Developing financially inclusive and climate-smart smallholder sorghum value chain in Zimbabwe: Implications for food system transformation and sustainability.

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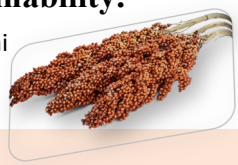

Introduction

Globally, agriculture remains the mainstay of economic activity and a key issue for sustainable livelihoods. Smallholder farmers are increasingly struggling to make a living from their land because of limited or no access to rural financial services and reliance on rain-fed agriculture. Besides promoting food and nutrition security, agriculture is a major revenue stream for all categories of farmers. Agriculture is the backbone of the Zimbabwean economy with the rural majority deriving their livelihood from agriculture and other related non related farm employment activities. Zimbabwe's status has declined from being the "bread basket of Africa" to being a net importer of agricultural commodities. To revive the previous status there is need to increase yields through financial support in terms of accessing improved seed varieties. In this paper, it is argued that financial support takes away the guess work out of agriculture and provides more predictable and better yields in regions traditionally considered unsuitable for crop production. Regardless of evidence supporting the argument, limited financial support to smallholder farmers is an issue 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 the study are to:

1. Determine the influence of access to credit on adoption of improved sorghum varieties and conservation agriculture for smallholder farmers.

2. Explore the influence of access to credit on performance of contract farming in Zimbabwe.

3. Recommend policies that promote the adoption and marketing of sorghum by small holder farmers.

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 sorghum production was conducted. For each district, two wards were selected randomly.
-Purposive sampling was used to select districts (Hwange and Matobo) that were not into contract farming and those that were into contract farming (Binga and Chiredzi).
Binary logistic and Probit models were used to determine how access to credit influences agriculture technology adoption patterns and market participation respectively in the studied areas.
-Stata version 16 was used to analyse data.
Secondary data obtained through literature review of policy documents, published articles and reports from development partners were used to compliment the findings.

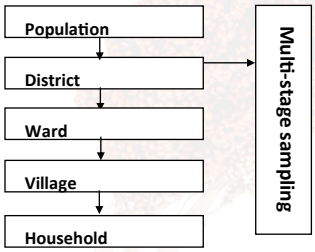

Figure1 Multi stage sampling procedure

Results

Table 1: Access to credit versus technology adoption.

Variable	Total (%)	Non-Adopters (%)	Adopters (%)	Pearson Chi-Squared test Df	Test statistic	P-value
Access to credit						
Yes	43.4	37.2	51.2			
No	56.6	62.8	48.8	1	5.55	0.018*
Extension visits (per year)						
0	22.4	19.9	25.6			
1	27.1	30.8	22.4			
2	34.5	29.5	40.8			
3 or more	16.0	19.9	11.2	3	8.64	0.034*
Contract farming						
Yes	25.6	30.1	20.8			
No	74.4	69.9	79.2	1	3.14	0.076
Access to weather information						
Yes	67.0	66.7	69.6			
No	33.0	33.3	30.4	1	0.272	0.602

Table 2: Access to credit versus market participation.

Variable		Coefficient	SE	P	95% CI Lower	Upper
	Male	Base				
Gender	Female	-0.625	0.554	0.259	-1.71	0.46
Education		-0.093	0.035	0.007	-0.161	-0.026
	No	Base				
Credit access	Yes	0.723	0.229	0.002	0.274	1.172
Land size		0.034	0.057	0.55	-0.078	0.146
Household size		0.248	0.052	<0.001	0.146	0.351
Distance to extension		0.027	0.014	0.053	-0.0001	0.054
Distance to market		0.005	0.001	<0.001	0.004	0.006
Yield		-0.002	0.001	0.012	-0.004	-0.001
	0 visit	Base				
	1 visit	-1.078	0.565	0.056	-2.186	0.029
	2 visits	0.061	0.323	0.851	-0.573	0.695
Extension visits	3 or more	-0.799	0.527	0.13	-1.833	0.234
Constant		0.405	0.923	0.661	-1.404	2.213

SE-Standard error, CI-Confidence interval, P-p-value

Discussion and conclusion

This study is aligned with Mwangi and Kariuki (2015) who reported that access to credit stimulate agricultural technology adoption. The smallholder sorghum farmers who had access to credit were contract farmers. The majority of adopters used credit to acquire sorghum inputs hence these motivated farmers to adopt improved sorghum varieties. Contract farming had a positive influence on credit and market participation. Majority of farmers on contract farming had access to credit as contractors loaned them inputs in the form of improved seed varieties at the beginning of the farming season.

Access to credit was significantly associated with market participation. The study is supported by Mutambara et al. (2013) who reported that, the major challenge facing the food chain is access to credit due to solvency considerations. Ambiguity on land ownership rights in Zimbabwe has made it difficult for the financial sector to assemble financial resources from savings for borrowing to the productive sector at reasonable interest rates. There is still low interest in financing agricultural production in Zimbabwe due to lack of collateral. Financial institutions are not contributing significantly to production of sorghum. More farmer incentives should be available and a competitive price or subsidies for sorghum farming to ensure uptake by farmers. There is need for policies to stimulate or expand access to finance by smallholder sorghum farmers. Policies to enhance market linkages for smallholder sorghum farmers to enhance ,market participation

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