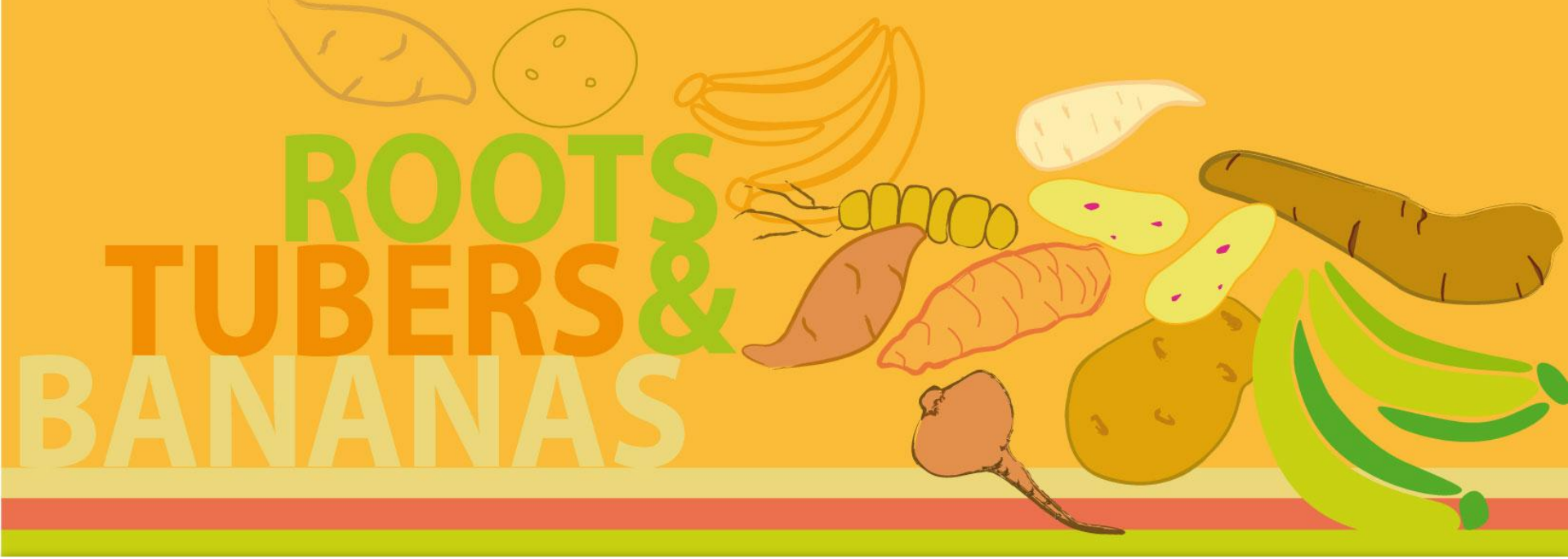

Consumers' acceptability of fortified gari, a cassava product in Benin

World Congress on Root and Tuber Crops, China, Jan 21, 2016

Research Program on Roots, Tubers and Bananas

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Context

The case study 3 of RTB project on cassava has for objective to ensure that products resulting from new varieties and from both current and new processing technologies meet consumer taste.

This project is divided in two groups of studies including sensory and consumer tests to know if a new or improved traditional process developed for making new or improved traditional products could be adopted

Five African countries are involved: Nigeria, Tanzania, Sierra Leone, Benin and Cameroon.
Benin has chosen to work on Gari

Gari?

❖ Most popular staple food (a sort of semolina) made from cassava by **peeling, washing, rasping, fermentation/pressing,** and **cooking/drying**

❖ Consumed **dry**, or **diluted** into tap water added with sugar, coconut, peanuts/cashew nuts, or as a **cooked paste** accompanied with a sauce

Gari

Cassava

Cooking gari

Rationale

❖ **Large variability of traditional gari types depending on**

-Degree of fermentation (1 to 8 days) : little to very fermented
-Degree of cooking/drying ; very dried to little wet in the heart
-Particle size : fine to coarse particles
-Homogeneity of particle size : homogeneous to heterogeneous
-Presence of fibers : few or many fibers
-Colour : white to brown

❖Fortified gari (added with palm oil or/and soybean) resulting from research and endogenous innovative actions was recently developed.

Rationale

❖ Up to now, the consumption of those new gari types is not still spread to all the regions in Benin.

❖ Consumers' perception of fortified gari, could be key information required to develop strategies for marketing it.

Methodology

❖ **Consumption form** : Dry

❖ **5 samples** : Three traditional gari (Ahayoé.UF.Ik, Sohia.F.Da, F.Dj), two fortified with palm oil (Palmoil.UF.Ou) and soybean (Soy.UF.Ou)

Overall liking: 9-point hedonic scale (1=Dislike extremely, 9=Like extremely)

JAR scale (colour, texture during chewing, degree of roasting, acidic taste, particle taste)

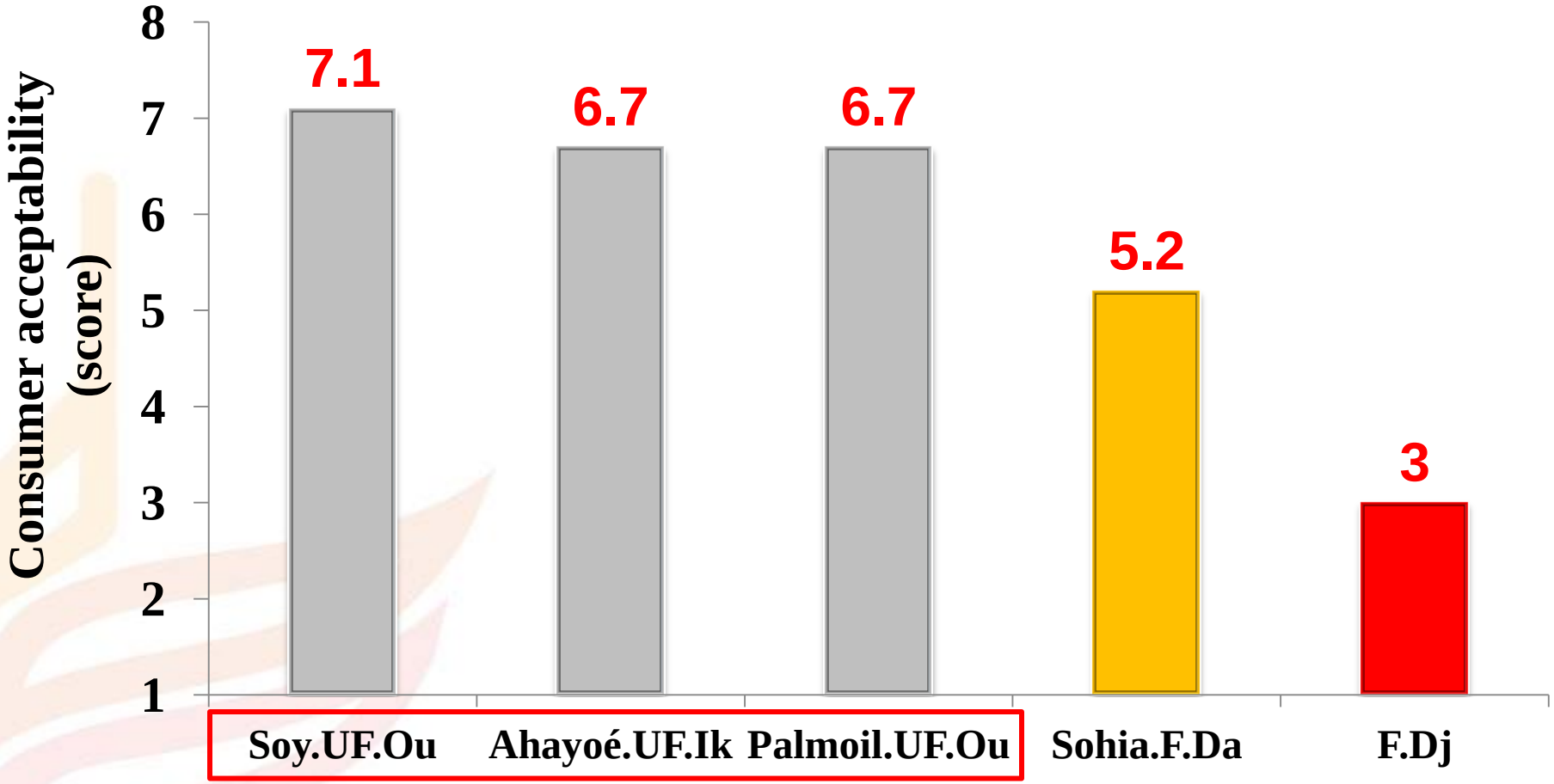
CATA questions : 21 terms [sensory (16) and emotional (5)]

❖ **121 consumers**

Statistical analysis

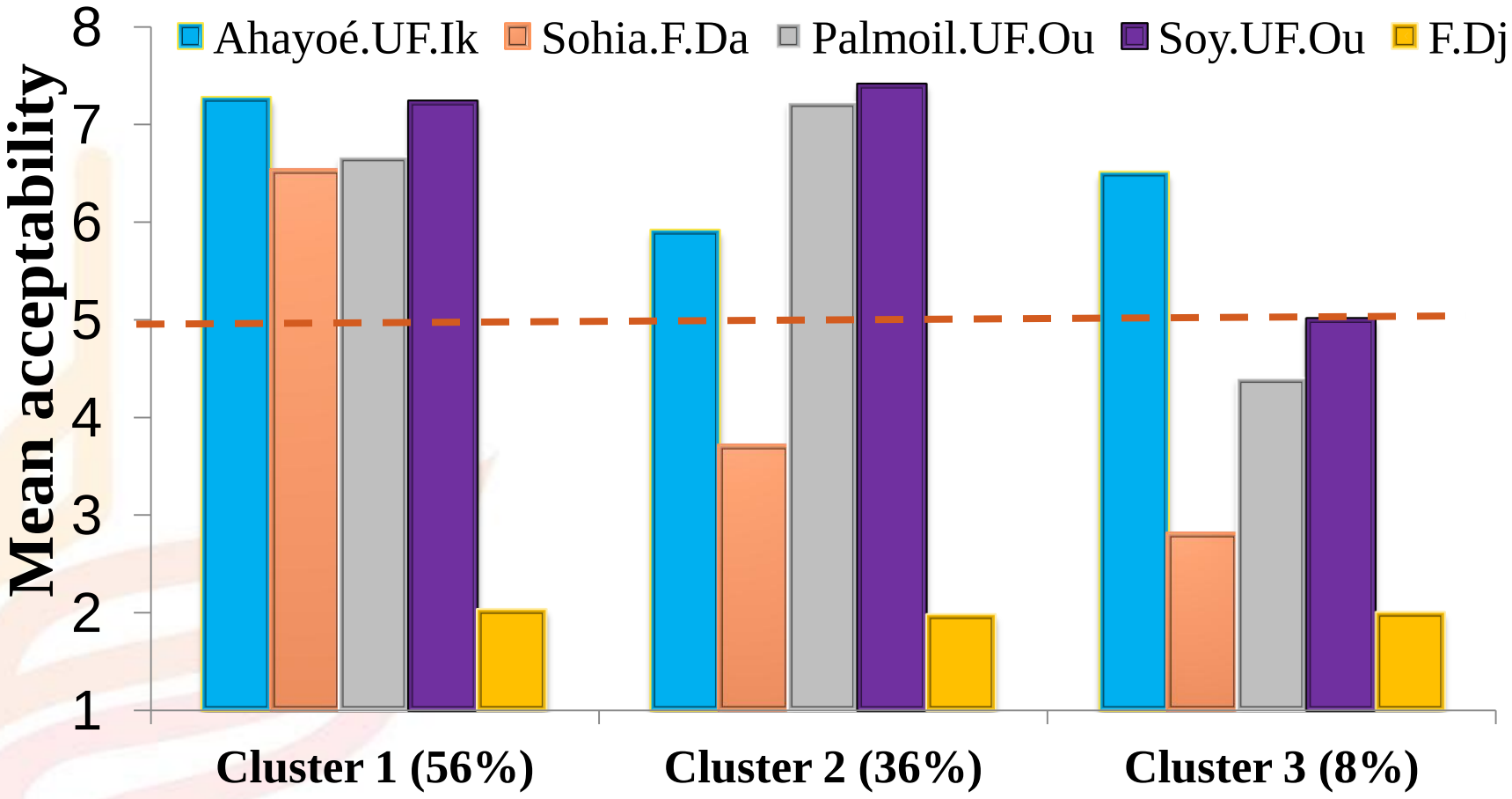
- ANOVA and hierarchical cluster analysis were performed on overall liking consumer data
- Penalty analysis was carried out on JAR test data
- PCA was performed on CATA data
- MFA was carried out on CATA and overall liking data

Acceptability scores



Fortified gari (with soybean or palm oil) was as liked as one traditional gari (Ahayoe)

Mean consumer acceptability by consumer segment



Besides Ahayoe gari (traditional), fortified gari (added with palm oil or soybean) was accepted by 92% of consumers

Mean drops in liking for the "too weak (tw)" and "too strong (ts)"

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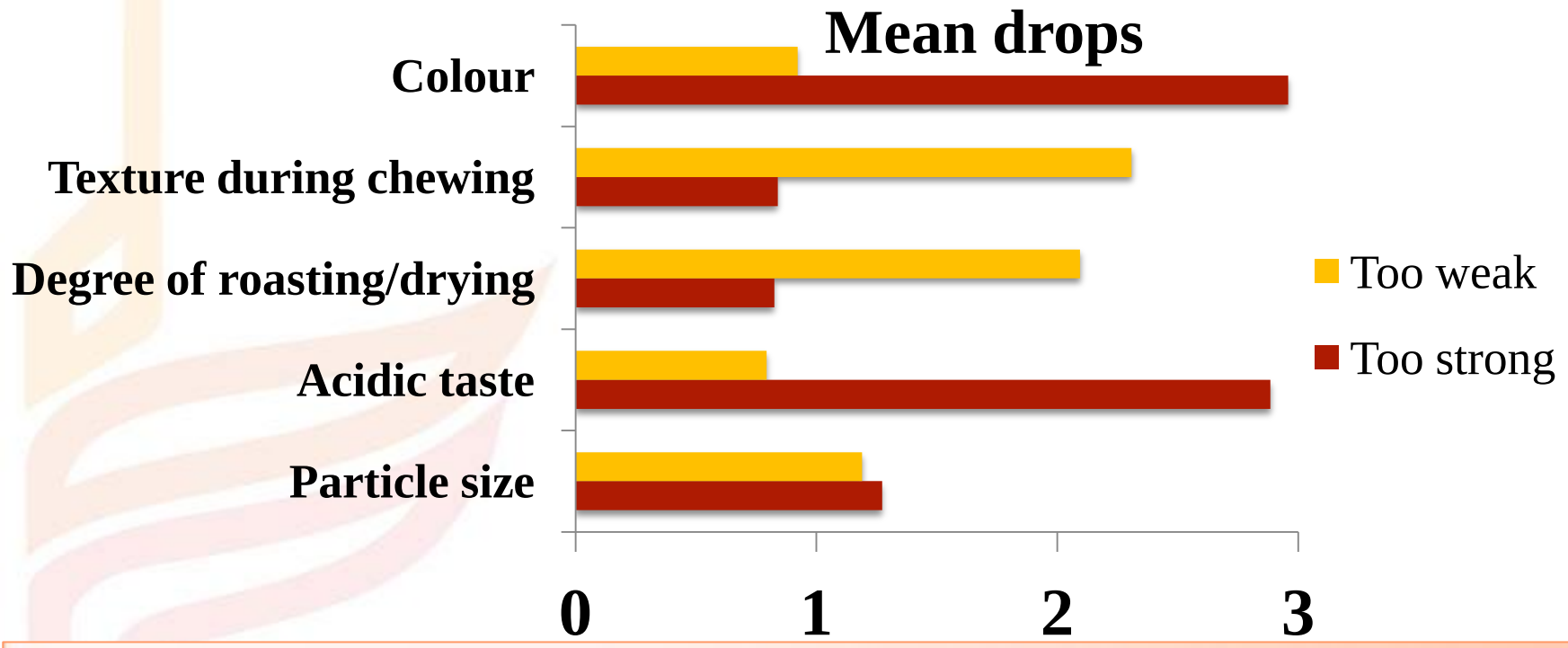
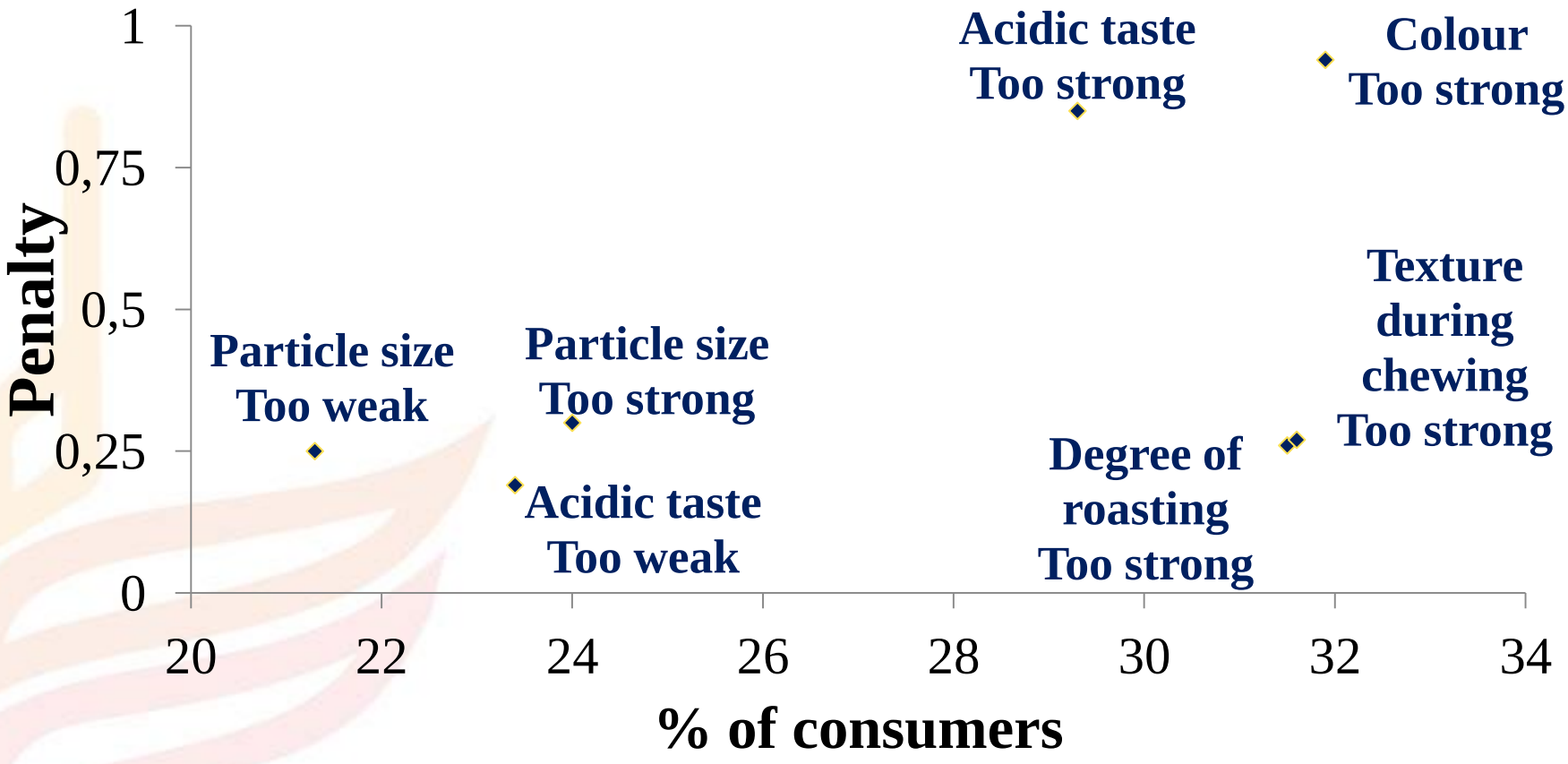
CGIAR

Objective : **Identify potential directions for product improvement on the basis of sensory attributes presented to consumers**



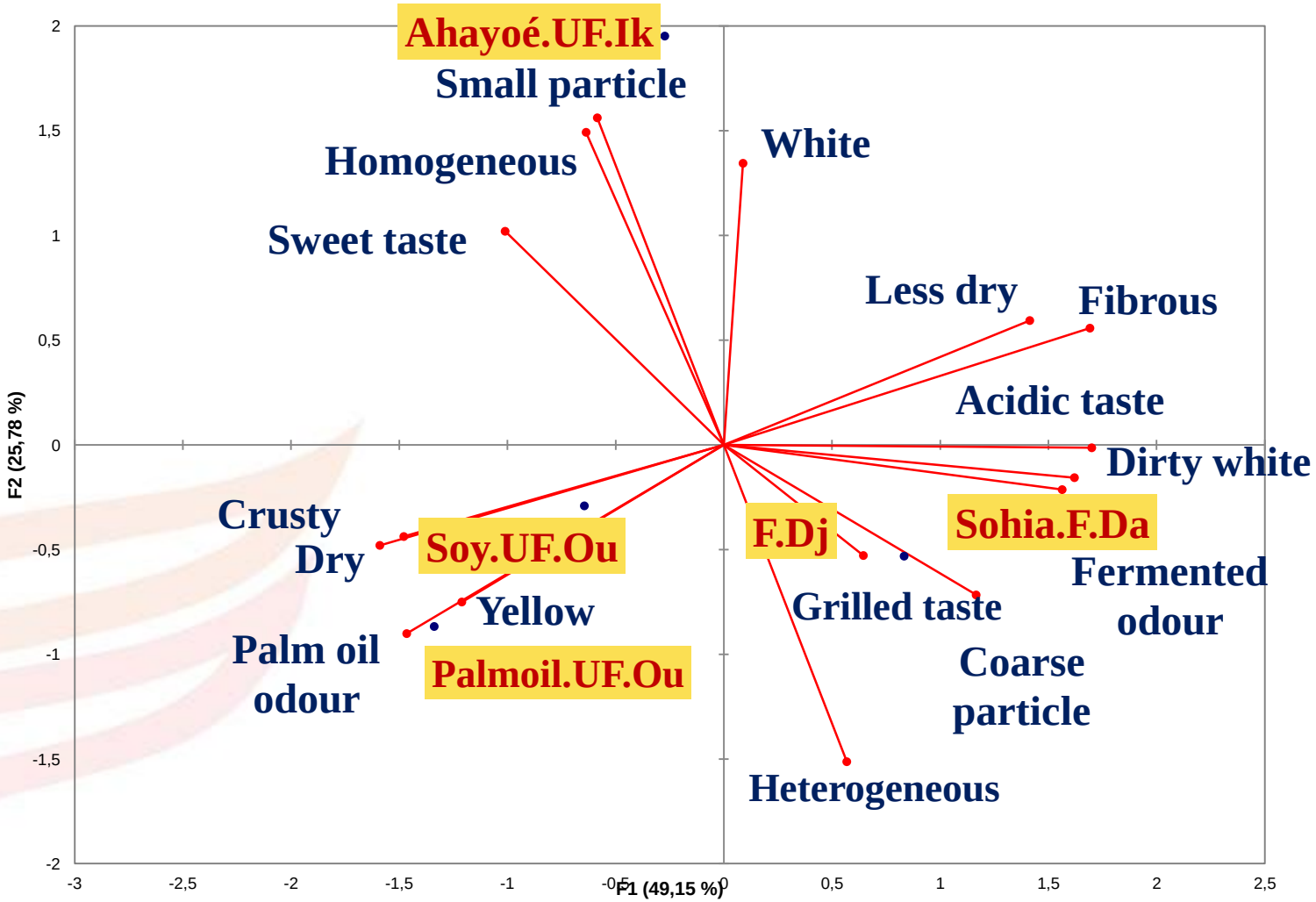
"Colour ts" and "acidic taste ts" received higher mean decreases (> 2.5) in overall consumer acceptance.

Significant penalties according to the proportion of consumers

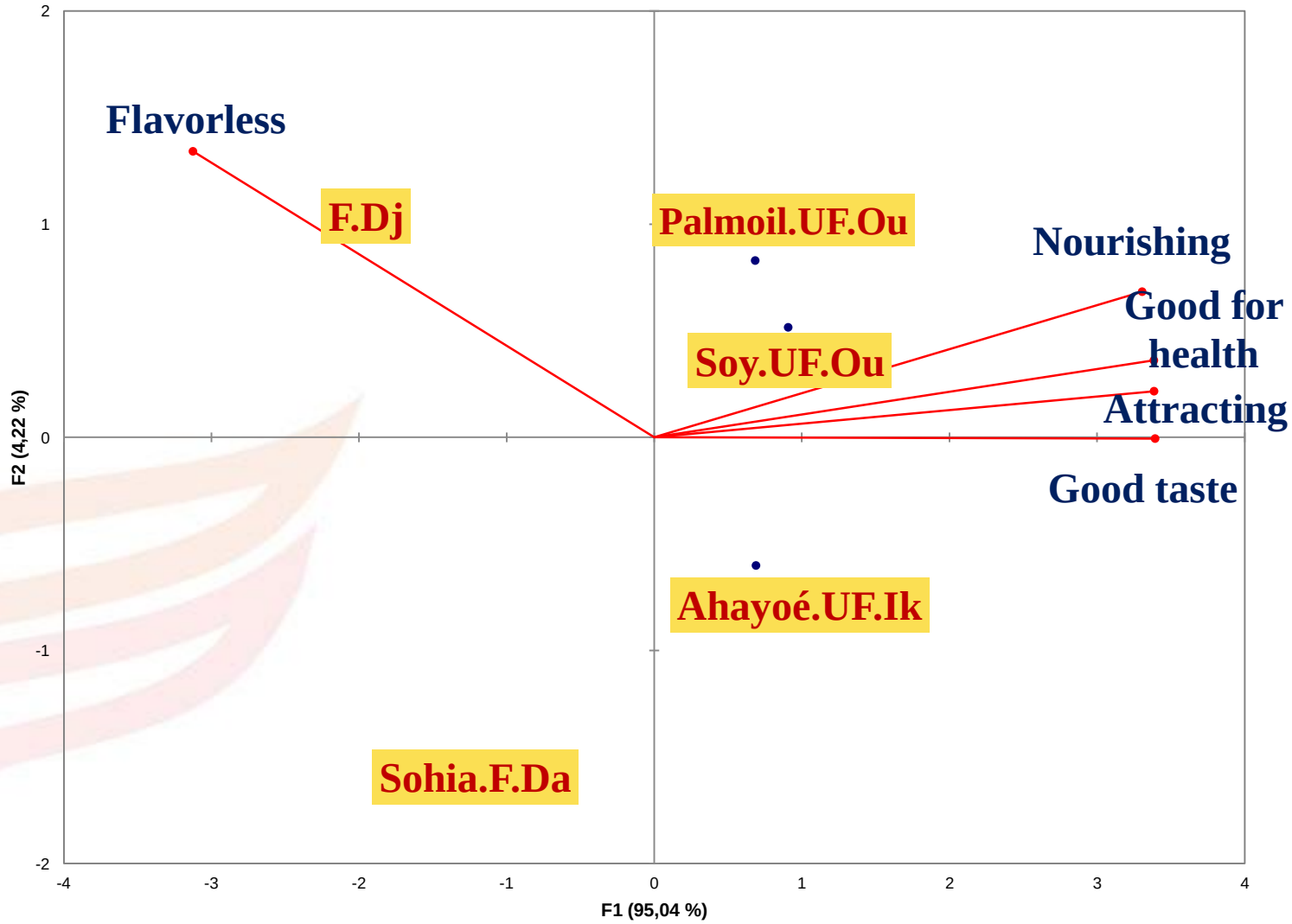


The highest penalties (penalty higher than 0.75 and more than 25% of cases) were observed for acidic taste and colour

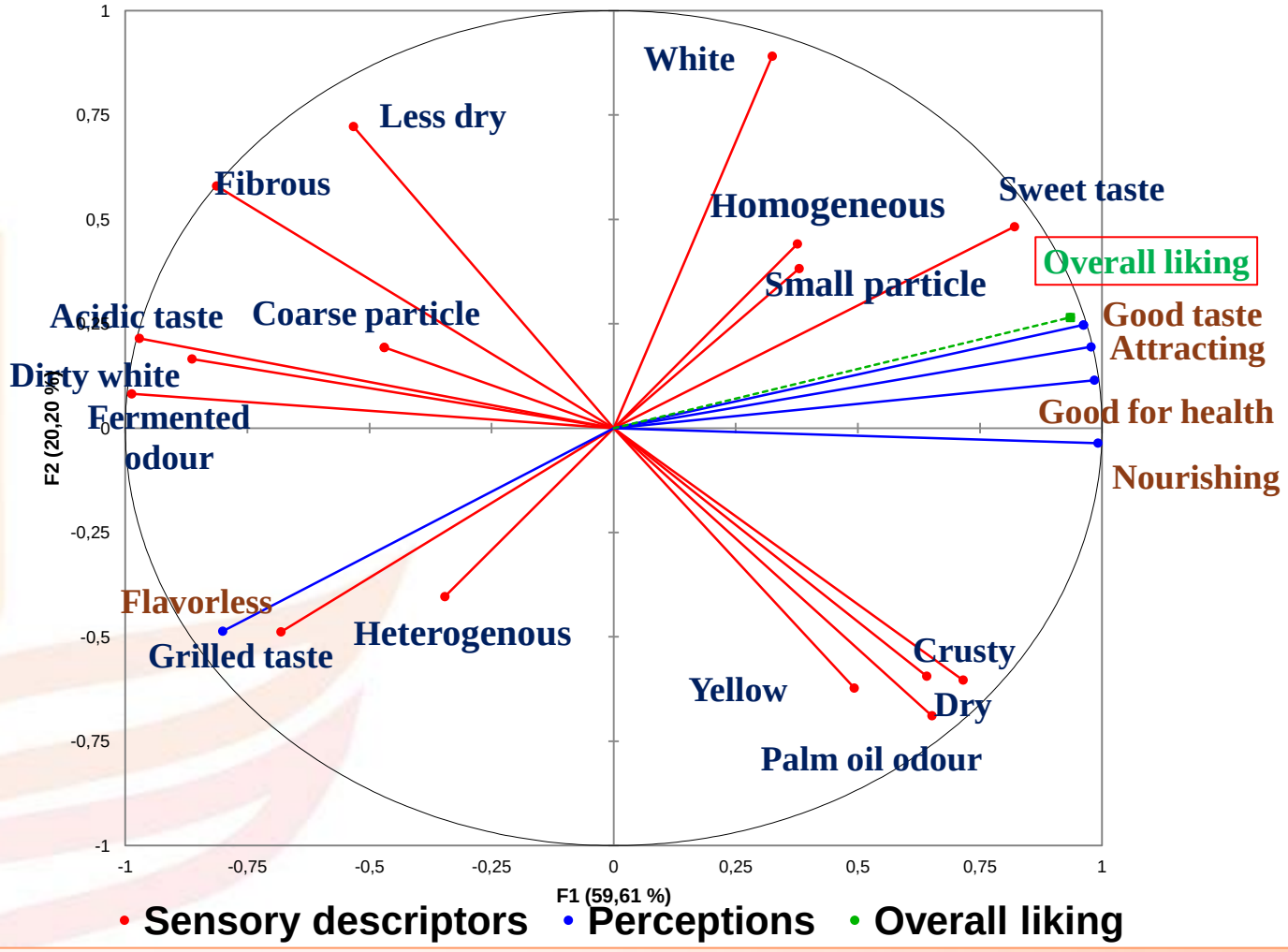
Relationship between CATA descriptors and gari samples



Relationship between CATA descriptors and gari samples



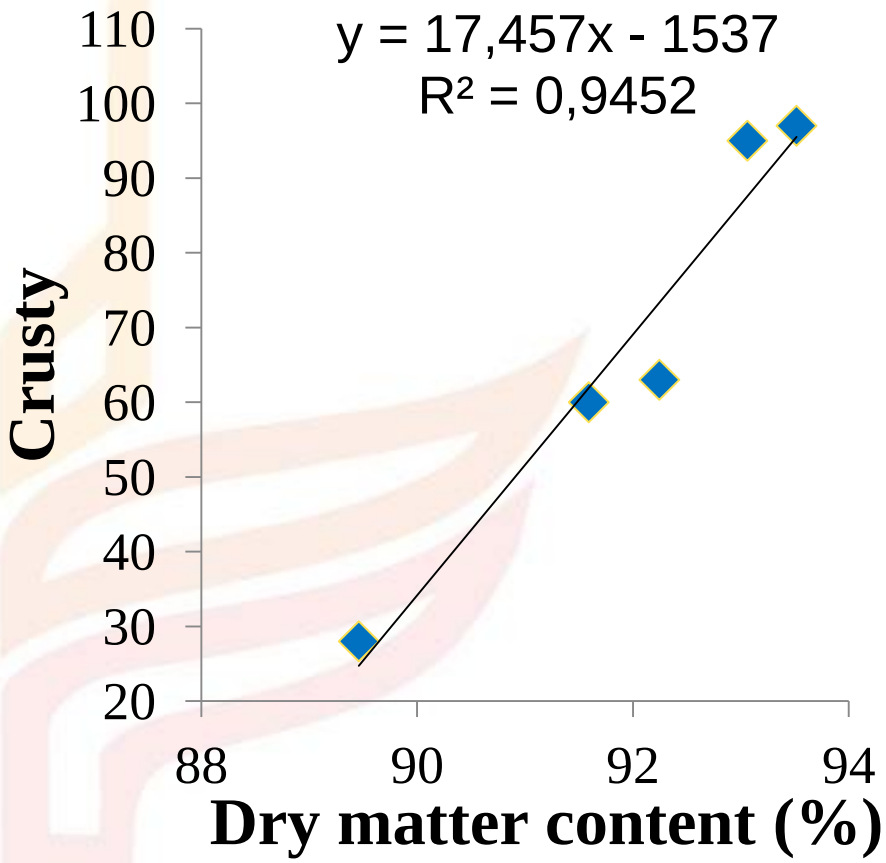
CATA descriptors responsible for consumer liking

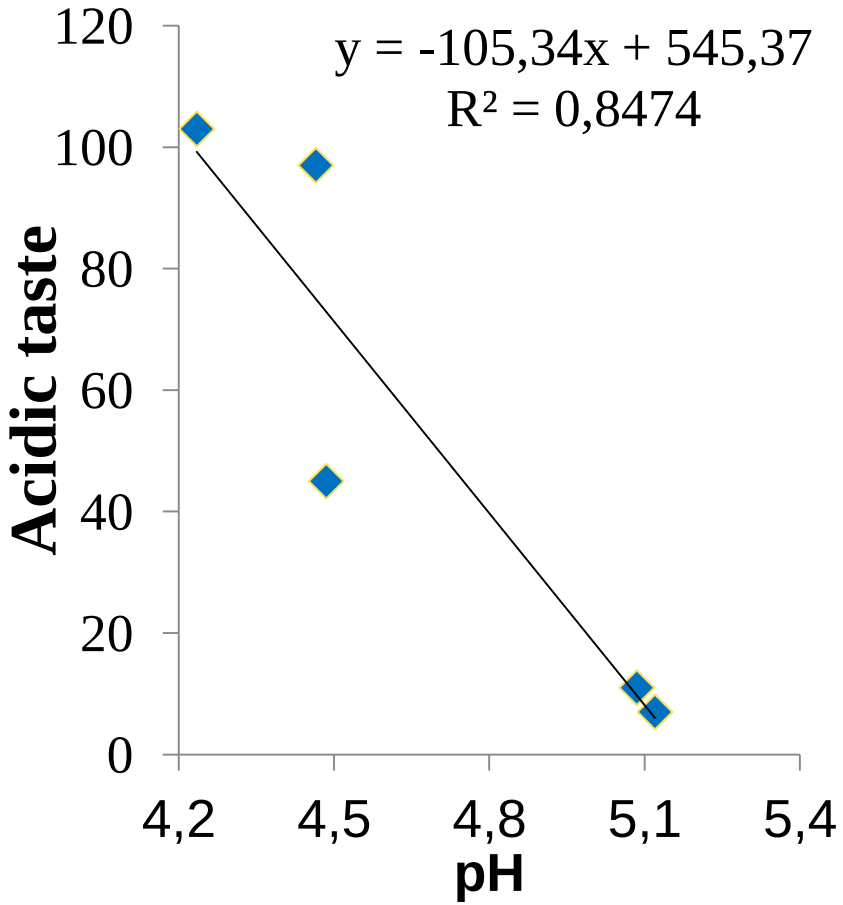


Sweet taste, white, yellow, crusty, dry, palm oil odour, small particle and homogeneous were the main sensory attributes drivers of liking

Correlations between sensory descriptors and physico-chemical characteristics

Objective : Validate the consumer study





CONCLUSION

❖ Lower production and consumption of these new gari types could not be explained by an overall disliking by Beninese consumers.

❖ New strategies for marketing fortified gari will be developed on basis of descriptors that drive consumers' liking.



THANK YOU