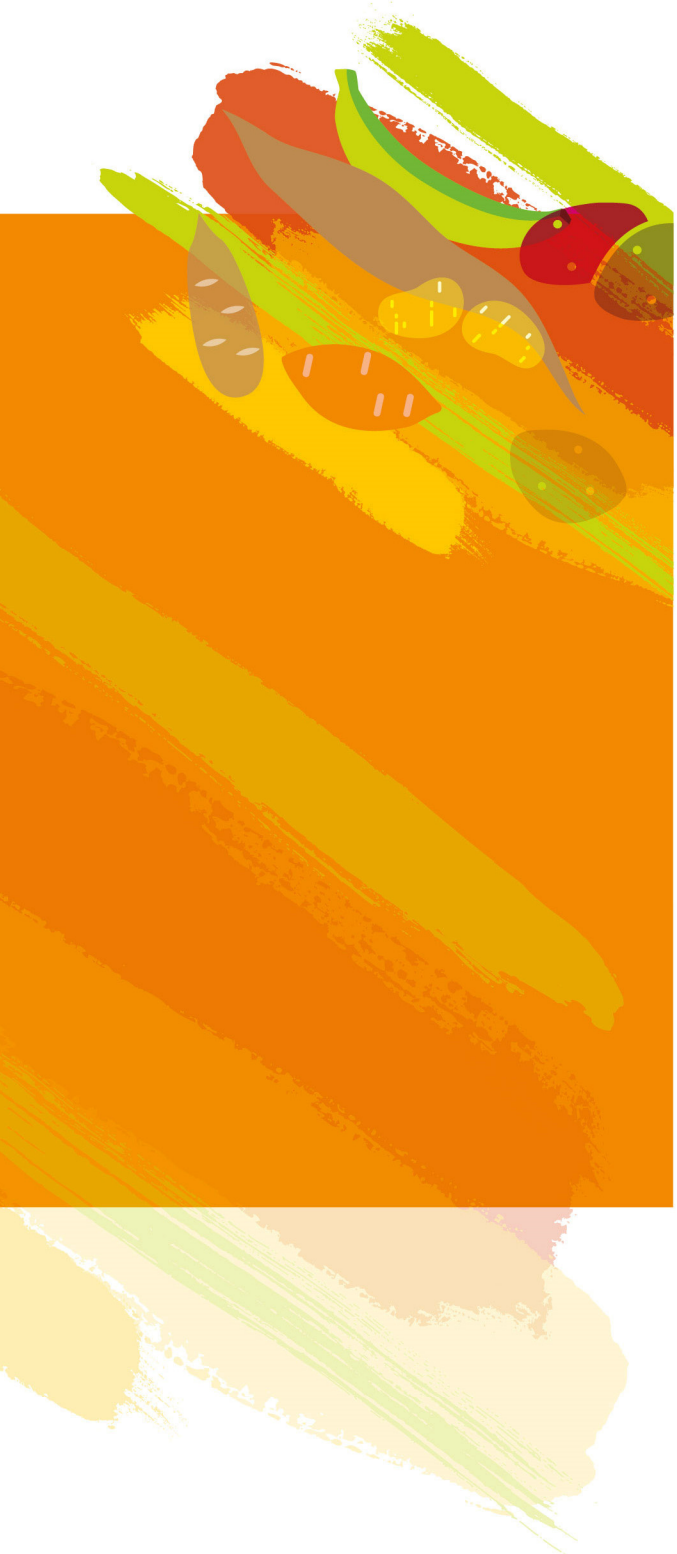

RTB Workshop report

Reaching next users: seeking collaborations and applications

RTB workshop cluster CC2.1 Phase 2

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CGIAR RESEARCH PROGRAM ON Roots, Tubers and Bananas

LED BY CIP INTERNATIONAL POTATO CENTER · Bioversity International · CIAT International Center for Tropical Agriculture Since 1967 Science to cultivate change · cirad AGRICULTURAL RESEARCH FOR DEVELOPMENT · IITA Transforming African Agriculture

RTB Workshop report

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Contents

Acronyms ii
Acknowledgments iii
Overview: What is the toolbox and where are we? 2
Session 1 of "The Marketplace": Seed degeneration and impact network analysis 2
Session 2 of "The Marketplace": Socioeconomic tool and methods 3
Session 3 of "The Marketplace": Policy studies and other tools 3
Plenary discussion 4
The future of the RTB toolbox 5
Session 1: Gender research 8
Gender and breeding initiative by Graham Thiele 8
Gender-responsive tools by Netsayi Mudege 9
Session 2: Heat mapping 9
Session 3: Planning for the coming year 13
Session 4: Knowledge management for RTB seed systems 13
Session 5: Plan of action for cluster CC2.1 14
Action plan for the socioeconomic tools 14
Action plan for the socioeconomic tools 15
Concluding the workshop 15
Evaluation and final points of discussion 15
Learning journeys 16
Cassava and yam multiplication 16
Appendix 1: Matrix of the seed system interventions and tools from the RTB Nairobi workshop (May 2018) 18
Figure A1: An updated version of table A1 with the new tools and interventions according to the presentations given in the workshop 19
Appendix 2: Program 20
Appendix 3: Participants 22

Abstract

The CGIAR Research Program on Roots, Tubers and Banana (RTB) CC2.1 community gathered at the campus of the International Institute of Tropical Agriculture (IITA)–Ibadan for their yearly meeting. The meeting was used to update each other on the progress on the various tool-development activities and their applications. In three sessions with parallel presentations the participants got a flavor for what all is in the RTB toolbox, representing a snapshot of its content, purpose and users, complemented with a heat map. Discussion time was used to consider what the toolbox is expected to do: Is it answering our questions? Who are the next users of the tools or of the knowledge that the tools generate? An update on gender in breeding, gender tools, and knowledge management in the RTB seed system cluster marked the end of this part of the workshop. The rest of the time was used to flesh out lines of collaborative work for the year and beyond, culminating in action plans. Day 3 was used for a learning journey with the chance to see several activities on the IITA campus. The workshop also included a statistical R course, implemented by the University of Florida (UF) team, which was open as well to those other than RTB CC2.1 members.

Acronyms

CIAT	International Center for Tropical Agriculture
CIP	International Potato Center
EiB	Excellence in Breeding
GBI	Gender and Breeding Initiative
GIZ	German Corporation for International Cooperation
IITA	International Institute of Tropical Agriculture
INA	Impact network analysis
KEPHIS	Kenya Plant Health Inspectorate Service
MEC	Means-End-Chains
NRCRI	National Root Crops Research Institute
PPT	PowerPoint
RTB	Roots, Tubers and Bananas
UF	University of Florida
WTP	Willingness to pay
WUR	Wageningen University & Research

Acknowledgments

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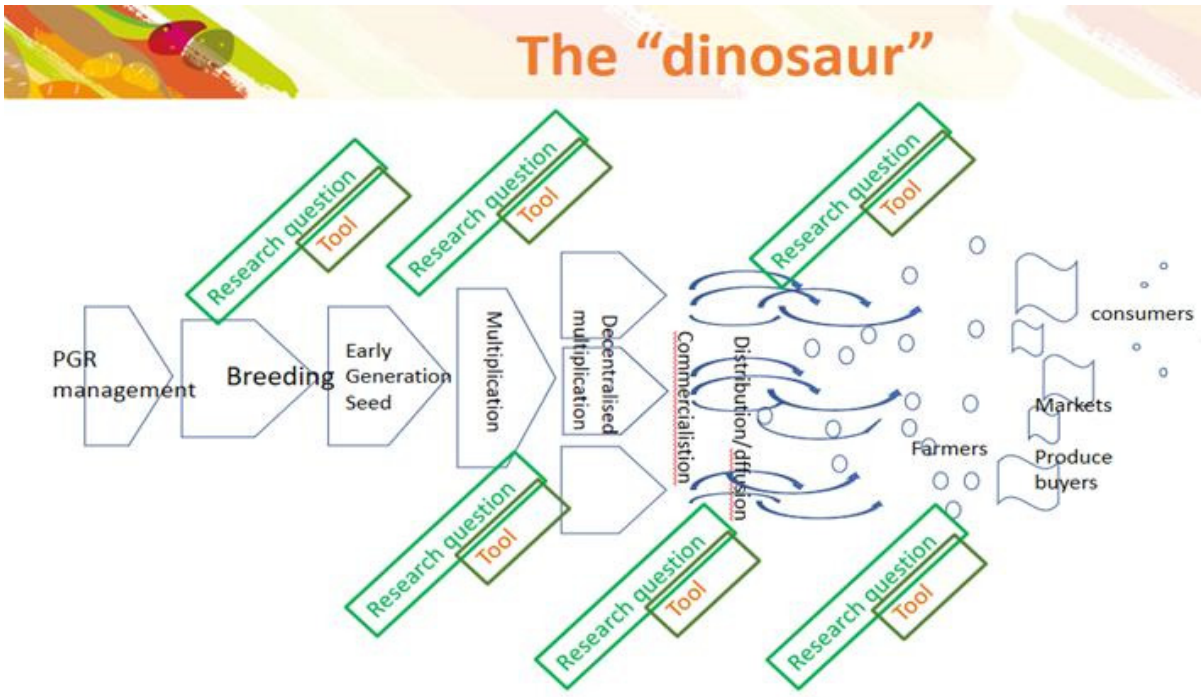
DAY 1

Opening

Jorge opened the meeting with an overview of the RTB cluster on seed systems. “Our cluster (CC2.1: Access to quality seed/varieties) is a cross-crop cluster; we develop a toolbox that can be used across crops and countries,” he said. He continued by reconfirming that the development of the toolbox is the main objective of this cluster. The toolbox is a collection of tools to improve the design, implementation, and evaluation of new or ongoing seed system interventions. The tools address questions in each part of the seed value chain (Figure 1). During the meeting the team of scientists would update the table/matrix that was developed in Nairobi (Appendix 1). The team would also focus on identifying potential partners and next users of the tools. (The full presentation can be accessed via this link.)

Figure 1: A schematic of a seed system or seed value chain



Discussion points

- We need to be careful when referring to our model of the seed system as “the dinosaur” (among other terms) because we need to connect with the reforms in the CGIAR breeding program. Since we are working toward the phase of disseminating our tools and outcomes, we need to work on the way we frame things.

- There is the impression that this cluster is only about tools. Is that what we want? We have tools that address questions at different points in the value chain; and that is our main topic. The output of the cluster can also include (the synthesis of) the outcome of the use of the tool. Where this synthesis occurs should be documented and presented.

Overview: What is the toolbox and where are we?

Conny introduced "The Marketplace" sessions: three separate blocks with parallel presentations (see program). For each block there was a short plenary session. Moreover, for each round of presentations the presenters first gave a pitch so that participants could choose which one to attend. After the presentations, participants were asked to record questions and tips on cards and pin them on a bulletin board. They were also encouraged to write down ideas on how to reach next users—within and outside of the cluster—and place them on the bulletin board. Short descriptions of the presentations were prepared.

Session 1 of "The Marketplace": Seed degeneration and impact network analysis

Karen introduced the seed degeneration and impact network analysis (INA) tools. The team, comprising Kelsey, James, Erik, Ricardo, Israel, and Kwame, presented their respective research areas and work. The links to the PowerPoint presentations (PPT) and 1-pager information about the tool are given in Table 1. (Ctrl+click to follow the link.)

Table 1: Presentations of "The Marketplace": seed degeneration and INA

Presenter	Tool	Topic	1-pager	PPT
Karen Garret	Introduction	General		
Kelsey Andersen	INA	Epidemics in Sweetpotato, Uganda	Link	Link
James Fulton	INA	Banana Xanthomonas Wilt, Haiti	Link	Link
Erik Delaquis	INA	Cassava mosaic virus, Southeast Asia	Link	Link
Ricardo Alcala	INA	Plant viromes, Mexico	Link	Link
Israel Navarrete	Seed Degeneration	Potato, Ecuador	Link	Link
Kwame Ogero	Seed Degeneration	Sweetpotato, Tanzania	Link	Link

Session 2 of "The Marketplace": Socioeconomic tool and methods

Table 2: Presentations of "The Marketplace": socioeconomic tools and methods

Presenter	Tool	Topic	1-pager	PPT
Conny Almekinders	Introduction	General		Link
Lucy Mulugo	INA	Tissue culture banana, Uganda	Link	Link
Enoch Kikulwe	Willingness to pay (WTP)	Tissue culture banana, Uganda	Link	Link
Aman Omondi	Stakeholder framework	Banana seed systems, Burundi	Link	Link
Fleur Kilwinger	Means-End-Chains (MEC)	Banana seed sources, Uganda	Link	
Esme Stuart	Small-N studies	Cassava seed systems, Nigeria	Link	

Session 3 of "The Marketplace": Policy studies and other tools

Conny introduced the policy studies and other tools. Lava, Margaret, and Jorge then presented their work. The links to the PPT and 1-pager information about the tool are given in Table 3. (Ctrl+click to follow the link.) Discussion following Margaret's presentation. The discussion focused on the integration of tools and the respective projects to which they directly apply (i.e., the Seed Tracker and Building an Economically Sustainable Integrated Cassava Seed System). The conclusion is that effective communication and consultation are important

Table 3: Presentations of "The Marketplace": policy studies and other tools

Presenter	Tool	Topic	1-pager	PPT
Lava Kumar	Seed tracker	Multiple crops and countries	Link	Link
Margaret McEwan	Policy analysis	Multiple crops and countries		Link
Jorge Andrade	Multi-stakeholder Framework	Multiple crops and countries	Link	Link

Plenary discussion

After all the presentations, a plenary discussion addressed the total collection of tools. The starting point of this discussion was the different cards with questions, tips, and tops and possible future users that were pinned on the boards. Most of the comments written on the cards were further questions about the application of the tools. Additionally, some valuable tips and tops were given. Unfortunately, however, not many cards with ideas about the future users of the tools were written. Because it was deemed too time consuming and added little value to go over all the cards, reflections were carried out on the three sessions in general. The following points were discussed:

- Not all methods described in the toolbox are "real" tools. Margaret's work, for example, is based on a series of checklists by stakeholders without a tool associated with each one.
- If we want the tools to be used, they should be developed/applied by involving donors. If the tools are approved by donors, it might be valuable in continuing the research.
- Seed degeneration is a very interesting concept. We should be able to come up with simple methods to measure seed degeneration and show the benefits of clean planting material. Perhaps seed degeneration studies can make use of checks at the research stations.
- In this phase we really need to think about which tools we are going to bring out. The most advanced tools should be disseminated. Do we have the experience/expertise in the team to do this? How do we pack these tools and make them marketable? Everybody wants his own tool to be out there, but not all tools have the same promise for the wider public. We should identify and bring out the most promising tools. Not everything goes viral, but the other tools can be very valuable internally to the cluster and to RTB as a whole.
- There will be different scales/directions of dissemination. We should think about the audience and then come up with an individual communication plan for each tool. After identifying an audience, we need to think about how to market our outputs. We could use the knowledge of the scaling readiness cluster.

- The biophysical researchers need to be linked with the modeling experts to integrate data. Some biophysical research questions can be answered through modeling work.

The future of the RTB toolbox

After the plenary discussion about the status of the tools, we continued to discuss the status of the RTB toolbox in general. The most important questions participants needed to answer during this discussion were the following:

- What are we going to do as a cluster during the next two years, and how are we most effectively going to link up with other potential users?
- Do the tools currently in the toolbox cover what the cluster initially intended to do—in other words, is the toolbox satisfactory? We have developed research questions that should be answered; can the tools currently in the toolbox do this?
- Will the tools in the toolbox help others to make seed system interventions more effective?

The first comment pointed out that it would be premature to think about sharing these tools and that we need models for co-creation. We need to co-create and start the discussion with the potential users. We need to identify who the key players are and consult them.

We need to identify the stakeholders who make decisions on the management of disease spread in crops. Policies and policymakers have a lot of influence. There is need to identify who ultimately makes decisions (i.e., governments, NGO's, developers of extension programs, etc.). We need to identify the pressure points to control and influence. This might be highly variable across crops and countries. The banana seed system, for example, is very ad hoc and has very few regulations.

There are those who will use the outcomes of the tools and there will be those who will use the tools themselves. Not all tools might be useful for the broader public because they require a lot of knowledge and resources; however, the outcome of the tools might be useful. The UF team is creating an online space for people who want to use INA and can interact with users, to make the tool more user-friendly.
Users might only be interested in outcomes and not in the mechanisms behind the production of the output. Depending on the stakeholder, a different message of the tool might need to be given.

As a cross-crop cluster, CC2.1 has some unique tools (such as Cassava Seed Tracker), whereas some tools are adapted from existing ones. The output of the seed degeneration work might be a synthesis of the learning around the tool, rather than the tool itself. It is important to develop a synthesis of what we have learned in addition to the tools. We should be careful by only providing tools out of the work in this cluster.

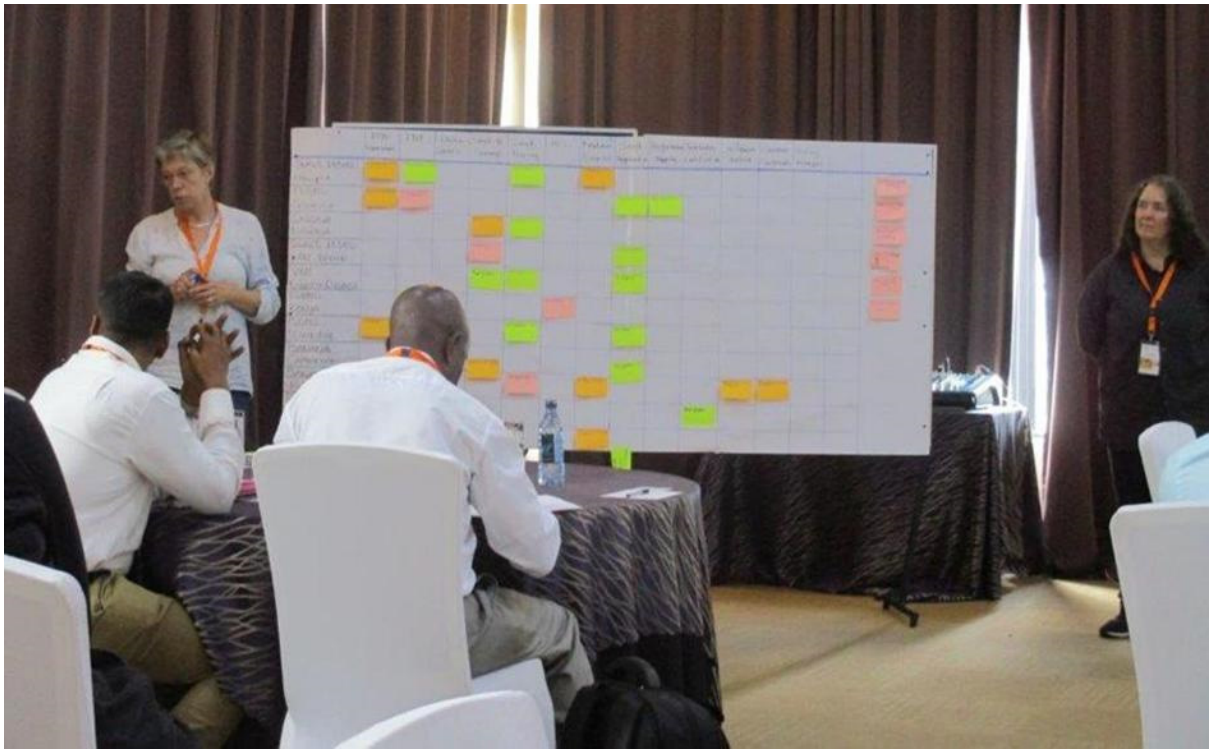
INA has generated very valuable information, but is it unique for the RTB Program? This might depend on your perception of "novelty." The question is whether we are going to promote this tool to understand seed systems. Maybe we do not need to become diffusers and promoters of all the tools. The effort to diffuse and promote tools might come at a high cost because it is a very intensive exercise. User guides need to be developed, training guides need to be presented, and so on. It is important to have very strong evidence for interest in these tools before we invest in diffusing them. Some tools might still go viral, but probably not all the tools have a lot of potential users. On the other hand, we should not be overly cautious because there is a budget available for scaling. However, we need to think through critically which tools are suitable for the wider public. The tools thus need to be reviewed and a potential audience for each tool needs to be identified. It is important to think about the toolbox as only part of what the cluster is doing. The synthesis of knowledge on seed systems that we obtained ourselves by using the tools should also be disseminated. This is extremely important.

It is also very important to understand the delivery system of planting material. Routine ways to measure what is happening in the field should be established. There is a five-year timeframe to deliver these kinds of outputs.

The cluster should document its outputs clearly and in a way that tells a story. We should not assume that funding is guaranteed. We need to have evidence of progress.

The discussion points were used to start the following session focused on planning for the coming two years. Instead of updating the stage of each tool as we did in Nairobi, a "heat map" (Figure 2) was created. Most of the effort during the last year has been on the application of the tools, not on developing them. The points to be addressed in the heat map are whether the tool has been documented, if the tool is gender responsive, and how many applications the tool has so far.

Figure 2: A matrix is developed indicating the status of each tool (the starting point of a heat map)



Day 2

Conny opened the second day of the meeting and asked for remarks, ideas, and reflections on the discussions from day 1. The United Nation's Food and Agriculture Organization was mentioned as a potential next user and young scientists as potential users. An idea was brought up to promote one or more tools in an online course. A possibility would be to develop a Massive Open Online Course on seed systems and put together a series of lectures. It is important to know the audience before putting together the online course. To reach people from the industry and business might require another approach than reaching out to students.

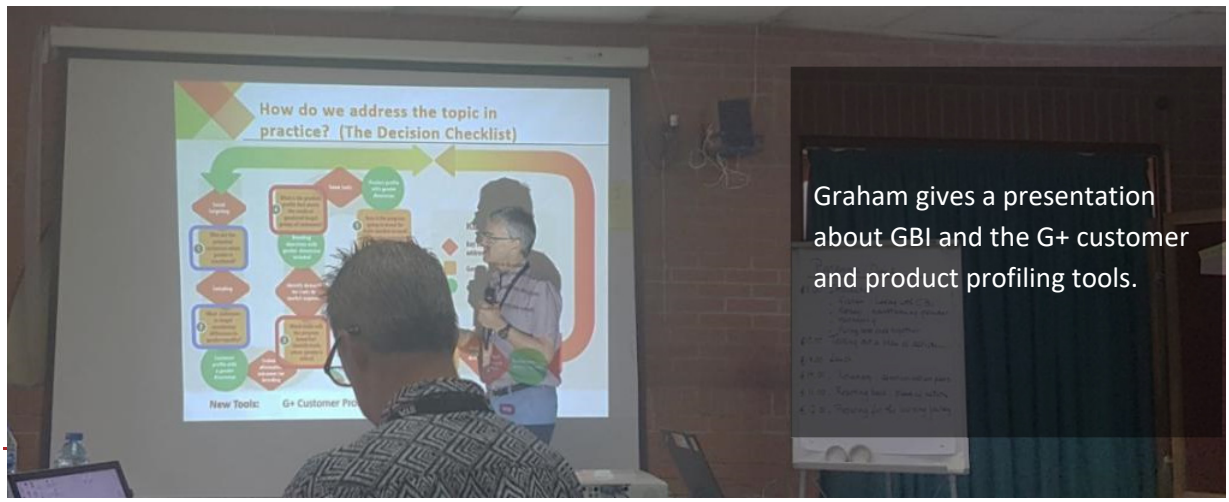
Session 1: Gender research

At the beginning of the 21st century, the global food system finds itself exposed to increasing pressures from a broad range of factors. A growing population and changing patterns of food consumption due to globalization, rising income levels and urbanization lead to a higher demand for food products.

Gender and breeding initiative by Graham Thiele

The Gender and Breeding Initiative (GBI) is a spinoff of the RTB Program from where two tools have been developed: the customer profile and a product profile. The customer profile tool aims at understanding potential customers; better understanding them can increase adoption. A decision checklist is used to see if identified varieties meet clients' needs. Information on the needs of different clients is collected—for example, via small N surveys and focus group discussions. The role of gender is variable, depending on the case; thus, the importance of the G+ customer. In the case study on cassava preferences in Nigeria, women turned out to focus on cooking and processing traits, whereas men focus on yield. Multiple questions around seed system interventions can be answered using this tool. (Examples of research questions and more information about the outcome of the study can be found in the presentation via the following link.) The new developments in relation to the GBI tools and the Excellence in Breeding (EiB) initiative were commented on as were the opportunities for RTB CC2.1 to connect with these developments.

Figure 3: Graham presents on the GBI and he G+ customer and product profiling tools



Discussion

- A question was raised on how we can connect the GBI with the work in RTB CC2.1. The tools developed by our cluster could address many questions about seed systems which remain open (e.g., the amounts of planting material needed, how seed degeneration works in the seed system, etc.).
- Work of seed systems fits into the different stage gates. For example, the product launch, to multipliers, or farmers. Our group can support the design of delivery profiles.
- EiB posits that breeders do not set the traits anymore but, rather, the stakeholders in the value chains through the product profiles. "Breeding is too important to leave it to the breeders," said Maria Andrade. "We are not composing the product profile for sweetpotato in Mozambique alone, many more nutritionists are involved."
- There is not much attention for post-release issues, but at least it is something of a start.
- National agricultural research institutes are hardly involved in all this. They are the ones testing and releasing varieties, and RACI (responsible, accountable, consulting, informed) is the new "tune of the beat." But it is not yet so clear who is responsible for design, delivery, and release. Seed people are essential for evaluation and feedback on the materials. We should talk not only about traits but also access and equity. Breeders should be interested in connecting with the seed system "to get volumes out."

Gender-responsive tools by Netsayi Mudege

Currently, there are gender tools and a real effort to get these integrated into the process. Netsayi presented on how gender is integrated into the tools we use. What sort of approaches and tools in gender differences are in perception of quality seed and selection of planting material? Answer: there are some tools in the toolbox like the Four-Square method.

Session 2: Heat mapping

The group made worked at creating a heat map: an overview of the status of use of the different tools in the toolbox. It builds on the matrix that was generated in Nairobi (see Appendix 1). All the participants identified how the tool has been documented, whether it is gender responsive, and how it has been applied (Figure 4). Table 4 presents the outcomes of the heat map.

Another point that needed to be addressed was how to present and package the toolbox to potential users. The suggestion is to create a small team with the focal-point persons of each CGIAR center and move the toolbox forward on this point (i.e., at a meeting in May).

The cluster members need to brainstorm about potential toolbox users and their specific needs. Time during the workshop was limited, so we postponed this brainstorming exercise. There needs to be another session to discuss activities and continuation of the work in the cluster in the next two years. Some points of attention are the following:

Figure 4: Participants collectively create the heat map indicating the status of documentation, gender responsiveness and application for each tool

Table 4: "Heat mapping" of the tool applications, overview of the tools, and their documentation and application

Tool	Documentation				Applications									
	Paper	User guide	Blog	Gender responsive										
Glossary					For RTB CC2.1									
Framework	x	x	x	Yes	Israel potato Ecuador	Enoch banana Uganda	Margaret sweetpotato Ethiopia	Jorge potato India	Jorge potato Bangladesh	Jorge potato Georgia	Basics cassava Nigeria	RTB–PIM seed studies	CGIAR platform gender	CIP Potato
INA	x		x		Israel potato Ecuador	Aman banana Burundi	Aman Banana Malawi	Erik cassava Vietnam	Kelsey sweetpotato Uganda	Jorge potato Georgia				
Degeneration models	x		x		Israel potato Ecuador	Aman banana Burundi	Aman Banana Nigeria	Aman Yam Nigeria	Aman Banana Cameroon	James cassava Tanzania	Kwame sweetpotato Tanzania	Peter potato Ecuador		
Management performance					Karen potato Ecuador									
Phytosanitary	x	x			GIZ program Seed system	Seed system Ghana Nigeria								
Gender constraint analysis			x	Yes	Susan banana Uganda	Margaret crops Tanzania								
Gender analysis tools				Yes	Margaret crops Tanzania									

Tool	Documentation				Applications					
	Paper	User guide	Blog	Gender responsive						
SEGSBAT	x	x	x	Yes	Srini sweetpotato Kenya	Srini sweetpotato Uganda	Srini sweetpotato Tanzania	Srini RAB Rwanda	Srini sweetpotato Malawi	Zari sweetpotato Zambia
Small-N case studies	x	x			Israel potato Ecuador	Basics cassava Nigeria	Kwame sweetpotato Tanzania			
MEC	x	x			Carolina potato Peru	Elly potato Kenya	Fleur banana Uganda	Fleur banana Uganda	Julius potato Tanzania	
Four-Square method	x	x			Fleur banana Uganda	Aman Banana Burundi				
Seed tracing					Israel potato Ecuador					
Choice games	x				Erik cassava Vietnam					
Seed tracker		x	x		James cassava Tanzania	Lava yam Nigeria	Lava yam Ghana	Lava cassava Brazil		
WTP studies	x				Enoch banana Uganda	Lava Yam Ghana				

Session 3: Planning for the coming year

To discuss the planning and activities of the cluster for the coming two years, the participants divided into the following smaller groups:

1. Seed degeneration, INA tools
2. Socioeconomic tools
3. Potential users

The groups had about two hours to work together (outcomes are presented in Session 5).

Session 4: Knowledge management for RTB seed systems

Rosemary explained that the objective of the presentation was to familiarize participants with ways to improve efficiency through knowledge management and subsequent learning. Webinars are a good way to share knowledge. The cluster could organize webinars more frequently and invite people outside the RTB and/or CGIAR to attend. There is also need to think about ways to collaborate more with people outside the CGIAR using processes and technology that support easy collaboration, some of which exist already. It is important to have an impact assessment to get information about how much knowledge is shared by the cluster and how it is used. The 2018 report contains a lot of information that has been produced by the cluster. We need to find ways to manage this information. We have a large team of young students who can help us move to the new systems and "kill the dinosaurs." Clear objectives need to be established for the online platforms. Erik was appointed to be the gatekeeper and coordinator of the CC2.1 community of practice. The new platform we use should not be too complicated. Rosemary proposed steps to advance the knowledge management and learning in the cluster's community of practice.

The next steps:

- What are possible working groups and interest groups assigned to specific tasks in the cluster?
- What are the life-cycle activities of each of the working/interest groups?
- Can we define three bullet points around our terms of reference?
    - A 2-pager for each method should be developed that can be shared.
    - Each working/interest group should identify an audience group and a strategy how to link up with these people.
    - Each working/interest group should organize a webinar within six months.

- Seed degeneration models — Kwame
- Seed demand — Srini and Conny
- Policy tools — Margaret, Jorge, and Lava
- The toolbox — Jorge
- Delivery profile — Peter and Steve

To conclude this session, participants logged into and explored content in the new RTB cluster website on the SharePoint platform. Content will be migrated from the Google website to a new website:

https://cgiar.sharepoint.com/sites/CIPRTBCluster2.1/Lists/Discussion%20Board/AllItems.aspx

Session 5: Plan of action for cluster CC2.1

In order to flesh out the collaboration and activities of each of the thematic groups (i.e., INA and seed degeneration, socioeconomic tools, policy regulation tools), participants divided into topical themes.

Action plan for the socioeconomic tools

Conny gave an overview of the group discussion of the socioeconomic methods. The group started by linking the delivery environment with the breeder. The group then split up: one team focused on WTP studies and the second team on the delivery profiles.

The WTP team. Auctions will be performed this year, and they were looking for complementary activities within CC2.1 or other RTB clusters. Enoch has already done a WTP study which can be evaluated. Erik could be a possible partner, but that might be difficult in terms of the timeframe. We might explore possibilities in Kenya because there have been many demo trials there (to be followed up with Monica and Elly). The evaluation of WTP studies might involve follow-up interviews. Many people have questions around it and in many research projects, but there is no collaboration. Srini will only investigate quality attributes of seed: how do quality attributes influence WTP? Other factors are kept constant. The question is not what is their WTP, but what will they pay for certain quality attributes.

Delivery profiles. Margaret's team defined a problem statement. We do not have a tool to understand farmers' demand. The Breeding Platform propose two tools to understand this. Ted is working on crowd sourcing to get more feedback on variety performance and seed quality. It can be useful to link it up with Seed Tracker.

Brief action plan

Socioeconomic tools

- Perform new WTP studies.
- Compare WTP studies performed for RTB crops.
- Follow up with farmers who participated in WTP studies to evaluate how accurate they are.
- Develop and use two new methods to link breeders and users.
- Use crowd sourcing to get more feedback on variety performance and seed quality.

Action plan for the socioeconomic tools

Karen presented the ideas of the group working on INA and seed degeneration. They put together a working group to link with the breeders to share degeneration data. For each crop a responsible person has been assigned. They are working on a conceptual paper about seed degeneration with Tomas-Sharma. All the data must be open source, so all the degeneration data should be open source as well, which is now an RTB requirement. INA can be used in a context of monitoring and evaluation. Larger seed degeneration projects and how to fund them require attention. Seed degeneration can be included in impact studies, and it could be interesting to link up with economists. (We need to keep them engaged in seed system work.) We are working on protocols for the experiments to measure seed degeneration instead of only providing the R protocol. We also need to provide information on how to collect the data to feed into the R models.

Brief action plan

Seed degeneration and INA

- Integrate degeneration data into the breeding pipeline.
- Write a conceptual paper about seed degeneration.
- Come up with protocols to measure seed

Concluding the workshop

Evaluation and final points of discussion

Jorge closed the session by thanking the organizers, hosts, and support staff. In addition, Graham shared his observations (see box). Participants left the evaluation sheet with a barometer empty, as the cocktails, drinks, and snacks were drawing much more of their attention

- We need a good platform to interact with breeders.
- We need a better reflection and overview of our work and design the heat map accordingly.
- During the next meeting, an additional facilitator could be hired to check the flow of the meeting and give structure to the workshop.
- We should think about how we can make use of having a meeting at a CGIAR center. For example, a knowledge fair can be held with so many CGIAR people around. This is a unique chance to reach many CGIAR members. This requires good planning, so future workshops should be planned further ahead.
- The presentations given during the meeting can be more to the point in terms of what the pay-off is instead of providing a lot of information.
- We should aim to have some outputs by the end of the year. A lot of good work comes from the collaboration between Wageningen University & Research (WUR) and UF, but we need more interactions and outputs.

Learning journeys

Cassava and yam multiplication

s

Yam multiplication

Workshop participants visited the laboratory at the IITA campus where yam is multiplied via minitubers. The minitubers are sorted based on size to determine the optimal size for a high germination rate. Via minitubers, clean planting material can be produced faster than through traditional multiplication. Yam is an important crop, especially in West Africa.

Semi-autotrophic hydroponics

Semi-autotrophic hydroponics is a fast and cheap multiplication technology successfully adapted for the production of disease-free cassava plantlets.

IITA is pioneering this technology in cassava to rapidly multiply new varieties cleanly and efficiently. The varieties are resistant for cassava brown streak virus and cassava mosaic virus, whose presence in Nigeria is especially high, making a clean multiplication system valuable. During the tour in the lab we visited the different stages of multiplication.

The last stop of the learning journey was at the test fields for cassava and yam. At the end of the learning journey everyone planted their own cassava plant in the field. There are multiple test fields at the IITA campus to evaluate the performance of the plantlets. After the field visit, interested participants were invited to tour at the AflaSafe factory.

R Course

In addition to the workshop, a one-day R course was organized by UF. Around 40 researchers participated, most of whom were IITA staff. Kelsey Andersen prepared a step-by-step introduction to R and to network analysis in R. The instructions that were used can be accessed via the following link: https://kelseyandersen.github.io/NetworksPlantPathology/index.html.

It's plants putting smiles on our faces!

Appendix 1: Matrix of the seed system interventions and tools from the RTB Nairobi workshop (May 2018)

Table A1. A new version of the matrix presenting tools and interventions based on the updates given in the presentations

Crop	Area	Person	Base-end lines (Large-N)	RTB framework	4-Square method	Choice games	Gender tools	Small-N surveys	MEC	Seed tracing	Performance mapping	Seed degeneration	Threshold certification	INA	Policy analysis
Banana	Cam/Bur	Aman		Ongoing				Done				To plan		To plan	
Banana	Uganda	Lucy	Done	Done	Done		Done		Ongoing	Ongoing					
Cassava	Nigeria	Hemant						Done		To plan					
Cassava	Vietnam	Erik	Done			Done								Ongoing	
Potato	Ecuador	Israel		Done						To plan		To plan			
Potato	Georgia	Jorge		Done							To plan	To plan		Ongoing	
Potato	Kenya	Elly							Ongoing					To plan	
Sweetpotato	Ethiopia	Margaret	Done							To plan				To plan	
Sweetpotato	Tanzania	Kwame						Ongoing		To plan	Ongoing	To plan			
Yam	Nigeria/ Uganda	Lava						To plan		To plan		To plan			
Policy analysis	Kenya/ Nigeria/ Vietnam	Jorge											To plan		

Figure A1: An updated Version of table A1 with the new tools and interventions according to the presentations given at the workshop

Crop	Area	Person	Base-end lines (Large-N)	RTB framework	4-square method	Choice games	Gender tools	Small-N Surveys	MEC	Seed tracing	Per-formance mapping	Seed de-generation	Treshold certifi-cation	INA	Policy analysis	Intergr. Health stragegy	Expert elicitation	Willing-ness to pay	Business case tools	Seed tracker	Seed flow mapping	Cost benefit tools	Scaling readyness tool	Partici-patory tools
Banana	Cameroon/Burundi	Aman		Ongoing				Done				To plan		To plan										
Banana	Uganda	Lucy	Done	Done	Done		Done		Ongoing	Ongoing														
Cassava	Nigeria	Hemant						Done		To plan											x			
Cassava	Vietnam	Erik	Done			Done								Ongoing										
Potato	Ecuador	Israel		Done						To plan		To plan												
Potato	Georgia	Jeorge		Done							To plan	To plan		Ongoing										
Potato	Kenya	Elly							Ongoing					To plan										
Sweet potato	Ethiopia	Margaret	Done							To plan				To plan										
Sweet potato	Tanzania	Kwame						Ongoing		To plan	Ongoing	To plan												
Yam	Nigeria/Uganda	Lava						To plan		To plan		To plan								x				
Policy Analysis	Ken/Nig/vie	Jeorge											To plan											
Banana	Haiti	James														x								x
Potato	India	Jeorge																						
Sweet potato	Tanzania	Margaret																						
PIM-RTB-VPC		Margaret																						
Gender	Kenya	Netsayi					x																	

Appendix 2: Program

RTB Seed systems: Cluster CC2.1
Improving RTB planting material and access to new varieties
Annual Meeting – Ibadan, 14–17 March 2019

<table>
<tr><th>Date, time</th><th>Activity</th></tr>
<tr><td colspan="2">Wednesday, 13 March: Arrival</td></tr>
<tr><td></td><td>Travel from Lagos to Ibadan
Time for preparatory meetings – in case of early arrival
• Go through deliverables
• Prepare presentations
• Planning activities</td></tr>
<tr><td colspan="2">Thursday, 14 March: The RTB Toolbox</td></tr>
<tr><td>8:30</td><td>Welcome and introduction to RTB CC2.1 (Jorge, Margaret)

Overview: what is the toolbox and where are we? (Jorge, Margaret)
Intro and recap (Lunteren, Nairobi, objectives, & deliverables)</td></tr>
<tr><td>9:30</td><td>Findings: Market place

<table>
<tr><td colspan="4">Block 1. Overview: Seed degeneration and INA (plenary intro Karen)</td></tr>
<tr><td>Session 1</td><td>Kelsey</td><td>James</td><td>Ricardo</td></tr>
<tr><td>Session 2</td><td>Eric</td><td>Israel</td><td>Kwame</td></tr>
</table></td></tr>
<tr><td>11:00</td><td>Refreshments</td></tr>
<tr><td>11:30</td><td>
<table>
<tr><td colspan="5">Block 2. Overview: Socioeconomic tools and methods (plenary intro Conny)</td></tr>
<tr><td>Session 1</td><td>Fleur (MEC)</td><td>Enoch</td><td>Lucy</td><td>Erik</td></tr>
<tr><td>Session 2</td><td>Julius (WTP)</td><td>Esme</td><td>Srini</td><td>Aman</td></tr>
</table></td></tr>
<tr><td>13:00</td><td>LUNCH</td></tr>
<tr><td>14:00</td><td>
<table>
<tr><td colspan="4">Block 3. Policy studies and other tools (plenary intro Margaret)</td></tr>
<tr><td>Session 1</td><td>Nigeria cassava</td><td>Kenya potato</td><td>Lava (seed tracker)</td></tr>
<tr><td>Session 2</td><td>Vietnam/Laos?</td><td>Jorge (framework)</td><td></td></tr>
</table></td></tr>
<tr><td>15:30</td><td>Refreshment</td></tr>
<tr><td>16:00</td><td>Reflection and emerging insights from the Blocks (plenary)</td></tr>
<tr><td>17:30</td><td>Closing</td></tr>
</table>

<table>
<tr><th colspan="2">Friday, 15 March: Moving forward—Defining lines of work</th></tr>
<tr><td>8:00</td><td>The process of the RTB toolbox: where are we, where to go? (plenary)
Linkages with the GBI (Graham – 20 min)
Mainstreaming gender into the toolbox
Our “Next Users”
Readiness to scale: what do with it
Others: (i) seed system performance (ii) connection with other tool-boxes in the making</td></tr>
<tr><td>10:00</td><td>Thematic/subgroup discussions and planning<table><tr><td>Seed degeneration and INA</td><td>Eliciting Farmers demand</td><td>Policy and regulatory framework</td><td>Open</td></tr></table></td></tr>
<tr><td>13:00</td><td>Lunch</td></tr>
<tr><td>14:00</td><td>Communication plans and agreements (Rosemary, 1 hour)</td></tr>
<tr><td>16:00</td><td>Reporting back from subgroups, discussion, and agreements</td></tr>
<tr><td>17:00</td><td>Preparing for the learning journey</td></tr>
<tr><th colspan="2">Saturday, 16 March: Learning journey</th></tr>
<tr><td></td><td>Learning journey and reflection on experiences (instructions to be defined)</td></tr>
<tr><th colspan="2">Sunday, 17 March: Open</th></tr>
<tr><td></td><td>Open – Leaving Ibadan</td></tr>
<tr><th colspan="2">Monday, 18 March: Workshop on R</th></tr>
<tr><td>9:00</td><td>Workshop on R (UF)
Introduction to R/networks in R (including coffee break)</td></tr>
<tr><td>12:00</td><td>Lunch break</td></tr>
<tr><td>13:00</td><td>RTB R Packages: Impact network analysis (INA)/Seed degeneration (seedHealth)/scaling seed (seedScaling) (Including coffee break)</td></tr>
<tr><td>15:00</td><td>Seed system hackathon! (working on your own data with the help of workshop facilitators)</td></tr>
</table>

Appendix 3: Participants

Name		Organization	Location
Maroya	Norbert	IITA	Nigeria
Teeken	Bela	IITA	Ibadan, Nigeria
Kumar	Lava	IITA	Ibadan, Nigeria
Stuart	Esme	IITA	Ibadan, Nigeria
Kulakow	Peter	IITA	Ibadan, Nigeria
Legg	James	IITA	Tanzania
Diebiru-Ojo	Mercy	Go Seed/IITA	Ibadan, Nigeria
Kikulwe	Enoch	Bioversity	Uganda
Omondi	Aman	Bioversity	Benin
Nduwimana	Innocent	Bioversity	Burundi
Almekinders	Conny	WUR	Wageningen, NL
Fleur	Kilwinger	WUR	Wageningen, NL
Garrett	Karen	UF	Florida, USA
Andersen	Kelsey	UF	Florida, USA
Fulton	James	UF	Florida, USA
Alcala-Briseno	Ricardo	UF	Florida, USA
McEwan	Margaret	CIP	Nairobi, Kenya
Kihiu	Rosemary	CIP	Nairobi, Kenya
Ogero	Kwame	CIP	Mwanza, Tanzania
Kromann	Peter	CIP	Yaoundé, Cameroon
Andrade-Piedra	Jorge	CIP	Lima, Peru
Navarrete	Israel	CIP	Quito, Ecuador
Rajendran	Srini	CIP	Nairobi, Kenya
Okello	Julius	CIP	Uganda
Carey	Ted	CIP	Ghana
Andrade	Maria	CIP	Mozambique
Nittukar	Hemant	RTB	Ibadan, Nigeria
Thiele	Graham	RTB	Lima, Peru
Friedman	Michael	RTB	Lima, Peru
Delaquis	Erik	CIAT	Vientiane, Laos
Njoku	Jude	NRCRI	Nigeria
Mulugo	Lucy	Makerere University	Uganda
Gachamba	Sospeter	KEPHIS	Kenya
Walsh	Stephen	Independent	USA
NRCRI cassava team			

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.

www.rtb.cgiar.org

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