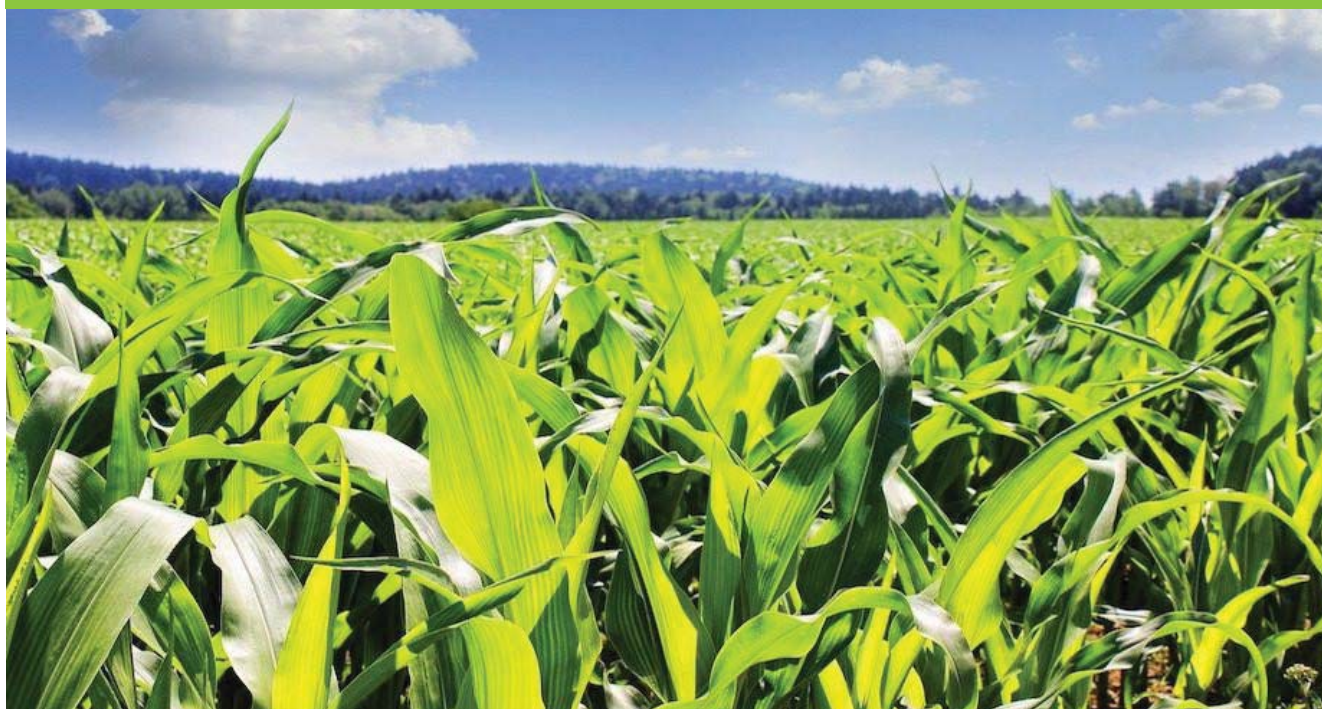


SMALLHOLDER FARMING

Engaging with local South Africa smallholder farming communities: a necessary effort for improving community preparedness to climate variability

Capacity building, through community and scientific engagements, is paramount when promoting the sustainability of farming practices to managing the impacts of climate variability. This is important because it empowers stakeholders through acquiring requisite knowledge, skills, attitudes and values needed to enhance their adaption capacity in climate change related issues. Article by Luleka Dlamini.



The African population is one of the fastest growing in the world. It has a greater proportion of food insecure people in the world and yet the continent has a large potential for agricultural growth and development. Apart from long-term adaptation necessary to improve food production, immediate needs and food security demand studies focusing on shorter term challenges and how to cope with and better prepare to climate variability that directly impacts year-by-year production.

As a nation, South Africa is food secure but most rural households are food insecure. The rural households mostly

practice subsistence agriculture and are mostly dependent on rainfed traditional agriculture for livelihood. Rural farming households are particularly vulnerable to climate variability and other disasters risks and have a low adaptive capacity due to technical, financial and infrastructure constraints.

South Africa's repeated exposure to severe climate events combined with its financial and structural capacity requires exploiting the capacity of climate and crop models to digest enormous data sets into useful tailored information needed for decision making. Although models are only a partial

representation of reality, their exploration capacity is useful, and they are already currently being used at larger temporal and/or spatial scales. Reduced temporal and spatial scales are, however, indispensable to provide appropriate information that farming communities are continuously requesting.

A current Water Research Commission (WRC) research project explores the application of weather and climate forecasts in agricultural decision-making. The aim of this research is to develop a set of tools that allow for an operational and robust climate-crop-water integrated assessment of the production of medium-scale agricultural forecasts.

One of the objectives of this project is to build on research advances and sustainably empower communities. As a result, two annual workshops were conducted in 2016 and 2017 to engage with farming communities as well as other relevant stakeholders, including extension officers and academics. The community engagements aimed at identifying and clarifying needs of seasonal forecast information in smallholder farming systems. Information gathered during these discussions translated into community driven project objectives, better understanding of project outcomes and to further facilitate adoption of seasonal forecasting and sustainable agricultural productivity.

Community and scientific engagements

Worldwide, people-centered approaches in research has now emerged as plausible in promoting an inclusive and public participation process. In the WRC project, it has contributed to the design of a dissemination model that meets the needs of smallholder farmers.

Workshops were conducted in two smallholder farming communities namely, Raymond Mhlaba Local Municipality (Eastern Cape) and Ha-Lambani (Limpopo), continuing earlier relationships and trust developed through previous consultations. Both provinces have been described as poor and most vulnerable to both natural and man-made disasters.

These engagements or workshops provided a platform for direct interaction with all stakeholders in a two-way fashion. In one way, it ensures that the project visibly and accessibly meets its aims, goals and objectives to continuously inform agricultural and community research and development. The aim of the 2016 engagement was to introduce the overall project to the various stakeholders, specifically farmers and researchers, as well as to create awareness on the value of seasonal forecast information. The 2017 engagement was aimed at assessing the progress in attempting to integrate seasonal forecast information and crop models for improved climate variability management in small scale farming systems.

The engagements were conducted over two days prior to the planting period in 2016 and 2017. The first day was a smallholder farming community engagement. Through facilitated discussions and presentations, the workshop focused on the potential application of integrating seasonal forecast information and crop models. The participants were smallholder farmers, local traditional leaders as well as researchers, agricultural advisors, government extension workers, students and interns.



Workshop participants performing a group exercise in 2016 at Raymond Mhlaba municipality, Eastern Cape.

The second day of the workshop focused on scientific and research engagement with emphasis on integration of seasonal forecasts and crop models. Participants included extension officers, researchers, and students from local universities. Technical presentations and discussions amongst participants were held. Primarily, the engagement introduced the technical scope of the project to stakeholders as well as the present status on application of seasonal forecast information and crop models. The stakeholders further deliberated on strategies to improve use of seasonal forecast information in decision-making in smallholder farming systems.

The second scientific workshop focused on refining the opportunities to further improve farm decision management in small-scale farming. The specific objectives of this engagement were to present the recent research outputs on integration of crop models and seasonal forecasts, ascertain the need and explore the ways to facilitate its use.

Local students had a prime interface with the local communities and were given an opportunity to report on their research findings for constructive feedback. Most presentations concentrated on developing a climate-crop integrated assessment tool that could be used to support agricultural decision making at a monthly to seasonal scale.

Key messages from the engagements

Although there were challenges, such as language barriers and scientific jargon, the engagements were generally successful as they provided a platform for farmers and agricultural researchers to effectively learn from each other on how to better manage the impacts of climate variability.

From the 2016 engagement, it was highlighted that the presentations made during the community engagement were complex and needed simplification in the future. Furthermore, local language translation was suggested to enhance understanding. Given the level of literacy of the farmers and the environment, it is necessary that alternative presentation tools with more pictorial representation be explored (e.g. banners).

It is also important to have good and clear communication channels to ensure that the project's activities, events and outputs are marketed accordingly to reach wider audience. This

could be attained by inviting local newspapers and community radio stations as well as advertising in local universities.

“I learned about seasonal forecast indicators such that I would further disseminate to farmers and colleagues for the benefit of the community. Crop models are very important for farmers to adapt to conditions”, expressed a manager from Limpopo Department of Agriculture and Rural Development (LDARD).

Another striking revelation of the engagements was the importance of acknowledging and use of the indigenous knowledge used when it comes to seasonal forecasting. As a result, the knowledge shared during the scientific engagements was strengthened by the local indigenous knowledge shared during the community engagement.

“I used to believe that farmers use seasonal forecast to make sound decisions when farming. However, I learned in the workshop that it is not the case. They use indigenous knowledge, which has been viable for them. It once seemed obvious to me that seasonal forecast is accurate, yet now it is clear that it is based more on probability. Therefore, it might be much better to combine seasonal forecast and indigenous knowledge. I’ve also learned a lot about crop models, which is viable for my research”, said an intern.

Feedback from farmers on the earlier engagement and how they had benefited from seasonal forecast information during the 2017 engagement were likewise shared. Updated seasonal crop and climate information was also explained in layman’s terms. However, a need for standardised communication was highlighted, to enable dissemination of crop-climate seasonal information to farmers through sustainable means. This was accomplished through establishing a clear communication channel (email and mobile contacts) between farmers, extension officers and researchers.

Correspondingly, local university students who actively participated in the workshops, directly benefited through the facilitated engagement in their community of practice and university. For instance, they gained knowledge of local protocols that materialized in community engagements. Furthermore, research skills of student participants were enhanced. The engagements also offered a targeted and efficient platform for knowledge sharing through collaborations with the local Institute for Rural Development (IRD).

“I am going to use some of these presentations to prepare for my test on Research methodology, especially the data collection and analysis techniques”, said an honours student at the University of Venda.

Way forward

Establishing links with community offered new perspectives and a critical way forward concerning research dissemination process. This endeavour is currently taking form through a monthly and quarterly emailed newsletter to the extension officer. The newsletters contain seasonal forecast information on climate parameters (mainly rainfall and temperature). The purpose at this stage is to improve the communication process, the definition of useful information and co-sharing local

knowledge.

Communication by emailed newsletters is particularly important because it provides a platform for continuous engagement with all the stakeholders, beyond the lifespan of the project, hence offering a chance of sustainability of the initiatives introduced by this project.

The project is expected to host its final workshop with academics and communities in 2018. This would conclude the project administration and support in addition to local engagement of farming communities, academics and extension services mostly.



Participants in group discussions responding to questions on usefulness of seasonal forecasting (top) and students presenting their research during the scientific engagement (bottom)

This experience, amongst a multitude of similar others, is taking a small journey through the co-production of knowledge and skills from research to farming engagement. It is a fruitful scientific activity, in support of developing institutional and community engagements, as it empowers equally the researchers, students and farmers. This is particularly paramount when promoting the sustainability of farming practices to managing the impacts of climate variability in poor and vulnerable communities.

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