

TWO DEGREES TOO MUCH FOR AGRICULTURE

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Climate change is already affecting crop yields

- From 1980-2008, global maize and wheat production decreased by 3.8% and 5.5% respectively, due to rising global temperatures. These losses are equivalent to the annual production of maize in Mexico (23 MT) and wheat in France (33 MT).
- **With 1°C of warming**, roughly 65% of current maize growing areas in Africa will experience yield losses under optimal rainfed conditions; under drought conditions, 75% of areas can expect **yield declines of at least 20% for 1°C of warming**.
- Average predicted production losses by 2050 for African crops are: maize 22%, sorghum 17%, millet 17%, groundnut 18%, cassava 8%. In Africa, impacts will be most severely felt in southern African maize and Sahel sorghum.

Temperature rise will seriously affect crop production and the livelihoods of small landholders

- Global average temperature rise since 1906 is estimated by the IPCC at 0.74°C. The impacts we are seeing now on crop yields are being felt before we even reach 1°C of global warming.
- Temperatures are expected to increase by 0.2°C per decade over the next 2-3 decades. At this rate, we will reach 1.5°C of global average warming by 2040-2050. Larger increases are expected on cultivated land areas and large landmasses, including much of the African continent.
- Predicted temperature increases caused by climate change will cause normal temperature thresholds for crops, such as 35°C or 40°C, to be exceeded with far greater frequency all over the world. High temperatures, whether lasting for several days or occurring in an extreme spike of several hours, can have serious negative impacts on both pollination and maturation of crops.
- Temperatures are increasing at rates where adaptation will pose serious and often insurmountable challenges for both farmers and researchers, particularly in the hottest regions of the world, such as the Sahel. Multiple stresses, such as drought and heat stress, will combine to further complicate the immense challenge of adaptation.
- Decreased crop production due to climate change has the potential to increase food prices and food insecurity and threaten the livelihoods of millions of smallholder farmers.

Soil carbon sequestration is not a substitute for emission cuts

- Nothing less than immediate and significant cuts in global emissions can protect agricultural systems from the devastating effects of expected temperature rise.
- An emphasis on soil carbon sequestration in developing countries is a dangerous diversion from the most urgent needs in agriculture. Mitigation efforts in agriculture must focus on emission reductions in highly polluting Annex I country agriculture systems.
- Moreover, while there is great potential for soils to sequester carbon, markets in soil carbon will not deliver the financing benefits claimed by proponents.
- According to the FAO, mitigation finance based on the generation of carbon credits is not likely to benefit smallholders because of low demand for credits and high transaction costs. Moreover, where there is potential for soils to sequester carbon, markets in soil carbon will not deliver the financing or mitigation benefits claimed by proponents..

Sources

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 Lobell, D.B., et al. 2011. Nonlinear heat effects on African maize as evidenced by historical yield trials. *Nature Climate Change* 1: 42-45.
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Focus on the urgent challenge to ecosystems and livelihoods, and not on carbon commerce

- A just outcome in Durban must reflect the serious impacts that continuing developed country emissions have for the future of agriculture in the world, especially on the African continent.
- Agriculture should continue to be addressed in LCA discussions as a cross-cutting issue, with emphasis in adaptation and public finance components, **not in the SBSTA**.
- Finance for agriculture adaptation must be new, additional, adequate, predictable and public. Market mechanisms, such as trade in carbon credits, will not provide the long-term, predictable finance needed for the immense adaptation challenges faced by the world's smallholder and peasant farmers.
- Developed country offsetting needs should not and cannot drive the design of climate adaptation strategies in Africa. Developed countries should focus on mitigation priorities in their own highly polluting industrial and agricultural sectors.
- Immediate and significant emission reductions by Annex I countries are needed now to prevent further disastrous impacts on food security.
- A global goal must reflect the imminent serious threat that climate change poses to food production and food security. **Two degrees is too much.**

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 Africa Trade Network
 Biofuelwatch
 Bolivian Climate Change Platform

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