Climate variability and the adoption of Climate-Smart Agriculture in Zimbabwe

Beaula Fadzayi Chipoyera, William Nkomoki

Czech University of Life Science Prague, Faculty of Tropical AgriSciences, Czech Republic.

Introduction

Climate change has become a global challenge resulting in temperature and rainfall variations (Kakraliya et al. 2018). Agriculture is source of livelihood for majority of the rural Zimbabwean population (FAO 2017) and contributes 15% to the country's GDP and 70% to the national work force. Zimbabwe has of late experienced climate variability and risks (World Bank 2021), and rainfall patterns have become irregular (Chamunoda 2017). Smallholder farmers who rely on rainfed agriculture (FAO 2020) are affected most. Adaptive strategies can minimise challenges of climate variations and sustain production. Climate-smart agriculture (CSA) is one key alternative response to such (Fentie & Beyene

Aims

The main aim was to investigate the adoption of climate-smart agriculture practices among smallholder farmers in Zimbabwe.

Specific objectives

1. To examine the influence of gender on the adoption of climate-smart agricultural practices.
2. To identify the reasons for adopting climate-smart agriculture practices.
3. To determine the sources of information that farmers use to obtain knowledge on climate-smart agriculture.

Methodology

Questionnaire survey: A total of 112 respondents were interviewed; 60 in region III and 52 in region II.

Analysis: Descriptive analysis – mean, standard deviation, frequency, percentage.

Chi-square Test – statistical differences.

Study Area

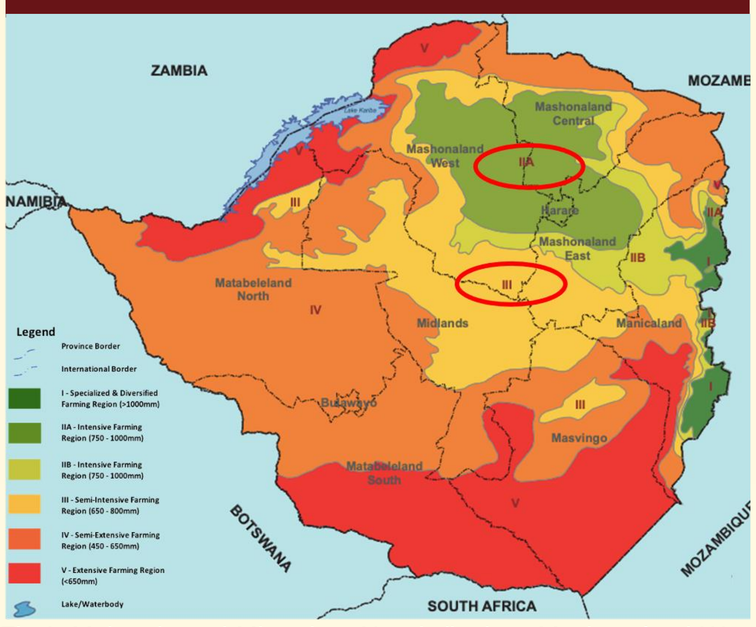

Fig 1. Makonde and Mhondoro-Ngezi districts. Mashonaland West

Conceptual Framework

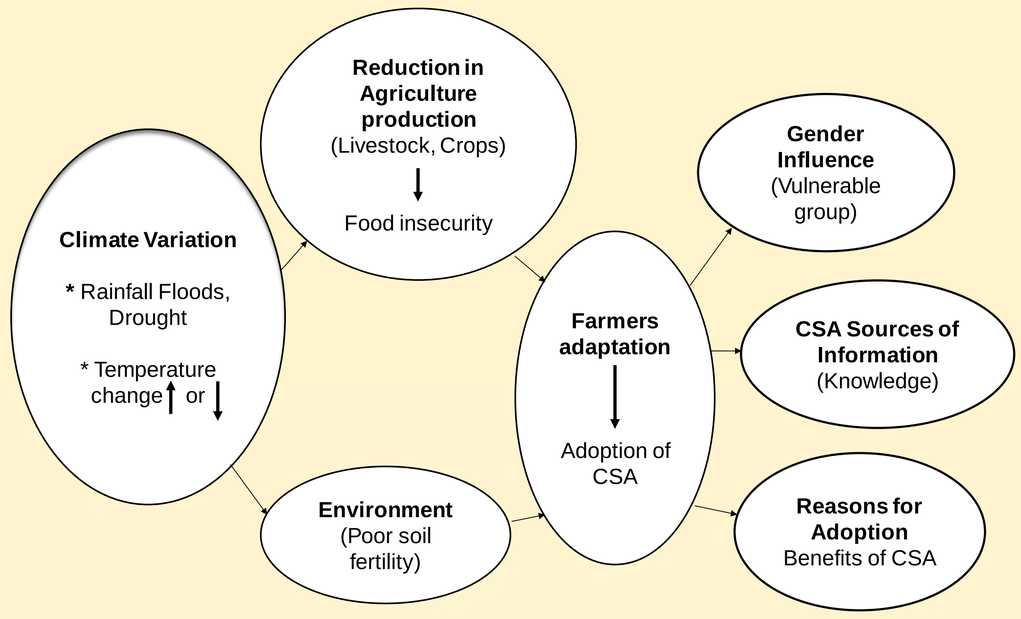

Fig 2. Conceptual framework

Results

Chi-square Test on Gender and the Adoption of CSA

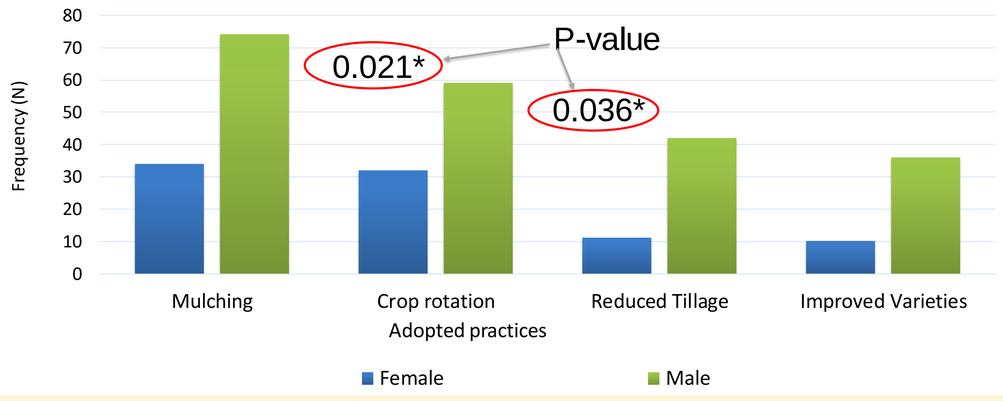

Fig 3. Gender and the Adoption of CSA

Reasons for CSA Adoption

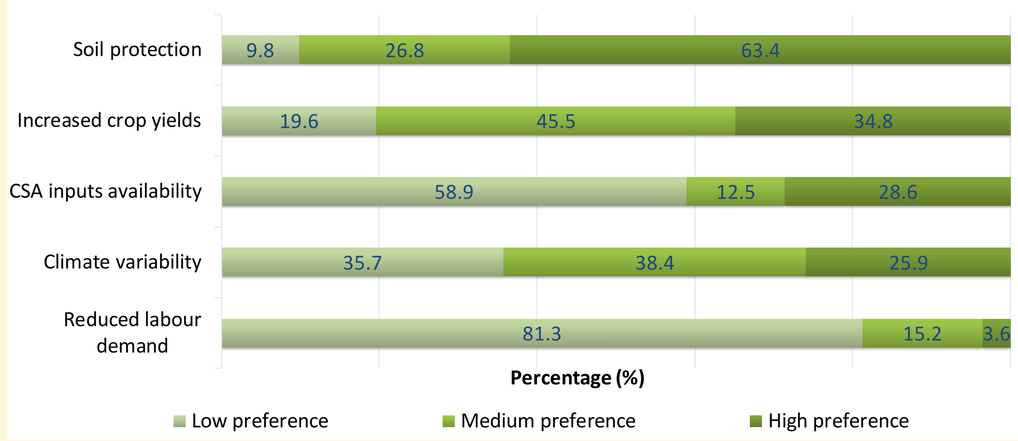

Fig 4. Reasons to adopt conservation agriculture practices

CSA Information Sources

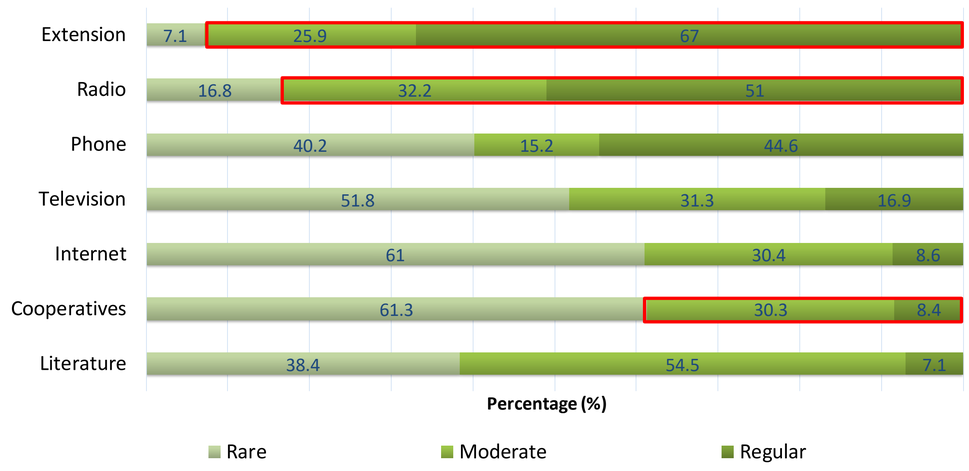

Fig 5. Source of information in promoting conservation practices

Fig 6. Minimum tillage

The study (Fig 3.) showed that mulching was the most popularly adopted (96.4%) of the four CSA techniques. This may be because the farmers viewed mulching as an easier technique to practice.

Notably, most of the farmers (63.4%) had a high preference for practices that contributed to *soil conservation*, soil protection was favoured by most of the smallholder farmers (Fig 4.). Farmers also highlighted that governmental and/or NGO's support encouraged the adoption of CSA practices, and they benefited from the free inputs distributed to them. However, the main reasons for adopting CSA were ensuring food security and increasing crop yields.

Fig 5. shows that the majority of the respondents (67%) received most of their oral information from extension services, whilst radios and television were ranked among the most preferred forms of communication by respondents. Literature was rated as the least CSA source of information.

Fig 7. Data collection

Conclusion

Stakeholders should target less receptive gender groups to enhance adoption. The government of Zimbabwe must encourage and promote CSA practices, for sustainable and environmental management controls, and invest in extension services, education and training to capitalise on effective and efficient flow of information regarding to CSA practices.

References

1. FAO. 2017. Z I M B A B W E Country Gender Assessment Series National gender profile of agriculture and rural livelihoods. Gutsa I. 2017. Climate change and the livelihoods of elderly female headed households in Gutsa village, Goromonzi District, Zimbabwe.
2. FAO. 2020. Climate-Smart Agriculture | Food and Agriculture Organization of the United Nations. Available from https://bit.ly/3wxEYfA.
3. Kakraliya SK, Jatb HS, Singh I, Sapkotab TB, Singh LK, Sutaliya JM, Sharma PC, Jat RD, Choudhary M, Lopez-Ridaura S, Jat ML. 2018. Performance of portfolios of climate smart agriculture practices in a rice-wheat system of western Indo-Gangetic plains. Agricultural Water Management 202:122–133.
4. World Bank. 2021. World Bank Climate Change Knowledge Portal | for global climate data and information! Available from https://bit.ly/3yM5UJX. (accessed February 2021).
5. Chamunoda Z. 2011. Zimbabwe Meteorological Services Department:1–50.
6. Fentie A, Beyene AD. 2019. Climate-smart agricultural practices and welfare of rural smallholders in Ethiopia: Does planting method matter? Land Use Policy 85:387–396.

This research was supported by the Faculty of AgriSciences.