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for a healthy and sustainable future"

Climate Variability and Adoption of Climate-smart Agriculture - Implications for Sustainability in Zimbabwe

Beaula Fadzayi Chipoyera[1], William Nkomoki[2]

[1] *Czech University of Life Sciences, Faculty of Tropical Agrisciences, Czech Republic*
[2] *Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences; Dept. of Economics and Development, Czech Republic*

Abstract

The Sustainable Development Goals of the United Nations, among other goals, advocate for climate action responses, the pursuit of zero hunger status, and poverty reduction. The concurrent variations especially, on the onset and duration of precipitation during farming seasons, are widely perceived to increase the risks of agricultural productivity and thereby threaten food security, particularly for smallholder farmers who mostly rely on rainfed cropping systems. Climate-smart agriculture practices offer alternative strategies for mitigating the effects of climate variability on agriculture and hence, safeguard sustainable agricultural production and food security both in the short and long term. However, little is understood regarding the decision-making processes of smallholder farmers when considering the adoption of climate-smart agricultural practices in Zimbabwe. Therefore, this study aimed to investigate the adoption of climate-smart agriculture by smallholder farmers in Zimbabwe. The study answered the following i) the role of gender in adopting climate-smart agriculture, ii) the main reasons for adopting climate-smart agriculture, iii) the primary information sources for promoting climate-smart agricultural practices. A survey of 112 smallholder farmers was conducted using a structured questionnaire from two distinctive Agro-ecological regions. The findings from the chi-square tests revealed a significant difference in the adoption of crop rotation and reduced tillage between male and female farmers. On the reasons for adopting climate-smart agriculture practices, respondents indicated soil protection accounting for 63.4 %, increased crop yields 34.8 %, and climate variability 25.9 %. On the other hand, extensional services, radios, and phones are the prominent information sources with 67 %, 51 %, and 44 %, respectively. Therefore, we recommend that policymakers consider the more vulnerable women groups in their support and educational awareness. Further, stakeholders must tailor information and knowledge about climate-smart agriculture practices towards farmers' preferential needs to enhance adoption and sustainability.

Keywords: Adaptation, adoption, climate-smart, gender, sustainability, variability

Contact Address: William Nkomoki, Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences; Dept. of Economics and Development, Kamycká 129, 16500 Prague, Czech Republic, e-mail: nkomoki@ftz.czu.cz