

Cross-product Gender Analysis of RTBfoods Step 2 Gendered Food Mapping on RTB Products

Understanding the Drivers of Trait Preferences and the Development of Multi-user RTB Product Profiles, WP1

London, UK, December 2020

Lora FORSYTHE, Natural Resources Institute (NRI), Chatham Maritime, UK

Pricilla MARIMO, Alliance of Bioversity International & CIAT, Kampala, Uganda

Sarah MAYANJA, International Potato Center (CIP), Kampala, Uganda

Olamide D. OLAOSEBIKAN, International Institute of Tropical Agriculture (IITA), Ibadan Nigeria

Esme STUART, IITA, Ibadan Nigeria

Bela TEEKEN, IITA, Ibadan Nigeria

Benjamin OKOYE, National Root Crops Research Institute (NRCRI), Umudike, Nigeria

Tessy MADU, National Root Crops Research Institute (NRCRI), Umudike, Nigeria

Other Authors?



This report has been written in the framework of RTBfoods project.

To be cited as:

Lora FORSYTHE, Pricilla MARIMO, Sarah MAYANJA, Olamide D. OLAOSEBIKAN, Esme STUART, Bela TEEKEN, Benjamin OKOYE, Tessy MADU, (2021). *Cross-product Gender Analysis of RTBfoods Step 2 Gendered Food Mapping on RTB Products. Understanding the Drivers of Trait Preferences and the Development of Multi-user RTB Product Profiles, WP1*. London, UK: RTBfoods Field Scientific Report, 29 p.

Ethics: The activities, which led to the production of this manual, were assessed and approved by the CIRAD Ethics Committee (H2020 ethics self-assessment procedure). When relevant, samples were prepared according to good hygiene and manufacturing practices. When external participants were involved in an activity, they were priorly informed about the objective of the activity and explained that their participation was entirely voluntary, that they could stop the interview at any point and that their responses would be anonymous and securely stored by the research team for research purposes. Written consent (signature) was systematically sought from sensory panelists and from consumers participating in activities.

Acknowledgments: This work was supported by the RTBfoods project <https://rtbfoods.cirad.fr>, through a grant OPP1178942: Breeding RTB products for end user preferences (RTBfoods), to the French Agricultural Research Centre for International Development (CIRAD), Montpellier, France, by the Bill & Melinda Gates Foundation (BMGF).

Image cover page © LAJOUS P. for RTBfoods.

This document has been reviewed by:	
Name SURNAME (Institute's acronym)	DD/MM/YYYY
Final validation by:	
Name SURNAME (Institute's acronym)	DD/MM/YYYY

Contributions from the RTBfoods Gender Working Group (alphabetical, by institute):

Pricilla MARIMO (Bioversity-CIAT)
O. AWONIYI (Bowen University)
Cedric KENDINE (CARBAP)
Sarah MAYANJA (CIP)
Franklin NGOUALEM KEGAH (ENSAI)
Adetonah SOUNKOURA (IITA)
Jules BAKPE (IITA)
Hubert Noël TAKAM TCHUENTE (IITA)
Olamide OLAOSEBIKAN (IITA)
Esme STUART (IITA)
Bela TEEKEN (IITA)
Paula IRAGABA (NaCRRI)
Ann-Ritah NANYONJO (NaCCRI)
Tessy MADU (NRCRI)
Benjamin OKOYE (NRCRI)
Lora FORSYTHE (NRI)

CONTENTS

Table of Contents

key findings.....	7
1 Introduction.....	8
1.1 Methodology	10
2 What are the gender roles along the product food chain?	10
2.1 Overview.....	10
2.1.1 Source of planting material.....	11
2.1.2 Production	13
2.1.3 Processing	16
2.1.4 Marketing	16
2.1.5 Consumption	20
3 Are there gender differences in varietal use and preferences?	21
3.1.1 Varieties and their importance.....	21
3.1.2 Less preferred varieties.....	22
3.1.3 Independence in decision making regarding varieties.....	23
4 are there gender differences in relation to the important characteristics of the food product?	24

Table of Figures

Table 1 Overview of gender roles along the food chain and strength of evidence.....	11
Table 2: Source of planting material (II Q15.3)	12
Table 4: Frequency of citations of people who make decisions on gari by sex and region (II Q16.4 original or II Q16.3 revised)	18

DRAFT

ABSTRACT

(250 words maximum)

Type of document

Context

Content

Objectives:

Normal text, Arial, justified, 11 pt, spacing 1.

Key Words (10 maximum):

DRAFT

KEY FINDINGS

This report presents the findings for three research questions against seven Root, Tuber and Banana products. These three research questions are:

1. What are the gender roles along the crop and product food chain?
2. Are there gender differences in varietal preferences for the crop and product?
3. Are there gender differences in quality characteristic preferences for the crop (in general) and the product?

The products covered are matooke, boiled sweet potato and boiled cassava in Uganda; gari, plantain and boiled/pounded yam in Nigeria, and gari in Cameroon.

Regarding gender roles along the crop and product food chain, our evidence confirms women's high level of participation in most aspects of RTB production, processing, sale and food preparation for our products in Uganda, Nigeria, Benin and Cameroon. However, while there are clear gender norms regarding which gender participates in particular activities, there were many examples in the research where trends contradicted the norms. For example, it is a broadly held assumption that men are primarily active in the production of plantain in Nigeria. However, Esme Stuart (IITA-Nigeria) found regional differences and high levels of women's involvement in some locations. Therefore, consultation with women is vital to understanding demand at each stage in the food chain. This underlines the importance of questioning our assumptions about gender, and perhaps, on interviewing one gender alone in relation to certain tasks or assumed knowledge. It also raises the issue of how social scientists can present findings in a more nuanced way – not relying on gender norms but using evidence – and what type of data they need to do so.

Another finding was that there were high levels of women reporting they had 'control over income' and independence in decision making regarding what variety to plant, how much to sell and when to sell. Women reported that while they needed to consult with their spouse, it was their ideas and their decision. Equally, men's responses were similar. This also has a number of important implications: that there are no crops or products that men or women have more or less control over, or that men and women perceive the decision-making process differently, that they themselves have the greater say in decisions. Similar to the issue regarding gender roles, it also points to the need to thinking of alternative ways to source the information we need about household decision making and control over benefits.

Another major finding that has arisen from the cross-product and country comparison is that the type and extent of gender differences in preferences for quality characteristics differ by product. Some products have minor gender differences in characteristics cited or in their ranking, and others are more pronounced. This means that overall, men and women do not have similar preferences for each crop and product, but also that men and women do not have different preferences for each crop and product. More analysis is needed to identify if there are particular crops, products or regions that are more likely to show differences. However, gender differences in preferences are very likely tied to multiple use crops, or products that have strict gender differences in preparation or consumption.

Overall, there were 'slight' differences in the top five quality characteristics between men and women – strengthening the case of integrating the top-quality characteristics into breeding profiles. Boiled cassava (NaCCRI), matooke in Uganda (Bioversity/NARO), gari in Cameroon (ENSAI) and Benin (UAC-FSA), plantain and boiled yam in Nigeria (IITA, NRCRI, Bowen). are all cases in point which showed minimal differences. However, when examining the longer list of desired quality characteristics, men and women cited different characteristics, and women often cited many more characteristics and richer description, compared to men. For example, with boiled sweet potato in Uganda (Sarah Mayanja, CIP), men did not mention sweet taste (raw), appearance (during processing), which came in women's top five characteristics. With gari in Cameroon (ENSAI), men did not mention yield, long length and width, width stalk, long production cycle, and easy to harvest as women did.

There was also contrary evidence to relate gender differences in quality characteristic preferences to gender roles. On the one hand, there were examples which highlight women's greater likelihood to site characteristics related to their roles in food processing and preparation across the products and countries. For example, more women mentioned ease of peeling, thin peel & soft peel (all non-significant, however) for Matooke, Uganda (Bioversity, NARO); easy to peel, drawingability and thickness of the wet mash for Fufu, Nigeria (NRCRI), and thin peel boiled yam, Benin (UAC-FSA).

However, there were other food products with similar gender roles, with no significant gender differences in quality characteristic preferences. For example, processing qualities (like peeling) were not mentioned more often by women with plantain, Nigeria (IITA), and short cooking time is mentioned as important by both men and women Matooke, Uganda (Bioversity/NARO).

More analysis is required to identify if there are areas where quality characteristics preferred by men and women may 'clash' when looking at multiple use crops, which will be completed early 2021. Currently, there are quality characteristics that contradict. For example, with gari in Cameroon (ENSAI), women preferred cassava that was both easy and difficult to peel. This is likely because "Difficult to peel" may reflect the desire for a "firm" cassava or cassava "containing less water", and therefore act as a signpost for another quality. Another example is from boiled yam, in Benin (UAC-FSA) : significantly more men than women preferred rough, shaggy or a humped yam as it was seen to indicate maturity and that it is ready to harvest. But men and women also prefer smooth peels and without humps.

There are a number of important lessons the GWG has gleaned from the data so far. Firstly, interviewing women is crucial at the raw, during process and final cooked-product stages to obtain a long list and rich description of preferences for quality characteristics, despite the difficulty it is to uncover tacit knowledge about preferences. Secondly, gender-disaggregation is crucial in building an evidence base for breeders. Thirdly and most importantly, gender analysis is crucial. This is because often some of the most valuable information is in the context of the research, and that a good analysis of the context will enable gender specialists to make an assessment of what important priorities for breeding programmes, given the needs of women, men, different ethnic, wealth and regional preferences. In addition, surprising findings that challenge stereotypes are everywhere, particularly when analysing results intersectionality, showing the importance and the contribution of the RTBfoods work.

1 INTRODUCTION

This report is part of the RTBfoods project, Work Package (WP) 1. The main objective of RTBfoods is to deploy RTB varieties that meet user-preferred quality traits to increase the adoption and impact of improved RTB varieties in sub-Saharan Africa (SSA). To do so, the project is working to (1) Define what are the key user-preferred quality traits for a range of RTB food products (cassava, yam, potato, sweet potato, banana) through surveys with end-users (product profiles); (2) Link these product profiles with biophysical and functional properties of RTB food products, and develop laboratory-based methods to assess these properties in a quantitative manner; (3) Develop high-throughput phenotyping protocols (HTPP) for rapid screening of user-preferred quality traits in new RTB varieties; (4) Integrate key user traits into breeding and variety deployment programs.

WP1 provides the evidence base for user's preferred characteristics for the selected products that are the focus of the RTBfoods project. Varietal preferences start with the demand from a range of users, such as producers, processors, retailers and consumers along the food chain. User's varietal choices are informed by the preferences they have for certain characteristics of the crop (characteristics preferred) that can be linked to traits. Preferences for characteristics, are in turn, influenced by the products, and their variations, that users make (e.g. matoke in Uganda, gari, fufu or pounded yam in Nigeria), and for what purpose (e.g. urban or rural markets, household consumption). Users often have several specific characteristics that they prefer and/or have 'non-negotiable' sets of characteristics, such as, for producers, that the crop is high yielding or disease resistant. These different interests culminate into trait packages that can help explain the drivers of varietal acceptance.

Sometimes there are clear differences in the characteristics preferred by user groups that follow product/consumption profiles, but other times it is more complex. Different users of a crop may live in the same household, have different interests with how the crop is used and what products are made. This can result in multiple and, perhaps, contrasting preferences that vary according to the user's role in the food chain, meaning that the input and decision-making roles of different users is of primary importance in RTB crop breeding.

Preferences for certain product characteristics stem from broader socio-economic and gender dynamics, which are in turn an integral part of understanding crop choice and use. Men, women, boys and girls play different roles in RTB food chains, and differ in their access to, perceptions of risk for, and ability to decide on use of improved varieties. For example, gender roles regarding household food security and marketing can mean that one gender may prioritise crop or product storability characteristics (in ground or after harvest) over yield characteristics. In addition, in locations with shared farming systems between men and women, such as in Uganda, one household member may have more decision-making authority on cropping decisions than others. Different varietal characteristics can also influence the level of labour and exertion involved in processing. In addition, consumers have their own sets of sensory preferences linked to different varieties, and consumers may have different preferences based on their background, gender, location or food culture. Therefore, characteristics that respond to multiple-use and multiple-user groups (such as yield and disease resistance), or differentiating segments of use, including men and women in all their diversity, are an important factor in breeding initiatives.

However, there is a gap in knowledge of preferences for RTB crops among different user groups, particularly food processors, retailers and consumers, and diversity within user groups (e.g. producers can have different size of landholding, access to extension etc.), as breeding programmes have historically focused on production related characteristics at the expense of post-harvest and consumer preferences. In addition, information on characteristics is often overly simplified by not including information on the optimal range or description that would help breeders be able to meet user needs. Furthermore, there is little known about how gender relations and norms influence and result in preferred characteristics, along with varietal uses. WP1 aims address these gaps in knowledge under the RTBfoods project, which will contribute to shaping crop breeding to be more responsive to user needs along the food chain.

The WP1 approach uses interdisciplinary methods and lines of inquiry (food science, gender and economics) to collect evidence on the preferences of RTB product characteristics for different user groups in the product chain and identify the factors that influence these preferences for men, women and other social segments, and how they may be prioritised differently (e.g. labour requirements and storability may be prioritised more for women, over yield characteristics). The delivery of the information is expected to support the capacity of RTB breeding programmes to be more demand-led. The approach has the following activities:

- Activity 1: State of Knowledge review
- Activity 2: Capacity strengthening and sharing
- Activity 3: Gendered product mapping
- Activity 4: Community-based RTB Food processing/preparation diagnosis
- Activity 5: Consumer taste tests in rural and urban market segments

The objectives of activity 3, are to:

- Understand who is producing, processing, selling and consuming the crop and product, from a gendered perspective.
- Understand the multiple uses and products of the crop and possible trade-offs between uses
- Identify the quality characteristics and descriptors by stakeholder group (e.g. producers, processors) and demand segment (e.g. rural consumers).
- Understand how gender influences preferences and prioritisation for characteristics.

This activity focuses on both the crop and product, to identify the quality characteristics along the food chain (production, post-harvest and market) by different stakeholders.

Across WP1, there are six gender-focused research questions, which are mainly answered through activity three. These are:

1. **What are the gender roles along the product food chain?**
2. Who has benefit, control and decision-making power over the crop and product?
3. What are the multiple uses of crops and possible trade-offs between crop uses and who does it impact?
4. **How does the use of different crop varieties differ by gender, region and other factors of social difference?**
5. **How do quality characteristic preferences for a food product differ by gender, region and other factors of social difference?**
6. What are the gender-based constraints and opportunities in varietal development?

This report presents the findings from questions 1, 4 and 5 in a cross-product gender analysis. The report is structured according to the research questions.

1.1 Methodology

There are four activities under Activity 3 that take place in eight rural communities where people grow, process and consume the crop. These are:

- Key informant group interviews (KII) with community leadership.
- Sex-disaggregated Focus Group Discussions (FGD) with people who produce, process and consume the product. The FGDs specifically provide information on products, gender roles and social segments, processing steps and equipment, characteristics and descriptors that can be probed in further in IIs.
- Individual interviews (II) with community members who process the product (and produce the crop, if possible) in the community, conducted by a food scientist and gender specialist. The IIs provides individual/household level description of preferred characteristics and priorities at different stages of product processing, household decision making, and trade-offs.
- Market Interviews (MI) with key individuals or groups involved in marketing and trading activities.

A standard approach sampling structure and sample size was provided, but there was variance between the research teams in what was logistically feasible. Where differences in the approach need caution when interpreted, this is highlighted in the text.

The following regions are covered for each of the products:

- Plantain: Osun (SW), Delta and Rivers states (SS), Nigeria
- Gari/Eba, Cassava: Osun (SW) and Benue states (NC), Nigeria
- Gari/Eba, Cassava: Abia and Imo states (SE), Nigeria

Information on regions and sample sizes is provided in the appendix.

2 WHAT ARE THE GENDER ROLES ALONG THE PRODUCT FOOD CHAIN?

The Overall, the gender roles along the sample of RTB product food chains presents a complex picture.

2.1 Overview

Overall, the gender roles along the sample of RTB product food chains presents a complex picture. The table below presents an overview of the dominant gender norms in relation to who does the labour, and who manages, the different aspects of the food chain. Furthermore, the table describes the evidence that this is linked to. However, with every norm, there are exceptions.

For example, the 'norm' is that men are responsible for plantain production in southern Nigeria. However, our findings suggest that in **xxx region**, women are responsible.

Table 1 Overview of gender roles along the food chain and strength of evidence

Product and location	Production	Processing	Trading	Consumption
Boiled plantain Osun, Delta and Rivers states, Nigeria	Men	Women	Fresh traded only. Women	Both
Gari/Eba Osun and Benue states, Nigeria		Women	Women	
Gari/Eba Abia and Imo states, Nigeria		Women	Women	
Gari/Tapica Littoral region, Cameroon		Women	Women	
Sweetpotato Kamwenge and Lira, Uganda	Involves both men and women as often grown on shared plots, but mainly women's responsibility.	Women	Fresh traded only. Women	
Matooke Mbarara + Nakaseke districts, Uganda		Women	Fresh traded only. Women	
Pounded, dried, fried yam Dassa and Dlidja districts, Benin		Women	Women	

2.1.1 Source of planting material

With regard to **plantain in Nigeria**, men and women were both found to primarily obtain suckers from other farmers (34%, respectively). Women sourced more suckers from their neighbours (23% compared to 13% for men), whereas men source more from other communities (21% compared to 11% for women). Reasons for going to other communities to source suckers was related to lack of availability or perceptions of the better quality of planting material in other communities. A man in Umeh, Delta South, explains “we do buy from people in the community but since last year's flood, we have been buying from other Isoko communities (we buy at 100N per sucker)”. Only four people (3 men and 1 women) indicated they received suckers from an institute or organization (CRIN, Ministry of Agriculture, Green Rivers Project, and ASADep in Iwo). It is also interesting to see that few women who bought plantain suckers on the market, while men did not mention market as a source.

Table 2: Source of planting material (II Q15.3)

Source of planting material	Plantain		Gari – NC and SW		Gari – SE	
	% of women citing N=62	% of men citing N=62	% of women citing N=52	% of men citing N=22	% of women citing N=	% of men citing N=
Farmers/ neighbours	33.9	33.9	55.7	18.9	100	0
ADP	Not specified	Not specified	6.7	18.9	11.1	88.9
NGO	Not specified	Not specified	0.0	6.8		
Family	14.5	12.9	16.8	48.6	100	0
Husband	1.6	0.0	12.8	0.0	16.6	83.3
Friends	4.8	6.5				
Other communities	11.3	21.0	1.3	0.0		
Replanted from field	Not specified	Not specified	6.7	6.8	100	0
Market	4.8	0.0			100	0
Institute	1.6	4.8			50	50

*Please note that some people mentioned different sources

With regard to sources of **cassava stem in Nigeria**, the most common source for women and men in SW and NC is from other farmers/neighbours. In the SE, sourcing stem from neighbors is particular to women only. Women in the SW, SE and NC had more sources of planting materials such as purchasing and other communities. Men in SW, SE and NC all had higher rates of sourcing stem from ADP, particularly in Imo state (89%, compared to only 11% for women).

Emerging themes:

- There is an emerging seed (stem and sucker) market in Nigeria and women (involved in plantain production and women in SE Nigeria involved in cassava production) are their recipient or customers. **Why?** Restricted access to improved varieties seeds for women. So in SW and NC and in plantain, women source from their husband-men-who have better access to NGOs, institutes, ADP etc.
- Replanting from same field for most men and women in NC or using previous planting materials for mainly women in SE may explain the preference for in-ground storable trait in cassava. In-ground storable trait is serving two purposes for women in SE and NC as food reserve or bank and seed conservation for the next planting season. Also implying that women and processors (time-use factor-chores, reproductive role, processing time) may be the best target for varieties with the in-soil storable traits based on evidence (less purchase and less dependence on their husband for seeds if they have access)

2.1.2 Production

Differences were found in farming practices between indigenes and non-indigenes with regards to **plantain production in Nigeria**. Firstly, temporary settlers/migrants/ethnic minorities often only engage in short term crops that can be harvested within one year. Secondly, long term settlers, especially Igbo's, who settled in different locations in Delta and Rivers make different (bigger) heaps for the cultivation of yam and cassava. In some cases, these practices have been taken over by the indigenes. Whether husband and wife farm together often depend on the family construction. In the case a husband has more than one wife (polygamous), the husband and wife often farm on separate fields while husband and wife in monogamous household's farm together. Despite the different arrangements, husband and wife assist one another. Men are more involved in land clearing, digging and harvesting, while women are more involved in planting, weeding, maintenance and help with the harvesting. Men focus more on cash crops and women on food crops.

Regarding **cassava production in Nigeria**, similarly to plantain, there were also differences cultivation practices related to ethnicity or migration status. While there were exceptions, the norm was that indigenes, people local or indigenous to the area, would monocrop (often due to greater land availability, or intercropped with maize). They planted cassava in ridges, which was considered by farmers to be quicker, easier and recommended for cassava production by extension services, and planted separately from their wives. In contrast, non-indigenes, in this area people from the Idoma and Igede tribes from Benue state, are known for intercropping with pepper, planting cassava in heaps (which is a practice common for yam, of which there is an abundance in Benue state), and married couples planted together on shared plots.

"Indigenes make ridges for their cassava, practice sole cropping or inter cropping with maize and not all indigenes plant with their wives, while immigrants (Idoma or Igede) make heaps for their cassava, intercrop their cassava with pepper and plant with their wives" (women's FGD, North Central region).

There were differences between the regions on if men and women farmed the same plot or shared between husband and wife. More women in the NC region share or use same plots with spouse for farming, while women in the SW prefers to farm on separate plots.

"We don't farm with our husband in this community because men have big size of farmland and they may not want to cultivate with us. Women cannot maintain such big size of farmland with men. Women that farm together with their husband also have their own crop farm" (Women FGD Wasinmi, Oyo State, South West region)

In areas where men and women farmed separately, differences between men and women's plots were noted in terms of size, care, tools/machinery used, crops cultivated, and crop management practices. For example, women often practice intercropping with long and short cycle crops while more men mostly focus on sole cropping. The use of hired labour also varied: men could normally afford to hire labour and rent tractors, while women relied on family labour. Other examples are highlighted in the quotes below.

"Men have more time to take proper care of their farms than women. Men's farms are larger in size than women's farms" (women's FGD, Osun state, South West region).

*"In the past, most women do not plant on ridges before but in mounds. But currently, the women have started planting on ridges, which most men do. **The ridges done by women usually are very short at about 2m** long – this might be as a result of stumps" (men's FGD, Umundugba Isu, Imo state, South East region).*

"Plot sizes is the major difference between men and women plots because men have capacity to maintain large farm size through hiring men labour while women have no such supports" (women's FGD Aba-gbooro, Elefon).

“Women spend more money while men use energy. Men have more time to take proper care of their farms than women do. Men's farm is larger in size than women's farm” (women's FGD, Oyan).

“Women cultivate using hoes, make heaps through labourers and plant cassava, rice, vegetable crops and groundnut. While men cultivate using tractors or labourers to make ridges for cassava, rice and heaps for yam and maize this is used for family upkeep” (women's FGD Koti shangev-ya).

In situations when spouses use same plots, they plant systematically. Women plant short cycle crops such as vegetables and maize, and harvest before the long cycle crops planted by men is mature.

“Yes, there are differences. When men are preparing yam farm, the women will pre-sprout vegetables before the land is ready for yam planting, the vegetables are due for harvesting at four months after planting of yam, cassava stakes will be inserted by the sides, and in 8 months' time, the yam will be harvested leaving only the cassava. This is how we plant with the men” (women's FGD Wasinmi).

Men and women also had different farming tasks. Throughout the study areas, the tasks common undertaken by women are weeding, planting, harvesting and processing. Men will prepare the land, such as make ridges and heaps, along with plant and harvest and women do.

“Men are more focused in making heaps for cassava and yam. Women are the one to plant it and other grain seeds, because men believe women are more patient in bending down for long to dip the stakes and stick and yam. Also, women are more into beans production because they can only invest little energy and the demand of beans is high, so men believed it is women crop” (women's FGD Al-Okete).

Emerging themes:

Differences in cultural beliefs between regions in Nigeria sometimes influences gender roles as observed in plantain production in SE and SS, compared to SW.

Gender perspective in breeding has progressed from sex and regional related differences to indigene and non-indigene (temporary versus long term settlers) variations in farming practices among crops such as cassava, plantain etc. indigenes make ridges, women make very short ridges about 2m long

Indigene status, family construction or household size also influence cropping system (shared or separated plots) and maybe labour use

Presenting breeders with the most common typologies will give better to understand these emerging differentials in farming practices.

- Crop specific:
 - Crops rankings (overall) – chart FGD/II
 - Who grows the crop (gender, wealth, ethnicity etc.)? Evidence –**Sok for cassava and plantain**
 - For what reasons? Management is easier for women, able to process diverse products for sale and consumption, income, nutrition, for food security – products can be processed and preserved for a longer time.....Uses..... (not include proportion sold – inc in marketing)
 - tasks divisions on farm work **Act 3 report–**

Crop importance

PLANTAIN - Most crops are considered to be important crops for the whole family. Despite earlier identified differences between crops produced by men and women, the importance of the crop does

not seem to correspond to these labour divisions. Cassava, yam, plantain, cacao and maize are mentioned as important crops by both men and women.

Cassava is a very important food crop. Most people grow it primarily for home consumption. Cassava is appreciated because it is easy to grow and withstands floods, but a major disadvantage is the high labour requirements for cassava (gari) processing. Although cassava was often mentioned as a women's crop, men also often rate cassava among their top 3 most important crops.

Plantain is highly appreciated because it is relatively easy to grow and multiply, and functions both as food and cash crop at the same time. People appreciate plantain for the high diversity of products it can be made into, and because it generates a high market value with little labour input (contrary to gari or other cassava products). People ascribe different medicinal qualities to plantain. In Osun State, where cacao is a common crop, plantain has a third function as shade crop. Besides providing shade, plantain brings in money in the years before cacao or other tree crops start to fruit. Another important quality of plantain that was often mentioned is the fact that it produces year round, meaning that farmers have a year round source of income and food.

Although yam is appreciated as food and cash crop, yam is also important due to its cultural value, especially in Delta and Rivers State. Although yam is mostly produced by men due to the labour requirements, yam is considered as an important crop for the whole family.

Maize is produced across the different states, and is valued for its ability to fruit quickly, whereby generating quick revenue. Maize was therefore often mentioned as an important crop for short term settlers. People also appreciate maize for the wide variety of products it can be made into.

In the South East, South West and North Central regions, and for men and women, cassava was ranked as the most important crop. Reasons why cassava was the first in importance in different regions were similar, and related to its importance as a source of income (even recently the stems earn income) and food, its tolerance of different weather conditions, and its versatility in food products. Yam or maize followed in second place.

Crop rankings by importance

Crop importance	Women (NC + SW)	Men (NC+ SW)	North Central	South West	Women	Men	South East
1 st	Cassava	Cassava	Cassava	Cassava	Cassava	Cassava	Cassava
2 nd	Yam	Maize	Yam	Maize	Maize	Maize + yam	Maize + yam
3 rd	Maize	Yam	Rice	Yam	Yam, vegetables and cocoyam		Vegetable
4 th			Maize				Cocoyam
5 th							

EMERGING THEMES:

In Nigeria and among some crops like plantain, cassava takes the lead as an important crop grown for both income and diverse food.

The almost free or accessible sourcing of the stem from neighbours also make it a good option for start-ups or beginner farmers and women. Task or value chain groups within the community should be targeted as main channels for dissemination or pre-evaluation of improved varieties.

2.1.3 Processing

Plantain

Cassava processing in Nigeria is largely carried about by women. In the SE, women and children are mainly involved in peeling cassava but men can also been seen to help. While the women, children, youths (male and female) are involved in washing the cassava roots, sieving and toasting. Peeled cassava is also taken to processing centre to be grated and dewatered, which is usually done by the adult men or male youth.

“The women generally do the harvesting-peeling-washing-bagging-sieving-toasting with their children while the men grate the cassava because they own the engine”
(who said?)

Regarding boiled **sweet potato in Uganda**, whether steamed or boiled, and in any region, the work of preparing boiled sweetpotato is for women.

2.1.4 Marketing

With regard to the use of **plantain** (what product to make), women often explain to either decide what to cook for the family or cook whatever their husband wants. A woman in Agoloma explains *“my husband decides what to eat at home. He will tell me what he will like to eat. Whatever he likes, we follow. If he does not eat we will not have appetite either”*. Other women explain *‘most time I decide about what to consume. When there are differences, I prepare what the husband wants’*. Whereas women indicate to often follow their husband’s choice in terms of food products to prepare, men often indicate *‘this is my wife’s area. I can make a suggestion but whatever she prepares, I will eat’*. Other men consider making food choices part of the duties of the head of the household and explain *‘I am the head of the household and so I take the decision on what to eat’*.

Decisions regarding variety of **cassava** to plant are independently decided by men. While women also have a substantial independency, but in most cases they still need to consult someone (husbands or relatives). Similarly, regarding the use of profits from sales of products, women have little independence to suggest ideas and, in most cases, decision is taken by men while consulting friends or colleagues.

Table 21: Mean score of independence in decisions by sex and region (II 16.4)

Decision	Mean score of independence 1-4*			
	Plantain n=		Gari n=	
	Women	Men	Women	Men
Variety of crop to plant	3.1	3.4	3.0	4.0
Use of crop	3.1	2.9	3.3	3.6
Marketing	3.2	3.2	3.5	3.4
Use of profits from sale	3.2	3.2	3.2	3.5
Use of profits from sale of alternative product	3.3	2.4	2.9	3.6

*Legend

1=no independence the decision is made by someone else,

2=a little independence to suggest ideas but decision is taken by someone

3=most independent but need to consult someone

4 = complete independence.

In terms of marketing, some people explain that the amount of plantain to market depends on the availability of bunches and their ripening stage. A woman in Patara explains *‘most time during harvest, we select the best ones for home consumption, I select the ones that are good for my products and my husband selects the ones that he wants to use. We bring the rest to the market. Most times we don’t keep more than 3 bunches, no matter how many bunches we harvest’*. Others explain it is either their own decision, or a joint decision between husband and wife.

Whereas there is little difference in the independence in decision making regarding the marketing of plantain itself, men have more control over the use of profits from sales of plantain than women. Many women explain that when they sell the plantain, they bring the profit back to their husbands, sometimes after purchasing some household items in the market. The use of profit from sales of fresh plantain bunches is mostly related to ownership over the plantain (who has cultivated them). A woman explains *‘we only sell fresh bunches. I sell them on the market, even when my sons want to sell their plantain I help them to take it to the market for them. If it is from my farm, the money is for me. If it is from my sons farm, I give them their money’*. Upon processing of plantain, the ownership over the profit may change from the producer to the processor. A man in Umeh, Delta South, explains *‘before my wife goes to the market, I will tell her what to do with the proceeds from the fresh bunches. But for the profit made from ekpa, she does whatever she likes with it’*. This is also the case for the use of profits from the sale of alternative products (either processed plantain products or products of other crops), over which women have an averagely higher control than men. A man explains *‘the profit from cassava is for my wife, the profit from melon is for both of us. The money from plantain is for me, because plantain is serious business’*.

Many women bring back the profit of fresh plantain to their husbands. Others explain *‘after sales, I deliver the money to my husband and we plan together on what to use the money*

for'. Although some men explain that they have outright ownership over the profit, most men explain they sit together with their wife to deliberate on how to use the money.

Table 22: Frequency of citations of people who make decisions on sales and consumption of plantain by sex and region (II Q16.4 original or II Q16.3 revised)

	People who make decisions on plantain processing and marketing	% of women citing N=57	% of men citing N=52	% of respondents in Osun State N=37	% of respondents in Delta State N=34	% of respondents in Rivers State N=39
1	Men	40	50	57	38	38
2	Women	33	31	14	24	59
3	Husband and wife	25	27	22	32	23
4	Children	14	19	8.1	15	26
5	Widow	1.8			3	
6	Business partner		1.9	2.7		

Both men and women can independently decide the marketing of their respective cassava products across the two regions. Both men and women know their investment on any product and are independently able to decide the price or cost of each product to market that will give them expected profit.

Table 3: Frequency of citations of people who make decisions on gari by sex and region (II Q16.4 original or II Q16.3 revised)

People who make decisions on the product	women	men	Region SW	Region NC
Men	21	7	16	14
Women	24	4	6	12
Both	3	3	3	3
Youth (female)	7	6		
Widows		1		

***How were decisions made on how the crop would be used among the different products? About what is consumed at home or sold? Who was involved and what was considered? II Q17.2**

Most of the time, joint decisions are made between the husband and wife regarding the use of cassava. At times, husbands trust and give their wives permission to decide on the quantity and what products to process for home consumption and sales. Considerations before decisions are made include, products demand in the market or from respective customers, gender roles within the households and in any of the cassava value chain activities (as producers, processors, marketers), and prior information on the quantity of food left in the house. Food preferences due to health issues of any household member (particularly the male household head) also influence decisions made on the type and quantity of cassava products to consume and sell

"It depends on the demand for the products at the time of harvest, 50% of harvested root is consumed. I decide product to make for selling as am the producer of cassava while my wife decides the product to be consumed at home. My wife knows the food needed at home because she is in charge of the kitchen. At times I follow my wife advice on products to make for sale because she knows product on demand better than me because she is the one that sells the products" Male II Tyomu

"I and my husband decide on the product (akpu) for home consumption while I make decision on products (gari, akpu) to sell. I follow my husband decision when we disagree on products to make for home consumption" Female II Koti shangev-ya

"I discussed with my wife and we conclude to make product with high turnover and high demand at the time we harvested our cassava" Male II Nyam

"We make joint decisions on how crops are used for products. Also, she discusses with me before going further, also in my case I may be the head but she takes decision and together" Male II Tyomu

In situation that husband and wife farm separately, the wife can take most decision on quantity of cassava to process for the home and sale but the profit or returns will be remitted to the husband or shared equally.

"I make decision on how the bnarda is processed in different products and what quantity is reserved for consumption, but I always remit money to my husband after sales because I have my own portion of land shared without questioning me. I usually process 50% gari for sale where we consume 25% of the gari at home and 25% Akpu purely for consumption." Female II Tyomu

"My husband and I discuss whenever he is financially down because I always assist him on his farm while I also operate my farm. So, whenever he needs money, he encourages us to have joint harvest and we share the profit" Female II Orile-owu

Household size and immediate need for food and money also influence the type and quantity of cassava products that will be processed for sale and consumption

"This depends on the time and situation. When children are back from school, I usually process gari for easy turnover of money because it's the most demanded among the products and the sales are fast. We make less Lafun on rainy season because we consume like 10% of it to 90% sales of gari" Female II Orile-owu

2.1.5 Consumption

How often consumed – intersected with wealth, region, gender and other factors

- e.g. northern Uganda different less food diversity

How often the product is consumed (KII Q9)

All key informants described gari as a common staple food in their communities as it is consumed always irrespective of the time. Some people use it as breakfast, lunch and dinner irrespective of the gender, age and ethnicity or social segment. The only categories of people that do not consume gari always are some individuals that have certain illnesses that may not allow them to consume much starch and sugars. Although the children prefer rice and noodles and other foods to gari, the key informants however noted they are often attracted to eat gari when they see meat in the soup.

“Even the rich people eat this gari because that was what was used to train us except those that have certain illnesses. The adults consume more of these food products. Children of this time do not eat these garri like the adults. They eat it at least once in a day. They prefer rice, noodles and other foods. If a child that doesn't want to eat gari, if he or she sees the kind of the meat in the food he or she will be attracted to eat it irrespective of the number of times eaten”.

The only difference between the elite and other consumers of gari is that most of them do not consume it as often as others because they have enough food (assorted types of food) unlike most community members who do not have options to gari; hence it is consumed more often by the less affluent community members.

“It is consumed regularly and daily. A lot of people use it as their breakfast, lunch and dinner in different product level (regardless of gender, age, and ethnicity). It is applicable to everybody in the community. Apart from the few elites that have more than enough to eat”.

Table 28: Ingredients Consumed with Gari (FGD Q16.2)

	Summary of ingredients consumed with gari
Female FGD	Consumed by soaking in water and drank with coconut, salt, sugar, milk, milo meat, fish, crayfish, maggi, pepper Also consumed with soup.
Male FGD	It is consumed with soups of different types, cold water, sugar, coconut, groundnut, palm kernel, milk, honey It is used as soup thickener.

There are no differences in the responses of both the men's and women's FGD in SE as regards ingredients consumed with garri, however there exist a level of ranking in the response of men to the women's FGD. The first ingredient mentioned by all the men's FGD is soup (different types of well-prepared soup) followed by the less costly and readily available ingredients while the women indicated the other ingredients first and soup last without much references to the quality of the soup. This goes a long way to show the

economic importance of garri to women in families as most of the ingredients mentioned by the women are not costly and readily available for her to use and feed her children.

Emerging themes:

- The fast cooking time or preparation method of gari to eba and boiled or roasted plantain make it more appealing to men and women that are quite busy or on the move. For instance, labourers- mostly migrants prefer to consume eba often or daily as a food source of energy for more work. Therefore, socio-demographic factors are quite important in determining trait preferences in smallholder livelihood settings where many migrants and their households depend on a high proportion of the produce for home consumption
- Large spatial heterogeneity exists in the utilization of cassava and plantain across regions of Nigeria.
- Consumption traits may be more important than agronomic traits among demographics where cassava is primarily used for human consumption and in areas or groups like the commercial men farmers, who sell cassava fresh roots, agronomic traits maybe more important.

3 ARE THERE GENDER DIFFERENCES IN VARIETAL USE AND PREFERENCES?

3.1.1 Varieties and their importance

For **plantain (Nigeria)**, there were no major gender differences in the varieties or their ranking. Across the study area, the main variety of plantain (agbagba in Osun), a False Horn type is by far the most preferred. The top three plantain varieties mentioned in each state are characterised by bunch morphology (big bunch and bit fingers), where the most preferred variety is a compromise between relatively big bunch size while maintaining a large finger size. Across the states, preferred varieties were mainly landraces, while only few hybrid or improved plantain varieties were mentioned, particularly in Delta and Rivers States.

In contrast, the findings for **banana (Uganda)** do have gender differences. Although men and women mention the same set of varieties, there are gender and regional differences in preferred banana varieties for making matooke. There are slight differences in the cultivars grown in the two districts and the rankings, for example, Mpologoma is only prevalent in Nakaseke, whilst Enyeru seems to be more prevalent in Mbarara. Within the districts, there are gender differences in preferred varieties. More men (33%) in Mbarara mentioned Mbwarzirume compared to only 4% of women ($P = 0.007$). Similar to the findings in plantain in Nigeria, both men and women farmers in both districts in Uganda prefer landraces.

Also for **sweetpotato (Uganda)**, there were differences in the varieties men and women preferred and in the ranking of varieties. Women mostly preferred local varieties and these took the first and third position (Okonynedo and Araka araka respectively). Both these varieties were mostly grown in Lira. For men, the best two varieties were improved i.e. Naspot 8 and Kakamega respectively. Naspot 8 was also ranked to be the second-best variety by women, while Okonynedo was ranked to be the third most preferred variety by men. In Kamwenge, the most preferred variety was 'Kyznzali' which some respondents mentioned was an orange fleshed species but a local land race. Some respondents also use the same name to refer to any orange fleshed variety – both improved and local. The second most preferred variety (OFSP) had similar clarity issues to 'Kyznzali' given that respondents categorized all orange-fleshed clones as 'OFSP'.

For **sweetpotato (Uganda)**, there were various reasons as to why preferred varieties were grown by the respondents. For the local variety Okonynedo, women preferred the variety because it was high yielding (50%), early maturity (30%) and good taste (20%). All the men FGD groups cited high

yield and early maturity as major reasons for preferring this variety. Men also preferred Okonynedo because it was sweet, and also because it did not rot easily. This variety was only grown in Lira. Naspot 8 was mostly liked by of its high yield as cited by women (60%), men (80%), 75% of respondents in Kamwenge and 58% in Lira. The variety was also noted to be nutritious mostly by respondents in Lira. Men also preferred it because of its early maturity and big size roots. Women on the other hand additionally preferred its good taste. In Lira, the local variety Arak arak was preferred mostly because of its early maturity, high yield and ease to peel. In Kamwenge, Kiribamukwe – a local variety was preferred because of its sweetness; and was mentioned to be sweeter than OFSP varieties.

For **plantain (Nigeria)**, respondents were not detailed in linking varietal preferences to their use for particular products. In general, preference for varieties was mostly based on bunch morphology (big bunch and big fingers), where the most preferred variety is a compromise between relatively big bunch size while maintaining a large finger size. Big fingers were also preferred in dishes where plantain is used as whole fruits or large slices such as boli and dodo, respectively. The size of a plantain bunch is one of the most important aspects for its marketability. Due to their lower market value, smaller plantain fingers were used in products where the size of individual plantain fingers is of lesser importance, such as flour in Osun or porridge in Delta and Rivers. Differences in colour, taste and texture between identified varieties are less pronounced; hence, most plantain varieties are very similar in terms of use for different products. In the FGDs and KII, all participants state that all plantain varieties can be used for all products. For example, women in Patara (Osun) explain, 'We prefer agbagba gidi, adaa loko andolomo nla because of their big size, but in terms of pulp they are all the same'. Although it was generally noted that most plantain products can be made with all plantain varieties, in some cases, preference for particular product(s) was vaguely linked to specific varieties. Difference in sugar content between varieties was also identified as a reason for varietal use for specific products. The key informants in Ago-Owu (Osun) explain, 'people prefer olomoyoyo because it is sweeter than other varieties. It can be boiled and used for dodo (fried plantain). The other varieties are used for flour because it has low sugar content'. Across states, varietal preference for particular products was also linked to pulp colour. Women in Ago-Owu, Osun explain, 'There is little difference in how we use the plantain with brown and white pulp. We use both for pounding, although the white one does not get as smooth as the brown one. It is also lighter in weight, it does not rise/swell in the pan. Also, customers prefer the plantain with brown pulp. The white one is good for chips, dodo, and flour, although the amala made from the flour from white pulp will be light weight'. While most information on varieties across the study area relates to local varieties, a few hybrid or improved plantain varieties were also mentioned, particularly in Delta and Rivers. Improved varieties ranked high for their big bunches, big fingers and attractive look. However, they are less preferred because they spoil easily, soften when cooked, have big stones inside (possibly linked to the presence of seeds typical of tetraploid hybrids) and they are not as tasty as local varieties. Consequently, the use of improved varieties is sometimes limited to products like flour, chips, porridge and boli. This is also the case for cooking banana, which is both liked and dis-liked for its low sugar content and use for specific products like flour, pounded and fried.

Similar to plantain, the main characteristics that drive preferences by farmers for banana for making **Matooke (Uganda)**, are related to morphological characteristics such as big bunches and big fingers. In line with findings for plantain, important reasons for varietal preference in banana in Uganda are texture, taste and (yellow) pulp colour. In contrast with **plantain in Nigeria**, farmers in Uganda attach more importance to ease of peeling, which is more frequently considered by women farmers. In Nigeria, ease of peeling was not frequently mentioned and more often by men than by women.

3.1.2 Less preferred varieties

For **sweetpotato**, the less preferred varieties varied from community to community and by gender. For sweetpotato, most of the less preferred varieties are related to appearance and sensory characteristics, and a few agronomic and physiological attributes. In several instances, the respondents did not state distinguishing physical attributes of the variety, but rather bad or poor characteristics associated with the variety. The heterogeneity between male and female respondents varied by region. In Kamwenge, there was more heterogeneity between men and women.

Regardless of yellow and orange fleshed sweetpotato varieties (especially Kabode and Vita) being the most cited less preferred variety according to both men and women, there were differences amongst men and women from the same community on less preferred varieties. In FGD II, for example, women expressed that Kabode and Kakazimalyo were their less preferred varieties, while men mentioned Vita.

Women in Lira did not specify less preferred variety but rather gave a description of varieties they did not like. Nonetheless, there were similarities among male and female respondents regarding the characteristics associated with these varieties. Particularly in FGD I, both men and women expressed that they associated attributes like fibrousness, softness, low sweetness, and rotting quickly in the garden with less preferred varieties. Also, in FGD IV, even though the less preferred varieties varied by gender, hardness of the vines was mentioned in both male and female FGDs as a distinguishing characteristic for less preferred varieties. Additionally, both men and women no longer grew the less preferred varieties.

Contrary to sweetpotato, in plantain and banana, answers between men and women were more heterogeneous. With banana for matooke in Uganda, both women and men agree on the importance of most of the characteristics and therefore rank them the same way. Both men and women ranked small finger size as their number one attribute that is not desired in matooke. This could be because finger size is a key market requirement and men are the ones involved in selling; but also, small fingers are difficult to peel, an activity mainly done by women. Women ranked pulp colour higher compared to men. This could be attributed to the fact that women are the ones involved in preparation of food for the households and take keener interest in the quality of food compared to men. Other reasons why some varieties are less preferred include scarcity of planting material and consumption related characteristics such as production of hard food.

Reasons for varieties to be less preferred in **plantain in Nigeria** are similar to banana in Uganda. A main reason for a plantain to be less preferred is when it is not matured, when the fingers are small/thin, and the pulp white. In some cases this is related to variety, but also to agronomic practices and weather conditions. Most respondents explain that all plantains are very similar in terms of usage. Physically, people prefer to see plantain with big fingers and big bunches especially in dishes where plantain is used whole or in large slices such as dodo and bole. Since the characteristics of the pulp of the different plantain varieties is described to be similar, this preference seems to be merely based on the plantain size, and not on other varietal differences such as taste. Although plantain with yellow pulp is generally preferred, there are some communities that mention specific uses for the plantain with white pulp, such as chips, dodo and flour. As for flour of white or immature plantain, women in Omoku, Rivers West explain 'if you use the immature plantain for flour/amala it will draw better than the matured one'. In Osun state, people also explain they use white pulp for amala, although it is of a lesser quality because it will be lighter and has lesser capacity to swell.

3.1.3 Independence in decision making regarding varieties

5. What is the level of independence in making decisions for men and women, regarding variety of crop to plant?

Across the crops and regions, men and women generally have relative independence in decision making regarding the variety of crop to plant. In sweetpotato, there is no difference in the level of independence between men and women, while there is a small difference between the two regions. At a regional level, respondents in Kamwenge scored above 3 in the categories of decisions about variety of crop to plant and use of profits from sale of alternative products. At this level they were independent but needed to consult a spouse before making a decision.

Interestingly in banana production in Uganda, women have a slightly higher level of independence regarding the variety of crop to plant than men (3.53 as compared to 3.45), with little variation between the districts. Similar to the production of other crops, these results suggest that most households engage in joint decision-making.

This is also the case for plantain production in Nigeria, although women scored their level of independence lower than men (3.12 compared to 3.43). In plantain production in Nigeria, many men and women do most of the farming and decision making together. The decision on which plantain

varieties is planted is not always a conscious one, as varieties of plantain cannot be distinguished at sucker stage. Only if farmers multiply suckers from their own field, they make a conscious decision to multiply the varieties that are most preferred.

Table 21: Mean score of independence in decision about what variety of crop to plant (II 16.4)

Decision	Mean score of independence 1-4*	
	Plantain n=	
	Women	Men
Plantain (n=)	3.1	3.4
Gari (n=)	3.0	4.0
Banana (n=)	3.5	3.5
Sweetpotato (n=)		

7. Are these the same varieties that your spouse grows?

With **sweetpotato in Uganda**, all male respondents grow the same varieties as their spouses while only about half of the female respondents grow the same varieties as their spouses. Generally, this meant that women grew or preferred varieties besides those that the men grew or preferred. 16.7% of male respondents against 10% of female respondents reported that their spouses grew or preferred varieties besides those that they grew or preferred. Since all the men said they also grew the same varieties as their spouses, these other varieties were in addition to those that they grew in common with their spouses. On the other hand, it is only a few cases of women who noted that their husband prefer/grow varieties different to theirs, but also grow varieties in common. In respect to region, a higher percentage of respondents from Lira (62.5%) than Kamwenge (56.3%) grow the same varieties as their spouses. Further, only 3.1% of respondents from Kamwenge reported that their spouses grew or preferred varieties besides the ones which they (respondents) grew or preferred. A higher percentage (17.5%) of respondents from Lira reported that their spouses grew or preferred varieties different from those which the respondents grew or preferred.

Contrary to findings in sweetpotato, husband and wife grow the same **plantain varieties in Nigeria**, which is in line with the finding that there are no big differences in the preferences for a particular variety by men and women (as described above). Farmers in Ogudu, Osun East, explain “we farm separately from our wives. We grow the same varieties; we exchange the planting material”. Although men and women prefer similar varieties, the reasons for selecting these varieties are different between men and women, where women focus more on big bunches and big fingers, and men more on market demand and market price (though this is closely related to size).

Matooke: Not available

4 ARE THERE GENDER DIFFERENCES IN RELATION TO THE IMPORTANT CHARACTERISTICS OF THE FOOD PRODUCT?

Comparing the importance men and women give to elicited characteristics

When comparing the rankings on the preferred characteristics of the fresh root/fruit and the food product mentioned both by men and women across countries there are minimal or no differences between men and women. For example, in the North Central region in Nigeria, men give more priority to non-rotten cassava roots than women. Women on the other hand

are interested in white pulp while men do not mention it (Table 1). Other characteristics included early maturity, less water and heavy roots.

Table 1: Most important characteristics for cassava in order of preference in Nigeria

Importance	Men's focus groups	Women's focus groups	NC region	SW region
1	Many roots	Neat appearance	Big roots	Many roots
2	Big heavy roots	Early maturity	Many roots	Big roots
3	Not rotten	Compatibility with the soil	Not rotten	Early maturity
4	Less water	Stems must form branches and reduce farmers' stress on maintenance	Strong stem, stem appearance, branching	Not rotten
5	Strong stem that is storable /spreading leaves	Less water	Early maturity	Strong stem that is storable, branching
6	Early maturing	Quick peeling using knife	High starch content	Less water
7	High starch content	Soft skin of cassava root		Quick peeling using knife
8	Multipurpose use	No fibre Fresh leaves		Compatible to most soil/ soft skin of cassava roots No fibre Mealy/poundable

In Uganda, with regards to both matooke and boiled sweetpotato, a higher proportion of women highlight easy to peel more than men. For matooke in particular, men ranked soft pulp higher than women, while women preferred low amounts of sap than the men (Table 2). These differences can be related to the different tasks that women perform in relation to the production of the crop and processing into food products. If men and women are asked to mention preferred characteristics of roots/fruits in relation to the final food products, the differences between the preferred characteristics and between the importance of these characteristics in relation to the fresh root/fruit seem to become smaller. For example in Nigeria, previous studies show that women mention the preference for roots that are easy to peel and suitability to make food products more often (Wossen et al. 2017; Teeken et al. 2018) but our [RTB foods] data that were focused on evaluating roots with the intention to make food products (steering also the men to think more about the food products in relation to the root/fruit) show no difference in ranking for this trait. This also counts for Cameroon where easiness to peel is even ranked slightly higher by men than by women. However, for Matooke in Uganda women still mention ease of peel more than men, while men ranked long fingers higher than the women (Table 2). This could be attributed to the fact that women are more involved in food preparation and easiness to peel would make food preparation faster and easier, while long fingers to men may mean big bunch which would fetch more money when sold.

Table 2: Characteristics of a good matooke crop (rankings by sex and region)

Characteristics	Rankings				
	Women	Men	Mbarara	Nakaseke	ALL
Mature bunch*	1	1	1	1	1
Big fingers	3	3	2	4	2
Easy to peel	2	5	4	2	3
Soft peel	4	4	5	3	4
Soft pulp	5	2	3	5	5
Straight fingers	8	7	7	6	6
Low amount of sap	6	8	6	11	7
No pop sound	7	8	8	6	8

Long fingers	14	6	12	6	9
Prefer specific varieties**	9	11	10	10	10
Smooth fingers	10	8	14	9	10
Round shaped fingers	10	13	9	14	12
Short cooking time	10	13	11	11	12
Not diseased	15	11	13	13	14
Spaced fingers/not compact	10	15	15	15	15

*not so much a characteristic of the variety, rather it is the preferred state of the bunch when harvesting for consumption. It is not specific to a variety but cuts across all varieties.

**prefer specific local varieties that make good food

In the case of boiled sweetpotato in Uganda, women still mention ease of peel more than men or men do not even mention it (Table 3). Additionally, women mentioned vitamin A, good texture and disease free while the men ranked smooth skin, no damage and hard root higher than the women. These differences could indicate the different levels of involvement of the different sexes in producing and preparing boiled sweet potatoes. The results could also be because of the relatively smaller number of men who participated in the interviews – only 12 men were interviewed compared to 60 women.

Table 3: Percentage of citations of important characteristics for fresh sweet potato roots by sex and region in Uganda

Characteristic	% of women citing N=60	% of men citing N=12	% of Kamwenge citing N=32	% Lira citing N=40
Big size	35	33.3	75	2.5
Disease free	5	0	9.4	0
Easy to peel	3.3	0	0	5
No damage	3.3	16.7	6.3	5
Smooth skin	13.3	25	18.8	12.5
Sweet taste	21.7	25	50	0
Vitamin A	11.7	0	21.9	0
Good colour	5	8.3	12.5	0
Good smell	3.3	0	6.3	0
Good texture	13.3	0	21.9	0
Not fibrous	5	8.3	12.5	0
Yellow colour of the flesh	3.3	0	6.25	0
Good appearance	1.7	0	3.1	0
Hard root	1.7	16.7	9.4	0
Not rotten	3.3	0	3.1	2.5

In the case of plantain in Nigeria, home consumption and income generation were the main reasons for growing plantain for both men and women across the regions and there are hardly any differences between the weight given to preferred traits. For instance, women were more concerned about pulp colour and finger size, while men stress bunch size (related to the price when marketed) more than women (Table 4) while bunch size is more important to women in the South-South than for women in Osun state. This might reflect the higher interest of men in selling fresh bunches and the larger role of women in the whole plantain value chain in the South South compared to other regions in Nigeria.

Table 4: Rankings of important characteristics for plantain by sex and region in Nigeria

Characteristic	Women N=62	Men N=62	Osun N=41	State Delta N=40	State Rivers N=43	State
Big finger	34	33	20	21	26	
Deep green peel	25	21	11	22	17	
Matured	20	20	6	16	18	
Big bunch	16	19	11	13	11	
Black/dry tip	14	11	11	11	5	
Yellow pulp colour	13	15	8	11	9	
Strong/firm	10	2	3	7	3	
Split peel	9	4	1	7	5	
Full pulp	6	1	1	2	4	
Fresh	4	6	1	3	2	

FDGs from Cameroon show that more women ranked higher and emphasized the lower water content in cassava food products such as gari, baton de manioc and couscous de manioc (eba) as well as the preference that these products should be white and shiny, not discoloring during processing. While the individual interviews show no difference in this respect. This indicates that women are usually more involved in processing work while the men assist and/ or are very well informed about the particularities of this work.

In Uganda, both men and women rate the quality characteristics (soft texture, good taste, yellow colour) of matooke higher than the agronomic ones (big bunch, big fingers). Small finger size was ranked as the number one attribute that is not desired by all respondents. Women ranked pulp colour higher than men and this could be because a yellow pulp is associated with good food. More men in Mbarara compared to Nakaseke mentioned big finger size as an important characteristics – in Mbarara, production is more commercial.

Comparing traits only mentioned by men and only mentioned by women for the different crops and countries.

When looking at traits only mentioned by women and not by men the difference in gender roles seems again to appear. For example, with reference to boiled sweetpotato in Uganda, only women mentioned: disease free, easy to peel, vitamin A, good colour, good smell, good texture, yellow colour of the flesh, good appearance and not rotten, when asked about fresh root preferences. This might illustrate that although respondents were steered to think about the quality of the root for a good food product, women mostly provided answers related to the final product. Data from the FDGs showed that overall preference for sweet potatoes was associated with agronomic (early maturity, high yield), post-harvest (big size roots) and sensory (sweet taste, hardness/firmness of the root) characteristics. The men's FDGs mentioned early maturity, sweet taste and big size roots whereas women mentioned big size roots, hardness/firmness of the root and high yield (Table 5). The men further identified high yield and disease resistance whereas the women had sweet taste, sappy root and smoothness of the skin as other important characteristics.

Table 5: Most important sweet potato crop characteristics in order of preference

Importance	Men's focus groups	Women's focus groups
1	Early maturity	Big size roots
2	Sweet taste	Hardness
3	Big size roots	High yield
4	High yield	Sweet taste
5	Disease resistance	Sappy
6		Smoothness

On the final product, sweet taste was only mentioned by men while only women mentioned mealiness, firmness and taste (Table 6). Only men mentioned good smell, not watery and soft-boiled sweet potato which might mean that men and women both indicate attention for texture and taste but in a different way. However, these results need to be treated with caution as the differences could be because of the lower proportion of men who participated in the survey compared to women (only 16.7% were men).

Table 6: Percentage of citations of important characteristics for boiled sweetpotato roots by sex and region

Characteristic	% of women citing N=60	% of men citing N=12	% of Kamwenge citing N=32	% Lira citing N=40
Cooks well	1.7	0	0	2.5
Good smell	3.3	8.3	0	7.5
Hard	5	0	0	7.5
Not watery	3.3	8.3	0	7.5
Sweet taste	13.3	8.3	0	22.5
Mealy	6.7	0	6.3	5
Good appearance	1.7	0	0	2.5
Soft	0	8.3	0	2.5
Yellow or white colour	3.3	0	0	5

In Nigeria and Cameroon characteristics of cassava roots and the gari-eba product and other Cameroonian cassava products such as baton de manioc only mentioned by women were very little and if they were they would usually be coded under similar characteristics as those mentioned by men. In Nigeria, men's FGDs mentioned heavy roots that are not rotten and are white when peeled, while the women's FGD mentioned big roots with no fibre, soft and easy to peel, long lasting in good or bad weather, early maturing and mealy (Table 7). In the case of gari, the men preferred high starch with no fibre while the women highlighted gari should be white, with a nice smell and should also swell. In Cameroon, the women's FGD highlighted low water content for gari/tapioca while the men's FGD ranked very white colour of the pulp highest. In Uganda, men mentioned white colour, fast cooking, easy to peel, soft and sweet while the women's FGD highlighted thick diameter, not fibrous, pink smooth skin with a long shelf life for cassava roots. These differences highlight the different gender roles played in product selection and preparation of the final product.

Table 7: Gender specific preferred characteristics of cassava roots and gari in Nigeria

Product	Men's FGD	Women's FGD
Root	Heavy, less water, not rotten, white when peeled, big, long, many roots, strong stem	Big, heavy, no fibre, soft or easy to peel flesh cover, stays long in good or bad weather, weed tolerant, not rotten, early maturity, early sprouting, mealy, less water
Gari	High starch, white, high gari yield, no fibre	White, neat, smell nice, swelling



Institute: Cirad – UMR QualiSud

Address: C/O Cathy Méjean, TA-B95/15 - 73 rue Jean-François Breton - 34398 Montpellier Cedex 5 - France

Contact Tel: +33 4 67 61 44 31

Email: rtbfoodspmu@cirad.fr

Website: <https://rtbfoods.cirad.fr/>