A Smallholder Typology in Legume-based Farming Systems: an Application to Uganda

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Introduction

Over 60% of Uganda’s population is rural and employed in the agriculture sector (UBoS, 2020).

Smallholders are heterogeneous and diverse due to differing livelihood strategies, socio-cultural settings, capabilities and resources.

Towards farmer-type specific recommendations, this study sought to understand resource-based diversity among pigeon pea smallholders in Northern Uganda.

Research questions

• To what extent and how diverse are smallholders in pigeon pea farming systems in northern Uganda?

• what are the distinguishing factors within the different smallholder clusters?

Methods

• Districts (Lira, Pader and Kitgum)

• Expert interviews to develop hypothesis about the farming system

• Randomly sampled 2 sub-counties per district

• 255 smallholders interviewed using semi-structured questionnaire

Multivariate statistical analysis

• Principal Component Analysis (PCA), Cluster Analysis (CA) and ANOVA in R software

• Household, asset ownership and crop production variables selected

• HRE, MRE & LRE: High, medium and low resource endowments

Results

• Six clusters constructed; Cluster 1 and 3 are LRE and older farmers

• Cluster 4 and 5 are HRE and younger farmers

• Cluster 2 and 6 are MRE

Capt 1: Boxplot of TLUs (a), eigen values and variance (b), correlation circle (c) and cluster output (d).

Key messages

• Asset ownership (land and TLU s) are crucial factors in distinguishing between clusters

• Pigeon pea quantity produced is below the potential estimates across all clusters

• We recommend farm-type specific recommendations given the diversity of farming system households


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