



A Guidance for Food Product Evaluation From Advanced RTB Clones with Crop Users

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The logo for 'RTB foods' is positioned at the top left. 'RTB' is in a green, blocky font, and 'foods' is in a pink, cursive script. The background of the slide features a collage of food images: a coconut being cut, a pile of white cassava balls, green bananas, and fried plantain slices. A vertical bar with pink, yellow, and green stripes runs down the center, decorated with white line-art icons of a star, a chili pepper, a banana, and a citrus fruit.

RTB foods

A GUIDANCE FOR FOOD PRODUCT EVALUATION FROM ADVANCED RTB CLONES WITH CROP USERS

**WEBINAR
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Ethics: The activities, which led to the production of this document, 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.

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OUTLINE



- CONTEXT
- OBJECTIVE
- STEPS OF THE GUIDANCE DEVELOPMENT
- TOPICS
- DIFFICULTIES
- WAY FORWARD

CONTEXT



- **Work Package 5:** “Gender equitable positioning, promotion and performance”
- **Focus:** Final stages of crop selection within the breeding process
- **Clone selection in Breeding Programs** (agronomic performances and tolerance to pest and diseases)
- **Need to validate** the clones for:
 1. **process-ability** (how easy is the processing, what is the clone’s profitability and how much drudgery is involved)
 2. **final product quality** (physicochemical, nutritional, sensory, etc.)

OBJECTIVE



- **Development of a methodology:** integration where relevant, the results of the on-going crops programs evaluations
- **Provide a support to RTBfoods partners for the evaluation of the clones identified with the most promising characteristics to reach users' needs**

OBJECTIVE

- **Table 1.** Summary of objectives: Evaluation at different levels with different tools

Level	Laboratory	On field	Evaluator
Raw material	Available WP2 and WP3 SoPs on relevant characteristics (WP1 PP)	On field characterization when filed method available (WP3?)	RTBfoods Scientists
Processing	Intermediate product if SoP's available and if characteristics previously highlighted by WP1-Step 3	Global yield (profitability) Productivity (drudgery) Quality obtained: Pairwise ranking	Champion processors (at least 3 per location)
End product	Available WP2 and WP3 SoPs on relevant characteristics (WP1 PP)	Global 9-point Hedonic scale Short CATA test / Tricot (www.ClimMob.net)	Consumers (at least 100 per location if less than 7 clones to be evaluated and at least 200 per location if more than 7 clones to be evaluated)

STEPS OF THE GUIDANCE DEVELOPMENT



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- 1) **Idea:** 2nd Annual Meeting held in Uganda
 - 2) **Consolidation:** WP5 leadership and PMU
 - 3) **First draft:** WP5 leadership (June 2021)
 - 4) **Second draft :** based on the contribution of scientists (August 2021)
 - 5) **Consolidated draft:** Webinar 3rd September 2021
 - 6) **Finalization of the guidance:** inputs of WP Leaders + Product Champions + Project Focal Points + PMU (Ending September 2021)
 - 7) **Final document:** available and shared within our community for implementation

TOPICS ADDRESSED (1)



1. Main characteristics to be included in the evaluation for each Product Profile

- **Previous work for each product profile:** define and select the main characteristics that will have to be checked during the WP5 evaluation for each level of evaluation.
- These characteristics will be the **results of WP1 PP development** and **for each of them a SoP should have been developed** through WP2 and/or WP3.

TOPICS ADDRESSED (2)

2. Trial composition

- **Special trials** for WP5 to be settled (short cycle crops)
- **The clones to be analyzed and evaluated:** ideally contain up to 3 or 4 clones proposed for release combined with 1 local best clone chosen by the “champion processors”) or with 1 common or popular clone in the region
- **Quantity of raw material dedicated for evaluation:** Plot sizes should be big enough to provide enough raw material to process a representative quantity of food product
- **Trial design:**
 - 1) evaluation from sprouting, planting to harvest using regular breeding and agronomic evaluation protocols.
 - 2) It is better to make plots larger with less replications than small plots with more replications.

TOPICS ADDRESSED (3)

3. Agronomic evaluation

- To be done **under the supervision of breeders and agronomists**
- Data should also be **assessed and accessible for WP5** (yield, dry matter, root/bunch size, evaluation of pest and diseases, plant height and other standard parameters...)
- Agronomic data: **useful for WP5 evaluation in order to explain some results obtained** (yield, textural properties, behavior during processing etc.)

4. Evaluation of raw material harvested

- **Raw material characterisation on the field:** Some of the characteristic's measures could be possible on the field just after harvest, using portative devices (if available)
- **Raw material characterization in the laboratory:** preliminary questions and constraints addressed...
 - 1) Which stabilization pattern of the samples according lab protocols will be used?
 - 2) Quantity of roots, tubers or bananas needed to satisfy laboratory sampling, processing and consumer testing?
 - 3) Logistical aspect: distance between field and laboratory? Availability of technician and equipment in laboratory?

TOPICS ADDRESSED (5)

5. Processing evaluation (1)

- **Number of clones:** Promising clones (breeding programs) + Best local clone (identified by the 'champion processors') + Common or popular clone in the region
- **Processing techniques or methodologies:** to be well described - the point of data and sample collection should be well defined with WP2 teams and WP5 leaders before implementation
- **Evaluation levels with users:** two (02) levels:
 - 1) One in the rural communities with champion processors
 - 2) One with rural and urban consumers in each location
- **Selecting Processors:** Champion processors

TOPICS ADDRESSED (5)

5. Processing evaluation (2)

- **Processing condition arrangements:**
 - identification of the champion processors before the harvest of the trial
 - Information about the role of the champion processors in the WP 5 processing work
 - Signature of a RTBfoods consent form before cooperation
 - Compensation of champions processors for work done (professional negotiations)
- **Evaluation of the processing on obtained products with the 'champion processors'**
- **Monitoring times and quantities, product yield and relative amount of drudgery**

TOPICS ADDRESSED (6)

6. Consumer testing

- **Consumer testing design:** according the number of clones/products to be evaluated
 - 1) Important to have at least consumer testing sessions with around 100 consumers per PP.
 - 2) The number of respondents necessary also depends on the number of clones evaluated
- **Product preparation for consumer testing:** standardize as much as possible the conditions of preparation of the end-products to be evaluated on the field
- **Consumer testing sampling:** For one product profile it is necessary to investigate at least 100 consumers per location

DIFFICULTIES

1. According **the number of clones** to be tested **the methodology will have to be adapted** in order to compare one (or two) local best variety & 3 clones.

→ in the case of more than 6 candidates clones have to be evaluated, the Tricot methodology (www.ClimMob.net) will be applied and will need a specific sampling for consumer testing and a specific statistical analysis approach).

2. Covid-19: **mobility limitation**

3. **Delay due to holidays** of some partners

4. **Unanswered** requests

WAY FORWARD



Partners:

1. **Prepare list of available SoPs**
2. **Make available the list of interesting criteria** to follow during processing (to be identified by each partner on their PP)
3. **Discuss with WP5 Leadership** regarding trials, protocols, number of clones, processing methodology, etc., before field evaluation

PMU

1. **Support a workshop on data processing** (ranking and consumer testing)

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