Farmers' Adoption of Conservation Practices: Insights from Diverse Agro - Ecological Regions of Zambia.

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Introduction

In recent years, high food insecurity, poverty and hunger are critical issues faced in Zambia due to recent declines in food crop yields which among other things is attributed to decline in agricultural soil fertility and climate variability.

Aims

This study investigated the adoption of conservation agricultural practices among the smallholder farmers in distinct Agro ecological regions of Zambia.

Research questions

1. Do Agro-ecological regions affect the adoption of conservation agriculture practices?
2. What is the perception on the reasons and barriers in the decision-making process for the farmers to adopt conservation agriculture practices?
3. Which information sources are used to promote adoption of conservation agricultural practices?

Methodology

- A semi-structured questionnaire survey of 182 farmers from six districts (Mambwe, Monze, Chongwe, Kapiri-Mposhi, Masaiti and Kasempa) representing three Agro ecological regions.
- Descriptive analysis using chi square test was employed to assess the association of adopting minimum tillage methods, soil protection and crop rotation in three agroecological regions.
- The multiple linear regression model on the factors influencing the adoption of multiple conservation practices.

Results

- *Minimum tillage* indicates region I and III adopting more planting basins with 80% and 54.1% respectively, while region IIa adopts ripping more (78.7%).
- *Retaining crop residues* was largely practiced by all regions with region IIa leading (67%) in cover crops.
- On average 85% of smallholder farmers practiced crop rotation across the three ecological regions.
- Increased yields, soil protection, reduced labour, and mitigation towards variability in precipitation are found to be the main perceived benefits of adopting conservation practices (Fig. 1)

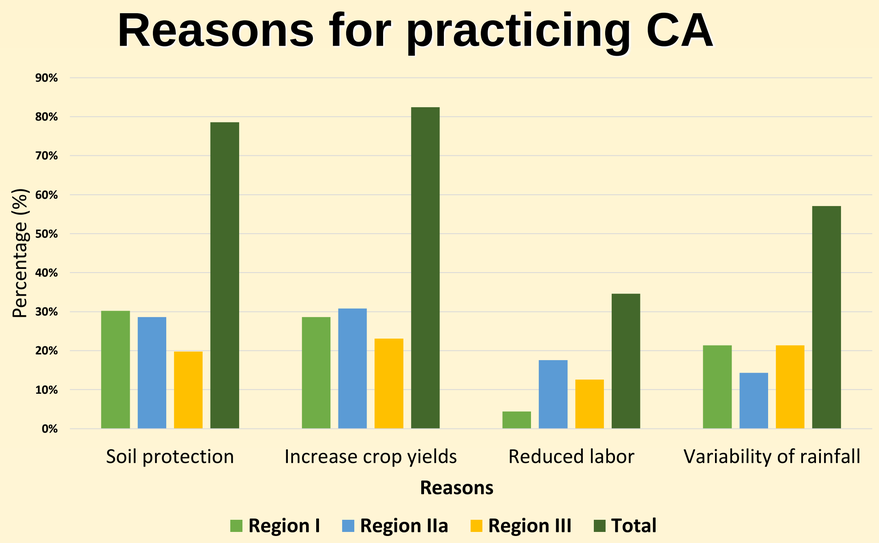

Fig 1: Perception on the reasons to adopt conservation agriculture practices

- *Barriers* constitute lack of conservation tools, widespread of weeds, and pests.
- Credit support, group membership, reasons of soil protection, increased yields, and perceived variability in precipitation are some of the factors influencing the adoption of multiple conservation practices (Table 1).

Table 1: Linear regression model

Variables	Coefficient
Age	0.020 (0.008) ***
Level of education	-0.450 (0.124) ***
Soil protection as reason for CA	1.090 (0.234) ***
Increased crop yields as reason for CA	0.920 (0.262) ***
Perception on rainfall onset	-0.637 (0.278) **
Member of Farmer group	0.518 (0.242) **
Received credit	0.862 (0.219) ***

Note: Standard Error in parentheses. Significance level ** 0.05, *** 0.01

- Extension services, farmer cooperatives, and conservation agriculture literature are found to be critical sources of information in promoting conservation practices (Fig. 2).

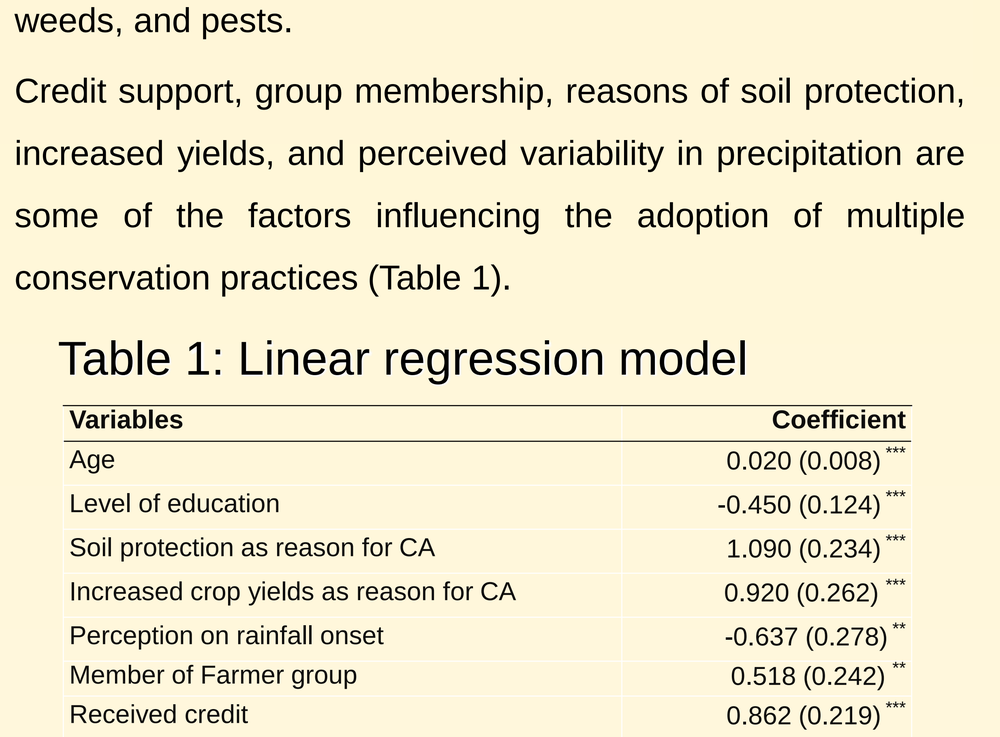

Fig 2: Source of information in promoting conservation practices

Conclusion

Improving accessibility to conservation mechanical services and implements, accessibility to conservation practices information tailored according to agroecological preferences can increase adoption of conservation agriculture and promote sustainable use of resources in Zambia.

References

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