Investigating cassava varieties used by stem marketing farmers in Nigeria, an interdisciplinary study

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INTRODUCTION

Cassava is a clonally propagated crop and the stem cuttings serve as "seed" and are saved at harvest or obtained from neighboring farmers or from informal or formal seed system. Stem marketing and conservation are mostly through the informal means and this have really influenced the seed trends and movements among different social segments. A mixed method approach combining survey and DNA fingerprinting through Single Nucleotide Polymorphisms (SNPs), were used to investigate 376 seed marketing farmers' who cultivated and conserved seed varieties across Osun, Benue, Imo and Akwa Ibom states, Nigeria.

OBJECTIVE

This current study is to understand the portfolio of cassava seed marketing farmers and their trait preferences and relate this to what is known about farmers variety portfolios and trait preferences

MATERIALS AND METHOD

A structured questionnaire was used to interview 196 individual farmers and 124 identified stem marketers using mixed method approach. Data were analyzed using frequencies counts, percentages, and inferential statistical tools like Chi-square, PPMC, ANOVA and R. DNA finger printing was used to investigate what varieties farmers-marketers use by comparing collected samples with accessions in the IITA genetic library.

RESULT AND CONCLUSION

Results indicate that yield, final food product quality, early maturity, and inground storage ability are the major and combined focus of marketing farmers (Figure 1). There are 6 major groupings in the genetic data. The largest group comprise of 202 farmers' landraces that matched with 126 landraces in the IITA reference library (TMEB). Others were improved varieties (TMS). However, 12 clones did not cluster with any of the reference IITA lines namely Oko iyawo (3), IITA (2), Arubuelu, Black, Redpetiole, Aboyade, 419, Ege dudu and Afik-akpo. This shows that farmers' trait preferences in the listed stem varieties influence stems marketing.

Figure 1: Principal component analysis on prioritised seed traits across the selected study area
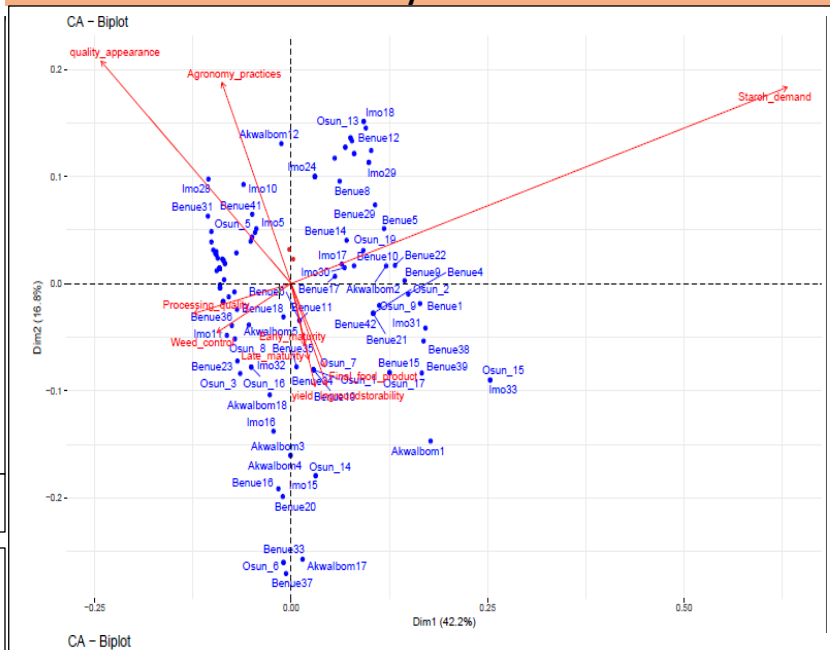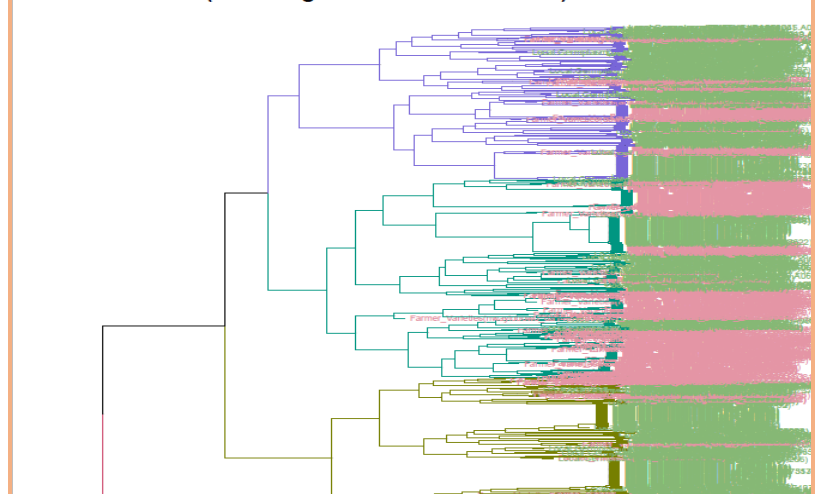

Figure 2: Population Structure and genetic diversity of farmers and marketers collection assessed by DNA fingerprinting

Clustered Improved IITA Genotypes(Reference) and Farmer varieties
(Genetic gain Vs Farmer varieties)

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