



## FEED THE FUTURE ALL-IN PROJECT IN BRIEF

# IMPACT OF AGRO-WEATHER AND MARKET INFORMATION ON PRODUCTIVITY AND RESILIENCE IN FARMING COMMUNITIES IN KENYA

Timely and accurate information can empower small-scale farmers and pastoralists to take steps to adapt to climate change and secure resilient livelihoods. The Government of Kenya has launched a project that includes agro-weather and market advisories in an effort to promote the adoption of climate-smart approaches to enhancing productivity and building resilience. An ALL-IN research team has launched a comprehensive study to provide the first evidence from a national program on the impact these advisories have on farmers' decision making, including for women and poor families.

### The Challenge

Small-scale agriculture in Kenya is mostly rain-fed, making farmers vulnerable to the impacts of weather variability and climate change. Several barriers keep farmers, particularly women and other vulnerable groups, from adopting climate adaptation strategies that reduce their exposure to climate-related risks.

The Kenya Climate Smart Agriculture Project (KCSAP), a five-year (2017-2022) Government of Kenya project jointly supported by the World Bank, plans to increase the accessibility of agro-weather advisories and market information for smallholder farming communities. These advisories are meant to empower decision-making for increased agricultural productivity and adaptive capacity.

The impact from the use of agro-weather information depends on its accuracy. The project is partnering with the Kenya Meteorology Department (MED), and investing in automated weather ground stations which will allow the downscaling of weather forecasts and the increase of the forecast period from the current seven days to thirty days without compromising accuracy.

In partnership with the Kenya Agricultural and Livestock Research Organization (KALRO), the KCSAP guides farmers in selecting promising climate-smart agricultural technologies,

### RESEARCH INNOVATION

Lack of information to aid in decision making is an important barrier to the adoption of improved technologies,<sup>1</sup> particularly with weather variability and climate change-related risks. Current estimates of the impacts of weather and climate services (WCS) are limited to information uptake and modeling of expected crop yield changes to provide indirect estimates of impact. Further, most evidence available is from small-scale projects, and existing studies focus on information channeled through radio and workshops.

A country-wide government project providing agro-weather advisories through digital and conventional channels offers an opportunity to verify the already existing evidence at scale, and inform on opportunities for further investments.

This study provides the first evidence of the impacts of a national program providing downscaled weather information bundled with agronomic and market information, and disseminated in local settings. It provides evidence on whether and how farmers use locally relevant agro-weather information and its impact on their adoption of climate adaptation strategies.

<sup>1</sup> Sonwa, D. J., et al, 2016. "Drivers of climate risk in African agriculture." *Climate and Development*.

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**Project Partners**  
Kenya Climate Smart Agriculture Project National and County Coordinating Units (KCSAP NPCU & CPCUs), Kenya Agricultural and Livestock Research Organisation (KALRO), and Kenya Meteorological Department (MED), Virginia Tech

**Development Innovation**  
Localised agro-weather advisories and market information

**Commodity**  
Multiple

**Targeted Population**  
Small-scale farmers

**Country/Location**  
Kenya

**Timeline**  
2020-2023

**Funding**  
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innovations and management practices (TIMPs) for their agro-ecological zones and priority value chains. Farmers also receive support for micro-projects that aim to increase incomes and diversify livelihood strategies with a view to reducing their exposure to climate change-related risks.

An ALL IN research team led from Tegemeo Institute of Agricultural Policy and Development, Egerton University, is evaluating KCSAP's intervention to build the first evidence from a large-scale public program providing agro-weather advisories and market information to strengthen agricultural productivity and community resilience. This multi-faceted study is measuring the impacts these advisories have on productivity and household wellbeing, how farmers perceive and value them, as well as how to improve access to them particularly for women and other vulnerable groups.

### Research Design

To build a strong foundation of evidence across multiple research questions, the study applies mixed methods. To assess the relevance and suitability of TIMPs in mitigating the impacts of climate risk, the team is using survey and satellite data to measure communities' exposure to risks as well as the potential of TIMPs in reducing their vulnerability. To evaluate how farmers use the advisories and their overall satisfaction, the team is analyzing data generated by the KCSAP and qualitative surveys.

To assess impact, the study uses a randomized experiment which includes 840 households across nine counties in agro-ecological zones with high volatility in agricultural production, vulnerability to climatic shocks and poverty. Of these, 160 households are randomly selected to each of the four treatment groups and compared with 200 households in the control group that receives no treatment. Assigning farmers to each group at

random makes it possible to see strong connections between the treatments and changes observed in the outcomes.

The four treatment groups and control group receive:

- T1: Agro-weather advisories via short (SMS) text messages only
- T2: Agro-weather advisories via short (SMS) text messages plus training to interpret and use the advisories
- T3: Agro-weather advisories via short (SMS) text messages and interactive voice response
- T4: Agro-weather advisories via short (SMS) text messages and interactive voice response plus training to interpret and use the advisories
- Control: Agro-weather advisories transmitted via print, TV and radio only.

### Development Impact

This study will produce the first evidence from a country-wide government project that includes agro-weather advisories and market information. The results will show their impact at scale, making it possible to compare investments in agro-weather advisories with other public investments such as fertilizer and input subsidies. The study's approach and findings are applicable to other countries in the region that are faced with risks emanating from climate change.

The study will also inform how to make agro-weather advisories more accessible to smallholder farming communities. In addition to wellbeing outcomes, this study will provide evidence on whether agro-weather advisories require direct communication like text or interactive voice messaging and training in addition to low-cost mass media communication. Findings from this study can ensure that investments in reaching rural communities with agro-weather information have the strongest impacts.

## FEED THE FUTURE ADVANCING LOCAL LEADERSHIP & INNOVATION NETWORKS (ALL-IN)

This research is funded by the Feed the Future Advancing Local Leadership & Innovation Networks (ALL-IN) initiative, an innovative collaboration between the Kenya-based think tank International Centre for Evaluation and Development (ICED) and the U.S.-based Feed the Future Innovation Lab for Markets, Risk & Resilience at the University of California at Davis.

Launched in 2020, ALL-IN advances host-country leadership in defining and implementing research projects and to deepen host-country networks. The initiative funds research to develop and test financial and market innovations that take the most promising agricultural tools for rural families in developing economies from the lab to the field.

Historically, Feed the Future Innovation Labs have built their research programs on partnerships between researchers at U.S. universities and researchers at host-country universities and institutions. Historically, these partnerships have been led, in both program administration and the ideas that drive the research, from the U.S. ALL-IN shifts this leadership role to researchers and institutions in Africa.

ALL-IN builds on research capacity in African countries by inverting the traditional model of research collaborations led from U.S. universities. With funding through ALL-IN, researchers at African institutions lead these collaborations, defining research priorities and leveraging their local knowledge, skills and ideas to build actionable evidence for effective policy with U.S. university research partners to supplement their own skills, talents and ideas. ALL IN also addresses capacity gaps among many research institutions in managing large and complex awards.

*Learn more at [www.iced-eval.org/all-in/](http://www.iced-eval.org/all-in/)*

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### ABOUT FEED THE FUTURE

As the U.S. Government's global hunger and food security initiative, Feed the Future works to give families and communities in some of the world's poorest countries the freedom and opportunity to lift themselves out of food

insecurity and malnutrition. By equipping people with the knowledge and tools they need to feed themselves, Feed the Future addresses the root causes of poverty and hunger, helping people end their reliance on aid and creating important opportunities for a new generation of young people—all while building a more stable world.