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"Competing pathways for equitable food systems transformation: Trade-offs and synergies"

Perspectives on premier pathways for sustainable intensification of agriculture in Africa

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Abstract

Sub-Saharan African (SSA) countries are disproportionately confronted with low agricultural yields and other associated challenges, which are exacerbated by global environmental changes. To feed the growing population, agriculture is being intensified and expanded, even in the marginal areas that are more vulnerable to such changes. However, expansion and intensification of agriculture are known to substantially contribute to climate change, especially in areas where climate-smart agricultural practices are not common. To effectively create a sustainable change in the sector, novel user-focused technologies need to be developed, tested, and applied to different local contexts across SSA. Simply put, innovative technologies will be decisive in transitioning agriculture toward greater sustainability. Yet, choosing suitable practices is not trivial, mainly because of the context-specificity of information on innovations with potential to contribute to the sustainable intensification of smallholder farms. Literature abounds with a mix of anecdotal evidence and empirical studies with conflicting conclusions. To bridge this gap, this talk provides an overview of options for further intensification of smallholder farming in Africa by evaluating existing opportunities for increasing yields, creating resilient production systems and reducing carbon footprint. A case study will be highlighted to underscore the importance of participatory design and validation, including citizen science. We will show how continuous engagement with stakeholders increases our knowledge of regional-level systems and their needs, and supports the co-creation of regionally adapted pathways. Using examples from the UPSCALE project (https://upscale-h2020.eu/), we will discuss how multiple approaches can be combined to offer systemic solutions that can make agriculture in Africa more sustainable, and how these solutions can be fully integrated into regional-level climate adaptation and mitigation strategies, enabling resource conservation and circular approaches. Further, innovative technologies that can be further intensified to build multifunctional solutions that meet the pressing needs of food, fuel, and fiber will be discussed. We will then provide an appraisal of the necessary framework conditions for the selected solutions to succeed, based on empirical values from the examples and targeted multi-actor knowledge exchange.

Keywords: Agroforestry, circular approaches, integrated agroecology, regenerative agriculture, resource conservation

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