

Marketing of Baobab Pulp in Kenya: **Collectors' Choice of Rural Versus Urban Markets** Kaimba George<sup>1,2</sup>, Kavoi Muendo<sup>1</sup>, Mithöfer Dagmar<sup>2</sup> <sup>1</sup> Jomo Kenyatta University of Agriculture and Technology <sup>2</sup> Rhine-Waal University of Applied Sciences

# Background

- The livelihoods of communities in the arid and semi-arid lands (ASALs) partially depend on underutilised indigenous trees including baobab tree
  - Consumption; supplement local diets nutrition, improve food security
  - Income generation; sale of non-timber forest products (NTFPs)
- Baobab tree (Adansonia digitata L.) are found in Sub-Saharan Africa
- Baobab trees are important based on:
  - Uses (fruit, leaves and bark)
  - Nutrients, vitamins and minerals ("Super food")
  - Resilience: yields in years when crops fail
- Markets play an important role in the exchange of baobab products
- Baobab traders operate in formal and informal markets depending on the level of government regulation (local markets are the most common)

# **Problem Statement**

- Despite the potential importance of baobab at local and international scale, the tree remains neglected by research, particularly in Kenya:
  - Lack of marketing information
  - Local marketing channels are not known
  - It is not known whether baobab collectors participate in export markets
  - Baobab markets are thought to be underdeveloped relative to their potential
- The findings of the study useful in understanding the dynamics of baobab pulp distribution and policy formulation guidance

# **Research Question**

- Which marketing channels do baobab collectors participate in?
- What are the determinants of collectors' choice of marketing channel?
- Internationally, baobab pulp is accepted as food ingredient by the European Union (EC 2008) and the US Food and Drug Administration (FDA 2009)



1=Baobab tree, 2=Developing fruit, 3=Dried fruit, 4=Fruit cracking, 5=Baobab pulp, 6=Motorbike transport 7= Assembler waiting for transport along main road 8=Rural wholesaler, 9=Transporter, 10= Processor 11=Urban wholesaler

## Conclusion

- Five marketing channels identified: assemblers, rural wholesalers (rural markets), urban wholesalers, urban retailers and processors (urban markets)
- Export channels for collectors are conspicuously missing from the chain
- Quantities supplied through rural markets are higher than urban markets
- Transactional, human capital and institutional factors influence collectors' choice of marketing channel
- Collectors satisfy different interests from participating in different channels.
- Policies to target capacity building on:
  - Market development
  - Training and sensitization,
  - Research and education

Marketing Channel		Assemblers		Rural Wholesalers		Urban Buyers		Assemblers		Rural Wholesalers		Urban Bu	
Variable		Mean	S.D.	Mean	S.D.	Mean	S.D.	dy/dx	S.E.	dy/dx	S.E.	dy/dx	
Human capital factors													
Gender (%)	Male	0.41	0.49	0.29	0.46	0.54	0.51	0.04	0.06	-0.07*	0.06	0.03*	
Age (years)		44	15	47	15	48	17	-0.23***	0.09	0.18*	0.09	0.06**	
Household children (#)		4	2	4	2	4	2	-0.03	0.05	-0.06*	0.05	0.08**	
Marital status: (%)	Single	0.03	0.15	0.02	0.14	0.03	0.16						
	Married	0.76	0.43	0.78	0.42	0.65	0.48	-0.05	0.18	-0.01	0.18	0.06**	
	Divorced	0.01	0.09	0.04	0.19	0.00	0.00	-0.36*	0.21	0.34	0.21	0.02***	
	Widowed	0.20	0.40	0.16	0.37	0.32	0.48	-0.04	0.19	-0.09	0.19	0.14***	
	Separated	0.01	0.09	0.01	0.09	0.00	0.00	-0.29	0.22	0.28	0.22	0.01	
Other incomes (KES)		107306	111408	111761	129567	168767	20913 <mark>1</mark>	0.02	0.03	0.01**	0.03	-0.02*	
Baobab trees (#)		11	10	7	8	12	13	0.11***	0.03	-0.11**	0.03	0.01	
Collection point: (%)	Own farm	0.97	0.18	0.88	0.33	0.78	0.42						
	Neighbours farm	0.01	0.09	0.07	0.26	0.22	0.42	-0.31**	0.13	0.32	0.13	-0.02	
	Communal land	0.02	0.13	0.05	0.21	0.00	0.00	-0.25***	0.09	0.12*	0.09	0.13***	
	Forest	0.01	0.09	0.00	0.00	0.00	0.00	-0.15	0.13	-0.38**	0.03	0.54***	
Experience of selling (years)		7	6	6	6	10	7	0.11***	0.03	-0.12**	0.03	0.01	
Buyers known to collector (#)		2	1	2	1	4	2	-0.13**	0.06	0.18*	0.05	-0.05*	
Transactional factors													
Price at location of sale (KES)		11	2	12	3	23	7	-0.60***	0.21	0.38	0.22	0.22**	
Price awareness at other loca	ations of sale (%)	0.49	0.50	0.48	0.50	1.00	0.00	-0.09*	0.05	-0.09*	0.06	0.16***	
Wage rate (KES)		213	72	206	74	241	119	-0.08	0.07	0.02*	0.07	0.06**	
Transport cost (KES)		63	25	67	44	151	81	0.01	0.09	0.02*	0.09	-0.02	
Packaging cost (KES)		36	18	43	25	53	34	-0.15**	0.07	0.11*	0.07	0.04*	
Distance to location of sale (H	(ms)	2.89	2.19	5.06	23.87	102.96	116.08	-0.04	0.04	-0.02**	0.03	0.06**	
Product form: (%)	Whole fruit	0.08	0.27	0.01	0.09	0.05	0.23						
	Baobab pulp	0.92	0.27	0.99	0.09	0.87	0.35	-0.33*	0.09	0.28*	0.09	0.05***	
	Both	0.00	0.00	0.00	0.00	0.081	0.28	-0.47	0.12	-0.02	0.10	0.49***	
Institutional factors													
Access to credit (%)		0.34	0.47	0.35	0.48	0.54	0.51	0.01*	0.05	-0.02*	0.05	0.02	
Access to training (%)		0.02	0.15	0.07	0.25	0.00	0.00	-0.18	0.14	0.23	0.14	-0.05	
County: (%)	Kitui County	0.90	0.31	0.75	0.44	0.35	0.48	Note: dy	//dx for f	actor leve	ls is the	discrete c	;h
	Makueni County	0.03	0.18	0.25	0.44	0.24	0.44	from the	e base le	evel			
	Kilifi County	0.07	0.26	0.00	0.00	0.41	0.50	Number	of obse	ervations =	268		
Quantity sold in (Kgs)		322	635	234	554	1377	3060	Wald ch	i <sup>2</sup> (36)	=	550.92		
Profits per kilogram (KES)		5.29	2.28	5.73	2.48	13.01	7.85	Prob > c	chi <sup>2</sup>	=	0.00		
Profits per collector (KES)		1456	2042	1180	2064	14130	23278	Pseudo	$R^2$	=	0.48		
								Log pse	udo like	lihood =	-137.96	<b>)</b>	
Key: S.D – Standard Devia							<b>Multicol</b>	linearity:	Variance	Inflation	factor (V	IF	
S E – Standard error									000 (1 1	$12$ $\cdot$ $Max$ (	2 0 1). N	(105)	

### Results

#### Marketing channels for baobab collectors



Key: SA-Strongly agree, A-Agree, N-Don't know, D-Disagree, SD-Strongly disagree 1-5 = Weights assigned

## Survey Design, Data and Analysis

- Multistage purposive sampling of counties and markets, linear systematic random sampling of baobab collectors
- Focus group discussions & quantitative survey of 270 baobab collectors
- Household assumed to maximise utility and to minimise transactional costs Data analysis
  - Descriptive statistics and
  - Multinomial logit (MNL)

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### Study area: Kitui, Makueni and Kilifi Counties.

![](_page_0_Figure_53.jpeg)

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