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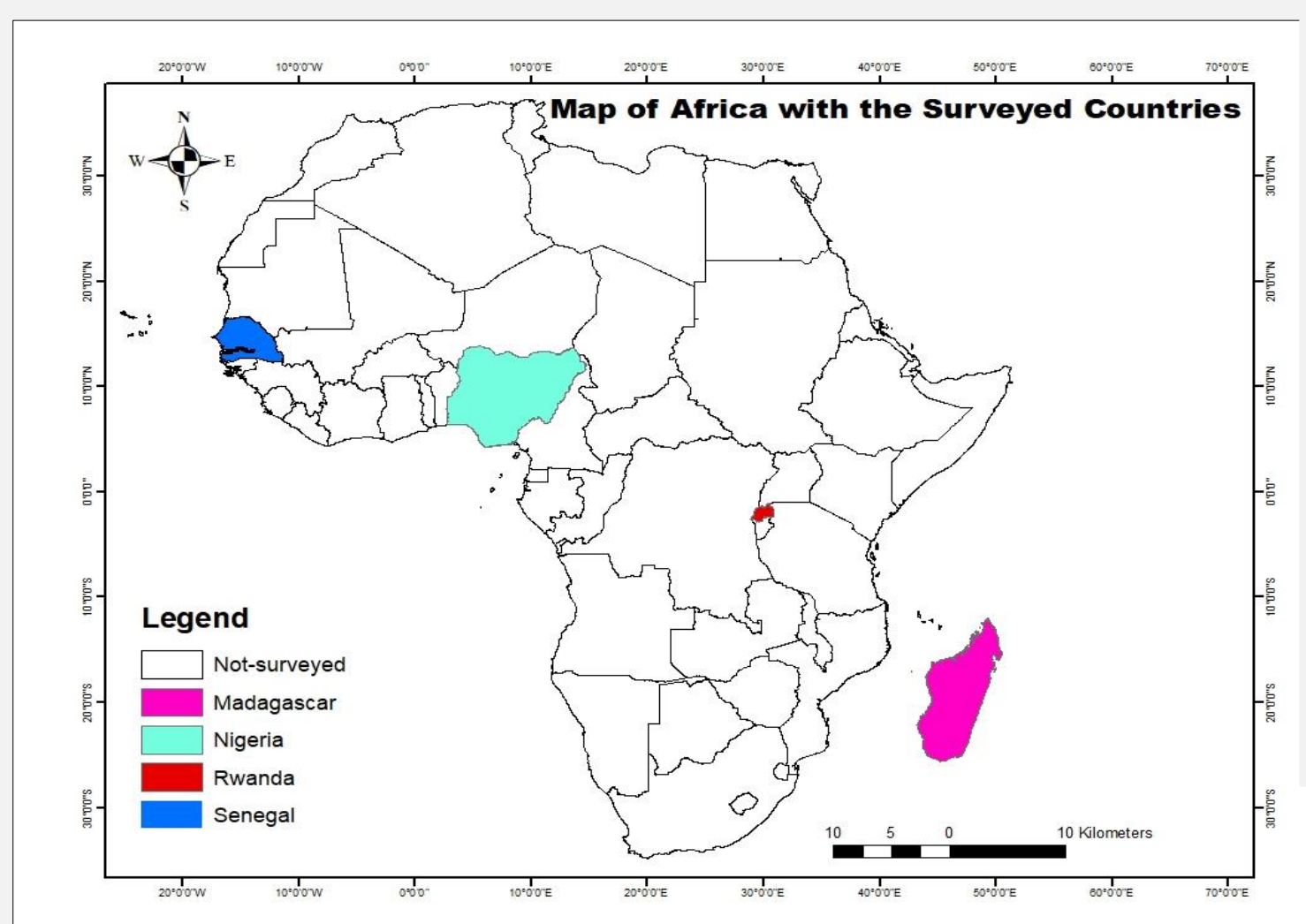
Introduction

- ❖ In SSA, a large proportion of food is produced by smallholder farmers, and they are the main providers of work for the local labor.
- ❖ Unfortunately, smallholder farmers are facing a lot of challenges including food and nutrition insecurity, and income variability.
- ❖ Crop diversification can be used as a tool to increase farm incomes, create jobs, reduce poverty, and conserve soil and water resources.
- ❖ The impact of farm diversification on household dietary diversity and the analysis of factors that affect farm diversification and dietary diversity were analyzed.

Materials and Methods

Study area

- ❖ The survey was conducted in Madagascar, Nigeria, Rwanda and Senegal (Fig. 1).
- ❖ Main rice producing areas where rice research innovations are integrated into the rice value chain were purposively selected.



Data analysis

- ❖ The main analysis tool in the study is Instrumental Variables (IV) Poisson regression (IV poisson).

Fig. 1: Map of survey countries

Variables of interest

- ❖ Farm production diversity score (treatment variable).
- ❖ Household Dietary Diversity Score (HDDS) was the outcome variable.

Results

Fig. 2: Socio-economic characteristics of the households: (A) Education level of household head (years), (B) =1 if received farming training, (C) =1 if received contract credit, (D) =1 if engaged in self-employment in the last 12 months



- ❖ Cereals and livestock are the main household productions (Fig 3) in the study countries.
- ❖ Only Nigeria has an HDDS greater than or equal to 6 (Table 1).

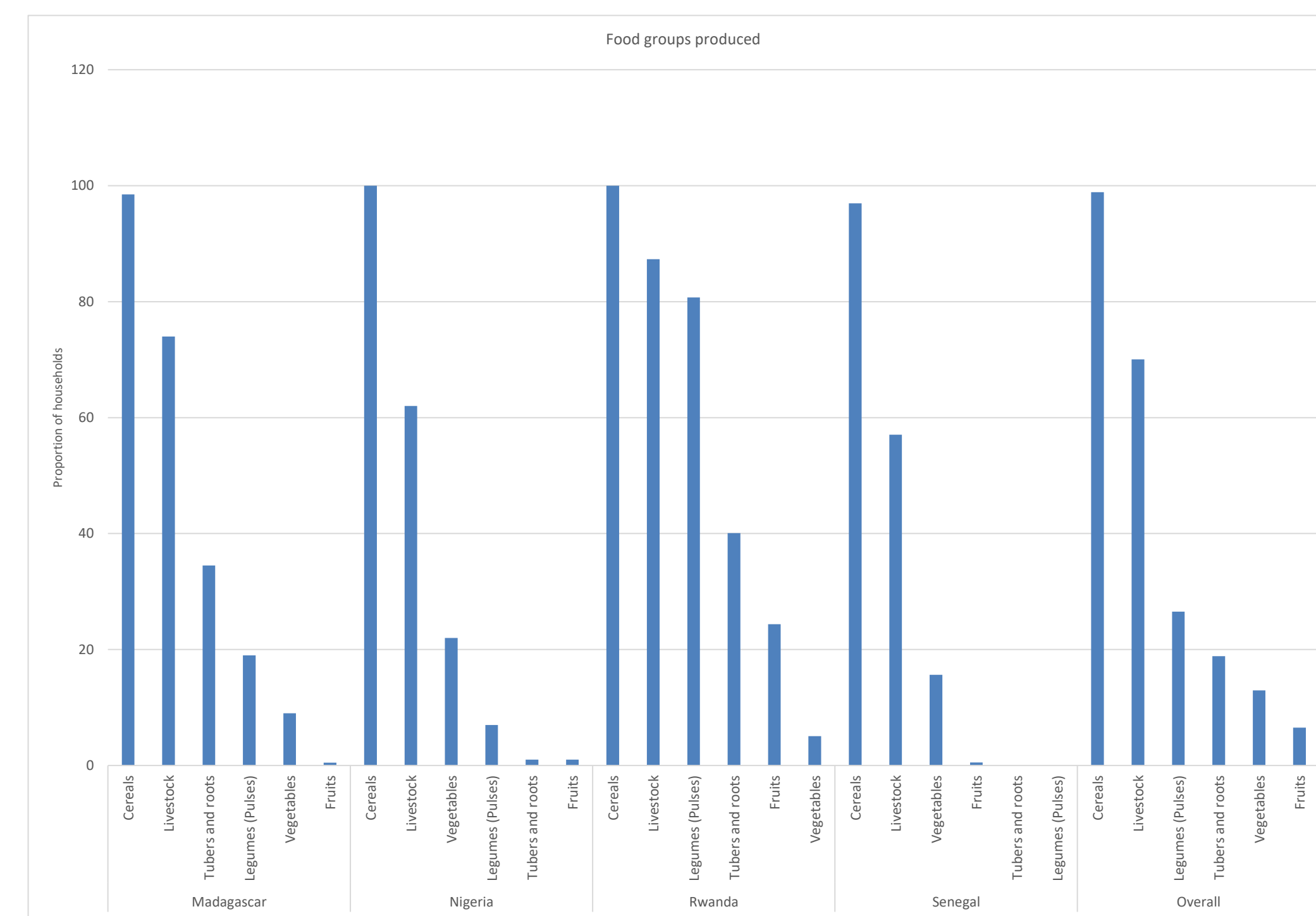


Fig. 3: Food groups produced by farm households.

Table 1. Household farm diversity and dietary diversity characters.

Variables	Madagascar (n=200)	Nigeria (n=200)	Rwanda (n=197)	Senegal (n=198)	Overall (n=795)
Farm diversity					
=1 if diversified crop production (%)	80.50	61.50	92.39	15.66	62.52
Farm production diversity score (Crop & livestock count)	3.80 (1.83)	3.62 (1.92)	5.17 (2.03)	2.25 (1.32)	3.71 (2.07)
Dietary diversity					
HDDS	4.03 (1.91)	6.47 (3.25)	4.32 (2.16)	4.98 (2.09)	4.95 (2.59)

() Standard deviations

- ❖ Results showed positive impact of agricultural diversification on household dietary diversity in the four countries (Table 2).
- ❖ Higher education level is a key driver of dietary diversity in smallholder farming households (Table 2).

Table 2. Linkages between production diversification and on-farm diet (IV poisson regression (Control-function estimator)).

Variables	Madagascar (n=200)	Nigeria (n=200)	Rwanda (n=197)	Senegal (n=198)	Overall (n=795)
HDDS					
Farm production diversity score	0.050**	0.108**	0.063***	0.086**	0.029**
Education of household head (years)	0.026***	0.007	0.011	0.019***	0.030***
=1 if engaged in self-employment in the last 12 months	0.099	0.086	0.316***	0.096*	0.210***
=1 if received farming training	-0.258**	-0.334**	0.576***	0.598***	0.230***
=1 if received contract credit	0.511***	0.028	-0.068	0.426***	0.175**
Constance	1.237***	2.537***	1.132***	1.842***	1.195***

() Standard error; ** p<0.05, *** p<0.01

Conclusion

- Encouraging farming households to produce various crop and animal species can be an effective strategy to improve dietary diversity among smallholder farmer.
- However, this relationship is complex; it may be influenced by demographics and socioeconomic characteristics; institutional characteristics, and farm characteristics of households.

Acknowledgement

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