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Intensifying Indigenous Responses by Smallholders: A Panacea for Climate Smart Agriculture in Sub-Saharan Africa

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Abstract

Smallholders are an important producer of food in sub-Saharan Africa. They are mostly rural dwellers and resource-poor, depending mainly on family labour, rainfall and scarce inputs for agricultural production. They depend on their farms as the principal source of livelihood. The sustainable productivity of the smallholder is significant to a changing world, faced with hunger, population explosion, scarce resources, land pressures and climate uncertainties. Climate change, however, is a major threat to sustainable smallholder production. Therefore, it is necessary to scale up smallholders' capacity to survive climate vagaries. Responses by smallholders in adapting to effects of climate change with emphasis on water, carbon, nutrients and these several subjects are the focus of this paper. It looks at sustainable agriculture techniques borne out of indigenous knowledge, hinged on locally available renewable resources. Further, it highlights constraints experienced by smallholders in efforts to practise climate-smart agriculture. In addition, this review underlines rural extension and advisory services as a tool for improved 'bottom-up' information flow between smallholders and researchers in developing effective solutions to farmer problems. The methodology used are engaging relevant literature and data from secondary sources. We found that there were knowledge gaps on how to harness available resources, particularly, in rainwater harvesting, integrated soil fertility management, pest/disease control and carbon storage. Likewise, inadequate information on agro-weather services and unreliable local knowledge about rainfall and temperature distribution were predominant. Apparently, intensifying indigenous methods of climate change adaptation and mitigation in sub-Saharan Africa becomes imperative for sustainable smallholder production. Harmonizing scientific advances and indigenous knowledge in agriculture and associated sectors are vital to achieving climate-smart systems.

Keywords: Adaptation, climate change, local knowledge, smallholders, sustainability

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