Consumer participation in Ghana's sweetpotato breeding program

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16/03/2016

Introduction

- Sensory evaluation is a scientific discipline used to evoke, measure, analyzed and interpret reactions to those characteristics of foods and materials as they perceived the senses of sight, smell, taste, touch and hearing

- Types of sensory assessments include: Discrimination, Descriptive and **Affective (consumer preference)**

- Sweetpotato is among the most under-exploited of the developing world's major crop (walker and Crissman, 1996), so that breeding initiatives for sweetpotato are at a relatively early stage compared to other staple crops

- While the main objectives of breeding programs have traditionally been an increase improvement of other production characteristics, the importance of postharvest characteristics for the acceptance of new varieties is being increasingly recognized (Kapinga *et al.,* 1995)

- The success of any newly introduce varieties will depend not only production characteristics but on its acceptability to consumers in terms of both sensory and utilisation characteristics

- Many of the sensory criteria known are very complex and subjective and therefore practically difficult to measure instrumentally

- Direct consumer testing of new varieties is very expensive and time consuming

Objective

- The presentation intends to review the various methodologies used in conducting consumer preference sensory in Ghana sweetpotato breeding program over the years.

Methodology

- The studies were conducted at 3 locations (Komenda, Tono, Ohawu) in 2012, 5 locations (Komenda, Pokuase, Tono, Ohawu, Kpeve) in 2013 and 4 locations (Komenda, Tono, Pokuase) in 2014.

Sweetpotato Samples

- **2012 season:**

❖ **27 Genotypes:-** 199062.1, CEMSA-74, MOHC, KEMB 37, TA64/18, MPG1128, 199062.1/2, NAS 5/4, AP/3A, BUN/5, NASPOT (2) 2, NKO/6, 91/282-1/35, NAS 5/5A, NKO 31/A, EXCEL 5, BLUEBLUE, BP-SP-2, JITIHADA, 442162, 442462, TIS965/10, 440390, , 442267, OGYEFO, SANTOM PONA AND FAARA

- **2013 season:**

❖ **14 Genotypes;-** NKO3/A, BUN5, TIS9265/10, JITIHADA, 442162, 440390, 91/282-1/35, 199062-1/2, AP3A, SANTOM PONA, OGYEFO, SAUTI, OTOO and BLUEBLUE

- **2014 season**

❖ **19 Genotypes;-** 440390, 442162, AP3A, BUN 5, JITIHADA, LIGRI, NKO31A, Nanungungungu, Ogyefo, P12086-18, P11113-11, PG12040-6, PG12151-73, PG12136-2, PG12164-21, PG12166-30, SAUTI, TU-ORANGE, TU-PURPLE

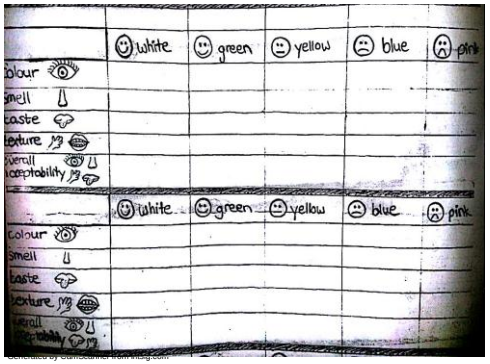
Pre-CIP Era

- About 10-20 farmers are asked to taste varieties and their choice
- Roots were fried
- No standardization in terms of data management

2012 Season

- 150 consumers used for the work
- Standardized
- Time consuming
- Tiring

2013/2014



1. Questionnaire

2. Coded samples

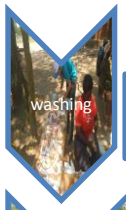
3. Orientation

Tono session

Ohawu session

Komenda session

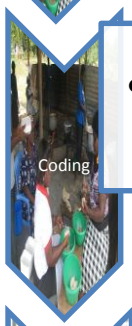
PROCEDURE



- **Washing:** samples were thoroughly washed with clean water to get rid of any dirt or infections

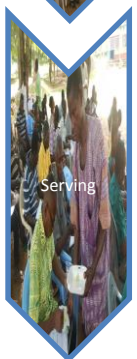
- **Bagging:** different genotypes were bagged separately into clean white polythene bags with codes placed in it to avoid mix up during boiling

- **Boiling:** All the genotypes were arranged into a big cooking pot to boil. Bags were perforated to allow hot water to come into contact with the sweetpotatoes while still keeping the codes intact



- **Coding:** after boiling, samples were sliced into clean bowls and appropriate codes assigned to them to prevent consumers from identifying each genotype

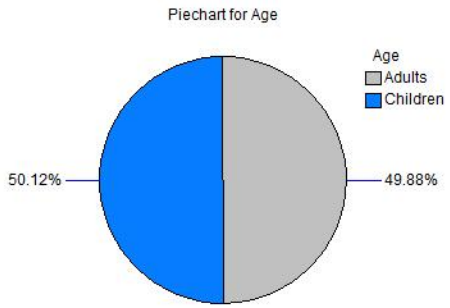
- **Orientation**: participants were taken through the process of sensory survey and terminologies clearly explained to them. Questions and suggestions were also taken from them

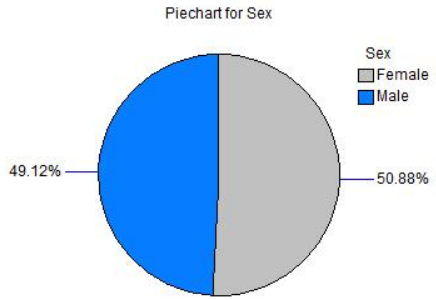


- **Serving:** each genotype in the form of a code was served one at time for consumers to assess. water and cream crackers to serve as pallette cleansers were also given to clean mouth before moving to assess a new code

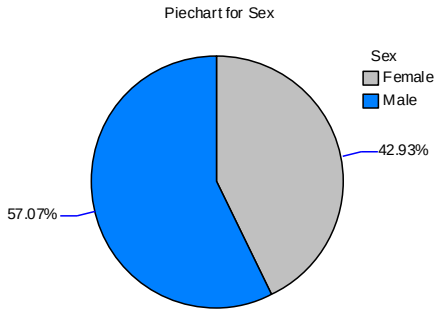
- 200-250 consumers used for the exercise

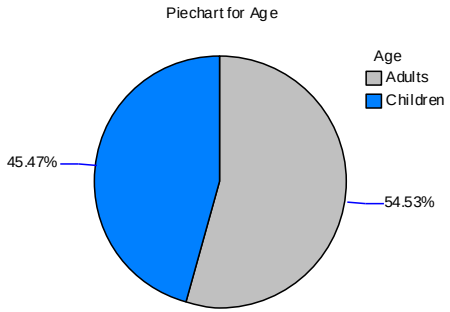
2014





2013

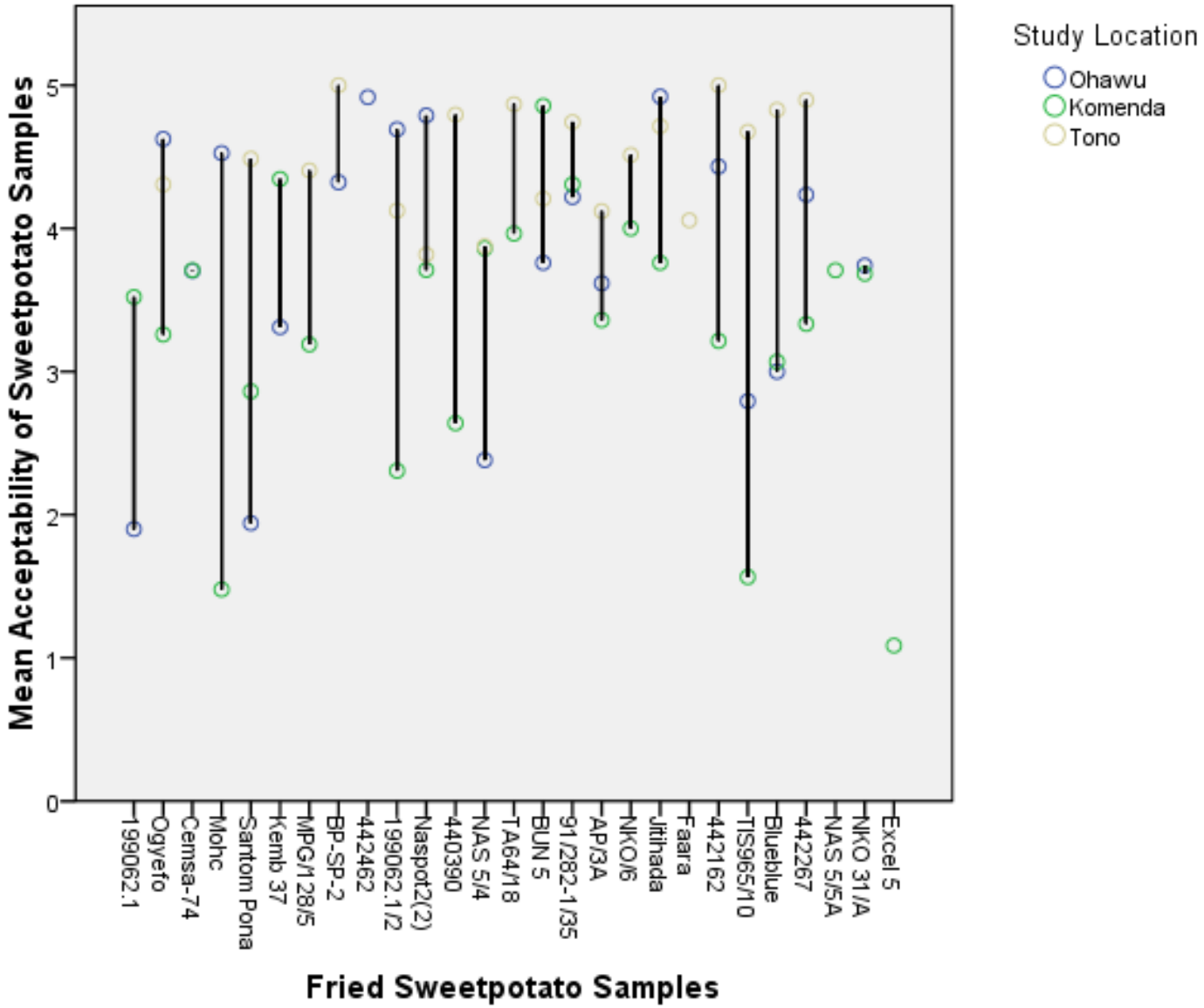




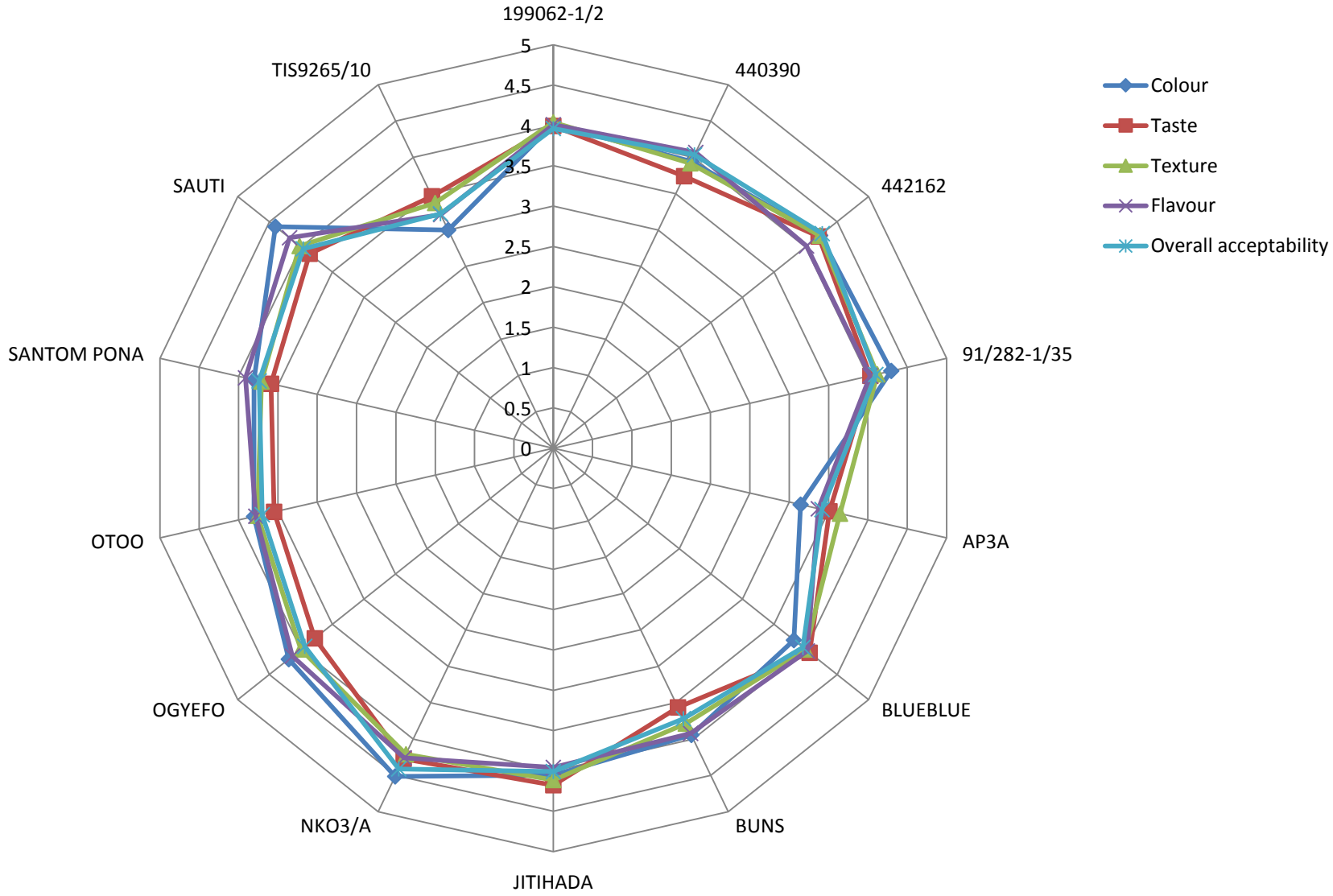
Statistical analysis

- Analysis of variance (ANOVA) was done using Statsgraphic centurion. The student's protected t- LSD was calculated at a 5% significance level to compare means.

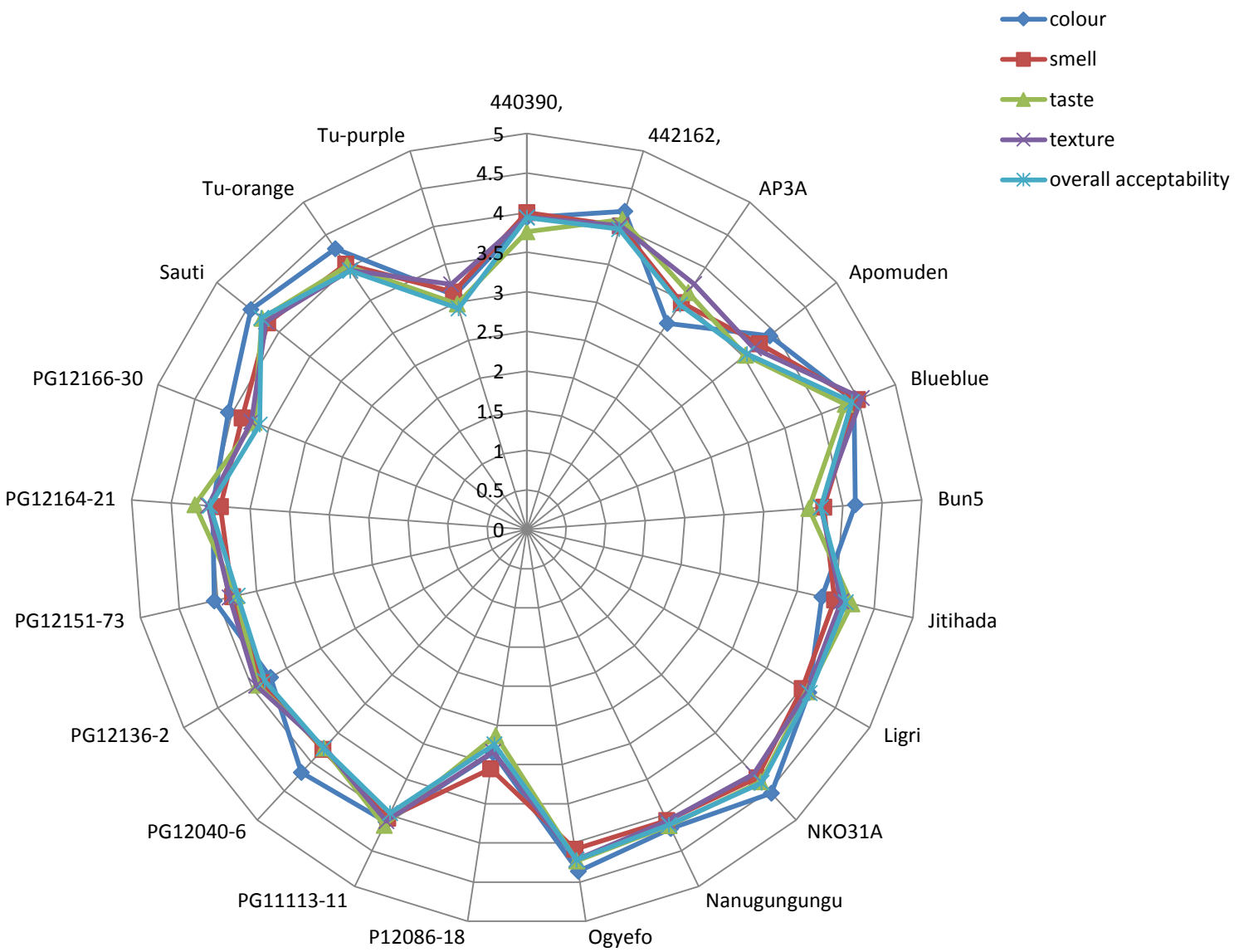
Results and discussions
2012 Season



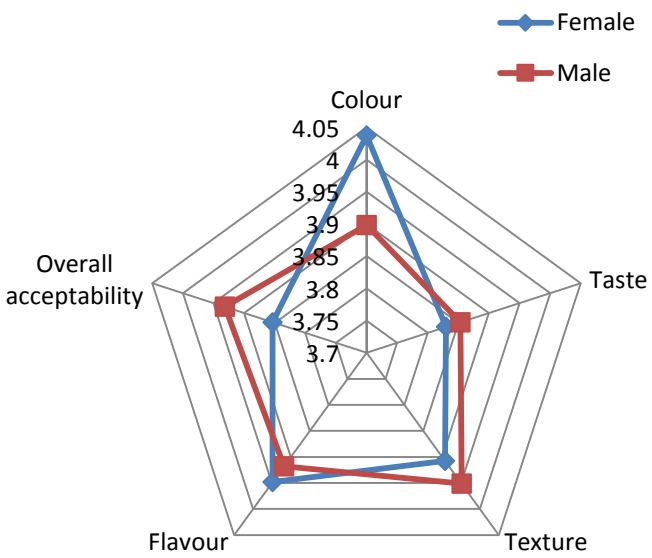
2013 Genotype comparison



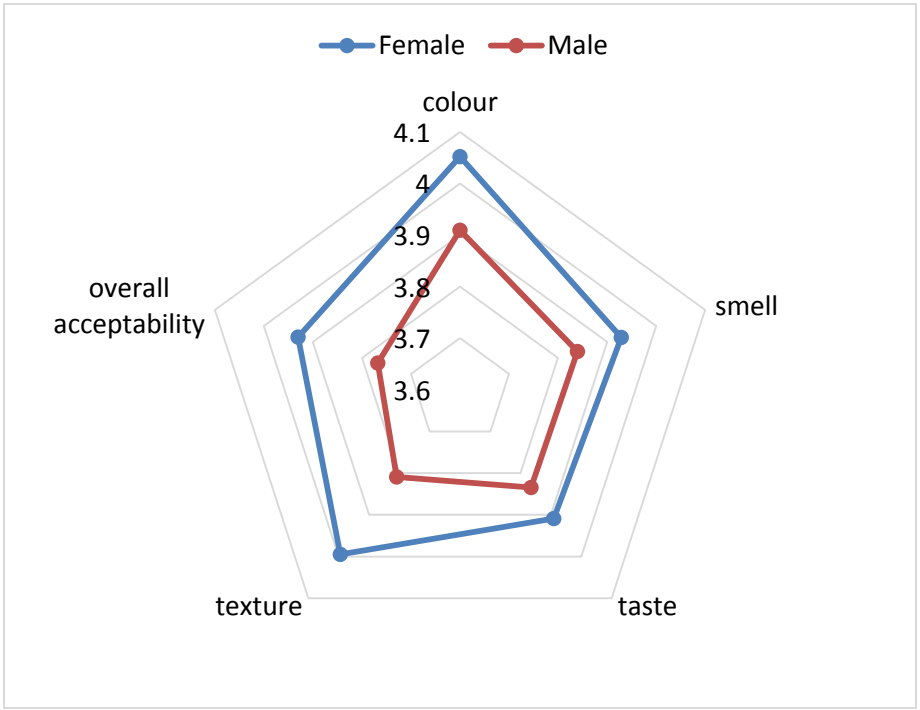
2014 season


colour
smell
taste
texture
overall acceptability
440390,
442162,
AP3A
Apomuden
Blueblue
Bun5
Jitihada
Ligri
NKO31A
Nanugungungu
Ogyefo
P12086-18
PG11113-11
PG12040-6
PG12136-2
PG12151-73
PG12164-21
PG12166-30
Sauti
Tu-orange
Tu-purple
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0

Gender comparison of attributes

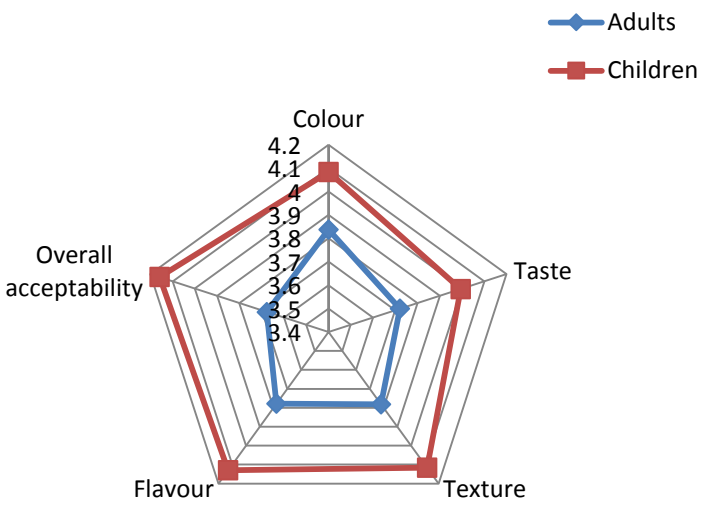


2013 season

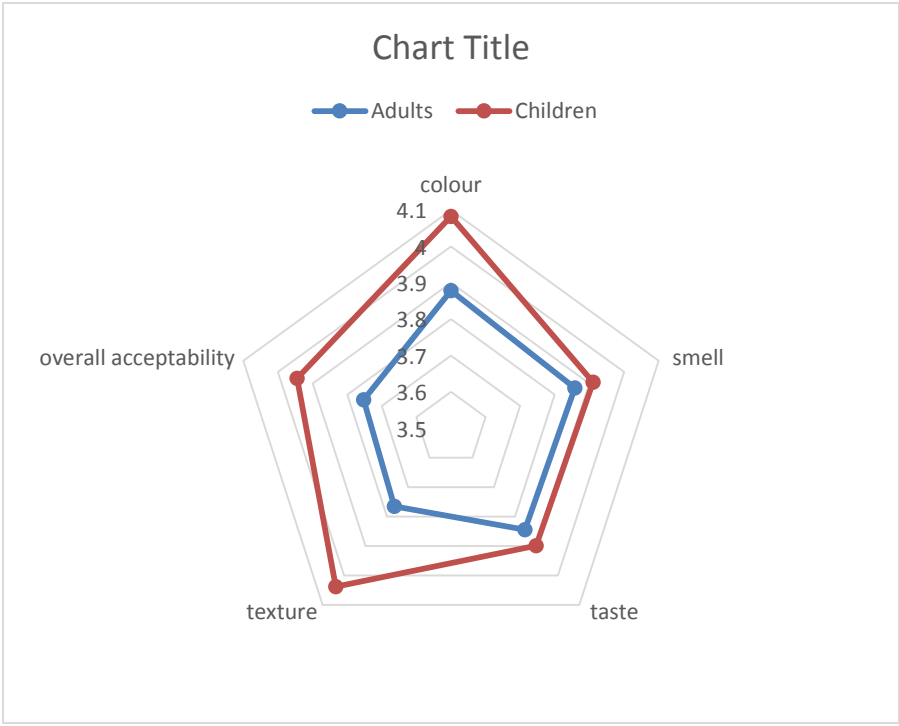


2014 season

Age Group comparison of attributes



2013 season



2014 season

Questions to address going forward

- Do consumers genuinely like sweetpotatoes or just saying that to please the researchers
- How do we link consumer preference to willingness to buy the product
- Is information about a certain product really help in the choices they make

Conclusion

- It can be concluded that, several factors inform consumers' choice for sweetpotatoes. Gender, age group, where a person comes from, adequate information about a product and even the inherent properties of a particular genotype are some of the many factors involved

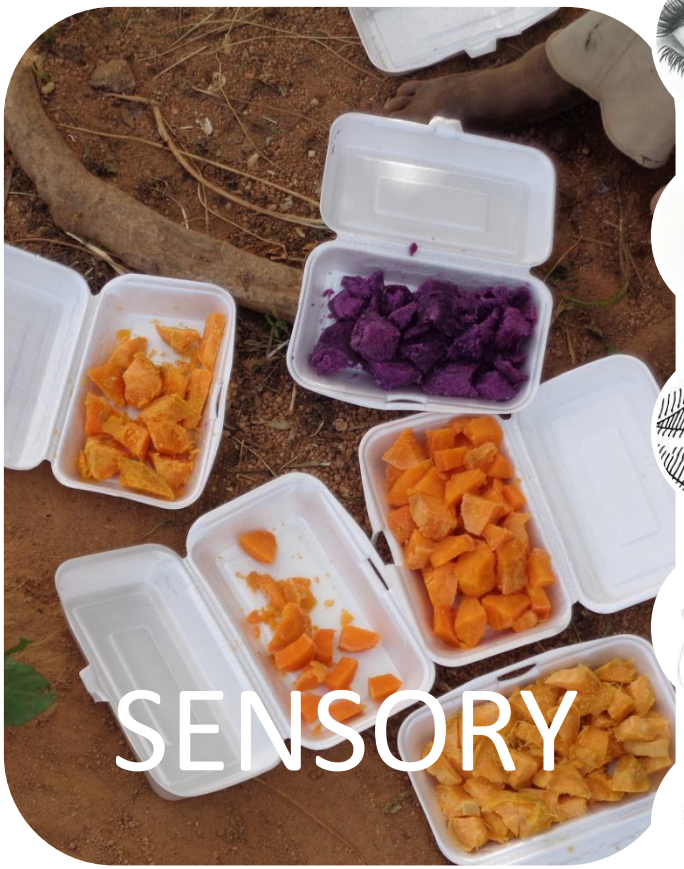
- Because, consumer preference can change from time to time depending on how these factors change, there is the need to regularly conduct sensory surveys in order to meet consumer needs at all times

- Consumer preference exercise can be time consuming, tiring and expensive hence appropriate methods should be employed in order to the true response from consumers

Acknowledgement

- CSIR-CRI
- CSIR-SARI
- SASHA
- KNUST (Food science department)
- MOFA

THANK YOU



COLOUR/APPEARANCE

SMELL

TEETH

TONGUE

FINGERS