

# Utilization of traditional processed and preserved cowpea leaves in the Coastal Region of Kenya

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## Introduction

- Cowpea leaves (Fig 2) are some of African indigenous vegetables that have been utilized as food in sub-Saharan Africa.
- Traditional preservation and processing of the vegetables help minimize their postharvest losses<sup>1</sup>.
- Efficiency of traditionally preserved forms in promoting utilization of the vegetable is yet to be determined.

## Study Objective

- To determine the contribution of traditional processing and preservation in improving utilization of cowpea leaves.

## Materials and Methods

- Cross sectional survey was conducted in Taita Taveta County, Kenya.
- Sampling of 205 households. Done as shown in Fig 1.
- Data collection tools: Semi-structured questionnaire.
- Statistical analysis: Logistic regression, odds ratio and frequencies.

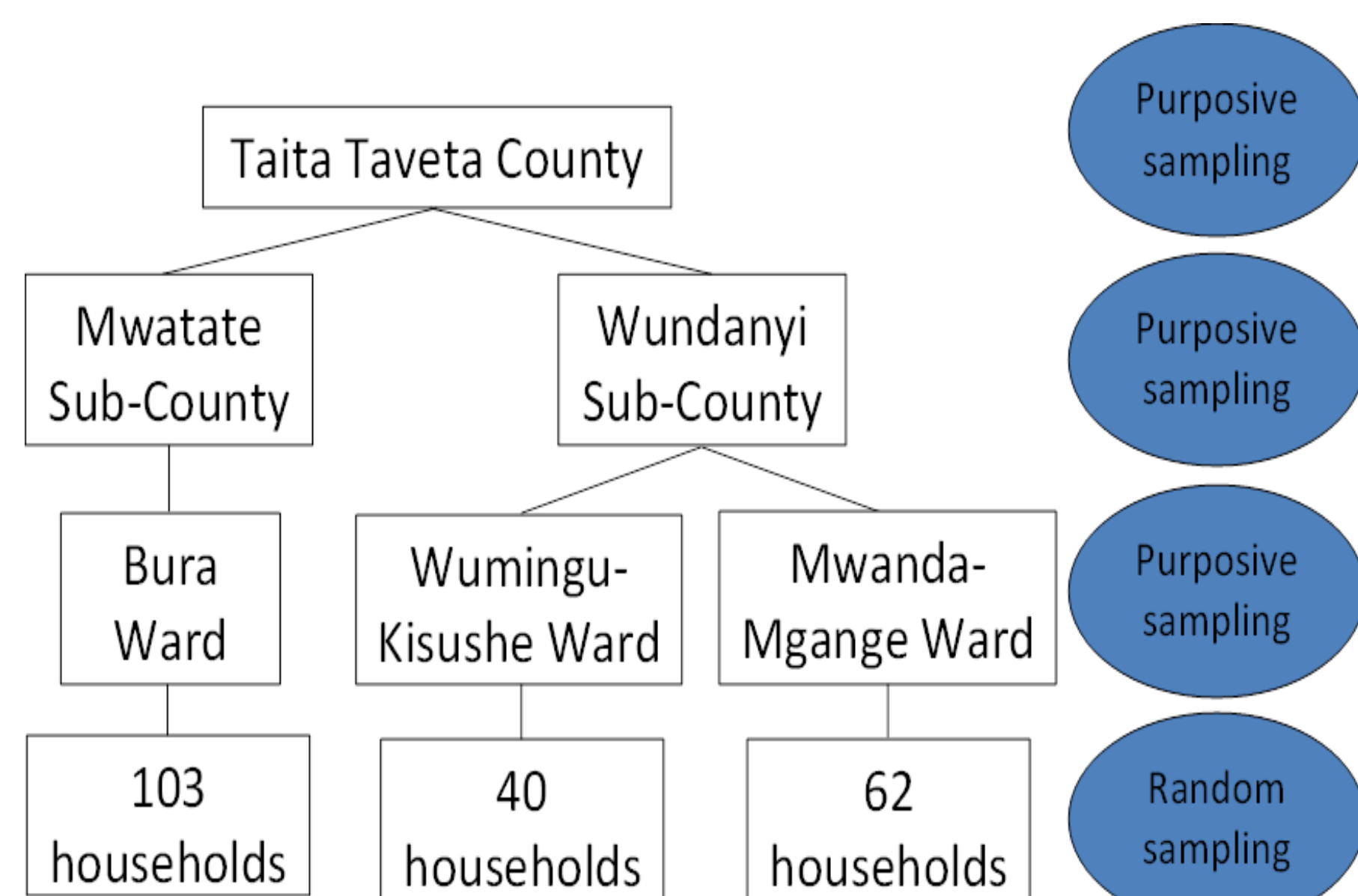


Fig 1: Sampling schema



Fig 2. Preserved cowpea leaves  
A-Unblanched sun-dried; B-Unblanched shredded sun-dried;  
C-Blanched shredded sun-dried  
Pictures courtesy of Dawuka Self-Help Group, Taita Taveta County

## Results

- Household head: 66.8 were males whereas 33.2% were females.
- Average age of heads of cowpea producing households was 50.18±16.22 years.
- Average size of cowpea producing households was 3.4±2.2 persons.
- Three quarters of the households prioritized cowpea leaves as a vegetable (Fig 2).
- Dried cowpea leaves was the second most consumed form (Fig 3).
- Traditional processing practised among the households were:
  - Sun-drying-73.9%
  - Blanching-27.3%
  - Sun-drying and blanching- 54.1%
- Sourcing cowpea leaves from roadside vendors in-season increased the odds of utilizing dried forms off-season (Table 1).
- Seed scarcity and low pricing of the vegetables in the market increased the chances of drying the leaves (Equation 1).

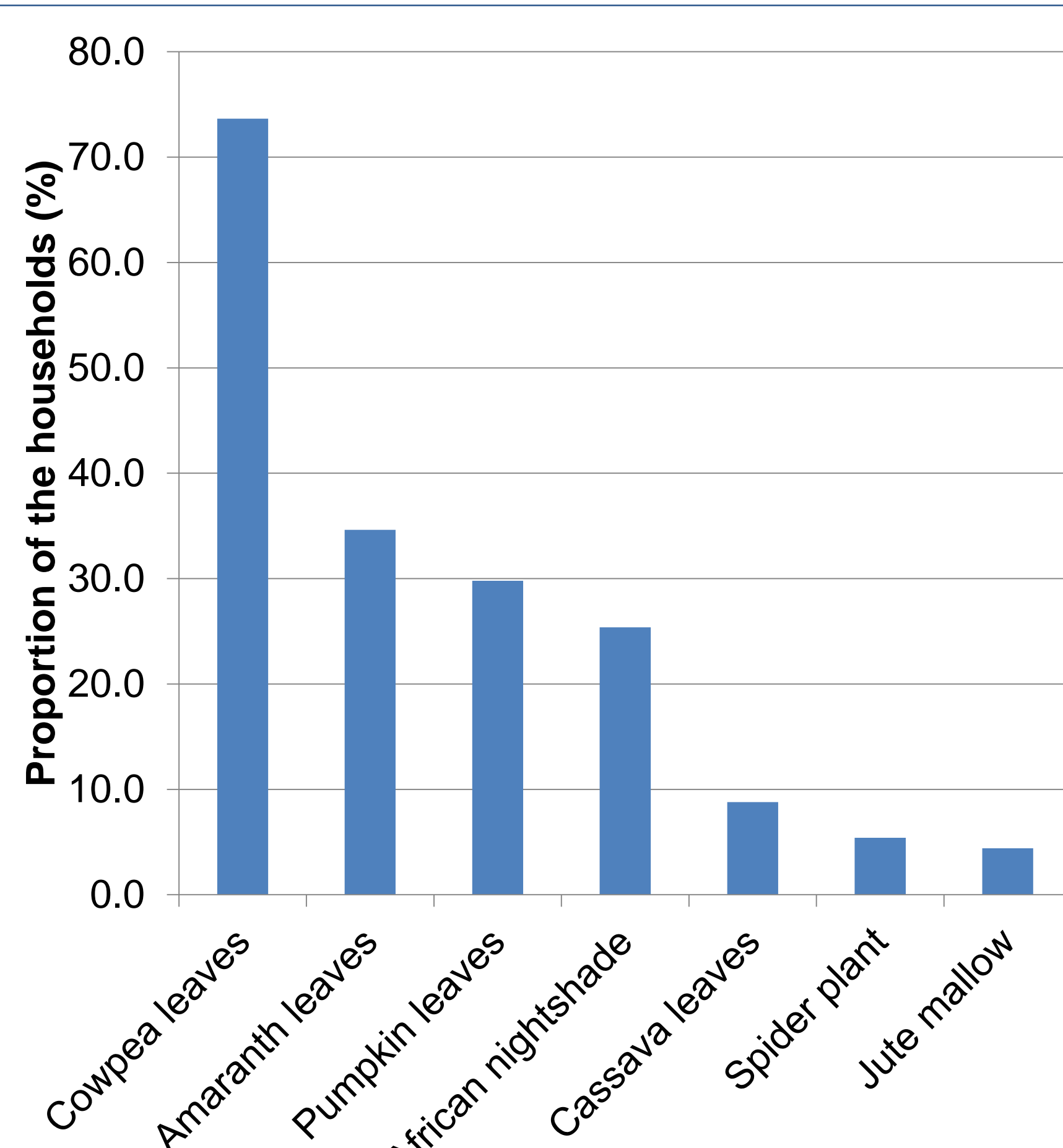


Fig 2. Priority indigenous vegetables.

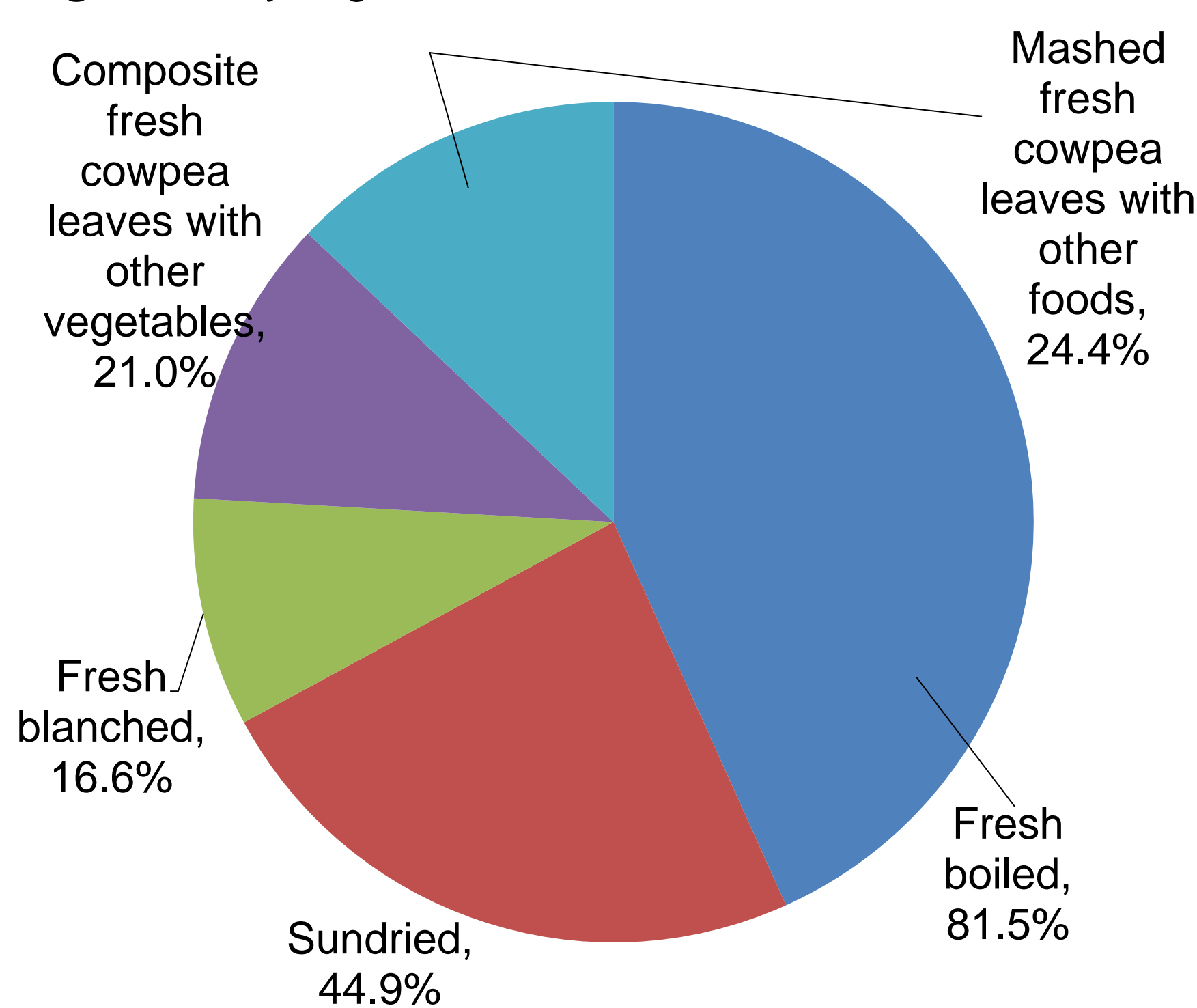


Fig 2. Forms of cowpea leaves consumed.

Table 1. Odds of sourcing cowpea leaves off-season based on socio-economic characteristics

Socio-economic characteristics of households	Source of cowpea leaves off-season		
	Buy from other places	Use dried vegetables	Don't consume
Source of cowpea leaves in-season			
Own farm (Yes/No)	2.5	2.1	1.1
Purchase from roadside vendors (Yes/No)	1.7	2.4*	0.1*
Purchase from the market (Yes/No)	0.2*	0.3*	1.3*
Who decides food to be bought in the household (man/woman)	0.6	0.3*	21.9*

\*p<0.05

Equation 1: Regression model for predictor constraining production factors on drying of cowpea leaves

$$y = 4.5 - 1.8x_1 + 3.1x_2 - 4.4x_3 + 3.7x_4 - 2.5x_5,$$

- R<sup>2</sup> =0.60, p<0.001
- Where:

y= practise of drying of cowpea leaves  
x<sub>1</sub>=Field pests  
x<sub>2</sub>=Seed scarcity  
x<sub>3</sub>=Low yields  
x<sub>4</sub>=Low prices for leaves  
x<sub>5</sub>=Lack of access to improved seeds

## Discussion

- Sun-dried vegetables can keep up to a year with less no visible signs of deterioration.
- Constraints and challenges in production result in reduced production quantities<sup>2</sup>.
- In as much as sun-drying can enhance availability of the vegetable, only limited quantities can be dried and stored.
- The technique of sun-drying is more adaptable and cost-effective, however, it yields less quality product<sup>3</sup>.

## Conclusions

- Use of sun-drying enhanced utilization of cowpea leaves during off-season.
- Challenges at production level constrain the practise of sun-drying in the area.

## Recommendation

- The technique of sun-drying can easily be scaled up due to its affordability to increase availability of cowpea leaves among rural communities.

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## References

1. Gogo, E.O., Opiyo, A., Ulrichs, C., Huyskens-Keil, S., 2018. Loss of african indigenous leafy vegetables along the supply chain. *Int. J. Veg. Sci.* 24, 361–382. <https://doi.org/10.1080/19315260.2017.1421595>
2. Ayaa, F., Alumai, A., Dranzoa, C., 2018. Indigenous knowledge influences cowpea (*Vigna unguiculata*) production among smallholder farmers in Northern Uganda. *Sch. World-International Ref. J. Arts, Sci. Commer.* VI, 85–89.
3. Kiremire, B., Musinguzi, E., Kikafunda, J., Lukwago, F., 2010. Effects of vegetable drying techniques on nutrient content: a case study of south-western Uganda. *African J. Food, Agric. Nutr. Dev.* 10, 2587–2600. <https://doi.org/10.4314/ajfand.v10i5.56341>

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