

RTB Workshop Report

Annual Meeting 2018

N O V E M B E R 2 0 1 8



RESEARCH
PROGRAM ON
Roots, Tubers
and Bananas



RTB Workshop Report

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CGIAR Research Program on Roots, Tubers and Bananas (RTB) – Annual Meeting 2018

INTRODUCTION

The RTB annual meeting started in the campus of CIAT in Palmira and then moved to the Spiwak hotel in Cali. It was held back to back with the 18th Triennial Symposium of the International Society for Tropical Root Crops (ISTRC). The participants were flagship project leaders, cluster leaders, gender focal points, center focal points, project management officers, management committee members, other scientists attending ISTRC symposium and CIAT colleagues based in Cali.

The objectives of the meeting were:

- 1) To socialize progress and next steps in program implementation, M&E, communications, gender research and scaling fund;
- 2) For flagship and cluster leaders to position themselves for better management and science oversight;
- 3) For flagship project teams to improve internal communication and collaboration plans for next year;
- 4) To formulate plans and mechanisms for enhancing collaboration across flagships and with other CRPs and Platforms;
- 5) To identify key ideas to strengthen ongoing and emerging cross-cutting work.

DAY 0 – OCTOBER, 25

RTB SCIENTIFIC UPDATES

On Thursday the 25th, RTB Director, Graham Thiele, and flagship leaders presented quick updates on the program and flagships scientific progress, for the benefit of participants to the ISTRC symposium in CIAT HQ. In his [overview presentation](#), Graham described RTB as a collaborative platform, he presented the objectives and the structure of the program and he explained the main reasons why RTB is the best CRP (Figure 1).



Luis Augusto Becerra presented the key scientific achievements and future opportunities and challenges for [Flagship 1: Enhanced Genetic Resources](#). He presented key achievements by cluster, including the interactions with the Excellence in Breeding (EiB) platform and the advances in Next Generation (NextGen) breeding for banana and cassava, and the potato cryobank at CIP.

Michael Friedmann, on behalf of the flagship project leader, shared the advances of [Flagship 2: Adapted productive varieties and quality seed](#). Key scientific achievements in the 2017- 2018 period, such as reports and papers on the application of frameworks and toolboxes for enhancing farmer access to quality seeds and improved varieties, ranking of preferred banana hybrids, rapid multiplication techniques for cassava varieties and seed certification. Information about successful new potato varieties and linked technological packages in Africa and Asia and scaling of technologies for sweetpotato and yam were shared.

[Flagship 3: Resilient crops](#) scientific highlights across clusters were presented by James Legg. James focused on examples of advanced modeling and the use of ICTs, such as GIS assisted “Agronomy @ scale”, mapping of Fusarium advances and resistance, early detection and response to BBTv in Togo and the use of smartphones apps as diagnostic tool for cassava biotic stresses.

Tawanda Muzhingi shared the [Flagship 4: Nutritious food and added value](#) structure and scientific highlights. Tawanda emphasized the different areas of cross cutting research and highlights in research findings, publications and capacity building. Finally, he highlighted collaborations across RTB and with partners in which FP4 is engaging.

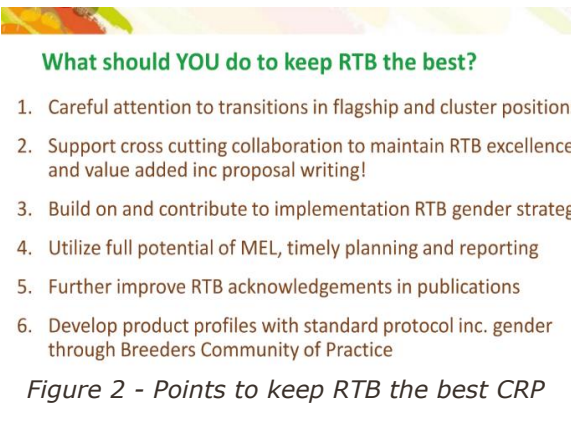
Marc Schut presented advances and perspectives for [Flagship Project 5: Improved Livelihoods at Scale](#). Aspects of performance, visibility and resource mobilization of the flagship were shared, as well as aspects of research progress for each of the clusters. Marc especially emphasized the different research domains in which the flagship is contributing such as foresight, synergies and trade-offs analysis linked with sustainable intensification pathways, science and practice of scaling, as well as the activities of the cluster leading gender research across the program.

DAY 1 – OCTOBER, 26

RTB PROGRAMATIC UPDATES

After greetings to CIAT by the DG, Ruben Echeverría, and sharing with the 80+ participants the objectives, agenda and “rules” of the workshop, Graham presented an [RTB overview](#). Graham highlighted the difference among clusters, where some can be single crop/problem multicenter, or single crop/problem but with the work being done in just one of the centers. Equally, multi crop and multicenter clusters constitute the “glue” that brings program participants together and adds value to RTB as a program.

Graham emphasized cross cutting research, including strengthened strategic and integrated gender research and innovation and scaling. Successful collaboration with other CRPs and Platforms were presented as well as some of the communications and Monitoring, Evaluation and Learning (MEL) advances. He ended the presentation with a set of suggestions for scientists and collaborators of RTB to help keep RTB the best CRP (Figure 2).

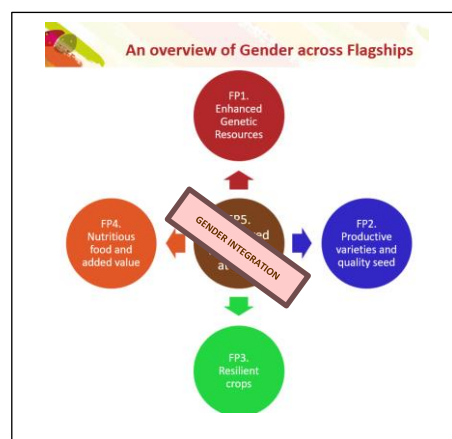


What should YOU do to keep RTB the best?

1. Careful attention to transitions in flagship and cluster position
2. Support cross cutting collaboration to maintain RTB excellence and value added inc proposal writing!
3. Build on and contribute to implementation RTB gender strategy
4. Utilize full potential of MEL, timely planning and reporting
5. Further improve RTB acknowledgements in publications
6. Develop product profiles with standard protocol inc. gender through Breeders Community of Practice

Figure 2 - Points to keep RTB the best CRP

Graham's introduction to RTB was followed by an update presentation on [Gender in RTB](#). During the presentation, Vivian Polar presented a background (results from the last ISC Gender review), the team, an overview of gender work across flagships (Figure 3), examples of gender work in each flagship and ideas to strengthen gender work across RTB. Vivian also described the objectives, activities and a few results of the Gender and Breeding Initiative (GBI). Some of the strategies highlighted for strengthening gender in RTB were capacity building and mentoring for FP teams, targeting topics, and resource and mobilization.



Claudio Proietti presented advances in [Monitoring, Evaluation and Learning \(MEL\)](#), specifically regarding the

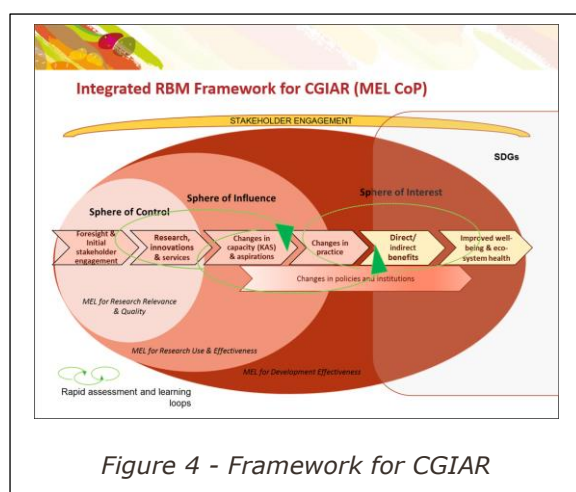


Figure 4 - Framework for CGIAR

consisted of guidance and examples of the RTB MEL platform at work, and the timelines and key elements for reporting 2018 and planning 2019.

The [RTB science update](#) - reported by Michael Friedmann - provided insights about the Excellence in Breeding Platform (EiB) and the Breeding Program Assessment Tool (BPAT), including their objectives, structure and services provided. Figure 5 shows the detailed EiB Platform tools and services. Finally, in a section of “bringing the science together”, he presented collaborative mechanisms and examples related to cross-flagship and cross-CRP collaborations. In particular, mapping of progress made in molecular markers development for key traits across the breeding programs was presented.

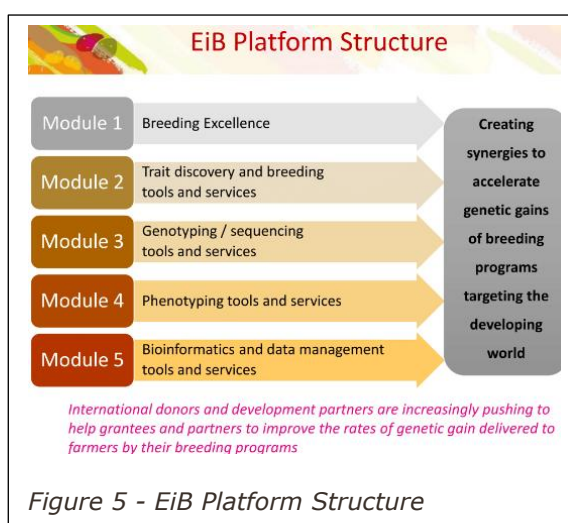


Figure 5 - EiB Platform Structure

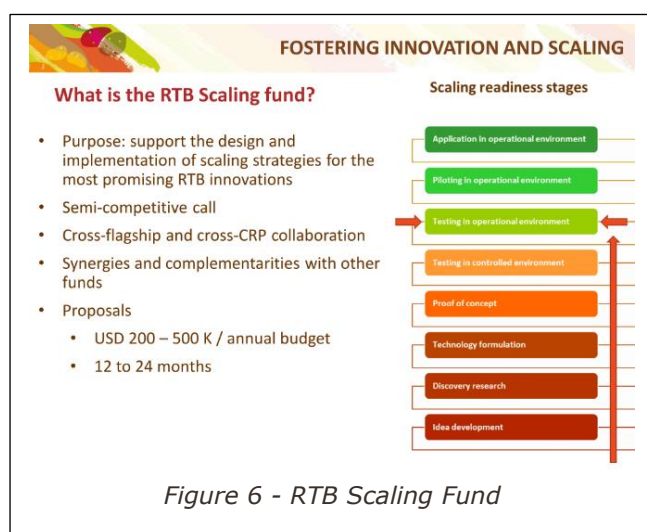


Figure 6 - RTB Scaling Fund

A final presentation was given on the [RTB Scaling fund](#) (Figure 6 contains a summary), including the objectives and mechanism of the fund, updates on the 1st and 2nd call, and a description of the learning that is emerging from the three current projects that are being implemented in 6 locations.

MINI-WORKSHOPS ON COLLABORATION

In the afternoon, the meeting was held in mini-workshop format on special topics in parallel sessions:

- 1) Strengthening cross-CRP collaboration: CCAFS – RTB;
- 2) Strengthening CRP – Platform collaboration: BigData – RTB;
- 3) Strengthening collaboration on impact assessment: SPIA – RTB.

All the sessions were looking to discuss:

- What are the areas of collaboration that have been identified? Why are these areas important?
- What are the bottlenecks for action?
- What are some opportunities for resource mobilization? From existing projects? New sources?

STRENGTHENING CROSS-CRP COLLABORATION: CCAFS – RTB

This session explored opportunities for collaboration with CCAFS. CCAFS deals with issues of adaptation to, and mitigation of climate change, by looking at policy and priority setting, climate-smart technologies, low emissions development, climate services, and gender and social inclusion. CCAFS works in similar regions as RTB, namely West and East Africa, South Asia and SE Asia. Adaptation to climate change is a strong objective of the RTB program, that delivers climate-smart technologies through breeding of resilient varieties and planning of seed systems, pest and disease risk assessments and surveillance tools, and processing of products to reduce waste and post-harvest losses. RTB applies a gender-lens to its activities and actively promotes scaling of technologies through a dedicated scaling fund.

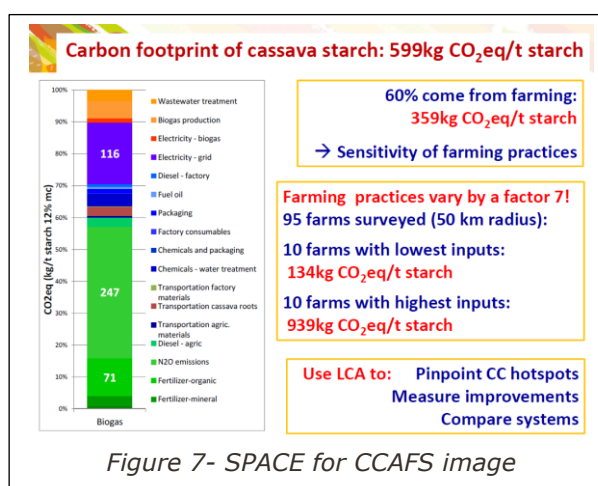
The panelists for this session were: Andrew Jarvis, Deissy Martinez, Ana Maria Loboguerrero, Ted Carey, Thierry Tran, Acho Okike, Tawanda Muzhingi. The session began with a presentation of CCAFS, by Andy Jarvis, followed by presentations by RTB scientists of RTB-related innovations that address climate mitigation or adaptation.

Thierry Tran presented the [Case of biogas and N₂O by Life Cycle Assessment \(LCA\)](#) in which he showed how GHG emissions from cassava processing can be measured and mitigated (see Figure 7).

The use of [Citizen Science for climate change adaptation](#) was presented by Michael Friedmann and Ted Carey; their presentation included insights on participatory varietal selection and crowdsourcing trials, use of genomics to breed climate responsive traits into RTBs and crop improvement. Acho Okike introduced [Cassava](#)

[Waste Peel Processing](#), which posited the use of cassava peel for feed to reduce contamination and emissions. These presentations were followed by comments from CCAFS scientists from a climate- smart lens, in which the climate- resilience of RTB crops was highlighted.

The following options for collaboration between RTB and CCAFS were identified for further discussion:



- 1) Some RTB crops show potential for adaptation to climate change and extreme weather events. There is an opportunity for collaboration in area of awareness raising and policy influencing including developing adaptation plans with policy makers. RTB is collecting evidence on resilience of RTB cropping systems to extreme weather events such as hurricanes in SE Asia where root crops are safe underground (Diego Naziri). This evidence may be combined with CCAFS development of adaptation plans with policy makers.
- 2) Making cropping systems more resilient (e.g. potato and soil loss); highland farming incorporating potato and dairy requires looking at gas emissions, nutrient loss, water efficiency, soil loss (Monica Parker).
- 3) Climate smart villages for participatory testing. Crowdsourcing work already done also compiling climatic data-possibilities for follow up.
- 4) Ongoing exchanges and collaboration around scaling approaches and practices to be continued (Murat Sartas).
- 5) Effect of climate on nutritional quality of crops. There is growing interest and evidence accumulating on this topic. Requires further thought.


Complete notes of the session can be found [here](#).

STRENGTHENING CRP – PLATFORM COLLABORATION: BIGDATA – RTB

The parallel session on BigData was led by Brian King, who presented the [CGIAR Big Data Platform Highlights](#) with presentations also by Elizabeth Arnaud on [Ontologies](#), Jan Kreuze on Pest and Diseases Databases and Stefan Hauser on [Experiences from the African Cassava Agronomy Initiative](#). In its presentation, Brian emphasized the importance for the Platform to support “shared services” that may be used by all or

Summary/ Key Takeaways

- **We, Platform for Big Data in Agriculture,**
 - Work with Centers to make CGIAR’s data assets F.A.I.R. (Findable, Accessible, Interoperable, and Reusable) and develop new data-driven capabilities.
 - Support CRPs/Centers to enhance (big) data management and improve analytical capacity through trainings, partnerships, shared services, and innovation processes.
 - Facilitate the coordination between our scientists and (external) technical capacities to bring rapidly advancing data science into CGIAR.
 - Provide innovation space for CRPs to pilot novel research ideas using data science with new (external) technical partners.

 **Figure 8- Summary of Big Data Platform**

most of the Centers and CRPs, some of the highlights of his presentation are in Figure 8. Two examples of ongoing “shared services” were provided. The first is the access to climate data offered in partnership with aWhere (Weather) and the second is related with spatial data and satellite images in partnership with DigitalGlobe (Spatial). Elizabeth provided updates on the joint work that BigData and RTB are supporting on the development of crop and agronomy ontologies and also presented a tool (AgroFIMS) that is built on the HIDAP (Highly-interactive Data Analysis Platform) previously developed by CIP. Jan introduced the richness of databases, from surveillance and monitoring to molecular data, that RTB scientists are generating on pests and diseases and the challenges and need for support to connect this data and enhance its usability. Stefan

presented the experience of the ACAI project in data driven agronomy and how ICT tools may help in setting high level standards for data collection and management.

Following recommendations were formulated during the discussions that followed the presentations:

- RTB scientists should strengthen their interaction with the BigData community of practices (COP) such as Ontologies, Modeling and Social Economic data. They may also think about the need for creating new COP;
- BigData and RTB should collaborate for the development of guidelines on how to scale up the ACAI approach and tools;
- Data management and data integration across RTB flagships and across disciplines (social sciences, breeding, pest and disease, etc.) should be further explored as area for collaboration;
- Pest disease data need to be more discoverable, the development of trans-national use case for pest and diseases could be an opportunity for RTB-BigData collaboration.

Complete notes for this session can be found [here](#).

STRENGTHENING COLLABORATION ON IMPACT ASSESSMENT: SPIA – RTB

This session explored opportunities for collaboration with SPIA. The session was led by Karen Marcours, Nancy Johnson and Elisabetta Gotor. Karen Marcours presented an [introduction to SPIA](#), its team and impact assessment in the CGIAR, as well as results and approach to strengthening IA in CGIAR and plans for 2019- 2024. SPIA at the request of donors focuses only on ex post impact assessment. Elisabetta Gotor presented [RTB Cluster CC5.1](#) with its broader perspective which links impact assessment with foresight in a continuum. One of the challenges discussed is the differing needs of impact assessment relevant for accountability to our funders and impact assessment for learning, and each deserves different approaches, set of methods and tools. A central concern in the discussion is how can we improve measurement, causal inference and impact at scale.

It was proposed that CC5.1 develop a pipeline of candidate IA studies planned several years ahead to ensure appropriate resourcing and synergies (e.g. with common CGIAR portfolio). This would help address the ongoing demand from donors for credible evidence, which requires a continuous supply of IA studies.

Options to be explored for collaboration between RTB and SPIA are:

- 1) to aggregate data coming to W3/bilateral projects: strengthening M&E CoP and IA;
- 2) integrating between scaling strategies and early impact assessments for learning;
- 3) using periodic existing national representative agricultural surveys e.g. LSMS. Although opinions were very divided about the feasibility of this because of the difficulty of adding extra data fields to these existing surveys and of inappropriate sampling frame for RTB needs. RTB would have a particular interest in countries such as Uganda and Rwanda where our crops are important;
- 4) Unpacking the genetic fingerprinting data and linking with breeding programs with new metrics e.g. of trait adoption linked to pest/disease intensity where trait deployed;
- 5) Improve methods for collecting data appropriate for RTB crops;
- 6) Gender and youth distributional impacts;
- 7) SPIA role on quality control at the design stage;

- 8) Common portfolio for candidate IA studies across the CGIAR.

Complete notes of the SPIA and IA session can be found [here](#).

DAY 2 – OCTOBER, 27

FLAGSHIP GROUP SESSIONS

In the morning, after an introduction to the agenda for the day and setting up of working spaces for the groups, parallel sessions for 5 groups, one per flagship, were organized. Each group, covered the following key points:

- 1) Cross-cutting areas and RTB programmatic value added, assessing interactions among CC and crop-specific clusters. What to improve and how? What to consolidate? What's new, including "golden egg"?
- 2) A review of the calendar of major events for the rest of 2018 and 2019, and who will participate.
- 3) Identification of key achievements to be reported in 2018, in particular innovations and outcomes, and expected in 2019. Which ones are well documented? What are the needs for documenting the others?

Each group had a note taker and presenter who then shared key points in plenary, and for each group there are summary notes in a pre- designed template.

FLAGSHIP 1, ENHANCED GENETIC RESOURCES

A central point of discussion was the funding situation of the clusters and how to better respond to the internal funding opportunities (e.g. scaling fund, earmarked funding). The point was made by most cluster members in the flagship, namely that cross-cluster collaboration should be enhanced. In this regard, it should be noted that DI1.4 cluster is not only about in situ conservation, but also characterization and utilization of genetic resources, and this can definitely be linked with Nextgen tools for this purpose, and the BCoP to coordinate and disseminate the approaches and knowledge.

Several innovations were discussed, including:

- Prototype of *in situ* monitoring system;
- Promoting marker-assisted selection + electronic field collection across RTB crops;
- Molecular characterization of BSV integrants with modified profiles;
- Methodologies and tool for identification of diversity hot spots;
- Promoting marker-assisted selection + electronic field collection across RTB crops;

There was argument around what can be considered a research outcome. For example, the uptake and utilization of the genomic databases (e.g. cassavabase, musabase and sweetpotatobase) by the RTB breeders could be considered a research outcome, since the tools developed are now in use in breeding programs, and national partner users are being trained in their use.

The outcome stories that were decided upon were:

- Use of genome based SNPS to assess improved variety adoption. Evidence: Publication and data. Luis Augusto- the evaluations of cassava variety adoption in Colombia and in Nigeria show the use of molecular tools for this purpose;
- Use of cBSV marker to perform marker assisted selection in early stage. Evidence: 2 articles and plants. Mathieu- it was explained that now genotypes free of this endemic virus can be distributed, thanks to the use of the molecular marker;
- Marker assisted selection in and across RTB crops. Evidence: Use of database. Ismail. There is a list of available markers, and a large number of samples have been genotyped (Intertek).

Main cross- cutting areas of the flagship work for the next 3 years were discussed:

- Genetic Basis of quality traits for key RTB product profiles- using RTB Foods tools developed and information, apply this to genetic diversity panels to elucidate the genetics of these traits (link DI1.1, 1.2 and 1.4);
- Dynamic integrated system from genetic resources for integrated food and nutrition security. By describing the diversity in hotspots (RTB crop mix) and assessing threats and challenges (e.g. climate change), desired traits can be explored using genotyping and phenotyping tools;
- Incorporation and adaptation of tools from EiB and the CGIAR Gender and Breeding Initiative (profiles/stage gates/other tools) into breeding programs through the Breeding CoP. Idea is to implement common sets of recommendations from the Breeding Program Assessment Tool (BPAT) reports, by responding and learning from each other through a shared forum.

Detailed notes of the session can be found [here](#).

FLAGSHIP 2, ADAPTED PRODUCTIVE VARIETIES AND QUALITY SEED

The new breeding mindset around demand led breeding and the use of stage gate thinking was a central point of discussion. In this light the Breeding CoP which nominally sits in FP1 is at least as important to FP2. Hence a major focus of cross cutting work in breeding going forward would be around developing product profiles and the FP2 leader to be designated would play a key role, since donor's expectation in terms of breeding outcomes have shifted from developing varieties to demonstrate their adoption by smallholders or use in value chains. One challenge identified by the group is that published papers generally reflect work done several years earlier. The RTB databases developed with BTI demonstrate successful cross-cutting development of practical RTB breeding tools and will be highlighted as an innovation in 2018. Crop specific innovations include:

- Impact network analysis;
- Gender responsive product profiles for cassava in Nigeria;
- Proof of concept of population hybrid breeding in sweetpotato;
- Banana breeding tracking system;
- Identification of target populations of environments for yam breeding.

It was more difficult to identify clear and significant outcome stories. Two related to the seed system cluster were proposed: E-certification in Nigeria, and TC lab multiplication rates improved. Breeding bananas is especially challenging so getting a release of a new variety is a much major accomplishment than in other crops, with PITA3 registered in Cote D' Ivoire.

Going forward in the breeding area in addition to product profiles, cross cutting collaboration is proposed around the use of ground penetrating radar for early bulking and root growth estimation, this could be extended to look at the growth of banana corm. In the area of seed, a major area of collaboration is around quality assurance looking at standards and regulations, building on work with PIM in addition to getting evidence of impacts of inappropriate quality assurance standards in RTB crops, additional effort would be needed in shared communication and advocacy strategies.

Other details for the Flagship 2 discussion can be found [here](#).

FLAGSHIP 3, RESILIENT CROPS

The flagship team started the session by reviewing the results achieved in 2018 and by identifying the innovations and outcomes that can be highlighted in the annual report. Cross-cutting and cross-cluster innovations have been described and the level of progress discussed. The group agreed on the following set to be highlighted:

- Linking temperature dependent virus transmission to Insect Life Cycle Models (CC3.1);
- Platform for monitoring Pest & Diseases (PestDisPlace) (CA3.5);
- Tools for diagnostic & molecular typing of bacterial diseases of cassava (CA3.5/6) and banana (BA3.3);
- Decision Support Tools (Version 1 and 2) used in validation trials in Nigeria and Tanzania;
- Similarly, for the outcome cases, several options have been proposed and a list has been developed for further analysis and documentation. Eradication of BBTv in Togo (link w 5.5);
- NURU used by thousands of farmers and extensionists especially in East Africa and SEA to diagnose and control diseases (3,000 reports of success);
- Commercialization of weed control and formation of weed control service providers;
- Application of pathogen diagnostic tools for research and certification in more than 10 countries of Africa, Asia and South America;
- Capacities in use for policy influence within governmental institutions.

The first area of work discussed is the assessment of the bottlenecks encountered when promoting the use of Pest Risk Assessment by partners. The more promising area that was highlighted is the integration of databases and digital tools (Apps) for pest and disease monitoring and management, including the collaboration with BigData. Other areas identified were: Use of drones and remote sensing; and Pathogen-informed GWAS-based discovery of genes in interest.

Flagship 3 detailed discussion notes can be found [here](#).

FLAGSHIP 4, NUTRITIOUS RTB FOOD AND ADDED VALUE THROUGH POSTHARVEST INTERVENTION

Flagship structure, cross-cluster and cross-crop collaborations were at the center of the initial discussion among team members. Central role in facilitating these collaborations was reaffirmed for CC4.1.

The group identified and selected the most significant innovations that they will highlight in the 2018 reporting process:

- Processing improvements of cassava, sweetpotato and other RTB crops;
- Advocacy tools for biofortified crops (cassava, sweetpotato) for influencing policy documents on nutrition;
- Toolkit for identifying user descriptors of RTB crops and food products (including gender and post-harvest processors);
- Development of phenotyping tools for screening quality traits of RTB germplasms;
- Validation of post-harvest losses assessment method for sweetpotato and banana;
- Validation of the gender in value chain analytical tools.

The group agreed on four outcome cases and champions to help in documenting the cases:

- Utilization of cassava waste for HQCP: WhatsApp information exchange enables processors and investors to solve problems quickly towards technology adoption (Nigeria) – Champion: Acho Okike and Thierry Tran;
- Impact of policy document for advocacy to deliver biofortified crops (cassava, OFSP) (Nigeria and Tanzania) - Champions: Elizabeth Parkes and Fred Grant;
- Improving utilization of biofortified RTB crops: OFSP crisps commercialization in Malawi: How it was developed and came to the market. And Harvest+ Titbits (cassava crisps in Nigeria at commercial stage) - Champion: TBD;
- Silage of sweet potato vines and potato (Uganda) - Champion: Fred Grant and Jan Low.

In terms of cross-cutting work with other FPs, examples have been mentioned for FP1 (Exploring the diversity of the cassava germplasm collection from the point of view of biophysical properties and users quality traits, to identify promising genotypes for breeding), FP2 (Breeding improved varieties for specific food and industrial applications; phenotyping tools and HTPP of user quality traits to feedback to breeding) and FP5 (Ex-ante economic assessments, impact assessments, scaling projects).

Flagship 4 detailed discussion notes can be found [here](#).

FLAGSHIP 5, IMPROVED LIVELIHOODS AT SCALE

Flagship project 5 team presented their performance and reporting in a slightly different format, with science, development and mobilization performances listed separately. Flagship 5 detailed notes of the session are available [here](#) as well as the introductory presentation [here](#). Some of their highlights reported in plenary were:

- Innovations to report- Linking farm level modelling to strategic foresight which relates biophysical and socio-economic analyses, 2 Examples of how ex-post shaped breeding agenda, FarmSIM Banana, Tool-box for gender- responsive youth research, Robust qualitative tools and methodologies building on GENNOVATE, Scaling Fund (incl. Scaling Champion), Scaling Readiness Approach, Capacity building materials and approaches were developed to engage young people in dialogue with policy makers.
- Outcome stories- “Establishing global youth connections to improve policy and youth engagement in agriculture” and Multi- stakeholder approach of the ENDURE project to bring together R/D organizations and value chain actors to jointly identify, assess, select and test best-bet options for expanding utilization and reducing postharvest losses of selected RTB crops.
- Cross cutting areas of flagship work – The scaling readiness approach will be used to assess technologies and plan scaling interventions in the newly approved scaling fund projects. The gender-responsiveness of scaling processes will be enhanced through the support of the gender team. The analysis of youth aspirations and opportunities for engagement in agriculture will provide guidelines to enhance the outreach of specific technologies for young people. Gender analysis conducted in 5.3 contributes to develop more gender-responsive seed systems interventions in 2.1. Product profile development in 5.1 will be supported by information from gender analysis generated in 5.3.

CALENDAR OF MAIN EVENTS

Date	Event	FP
Last Quarter 2018		
Nov- Jan	RTB planning and reporting	1-5
Nov- Dec	Quant gen training (Ceballos) /Last week of Nov (Uganda) /first of Dec (Nigeria)	1
4- 6 Dec	International Phytobiomes Conference, Montpellier, France.	3
11- 13 Dec	CC 5.4 POWB meeting, Wageningen, the Netherlands.	5
First Quarter 2019		
9- 13 Jan	Plant and Animal Genome meeting – San Diego, USA.	1-2
Jan	Training: Experimental design and analysis (mixed models) for Yam breeders	1-2
March	Training: Experimental design and analysis (mixed models) for RTB breeders	1-2
March	RTBFoods annual meeting	1-2-4
March	Africa Yam annual meeting	2
Q1	Excellence in Breeding Platform	1-2
Q1	NextGen project annual meeting	1
Q1	Gender and breeding initiative	2
Q1	CC2.1 annual meeting	2
Q1	CMD workshop	2-3
Second Quarter 2019		
2-4 April	Seeds of change conferenced: Gender equality through Agricultural Research for Development	5
13- 17 May	International Plant Virus Epidemiology Symposium, IPVE, Korea	3
June	Sweetpotato Breeding CoP	1-2
June	Meeting cluster BA3.3	3
June	Meeting cluster CA3.5/6 in SEA	3
Q2	RTB database training, with BTI	1-2
Q2	CCAFS Annual meeting	1
Third Quarter 2019		
Aug	American Phytopathological Society (APS)/Plant Health 2019, Cleveland, Ohio, USA.	3
Sept	SASHA	1
Sept	Tropentag - Annual Interdisciplinary Conference on Research in Tropical and Subtropical Agriculture, NRM and Rural Development (EU), Kassel, Germany.	3
Fourth Quarter 2019		
Oct	Big Data Convention	1
10- 14 Nov	International Plant Protection Congress, Hyderabad, India	3
2020		
2020	International Year of Plant Health	3

CROSS-CUTTING GROUP SESSIONS

In the afternoon session, Small group work on key cross cutting themes (current work and future perspectives) was carried out in an “Open Space” format, with each group provided with a template for discussion and posterior recounting in plenary. Here are the main topics treated in each group.

IMPLEMENTING STAGE GATE APPROACH IN RTB BREEDING PROGRAMS

Ted Carey and Luis Augusto Becerra were the leaders of this discussion implementing stage gate approach in RTB breeding programs and guidelines for establishing product profiles (test run EiB app), including gender responsive product profiles. Several presentations and notes can be found in [this folder](#). A RTB concept note that aims to use cross cutting features of RTBs to jointly develop product profiles that will assist RTB breeders while conforming to desires of donors and the larger group of CGIAR breeding programs was envisioned. The cross-cutting teams to be involved, besides the breeders would include:

- 1) gender specialists;
- 2) breeders, genetic resources – FP1 and FP2;
- 3) economists from 5.1 – for priority setting, cost/benefit analysis, forecasting;
- 4) interdisciplinary specialists in FP3 and FP4 and especially relevant projects that inform breeding priorities like RTBFoods.

Next Steps are:

- 1) share the G+ forms and engage with the EiB product profiles templates to provide feedback on the tolls to develop product profiles. The first output are shared tools and interactions to support development of product profiles;
- 2) harmonize development and delivery of gender responsive product concepts for each RTB crop;
- 3) develop draft product profile contracts for short term targets of one to five years for progress toward reaching the product profile in consultation with Center or Institute management;
- 4) develop a more inclusive decision-making process or stage gate process that is relevant to RTB crops while supporting efficient, high quality and rapid breeding progress.

Timeline and other notes of the Developing RTB Gender Responsive Product Profiles discussion can be found [here](#).

USE OF SEED SYSTEMS TOOLKIT

The group revised progress and agreed on the work needed to improve the seed system toolbox:

- Harmonizing and ensuring the quality of data capture tools to facilitate meta and cross-country comparison opportunities. CIP has already done this with the multi-stakeholder framework by making it a mandatory exercise for seed systems interventions;
- Guidance on tool selection for potential users: at which phase in the project they should be applied, who are users, what it actually evaluates, etc.;

- Monitoring tool use after launch: how the tool contributed to achievement of project objectives, learning;
- Expand SeedTracker beyond release and purchase into labelling and tracking seed use;
- Socialize and promote the advanced toolbox with validated tools to potential next users (both within RTB and external).

Additional tools could be included:

- Willingness to pay for seed and choice experiments: and match/gap with actual costs;
- Templates for cost breakdowns and planning of early generation seed production and multiplication. This could build on a linked excel datasheet for each stage of production with sweetpotato which is available;
- Including a specific gender lens in existing tools – e.g. risk, stakeholders in seed systems, seed use and management, socioeconomic status (beyond data disaggregation and basic existing methods of participant selection, etc.);
- Apps: pest and disease mapping and recognition software could mesh well with seed systems.

The group worked on elements of a crosscutting project on choice games for evaluating willingness to pay for RTB seed. The objective is to assess market potential & seed market segments among social groups/strata (and for different seed varieties/health statuses) – to inform distribution strategies and phytosanitary/variatal introduction initiatives.

Detailed discussion notes can be found [here](#).

MOBILE APPS AND ICT FOR PESTS AND DISEASE DIAGNOSIS AND SURVEILLANCE

The group started with presentations on: PestDisPlace, Cassava/Crop Disease Surveillance, SeedTracker, NURU and NURUplus, PathostDB (molecular database) and Citizen Science. There was an agreement on the need for a more integrated approach and better coordinated development of these tools:

- Better ways to identify and quantify known pests and diseases, for which control recommendations exist;
- Better ways to detect outbreaks for early and effective contingency response for pest and diseases which are unknown or unfamiliar and with the potential to cause catastrophic harm;
- Reduced data redundancy; increased analytical power;
- Accessibility of data to wider user base.

The definition and compliance with harmonized terminology and data management standards was discussed. It appeared that datasets with standardized ontologies and structure are needed to ensure interoperability among pest surveillance data systems and to enhance analytical power. Challenges in terms of data ownership, authenticity, access and intellectual property were highlighted.

A list of four key outputs for the next 2 years was formulated:

- RTB pest and disease surveillance ontology 'dictionary';
- RTB 'best practice' on pest surveillance data collection;
- Easy wins for interoperability of RTB 'surveillance assets' identified and tested;
- Common interface for current and future Apps (Overarching brand).

These results could be achieved if partnerships are developed with other institutions and the BigData platform.

Minutes of the session are available [here](#) and for the follow-up meeting [here](#).

GENDER DIFFERENTIATED END-USER PREFERENCES FOR FRESH AND PROCESSED RTB FOODS, QUALITY TRAITS & BREEDING

During a brainstorming exercise, participants suggested the topics that could be addressed in a concept note for cross-cutting and cross-center collaboration:

- Decision making tool to list and rank traits preferences / quality trait ontology (cf. PhenoHarmonis Symposium 2018);
- Profiling for more products (than RTBfoods) + in more targeted countries;
- Impact of storage on processing ability & acceptability: how storage affect quality? And more broadly, post-harvest / transportation? (shelf-life) Can we optimize the current practices in storage? Storage of raw product + of the final product. Does it affect processing ability? User acceptance? Ex: cold storage, is it possible to apply at large scale?
- Aroma: WP2 RTBfoods currently doing this for some products, still need results from WP1 field surveys;
- Variety / processing methods interactions: How does physiological interactions after processing affect acceptance of RTB products? (need for more fund availability to do wet chemistry to inform spectral acquisition);
- Shift in Urban & Rural consumption of RTB products (Integration of private companies?) Capture consumption patterns and anticipate changes in urban/rural areas. Understand consumer choice and future changes in RTB consumption to develop a behavioural strategy / anticipating changes in RTB consumption;
- Selection of varieties for processing: Design & improve of processing methods with people: reduce drudgery, gender sensitive;
- Nutrition as a priority: (not captured in RTBfoods) + study of local recipes that are nutritious.

The group decided to focus on a concept note: Anticipate changes in Food Choices for RTB breeding.

The aim of such a project would be to develop the following outputs:

- 1) Knowledge on Urban & Rural RTB consumption habits of RTB products and trends;
- 2) Knowledge on impact of post-harvest handling on quality characteristics;
- 3) Knowledge on quality traits identified across the value chain;
- 4) Improved design of processing methods to reduce drudgery and inform breeders;

- 5) Key engendered quality traits main streamed into RT breeding programs;
- 6) Decision making tool / quality trait ontology to list and rank traits preferences.

The project should count on partnership arrangements that include both traditional partners (Universities, NARS, NGOs) but also local enterprises, food processors and CBOs (Community Based Organizations).

Detailed discussion notes can be found [here](#).

EXPLORING OPPORTUNITIES FOR APPLYING SCALING READINESS APPROACH

The group discussed about the “Scaling Readiness Approach” which aim is to improve scaling performance of the projects in RTB portfolio and to contribute to the Science of Scaling. In fact, the assessment of more cases implementing Scaling Readiness will enhance the quality of evidence on its effectiveness.

Mobilizing funds for the following priorities was discussed:

- 1) Present Scaling Readiness Approach to the key managers of projects under RTB portfolio;
- 2) Receive feedback on the pathways for scaling the approach in CGIAR;
- 3) Identify potential key projects that can use the approach and contribute to the evidence base.

And concrete steps to define joint actions with bilateral projects, centers and partners are foreseen.

Detailed discussion notes can be found [here](#) and presentation [here](#).

FINAL EVALUATION SESSION

What was positive?

- G+ Tools and formats
- The idea of the golden egg as a guide
- The discussions held in each Flagship about what to report for the next reporting cycle
- The agenda design which allowed time for cross pollination, sharing and interaction
- The multiple opportunities to interact with other people and build together
- We are gradually being convinced that maybe this really is the best CRP

What needs to be improved for the next meeting?

- It would have been good to spend more time on the outcome stories to outline the story lines
- Set time to see the impact of our work in the field (visit)
- Share forms for group work in advance to agree on the content with FP Leaders
- Hold the RTB meeting before other meetings so we have more energy
- Bring in some opinion leaders to give us some context reading and guidance

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RESEARCH
PROGRAM ON
Roots, Tubers
and Bananas

The CGIAR Research Program on Roots, Tubers and Bananas (RTB) is a partnership collaboration led by the International Potato Center implemented jointly with Bioversity International, the International Center for Tropical Agriculture (CIAT), the International Institute of Tropical Agriculture (IITA), and the Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), that includes a growing number of research and development partners. RTB brings together research on its mandate crops: bananas and plantains, cassava, potato, sweetpotato, yams, and minor roots and tubers, to improve nutrition and food security and foster greater gender equity especially among some of the world's poorest and most vulnerable populations.

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