

Regenerative Agriculture, Knowledge Diffusion, and Dietary Outcomes among Smallholders in Kenya

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1. INTRODUCTION

- ✓ Regenerative agriculture (RA) is promoted as a pathway to improve smallholder livelihoods, resilience, and food systems.
- ✓ However, evidence on how RA affects household nutrition and whether its benefits differ by knowledge transfer pathways remains limited.
- ✓ This study examines:
 1. Whether RA implementation is associated with improved diets.
 2. Whether the dietary outcomes differ by knowledge transfer pathway.
 3. Whether observed patterns are more consistent with production-based or income-mediated pathways.

2. STUDY DESIGN

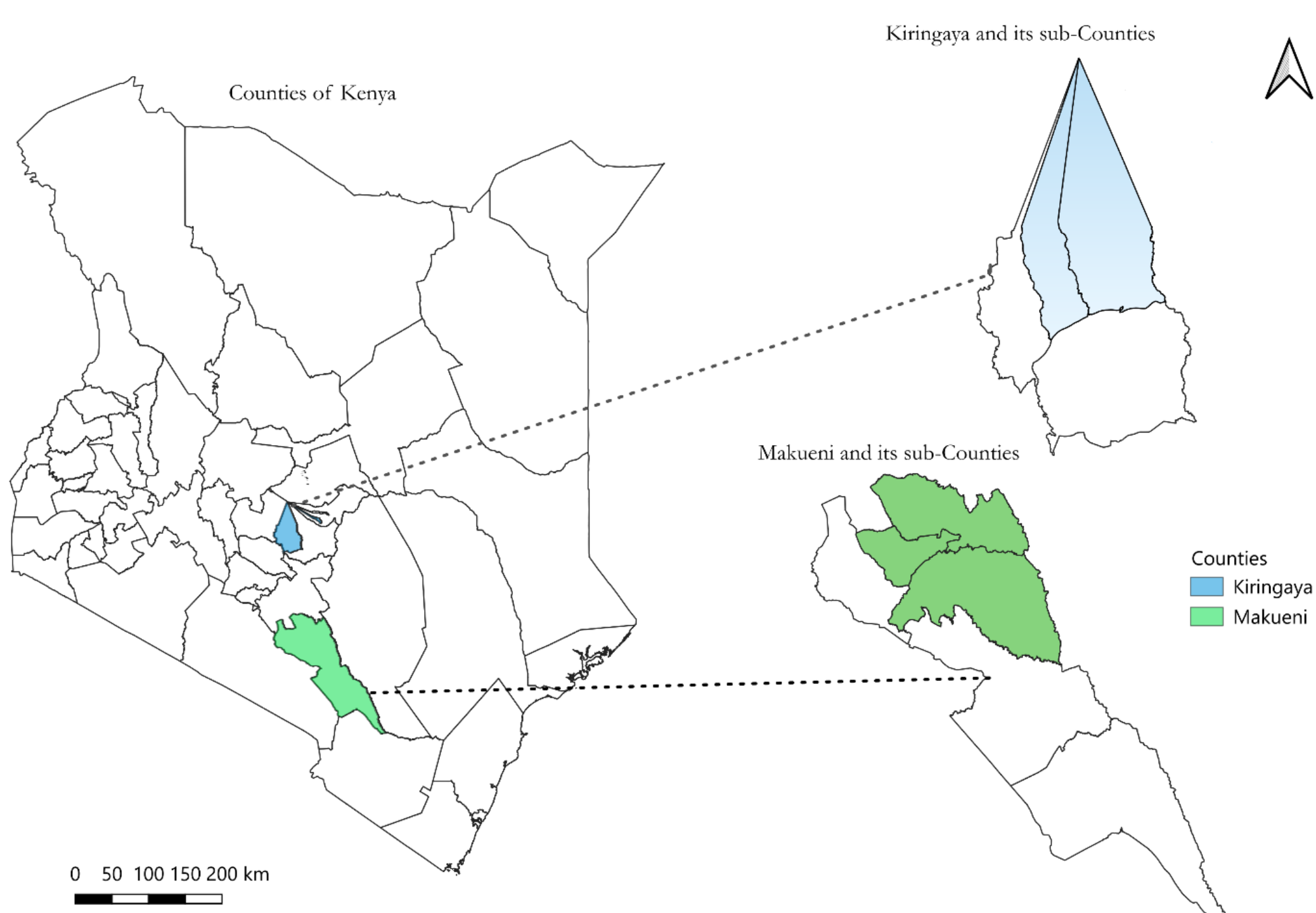
- ✓ Sequential mixed methods in Makueni and Kirinyaga Counties

Qualitative

- 33 interviews
- 1 stakeholder workshop
- 14 Focus group discussions

Survey

- 949 smallholder households



D. Knowledge pathway comparison

- Post-estimation Wald tests found no differences between peer- and NGO- trained farmers
- Comparable dietary outcomes suggest farmer-to-farmer diffusion can complement formal training.

E. Qualitative mechanisms

- ✓ How does RA improve diets?

1. Production diversification

- Multiple crops, fruits, vegetables, indigenous foods, and greater livestock diversity.

2. Self-provisioning

- More food consumed from own production.
- Less reliance on market purchases.

F. Interpretation

- ✓ Dietary gains are consistent with diversified production and self provisioning than greater purchasing power.

3. RESULTS

A. Comparison groups

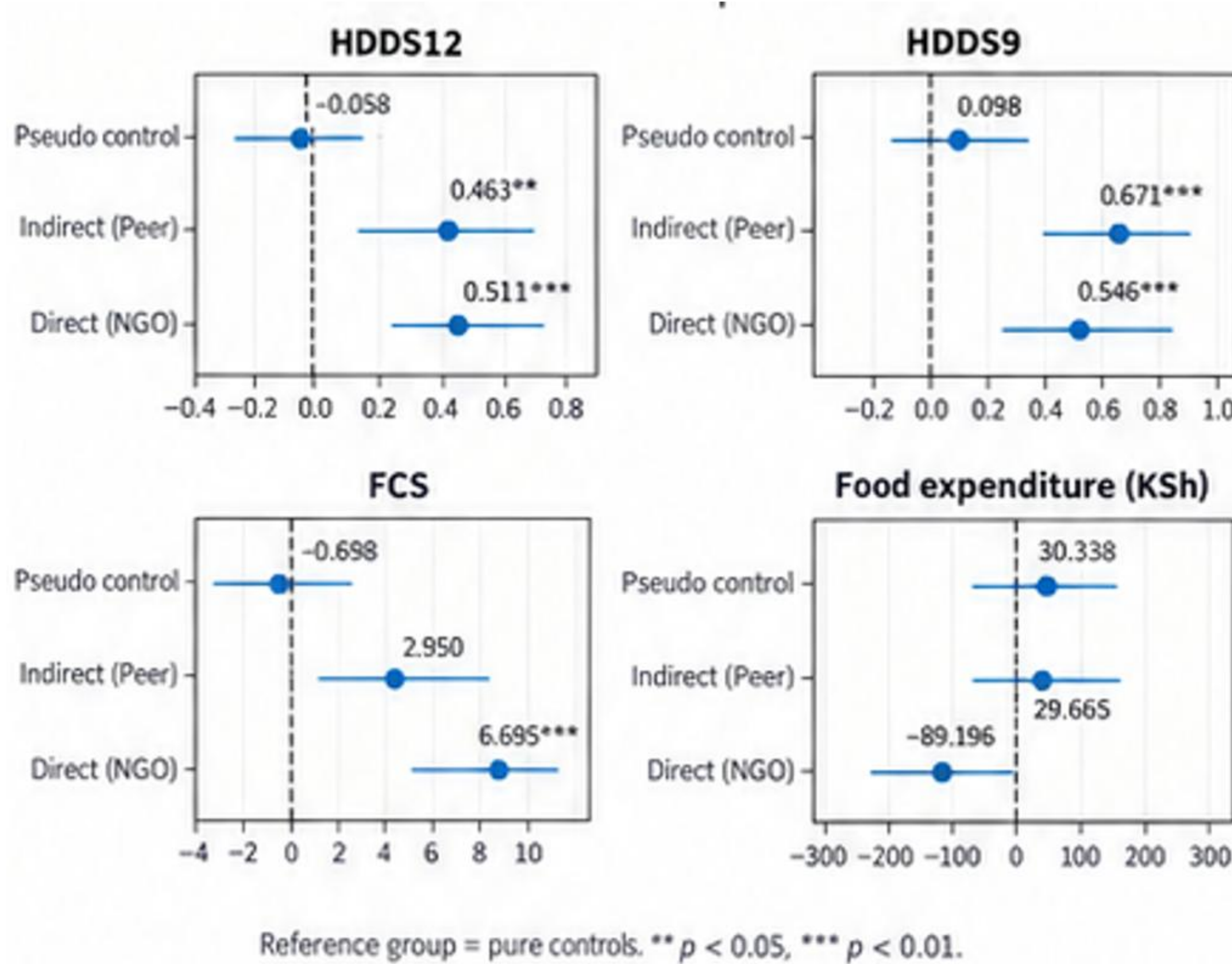
Pure control	Pseudo control	Indirect / peer	Direct / NGO
Not aware and not implementing	Aware but not implementing or discontinued	Implementing through farmer-to-farmer learning	Implementing through formal NGO or partner training
320 households	164 households	58 households	407 households

B. Descriptive outcomes



- ✓ Dietary outcomes differed significantly across groups (overall $p < 0.001$), but food expenditure did not ($p = 0.412$).

C: Adjusted associations



- Peer- and NGO-trained farmers had more diverse diets
- NGO-trained farmers also had higher food consumption scores
- Pseudo-controls did not differ from pure controls
- RA did not increase food expenditure.

4. CONCLUSION

- ✓ Regenerative agriculture implementation is associated with better dietary diversity
- ✓ Peer diffusion may offer a scalable complement to direct training
- ✓ Nutrition benefits should be tracked alongside environmental outcomes.

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