



CEPHaS

Conservation Agriculture Perspectives



Mr Jerry Dlamini is a researcher and lecturer in Agronomy at the Department of Soil, Crop and Climate Sciences, University of Free State, based in Bloemfontein South Africa. His current research explores the understanding of the dynamics of greenhouse gases (GHGs) including nitrous oxide (N_2O), methane (CH_4), and carbon dioxide (CO_2) from croplands as compared to natural/unmanaged land uses. He is specifically interested on the influence of crop agronomic management practices on radiative GHGs including N_2O and CH_4 and further exploring potential mitigation practices.

1. What are the main ways in which you have seen smallholder farmers adapting to climate change in southern and central Africa in recent years?

- a) Adapting planting dates
Based on their previous experiences of the rainfall patterns, most smallholder farmers adapted their planting dates to coincide with the predominantly late rainfalls. Thereafter, such smallholder farmers did not experience a total crop failure from the late rainfalls compared to those who did not adapt their practices this way.
- b) Adopting conservation agriculture (CA) practices
Some smallholder farmers, who were early adopters of climate-smart farming systems including CA, achieved more robust grain yields despite erratic rainfall. CA practices helped their crops cope with drier years unlike those smallholder farmers who stuck to conventional means of crop production who sometimes experienced crop failures.
- c) Empowering themselves with information
Smallholder farmers who empowered themselves with information shared by non-governmental organisations (NGOs), and who put the technologies into practice were enabled to manage climate threats to crop yield.

2. Do you think that smallholder farmers are able to contribute to climate change mitigation through the way they manage their systems?

In my view most smallholder farmers prioritize obtaining enough yield to feed their families over managing their farming systems to mitigate climate change. Although some smallholder farmers adopt climate-change adaptive and mitigating farming systems, including CA, it is sometimes difficult for them to adopt such systems at a full scale. For instance, some farmers cannot afford to leave maize stalks in the field since they need this as feed for their animals during winter.

3. How might smallholder farmers be incentivized in the short-term to adopt farming approaches, which are both adaptive to climate change, but also mitigating?

Subsidizing farm inputs would be the first step that will encourage smallholder farmers to adopt farming approaches that are both mitigating and adaptive to climate change. Such subsidies need to be farmer-specific, for instance



Maize-sunflower intercrop in a smallholder farm.



Planting wheat under CA.

subsidizing animal feed costs for a smallholder farmer who would otherwise have to use maize stalks for animal feed in winter will encourage them to leave stalks in the field, thus adopting a CA system fully.

4. What do you think are the main research questions that need to be addressed to support food security and climate change mitigation in sub-Saharan Africa?

Research that seeks to support food security and climate change mitigation in sub-Saharan Africa need to move from field-scale to farm and regional level. Research must pay closer attention to socio-economic status of farming households in the quest to attain both food security and mitigate climate change in sub-Saharan Africa



Maize-drybean rotation plots in smallholder farm.

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Mixed cropping maize and cowpea in smallholder farm.



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