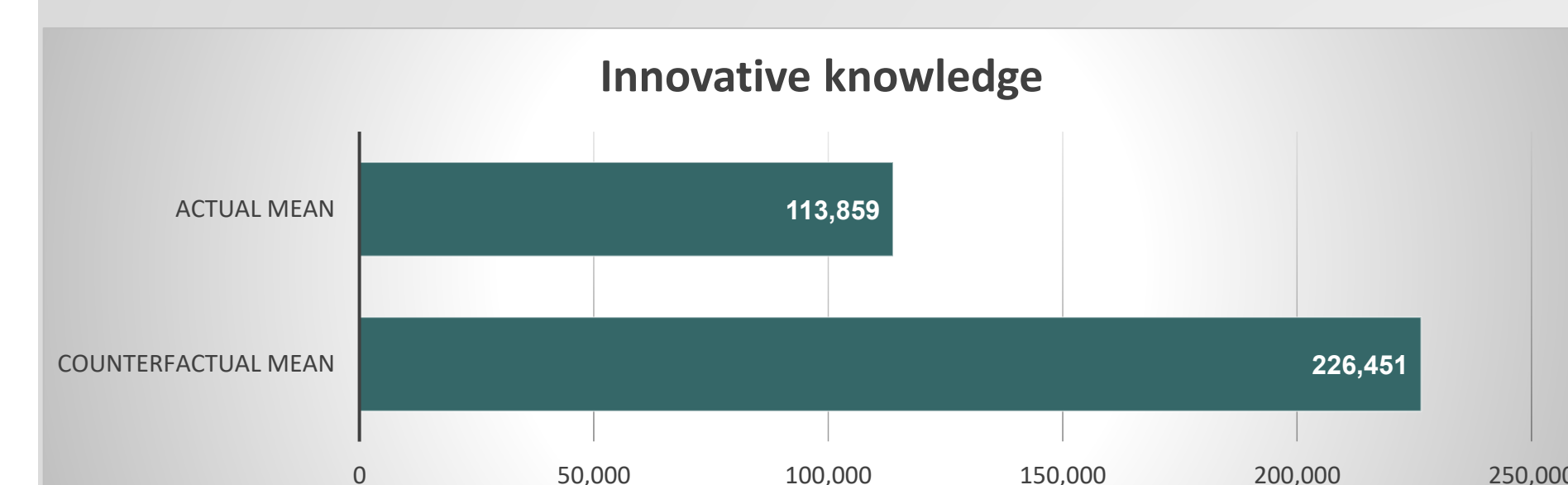


- Households with access to innovative knowledge sources saw their agricultural income increase by an average of **16.4%**, and reduces the dispersion of agricultural incomes, indicating a **3.9%** decrease in volatility and the likelihood of losses.

- The comparison shows that farmers relying on traditional knowledge would have earned less income if they had access to innovative knowledge sources.



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Outlook

- Rationality of Non-Adopters?** The findings suggest that farmers relying on traditional knowledge are not just unaware of innovative sources. Instead, they are probably making a rational economic decision by choosing not to use it, probably due to a lack of the necessary complementary resources.
- Policymakers should improve farmers' access to innovative information sources, as this can significantly close knowledge gaps, thereby increasing farmers' income and lowering downside risks.



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