

New research exposes urgent need to transform key agriculture regions across Africa by as early as 2025



The study analyzes when and where major cropping systems transformations are likely to occur, and identify key research and policy priorities to address these changes as well as the timescales at which they should be put in place. Photo: N. Palmer (CIAT) ([view original](#))

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Study quantifies the threat that climate change poses to nine staple food crops in sub-Saharan Africa and outlines actions and timeline required to adapt.

(CALI, COLOMBIA) 7th March 2016 – Agriculture in parts of sub-Saharan Africa must undergo significant transformation if it is to continue to produce key food crops, according to a [new study published today](#) in *Nature Climate Change*.

Maize, beans and bananas are most at risk according to the study, '[Timescales of transformational climate change adaptation in sub-Saharan African agriculture.](#)'

The study examines region-by-region the likely effect of different climate change scenarios on nine crops that constitute 50% of food production in sub-Saharan Africa. The research is the first to allocate timeframes for changes in policy and practice in order to maintain production levels and avoid placing food security and the livelihoods of smallholder farmers at risk.

While six of the nine crops studied are expected to remain stable under moderate and extreme climate change scenarios, up to 30% of areas growing maize and bananas, and up to 60% of those producing beans are projected to become unviable by the end of the century. In some areas transformations will need to take place as soon as 2025. Transformation could mean changing the type of crop grown in the area in question, improving irrigation systems, or in extreme circumstances, moving away from agriculture altogether.

“This study tells where, and crucially when, interventions need to be made to stop climate change destroying vital food supplies in Africa,” says **Julian Ramirez-Villegas**, lead author of the study, working with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). *“We know what needs to be done, and for the first time, we now have deadlines for taking action,”* he adds.

Key findings:

- Banana growing regions in West Africa (such as Ghana Togo and Benin) and maize growing regions in Southern Africa (for example Namibia, Botswana, Zimbabwe and Mozambique) will need to undergo transformation within the next ten years.
- 1.85 million hectares of current bean cropping systems in Uganda and Tanzania, responsible for growing 41.4 % of the total sub-Saharan African bean supply, will be unable to do so by 2100. Other regions will be hit even sooner, according to the study.
- Millet, sorghum, cassava, groundnut and yams are projected to remain stable for the rest of the century.

Given that solutions such as breeding improved crops can take a minimum of 15 years to complete, the authors stress the need for immediate action.

“It can take decades to adjust national agricultural development and food security policies,” says **Andy Jarvis**, a co-author of the paper who leads CCAFS research on Climate-Smart Agricultural Practices. *“Our findings show that time is running out to transform African agriculture. This will require not only increased funding but also a supportive policy environment to bring the needed solutions to those affected. We also need to ensure that the needs of women and marginalised groups are built into adaptation policies, to ensure they can be successfully implemented,”* he explains.

The study goes on to develop geographically-specific investment priorities to enable adaptation in affected countries. These include:

- Improving agronomy, irrigation options and agro-climatic advisory services available to farmers
- Breeding crops with increased resistance to climate change impacts including heat and drought
- Switching to alternative crops that have higher tolerance to heat and drought, such as millet and sorghum
- Exploring alternative livelihood strategies, such as the introduction of livestock

Adaptation strategies will vary greatly across sub-Saharan Africa, given the highly different local contexts. Extensive research by CCAFS is already informing African governments and policymakers on the technologies and policies that can successfully help farmers to adapt to climate change in these countries.

For example, in Uganda, intercropping banana with coffee has been found to raise incomes by 50% and builds resilience to climate change impacts. In Senegal, climate information services are now available to over 7 million rural people, via SMS and radio broadcasts, helping them make better farming decisions. And across the entire region, the Drought Tolerant Maize for Africa initiative has benefited 30-40 million people in 13 African countries by raising their maize yields.

Download the paper:

Rippke U, Ramirez-Villegas J, Jarvis A, Vermeulen SJ, Parker L, Mer F, Diekkrüger B, Challinor AJ and Howden M. 2016. [Timescales of transformational climate change adaptation in sub-Saharan African agriculture](#). *Nature Climate Change*.