



Vulnerability to resilience for smallholder small grain farmers in Southern Zimbabwe.



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Introduction

Climate change poses a significant threat to smallholder farmers and threatens to undermine community progress towards poverty alleviation, food security and sustainable development. Zimbabwe smallholder farmers are highly vulnerable to climate change. The need to graduate small grain farmers from vulnerability to resilience through climate variability coping mechanisms against shocks and stresses cannot be over emphasized. Small grain production provides a better strategy to hedge against climate change shocks and stresses in districts affected by climate change. High levels of vulnerability to smallholder farmers are of great concern. This poster provides a glimpse of this problem using data collected from four districts (Binga, Chiredzi, Hwange and (Matobo) in Zimbabwe's agro-ecological regions 1V and V.

Objectives

The objectives of this study are to:

- Determine the levels of small grain farmers' vulnerability and resilience to food insecurity in the drought prone areas of Zimbabwe.
- Identify the climatic adaptation strategies used by smallholder small grain farmers in the drought prone areas of Zimbabwe.
- Recommend policy that will promote resilience to smallholder farmers in Zimbabwe.

Methods

- A mixed methods cross-sectional study was used.
- A survey questionnaire was used to collect data from 281 respondents who were randomly selected from the four districts.
- A multistage sampling approach with purposive selection of districts dominant in small grain production was conducted. For each district, two wards were selected randomly.
- Stata version 16 was used to analyse data. Descriptive statistics was used to measure adaptation strategies. Factor analysis using Principal Component Analysis (PCA) model was used for variable reduction and calculation of weights in characterizing both vulnerability and resilience of smallholder small grain farmers.

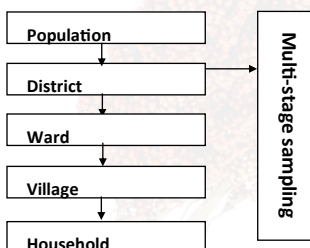


Figure 1. Multi stage Sampling

Results

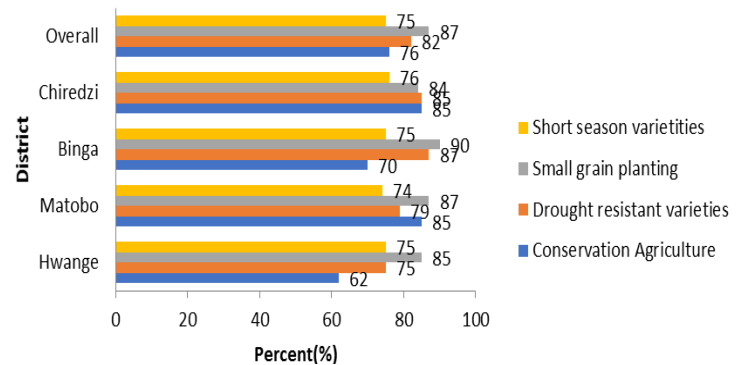


Figure 2. Percent distribution of adaptation strategies in response to drought by district

Table 1: Percentage distribution of Vulnerability in the sampled households by district

Vulnerability groups	Total (%)	Binga	Chiredzi	Hwange	Matobo
Low	49(17.4)	6(10.0)	8(8.4)	19(26.4)	16(29.6)
Medium	130(46.3)	35(58.3)	64(67.4)	17(23.6)	14(25.9)
High	73(26.0)	16(26.7)	19(20)	28(38.9)	10(18.5)
Very high	29(10.3)	3(5)	4(4.2)	8(11.1)	14(25.9)
Total	281(100)	60(100)	95(100)	72(100)	54(100)

Table 2: Overall Agriculture Drought Resilience Index (ADRI) and ADRI indices by district.

District	Total	ADRI Mean	SD
Binga	60	4.38	1.35
Hwange	72	3.89	1.20
Chiredzi	95	4.56	2.11
Matobo	54	3.32	1.92
Overall	281	4.04	1.74

Discussion and conclusion

Small grain production was the highest adaptation strategy to hedge against climate change. Most sampled households in Hwange and Matobo were more vulnerable to the effects of drought. Resilience varied with districts with Chiredzi having the highest resilience and Matobo being the lowest. The study results are in consistent with other studies (Coulibaly et al., 2015; IPCC, 2014) that reported that people vary in their vulnerability at the household level. Households with smaller land plots and with less livestock had higher risk of suffering food insecurity (Matter et al., 2021).Farmers' livelihoods have a significant and positive impact on smallholder small grain farmers' resilience. There is need to craft a policy that promotes diversification so that farmers can be able to bounce back when a disaster strikes.

