



LEAP-Agri

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Value addition and off-season market participation among retailers in the grasshopper value chain in Central Uganda

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Background

- The potentials of value chain development for edible insects are seen in (van Huis and Oonincx, 2017):
 - nutritional benefits: rich in proteins, vitamins, and minerals
 - environmental sustainability: lower emission of green houses
 - economic opportunities: creation of employment, incomes
- However, high seasonality, perishability and limited value addition hamper retailers from harnessing economic opportunities from the grasshopper value chain (Odongo et al., 2018).

Research Questions

- How does value addition affect retailers' participation in off-season market?
- What other factors affect retailers' participation in off-season market?

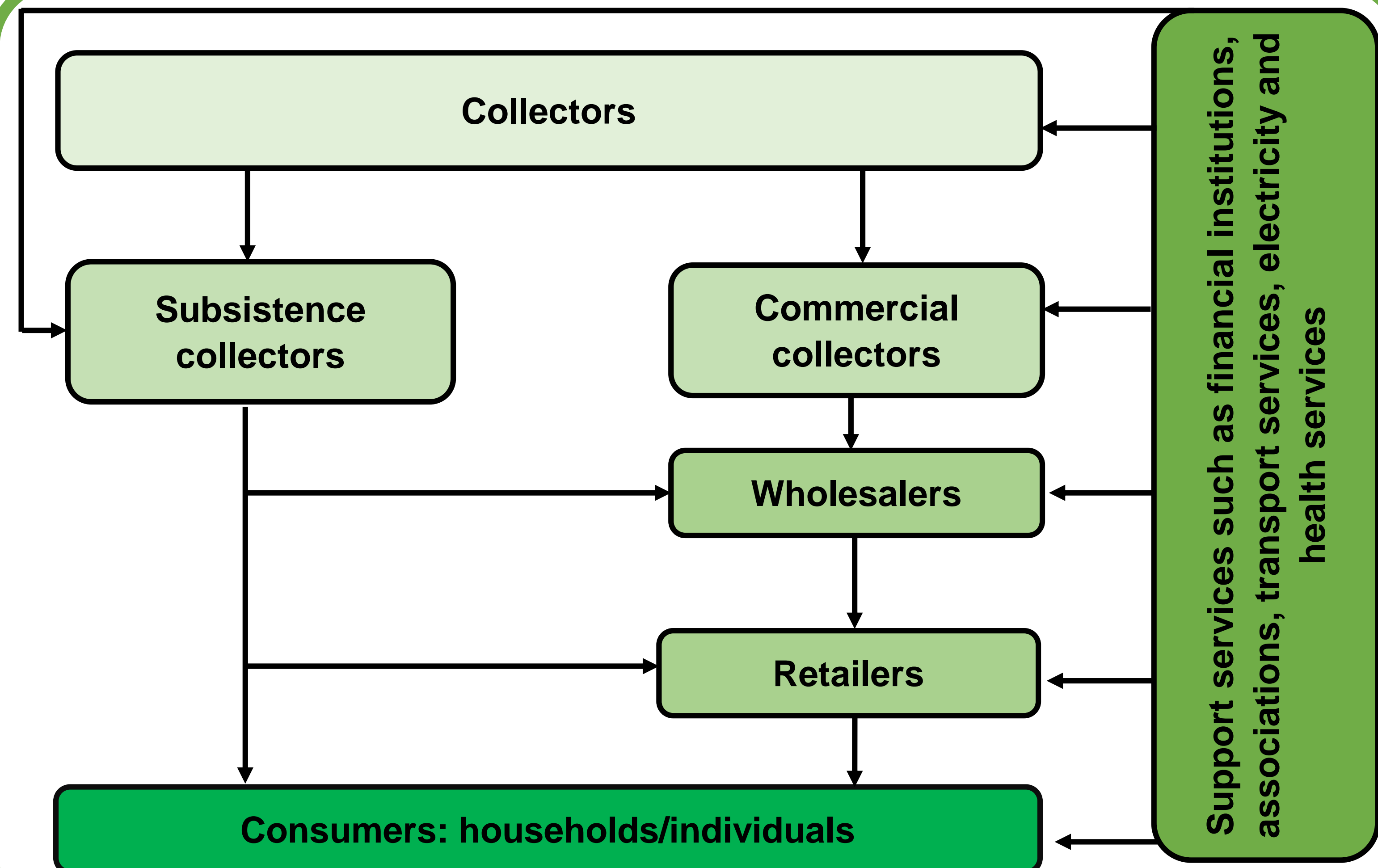


Figure 1. Grasshopper value chain in Uganda. Source: Adapted from Odongo et al. 2018



Figure 3. Value-added grasshopper products: a. Unplucked grasshopper; b. Plucked grasshoppers; c. Dried grasshoppers; d. Fried grasshoppers. Plucking is the removal of wings, legs and antennae from raw grasshoppers

Methods

Study areas: Kampala and Masaka Districts of Central Uganda

Sample size: 500 grasshopper retailers

Sampling technique: Multistage cluster sampling

Data collection technique: Digital survey questionnaire using KoboTool Box Mobile App

Data analysis: Descriptive statistics, binary Probit model

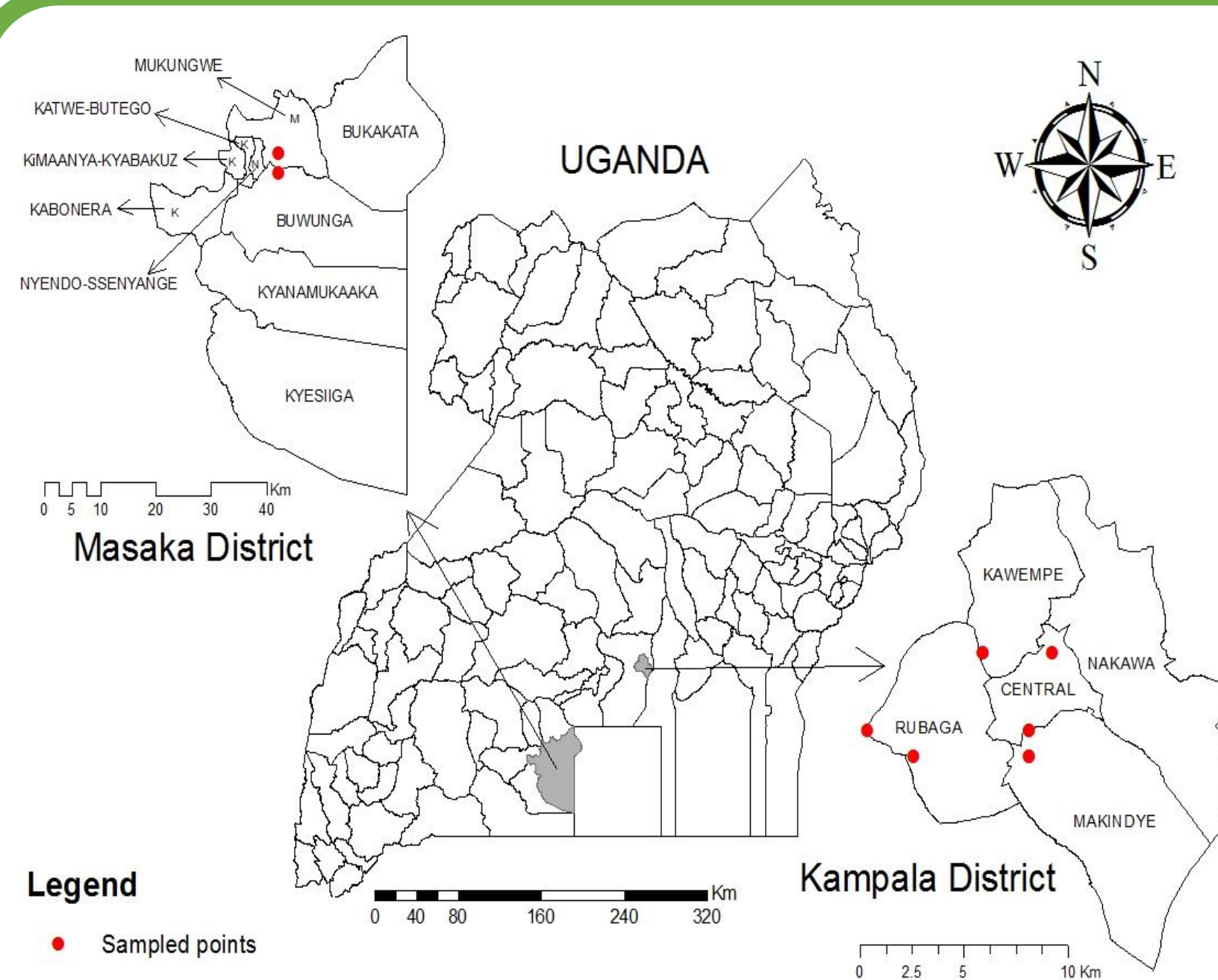


Figure 4: Map of the study areas

Conclusion

- Valued-added grasshoppers command higher premium prices, particularly when sold in off-season market.
- While frying and drying of grasshopper increase retailers' participation in off-season market, plucking decreases it.
- Location, age, annual income and storage constraint of retailers reduce their participation in off-season market.
- Female and educated retailers are more likely to participate in off-season market.
- Membership in association and ownership of vehicle increases retailers' participation in off-season market.

Results

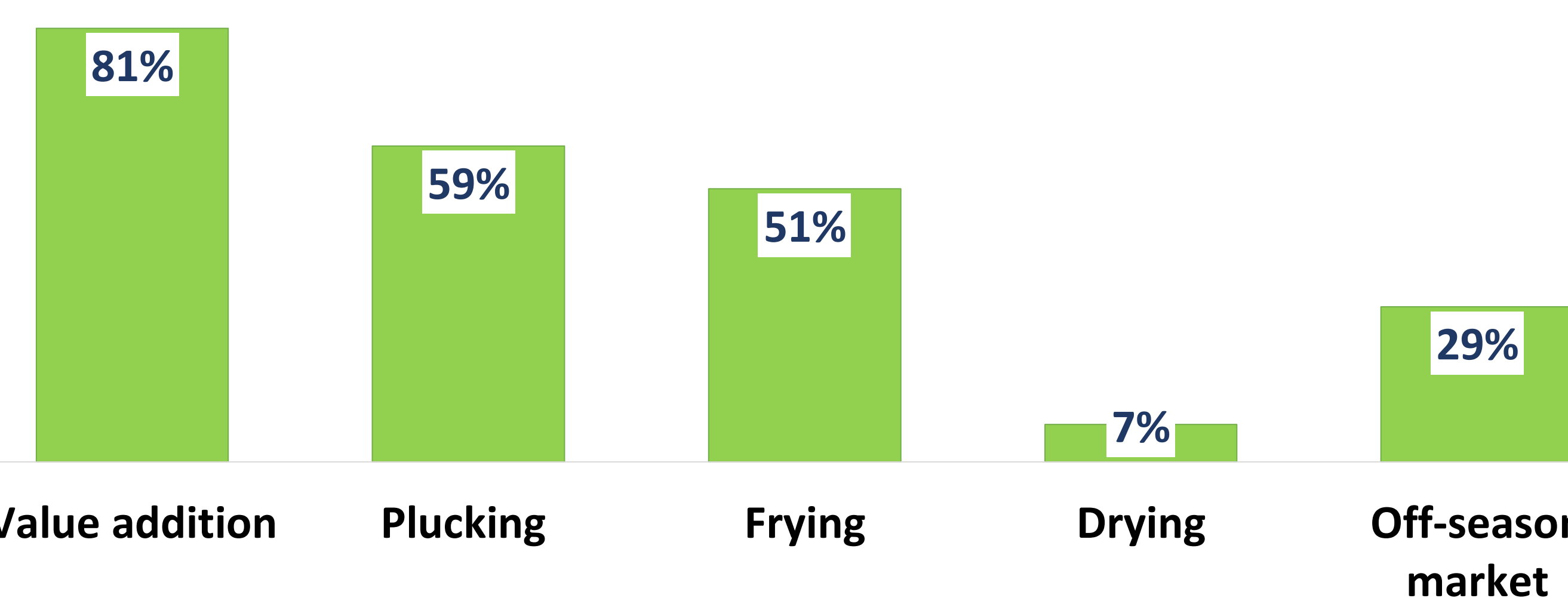


Figure 2. Retailers' participation in value-adding activities and off-season market
Plucking: Removal of wings, legs and antennae from raw grasshoppers

Table 1: Price differentials across seasons and grasshopper products						
Prices per kg (Ugx/kg)	Off-season		Peak season		Mean difference	t-value
	Mean	SD	Mean	SD		
Raw grasshoppers			7,503	2,157		
Plucked grasshoppers			15,001	2,973		
Fried grasshoppers	63,876	17,264	39,258	5,571	24,618***	21
Dried grasshoppers	54,365	14,194	28,046	5,525	26,318***	9
Price differentials between grasshopper products in the peak season						
Plucked and raw					7,498***	27
Fried and raw					31,755***	65
Dried and raw					20,543***	34
Fried and pluck					24,257***	67
Dried and pluck					13,046***	21
Fried and dried					11,211***	11
Price differentials between value-added grasshopper products in off-season						
Fried and dried					9,511**	1.98

Key: Ugx – Ugandan shillings, SD – standard deviation , *, **, *** – 10%, 5% and 10% significance levels, respectively

Table 2: Effects of value addition on off-season market participation			
Variables	Measurement	Coeff	SE
Plucking	1=Plucking	-1.28***	0.49
Frying	1= Frying	1.40***	0.48
Drying	1=Drying	0.82***	0.31
District	1=Kampala	-0.60**	0.28
Gender	1=Female	0.58**	0.26
Age	Years	-0.70*	0.42
Education	Number of years of formal schooling	0.05*	0.03
Household size	Number of people in the household	0.12***	0.04
Annual income	Annual income from other activities	-0.05**	0.02
Association	1=membership of association	0.49***	0.16
Vehicle	1=vehicle	2.04***	0.63
Storage constraint	1=lack of storage facility	-0.89***	0.26
Wald chi-square		128.40***	
Pseudo R-square		0.28	
Observation		500	

Key: Coeff – Coefficient, SE – standard error, *, **, *** – 10%, 5% and 10% significance levels, respectively

References

- van Huis, A., & Oonincx, D. G. A. B. (2017). The environmental sustainability of insects as food and feed. A review. *Agronomy for Sustainable Development*, 37(5). doi:10.1007/s13593-017-0452-8
- Odongo, W., Okia, C. A., Nalika, N., Nzabamwita, P. H., Ndimubandi, J., & Nyeko, P. (2018). Marketing of edible insects in Lake Victoria basin: the case of Uganda and Burundi. *Journal of Insects as Food and Feed*, 4(4), 285-293. doi:10.3920/jiff2017.007

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