



## Can participatory video-based extension increase awareness and knowledge of climate adaptation practices? Insights from rural Kenya

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### SUMMARY

Climate-smart agriculture (CSA) has been promoted as a framework to identify a set of solutions that simultaneously sustain agricultural productivity and incomes, increase the resilience of agriculture, and reduce greenhouse gas emissions. However, it has proven to be challenging to reach women farmers with information on CSA practices. This note summarizes results from a study that assessed whether participatory video-based extension approaches tailored to women's preferred CSA approaches could reduce the gender gap in awareness and adoption of CSA practices in Kenya. The findings suggest that watching the videos increased awareness of the CSA practices promoted in the videos as well as other practices. However, watching the videos did not increase the adoption of the CSA practices. We propose strategies to strengthen the uptake of CSA practices alongside participatory video-based extension.

### INTRODUCTION

Intensifying climate change is having substantial negative impacts on many low-income countries reliant on the agriculture sector for economic growth and rural livelihoods. In Kenya, climate extreme events, such as prolonged droughts and extreme flooding, have resulted in significant economic losses and negatively impacted food security and livelihoods. Climate-smart agriculture (CSA) has been promoted as a framework to identify a set of solutions that simultaneously sustain agricultural productivity and incomes, increase the resilience of food systems, and reduce greenhouse gas emissions. A number of CSA practices have been promoted in Kenya in recent years using various extension approaches ranging from farmer field schools to digital platforms.

Access to climate information and extension services is essential for more widespread adoption of CSA approaches. However, research shows that climate information and extension services are less likely to reach women farmers. The gender disparity in access to climate information and extension services is one factor contributing to women's relatively lower levels of adoption of CSA practices. More recent emphasis on digital extension approaches risks exacerbating gender inequalities in CSA awareness and adoption, given gender gaps in smartphone ownership and mobile Internet usage. Moreover, men and women have different preferences for CSA approaches, yet women's preferred practices are often not reflected in extension messages, which further contributes to the gender gap in their adoption. There is, therefore, a need for innovative participatory information sharing and extension

models that deliver knowledge of CSA practices and promote their adoption among both men and women.

## THE INTERVENTION

To test whether video-based extension approaches tailored to women's preferred CSA approaches could reduce the gender gap in awareness and adoption of CSA practices in Kenya, IFPRI partnered with GROOTS (Grassroots Organizations Operating Together in Sisterhood)-Kenya to design and roll out participatory video screenings to women and men farmers using an experimental design in three counties in Kenya—Busia, Nakuru, and Laikipia. Focus group discussions and key informant interviews were carried out with farmers in the three counties to identify locally viable CSA practices that are preferred by women (Magalhaes et al. 2023). Videos featuring women champion farmers discussing three practices—cover cropping, minimum tillage, and zai pits—were then designed and shown to groups of farmers randomly selected to view the videos from among the communities where GROOTS works. Data were collected from men and women from 740 households in the study sites, including those that had viewed the videos and those that had not. The research team then assessed the extent to which the videos increased awareness and adoption of the featured practices.

## RESULTS

Data show that awareness and adoption of zai pits was very low at baseline. Only 12 percent of women and

18 percent of men farmers were aware of zai pits as a CSA practice, and the gender difference was statistically significant. Among those aware of the practice, adoption was also low, with 38 percent of women and 29 percent of men adopting zai pits on their farms. Similarly, only 38 percent of women and 44 percent of men were aware of minimum tillage as a CSA practice at baseline, and the gender difference was statistically significant. About one-half of those aware of minimum tillage said that they were practicing it on their farms and no significant gender differences in adoption of the practice were found. Awareness and adoption of cover crops as a CSA practice was considerably higher than for the other two practices at baseline. About 60 percent of women and 66 percent of men were aware of the practice and over 70 percent of those aware were adopting it on their farms. Like the other two practices, the gender difference was statistically significant ( $p < 10\%$ ) in awareness but not in adoption. These results suggest that overcoming gender differences in awareness, through the provision of information, could reduce gender gaps in adoption of these practices.

While a total of 572 farmers (325 women and 247 men) were invited to view the videos, only 60 percent indicated that they had watched the videos during the intervention period. Women were slightly more likely than men to report having viewed the videos (among those who were invited). Because of the low rates of participation in the intervention among the individuals selected to view the videos, we use two approaches to assess the impacts of the videos on awareness and adoption of CSA practices. The first approach estimates the average effect of the videos on awareness



**TABLE 1 Effects of videos on awareness of featured CSA practices**

CSA practice	Intent to Treat (ITT)		Local Average Treatment Effects (LATE)	
	Women	Men	Women	Men
<b>Zai pits/Planting pits</b>	0.088** (0.04)	0.091** (0.05)	0.183** (0.08)	0.232** (0.11)
<b>No till/Minimum tillage</b>	0.120*** (0.04)	0.03 (0.04)	0.249*** (0.08)	0.076 (0.10)
<b>Cover cropping</b>	0.100** (0.04)	0.109** (0.04)	0.206*** (0.08)	0.275** (0.11)

Source: Authors.

and adoption of the practices among all farmers invited to view the videos, regardless of whether they actually watched them. This is the intent to treat estimate (ITT), which likely underestimates the impact of the videos. To assess the effect of watching the videos on only those who viewed them, we use an estimate of local average treatment effects (LATE).

The results of the video intervention on farmers who were invited to view the videos (ITT) show that the videos increased the awareness of zai pits, minimum tillage, and cover cropping among men and women farmers (ITT results, Table 1). Among farmers who reported actually watching the videos, the videos had a much larger impact on awareness of these practices (LATE results, Table 1). Interestingly, awareness of CSA

practices not featured in the videos also increased among individuals who participated in the intervention. This is likely due to the way in which the videos were shown. Farmers watched the videos in groups and the screening was followed by discussions with GROOTS and local extension staff. Farmers may have used this opportunity to discuss and learn about other CSA practices.

Despite increases in awareness following the video intervention, no effect of watching the videos on adoption of the CSA practices was found using either of the estimation approaches (ITT and LATE, Table 2). This suggests that access to information was not the primary constraint to households' adoption of these particular practices. Other key constraints farmers pointed

**TABLE 2 Effects of videos on the adoption of CSA practices**

CSA practice	Intent to Treat (ITT)		Local Average Treatment Effects (LATE)	
	Women	Men	Women	Men
<b>Zai pits/Planting pits</b>	0.003 (0.06)	-0.053 (0.07)	0.006 (0.10)	-0.125 (0.16)
<b>No till/Minimum tillage</b>	0.001 (0.05)	0.007 (0.05)	-0.001 (0.09)	0.017 (0.13)
<b>Cover cropping</b>	-0.006 (0.05)	-0.064 (0.05)	-0.011 (0.09)	-0.154 (0.12)

Source: Authors.

to in the survey include cost, skepticism about the benefits, lack of labor, and lack of in-depth information on how to implement the practices. In the case of zai pits and minimum tillage, the time required to implement these practices is significant, and women, in particular, already have a considerable labor burden with both domestic and productive responsibilities.

## CONCLUSIONS

The results show that lack of access to information is not the only constraint hindering more widespread adoption of CSA practices. Individual practices are likely to face different sets of constraints to adoption. For example, some practices entail some capital costs while others require significant labor investment or more detailed knowledge to implement effectively.

Therefore, for digital extension messages providing information on CSA practices to effectively encourage adoption will require bundling the information with other interventions that address other constraints, such as the provision of credit and/or labor-sharing

arrangements. Furthermore, extended exposure to video messages, beyond a single showing, coupled with more detailed training to increase technical understanding of CSA practices may be necessary for their widespread adoption. Follow-up interactions with trusted extension agents that tailor messages to individual farmer needs may also help convince skeptical farmers of the benefits of adoption. Finally, we also note the potential impacts of the COVID-19 pandemic on the quality of the rollout of the intervention itself and on farmers' ability to uptake the promoted CSA practices during this time of crisis.

### FOR FURTHER READING

Magalhaes, M., L. Kawerau, J. Kweyu, and V. Pathak. 2023. "Qualitative Fieldwork to Identify CSA Practices Preferred by Women Farmers in India, Kenya and Uganda." In *Reaching Smallholder Women with Information Services and Resilience Strategies to Respond to Climate Change*. Eds. C. Ringler, M.F. Alvi, B. Birner, C. Bosch, E. Bryan, F. Githuku, R.S. Meinzen-Dick, P.B. Rwamigisa, and M. Shah. Washington, DC: International Food Policy Research Institute (IFPRI).

Ndegwa, M., C. Ringler, F.N. Muteti, E. Kato, and E. Bryan. "Can Participatory Video-Based Extension Increase Awareness and Knowledge of Climate Adaptation Practices?" Under review.

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Photo: GROOTS Kenya

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