

# Sweetpotato Marketing, Processing and Utilization CoP Meeting

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**Sweetpotato** Action for  
Security and **Health** in **Africa**

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# Understanding Consumer Preferences and Estimating Willingness to Pay for OFSP Juice



# OUTLINE



- ✓ Introduction
- ✓ Objective
- ✓ Methodology
- ✓ Analysis
- ✓ Conclusion



# INTRODUCTION

- 🌍 Rwanda, with total area of 26,000 km<sup>2</sup> is the smallest landlocked country in Africa.
- 🌍 Agriculture is an important sector in the economy; contributes, **34%** of GDP, **80%** employment and **70%** foreign earning (Muhinda 2013).
- 🌍 Micronutrient malnutrition, vitamin A in particular, is one of the major problems that millions of African children face and resulted in death and blindness of children (Low et al 2007; De Groote and Kimenju 2008; Magadi 2011; Meenakshi et al 2012; Sindi et al 2013).
- 🌍 The joint UNICEF, WHO and World Bank report indicated that, in 2012 alone, **36%**, **29%** and **28%**, respectively, of the world stunted, underweight and wasted children lived in Africa (WHO; and UNCF; 2013).

## INTRODUCTION....RWANDA

-  In Rwanda the percentage of population living below poverty line is about **45%** (NISR 2013)
-  About **43%** (CI: 42.7-45.2%), children under five years suffer from chronic malnutrition; and **11%** are underweight.(RDHS, 2010)

## SOLUTION

1. Providing a high-dose capsules ever six month
2. Dietary improvement and consumption of foods rich in pro-vitamin A, such as orange fleshed sweetpotato (Low et al 2007; De Groote and Kimenju 2008). This approach is found to be the cheap and most effective alternative but received less attention .

## INTRODUCTION....

Sweetpotato production in Rwanda accounts for **(7.1%)** of the land under crop cultivation (NISR 2013).

*The share of crop production for individual crops was highest for Sweet potatoes **(18.3%)** followed by Banana for beer **(17.2%)** (NISR 2013).*

SP is one of the main staple crops in Rwanda





# OBJECTIVES

The main objective of Rwanda Supper Food Project were to test :

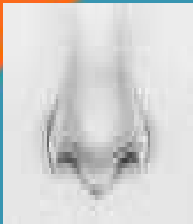
- ❖ Whether it would be possible to develop economically-viable sweetpotato processed products, acceptable to consumers.
- ❖ Whether development of a sweetpotato value chain for processed products, linked to a private sector actor leads to better returns for male and female sweetpotato producers than just accessing the local market
- ❖ Whether men and women farmers benefitted more by being organized in groups and backstopped by NGOs, than by just being linked as individuals to the agro-processor
- ❖ Whether the promotion of OFSP processed products resulted in a change in the image of sweetpotato at local and national levels

# MATERIALS AND METHODOLOGY

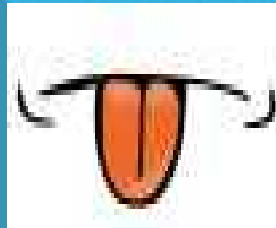
- ✓ This study is based on the survey from 957 individuals selected from seven different markets (representing different income group low to high) in Rwanda.
- ✓ Respondents were asked to show their preferred juice brands, from four bottles
- ✓ Buying frequencies, and quantity purchased
- ✓ Attributes that influences decision to buy (taste, aroma, color, consistency, amount of sugar)
- ✓ Knowledge about vitamin A

The tasters were asked to taste each of the juice and rank the attributes one after the other.

SMELL



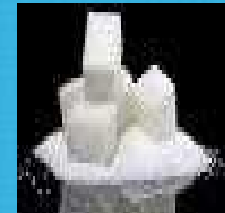
TASTE



COLOR



SWEETNESS





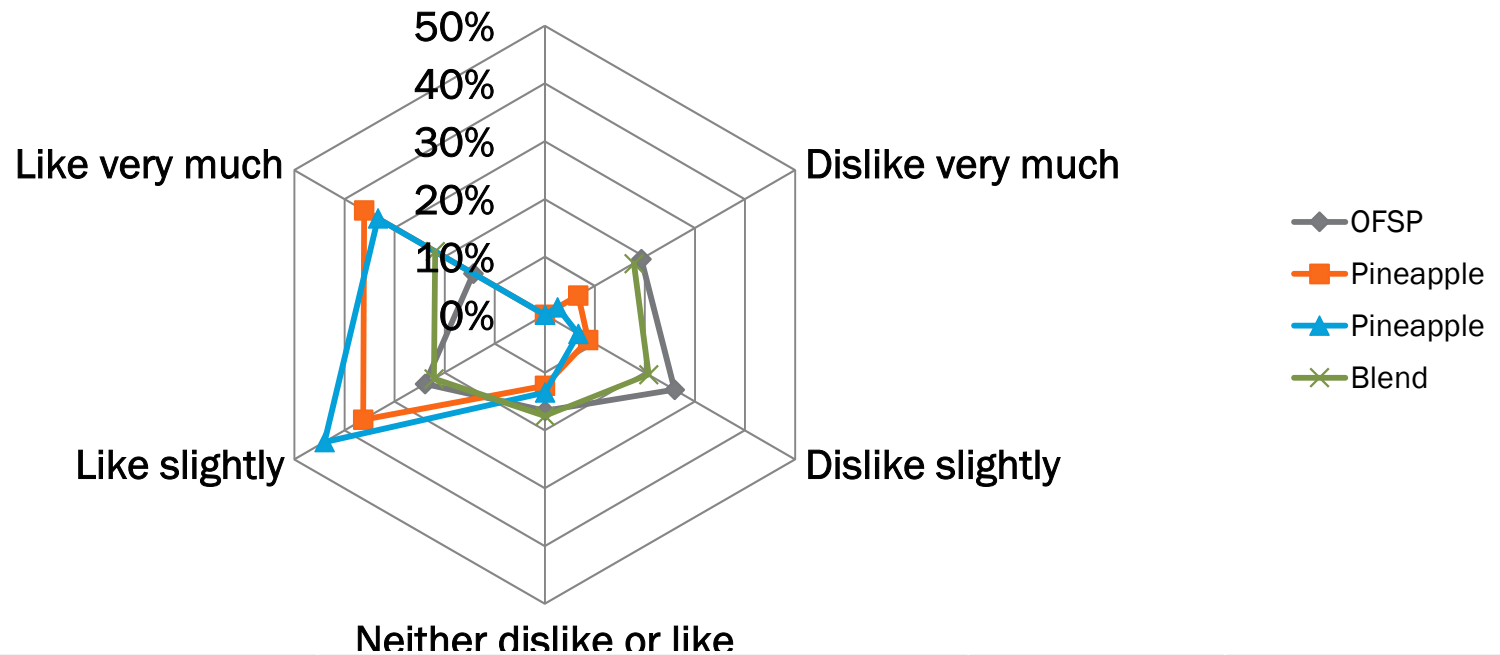
## METHODOLOGY ...

Two stage Heckman Selection model is used to identify factors affecting the willingness to pay: Choose then decide how much to pay

Multinomial logit model is applied on both individual characteristics and juice attributes which influences the decision to chose a particular juice.



# ANALYSIS RESULT...OVERALL RATING



Opinion	OFSP	P-Inyange	P-SINA	Blend
Dislike very much	19%	7%	3%	18%
Dislike slightly	26%	9%	7%	21%
Neither dislike or like	17%	12%	13%	17%
Like slightly	24%	36%	44%	22%
Like very much	14%	36%	33%	22%

# DOES GENDER INFLUENCES JUICE CHOICE?

Juice type	Sex of participant			Heard of vitamin A		
	Female (384)	Male (562)	Difference	No(228)	Yes (718)	Difference
OFSP	376 (8.38)	461 (8)	-35** (12)	373 (10)	404 (7)	-31** (14)
Blend	433 (19.25)	464 (15)	-31 (24)	408 (13)	465 (15)	-58** (27)

Standard errors in parentheses\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## The role of nutritional information on juice choice

- Does labeling matters ?
- Are the consumers WTP more if vitamin A information is revealed ?



Juice type	Color	Aroma	Taste	Taste after	Consistency	WTP
OFSP-Juice	3.96	2.88	2.98	2.97	3.22	397
P-Inyange	3.18	3.86	3.65	3.48	3.21	453
P-SINA	3.08	3.99	4.00	3.80	3.62	466
Blend	3.82	3.10	3.48	3.36	3.59	451

T-statistics difference in means **without** nutritional information of the juice

OFSP vs P-Inyange	11.34***	-15.26***	-10.80***	-7.47***	0.08	-9.00***
OFSP vs P-SINA	13.85***	-19.02***	-17.04***	-13.07***	-6.34***	-6.54***
Blend vs P-Inyange	9.31***	-10.91***	-2.46*	-1.56	5.29***	-0.14
Blend vs P-SINA	12.14***	0.34	-8.40***	-6.59***	-0.51	-1.02

T-statistics difference in means **with** nutritional information of the juice

OFSP vs P-Inyange	7.16***	1.77	3.62***	3.36***	5.84***	2.02*
OFSP vs P-SINA	6.58***	0.40	1.99*	1.63	3.20**	2.56*
Blend vs P-Inyange	9.76***	3.33***	14.90***	14.65***	15.12***	5.39***
Blend vs P-SINA	8.75***	6.61***	9.03***	10.21***	9.55***	4.80***

**NO INFORMATION:** Either OFSP or Blended were not chosen for any attribute

With information the results changed dramatically

## JUICE CHOICE MULTINOMIAL LOGIT MODEL

Variables	OFSP	Pineapple-Inyange	Pineapple-SINA
Sex	0.39	-0.56**	-0.01
Age	-0.01	-0.01	-0.00
LnPrice	0.04	-0.09	-0.03
Dummy right sugar (1 Yes, 0 No)	<b>2.14***</b>	-0.44	-0.36
Dummy like aroma (1 Yes, 0 No)	<b>0.80**</b>	0.09	0.03
Dummy like taste (1 Yes, 0 No)	<b>0.93**</b>	-0.22	<b>-0.55**</b>
Taste consistent (1 Yes, 0 No)	<b>-0.28</b>	<b>-0.46*</b>	<b>-0.63***</b>
Dummy like color (1 Yes, 0 No)	<b>0.77**</b>	0.27	<b>0.65***</b>
Dummy buy weekly (1 Yes, 0 No))	0.58	-0.15	<b>0.16</b>
Dummy affordable (1 Yes, 0 No)	<b>0.05</b>	0.39	<b>0.75*</b>
Dummy tasty (1 Yes, 0 No)	<b>-1.14*</b>	-0.21	0.09
Dummy healthy (1 Yes, 0 No)	<b>-1.03*</b>	-0.37	0.07
Number bought (package/bottle)	0.00	0.18	0.15
Dummy heard vitamin A (1 if Yes)	-0.07	-0.10	0.08
Middle class Market	-0.52	-0.38	-0.09
High class market	0.11	<b>1.52*</b>	1.12
Constant	<b>-2.47*</b>	1.44	0.13



# CONCLUSION

- ❖ Blended juice is as preferred as any other pineapple juice
- ❖ Its color is most preferred compared with other juice
- ❖ It is viable to produce and launch OFSP based juice product
- ❖ Willingness to pay and the attribute preferences depends on both demographic, economic and juice related attributed
- ❖ The preferences and willingness to pay for OFSP drastically changed after introducing the nutritional information on OFSP juice.



Introducing nutritional information is an important component to increase the acceptance of OFSP juice by consumers!!



**QUESTIONS ?**

**THANK YOU**

