

# Info Note

## Climate services for agriculture in Rwanda

### *What farmers know about climate information services in Rwanda*

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**JUNE 2017**

#### Key messages

- Farmers' awareness of climate change varies by province.
- Few farmers routinely access and use climate information.
- Limited awareness and relevance of available climate information limit its use.
- Several communication channels are important for ensuring farmers have equitable access to useful climate information.
- Few farmers actively seek climate information.
- Awareness and access to climate information are gender-dependent.
- Farmers face several challenges to using climate information effectively.
- Training offers opportunity to overcome the challenges that farmers face.
- Low use of climate information may be linked to low farmer resilience.

change to having heard about climate change to a reasonable extent. However, awareness levels are much lower in Southern and Western provinces, where as many as 60% of the farmers interviewed were not aware of climate change (Figure 1). This highlights the need to raise more awareness on climate change in order to support farmers' adaptation to climate change.

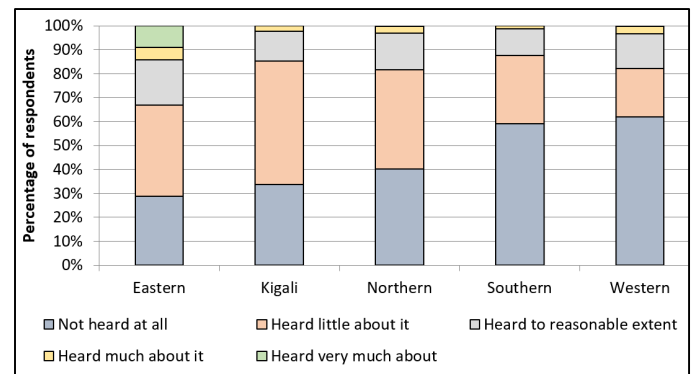


Figure 1: Farmers' awareness of climate change

### Few farmers access and use climate information

In all districts surveyed, farmers have little access to specific types of climate information products, particularly in the Kigali City and Northern Provinces. The most common types of climate information products accessed include forecasts of onset of rains, seasonal forecasts, daily weather forecasts and forecasts of extreme events. But access is very variable across districts, ranging from one-third of the respondents in the Eastern Province, down to less than 5% of the farmers surveyed in Kigali City. Even fewer farmers access historical climate and early warning information. Indigenous climate forecasts represent the only climate information that is consistently available to farmers, and therefore seems to influence farmers' decisions more than other forms of climate information.

We evaluated 3,046 farmers spread across the country's districts to establish baseline about climate information and climate change, in September 2016. This Info Note shares insights into the status and needs for climate services in Rwanda at the time of this survey.

### Farmers' awareness of climate change varies by province

Most farmers interviewed, have at least heard about climate change, ranging from 64% in the Eastern Province to 87% in the Southern Province. The level of awareness ranges from having heard a little about climate

## Awareness and relevance of available information limit its use

Modern and indigenous seasonal climate forecasts are the main climate information products that farmers are aware of. Women are less aware than men of the availability of climate information (Figure 2).

The information that is currently disseminated includes start of the rainy season, risk of excessive and deficient rainfall, risk of extreme events, end of rainy season, and risk of high or low temperature extremes. This information is provided at a district scale, which limits its relevance to farmers' local decisions. There is great scope for improving the relevance of climate information by, for example, downscaling the information, and including the distribution of rains and risk of dry spells (as shown by the localized farmer to farmer weather forecasts at the village levels).

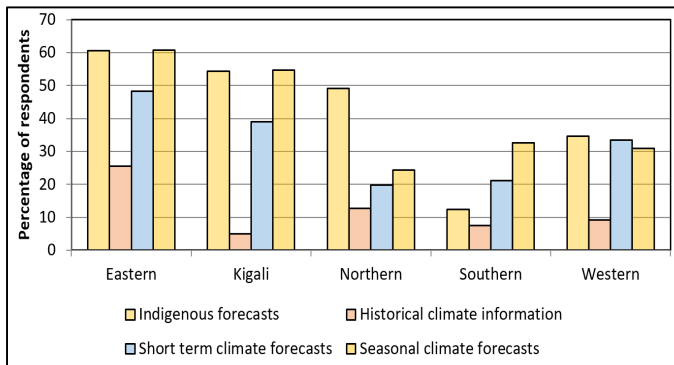


Figure 2. Types of climate information households are aware of

## Several communication channels are important

Radio is by far the main communication channel for climate information in all provinces as reported by at least 74% of the farmers surveyed (Figure 3), followed by government extension agents, neighbors and farmer-to-farmer communication in order of importance. Information dissemination through cell phones is almost non-existent, although a cell phone is the most common communication asset owned by farmers, followed by radio. Thus, there is a mismatch between ownership and usage of communication assets. This means that there is great opportunity to reach a large audience of farmers through interactive radio programs and cell phone-based climate information. The second most used channel of communication is government extension agents. Hence tapping into the decentralized proximity agricultural extension model, locally known as “*Twigire Muhinzi*,” would be a great opportunity for reaching farmers with climate and weather information.

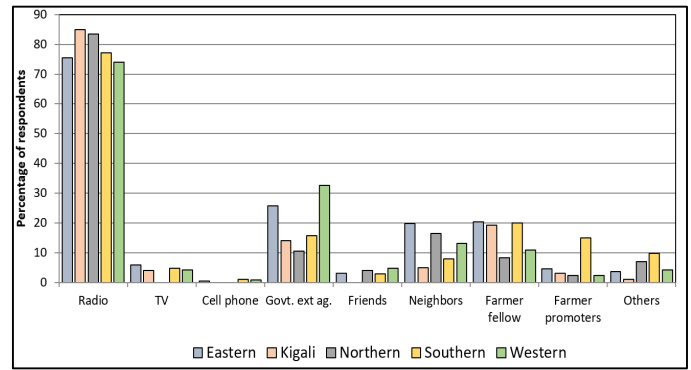


Figure 3. Source of communication of climate information

## Few farmers actively seek climate information

Very few farmers—less than one-third—actively sought for climate information. Early warning and historical climate information are the least sought for information by farmers. This can also be attributed to low levels of awareness of these types of information products. In addition, men seek more climate information compared to women—regardless of the types of information products. The men could have a better understanding of how useful it can be for their farming activities. Men are also the main decision makers, with regards to the inputs and agricultural investments for farming activities. Therefore, men are more likely to value more climate information to guide their agricultural investments.



Men and women project participants. Photo: A. Nyandwi/MINAGRI Rwanda

## Awareness and access to climate information are gender-dependent

Overall, men have significantly greater access to climate information compared to women, and their awareness and knowledge of climate information is also greater. Women are significantly less aware of climate information than men, particularly for short-term and seasonal climate forecasts. This gap may be explained by the larger proportions of men that own communication assets, are involved in social activities, and are therefore more likely to be exposed to climate information. Increasing uptake of

climate information will therefore need to build more awareness among women, and provide knowledge on how they can tap into this information to improve their planning and farm management decisions. This also suggests a need to ensure greater exposure to climate information through mass media and other social networks, including participatory farmer workshops. Farmers face several challenges to using climate information effectively

Ability to use climate information is variable across Rwanda. The Western Province has the highest proportion of farmers who indicated they use climate information, while the Northern Province records the lowest proportion. Apart from poverty status—which is correlated with ability to use climate information, lack of trust in the information provided and lack of locally relevant climate information were cited as the main constraints preventing extensive use of these information products. The small percentage of farmers who actively seek climate information indicates that the use of climate information has little influence on farmer decision-making. It is therefore expected that improvements in climate information is likely to result in behavioral change and enhanced resilience if the information is tailored to meet the needs of the agricultural community. Other promising options for supporting farmers to use climate information include participatory training workshops, and improving access access to production inputs such as seed, fertilizer, and tillage equipment.

### Training offers opportunity to overcome the challenges that farmers face.

Almost no farmer surveyed had ever attended training on climate information. The results suggest that training, such as the Participatory Integrated Climate Services in Agriculture (PICSA) approach developed by the University of Reading, holds promise for raising awareness and increasing farmers' capacity to act on climate information. PICSA involves workshops by trained intermediaries—in which farmers are trained to understand historical climate information and probabilistic climate forecasts, and use participatory processes to identify opportunities to use the information to improve their crop, livestock and livelihood decision-making.

Educational radio programs offer important support to disseminate climate information. They create a space for interaction where end-users, intermediary extension agents, researchers, climate information producers can exchange information, share concepts and thereby build end-users' knowledge and capacity to use climate information. Overall less than half of the farmers interviewed have access to radio educational programs.

These educational radio programs have been mostly useful to inform crop decisions. The majority of farmers

interviewed reported that they changed some of their crop decisions after listening to these programs (Figure 4). Livestock and livelihood decisions have been less informed by these programs, probably because information provided during these programs were more related to crop decisions than to other livelihood activities.

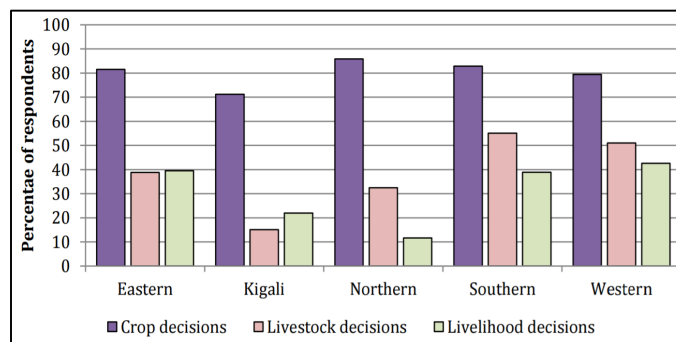


Figure 4. Changes in farm decisions as a result of access to radio educational programs

### Low use of climate information may be linked to low farmer resilience

Generally, the benchmark level for resilience is also low, and varies from 0.2 to 0.3 on a 0-1 scale (see annex 3 in the working paper for details on the benchmark index). Variability across provinces is driven by factors such as differences in livelihood systems, and social and institutional capacity. The observed lack of influence of available climate information on farm management decisions appears to contribute to low values for resilience indicators. Results also suggest that using climate forecast during a single season has not improved ability to use climate information, therefore services that facilitate uptake and understanding over time may be needed to effect behavior change.



Discussing new types of climate information with farmers. Photo: A. Nyandwi/MINAGRI Rwanda



## Further Reading

- Coulibaly JY, Birachi EA, Kagabo DM, Mutua M. 2017. Climate services for agriculture in Rwanda: Baseline survey report. CCAFS Working Paper no. 202. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <http://hdl.handle.net/10568/80820>
- Dorward P, Clarkson G, Stern R. 2015. Participatory Integrated Climate Services for Agriculture (PICSA): Field Manual. Walker Institute, University of Reading. <http://hdl.handle.net/10568/68687>
- Nyasimi M, Radeny M, Hansen J. 2016. Review of Climate Service Needs and Opportunities in Rwanda. CCAFS Working Paper no. 180. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <http://hdl.handle.net/10568/76521>



USAID-Rwanda visit to the Rwanda Climate Services for Agriculture Project. Photo: A. Nyandwi/MINAGRI Rwanda

Research led by:



*This Info Note is based on the working paper, Climate services for agriculture in Rwanda: Baseline survey report (CCAFS Working Paper No. 202), and has been prepared as an output for the Rwanda Climate Services for Agriculture project in Flagship 4: Climate Services and Safety Nets under the CCAFS program.*

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*This study was made possible by the generous support of the American people through the United States Agency for International Development (USAID). This report is an output of USAID's Rwanda Climate Services for Agriculture project, and was made possible through support provided by the Rwanda Mission, USAID. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of USAID or the United States Government.*

## CCAFS and Info Notes

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is a strategic partnership of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT). CCAFS brings together some of the world's best researchers in agricultural science, development research, climate science and Earth System science, to identify and address the most important interactions, synergies and tradeoffs between climate change, agriculture and food security.

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