Cluster annual report - 2017

CC2.1– Improving RTB Planting Material and Access to New Varieties

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RTB Cluster Report


Cover: A farmer on her way to plant cassava, Democratic Republic of the Congo. Photo by Stephen Walsh. Courtesy of the Great Lakes Cassava Initiative

Published by the CGIAR Research Program on Roots, Tubers and Bananas

The CGIAR Research Program on Roots, Tubers and Bananas (RTB) is an alliance 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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ISSN 2309-6586
DOI+ISBN

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MAIN ACHIEVEMENTS

The main achievement for 2017 was to develop the first version of the “Toolbox for RTB Seed Systems” (link). The toolbox is a collection of tools which address the biophysical and socio-economic aspects of roots, tubers and bananas seed systems which can be used to improve the design, implementation and evaluation of new or on-going interventions. These tools are being validated (tested and further refined) in over 10 projects in Asia, Africa, and South America across five major RTB crops. Examples are the “multi-stakeholder framework for intervening in RTB seed systems” (link) which was applied to provide an overview of the major stakeholders, their roles, and critical bottlenecks in Nigeria (cassava, link), India (potato, link), Ethiopia (sweetpotato, link), and Uganda (banana); “impact network analysis” which was applied in Ecuador (link), Uganda (link), and now is being applied in four PhD theses (potato in Ecuador and Kenya, sweetpotato in Tanzania, and cassava in Vietnam) to understand the effect of the introduction of new technologies (such as clean seed, or a resistant variety), new pathogens, or new information in a seed network; the “gender constraints analysis tool” which was used in Ethiopia to understand the seed value chain where availability of clean seed of preferred varieties was regarded as one of the major obstacles to sweetpotato production; a seed degeneration model (link) for evaluating seed renewal needs and for developing integrated seed health strategies (link); and the “seed tracker” which has been piloted in cassava seed systems in Nigeria.

MAIN ACHIEVEMENTS WITH GENDER AND YOUTH RELEVANCE

At a cross-crop level, the main achievement was to complete a gender analysis of publications (produced by RTB between 2013 and 2016) to identify lessons and gaps for mainstreaming gender into the Toolbox for RTB Seed Systems (link). Evidence from the literature review showed that seed systems are socially embedded and, therefore, to develop equitable seed systems, researchers and practitioners need to understand the social contexts in which they aim to intervene. For example, understanding the division of labor in seed production and conservation could help shape the nature of interventions by assisting managers to identify the methods, measures and strategies to ensure that men and women are able to benefit equally. To have context specific understanding researchers and project managers need to collect and analyze gender responsive, sex disaggregated socioeconomic data on seed systems. Additionally, understanding male and female farmers’ knowledge will promote the development of seed systems that are sustainable and responsive to farmers’ needs and capacities.

At crop-specific level, we produced a document to show how the gender perspective can be placed at the centre of a study to understand the local seed systems for banana production in Central Uganda, aiming at improving the adoption of banana varieties and tissue culture (TC) plantlets (link). For example, farmers in the study area were found to use a great diversity of banana varieties belonging to East African Highland Bananas and other clone sets. There were no big differences in the type of bananas found on plots managed by only males or females except the cultivation of beer banana varieties which is usually done on the plots managed by the male farmers. However, the number of plots cultivated with beer bananas seemed to be reduced the last couple of years due to bacterial Xanthomonas wilt. In terms of decision making and control of income from banana, in male headed households, where banana was the main cash crop, men seemed to control. However, in male headed households with other sources of cash income, like coffee or other well-paying businesses, women were in control of banana. This has implications in the sense that men are still in charge of higher income cash crops thus need to focus more on joint decision making if banana crops become much more profitable again. The study indicates that age of the farmer was an important factor in explaining renewal of their plantation: mat and sucker removal are labour intensive. This finding may have implications for disease management strategies.

Similarly, a study on banana seed systems in Cameroon (Nkengla, Omondi et al, in review) showed that in many seed systems gender norms play an important role in the wider household resource use. They often
presented conflicting or complementary interests even between spouses within households. This indicates that the characterisation of household trends based on the gender of the declared head might be insufficient.

**MAIN ACHIEVEMENTS WITH CAPACITY DEVELOPMENT RELEVANCE**

We put together a group of 12 talented young scientists, who are improving their capacities on RTB seed systems and becoming the force moving cluster CC2.1. RTB scientist are collaborating actively with four PhD students from Wageningen University and Research (WUR) (Navarrete, Ogero, Atienza, Delaquis), three students from University of Florida (UFL) (Alcalá-Briseño, Andersen, Fulton), one student from Makerere University (MU) (Mulugo), two young scientists associated with WUR (Kilwinger, Pircher), and one post-doc associated with UFL (Buddenhagen1). This group is receiving training in several ways: formal training at regular courses on WUR, UFL and MU; hands-on training with CGIAR host institutions on the projects in which they are doing their field work, in CC2.1 annual meetings (2017 proceedings, 2018 Web site, proceedings in progress), in which they interact actively with senior scientists, and by attending dedicated training events, such as the one organized by WUR in May (link) and October 2017 (link). These young scientists are developing, testing and refining the tools described above and, therefore, it is expected that they will become the next generation of scientists that will help practitioners to better design, implement and evaluate projects in seed systems, not only on root, tubers and bananas, but in other crops. At a conservative rate of two research papers per scientist, it is estimated that this group (with support of others) will deliver over 20 high-quality research papers by the end of RTB’s Phase II.

Another achievement about capacity development include the improvement of infrastructure and technical capacity of the National Agricultural Seeds Council in Nigeria to adopt the Seed Tracker for cassava seed certification. Efforts are on-going to establish it as national e-seed certification platform in Nigeria (‘Nigerian Seed Tracker’).

Two mid-career scientists (Lilian Nkengla and Aman Bonaventure) from this cluster benefited from an RTB-funded course under the Gender-Responsive Researchers Equipped for Agricultural Transformation (GREAT) run by Makerere and Cornel Universities. They now serve in the advisory Board for the same program.

**1. MAIN GAPS AND CHALLENGES**

In 2017, the main challenges were the need to show outcomes and to improve information management. These challenges were identified at the beginning of Phase II and were therefore included in the design of our annual plan of work. They remain as key challenges of our cluster.

- **Need to show outcomes and promote the use of the toolbox.** An informal evaluation of cluster CC2.1 at the end of Phase 1 (G. Thiele, C. Proietti, pers. comm.), and discussions within the cluster, showed that we had invested a lot in developing research outputs (such as the multi-stakeholder framework, degeneration models, etc.) and that it is time to show outcomes. This is a critical challenge to us because we are a cross-crop cluster that does not implement R&D projects, in which outcomes are usually achieved. In addition, it is a challenge to promote the utilization of the toolbox for the design of new RTB seed system projects and/or the improvement of existing ones.

- **Improve knowledge and information management.** We are applying the toolbox in several interventions and, therefore, it is critically important to design and implement a system to collect and systematize the information about the performance of the tools. In addition, cluster CC2.1 is a cross-crop cluster working with five crops, four CG centers, and two international university partners.

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1 Until the end of 2017.
In this environment, information management is a critical issue to bridge different organizational cultures and resources. For example, budget management procedures differ; Internet access at certain locations is very reliable, while in others is not; some scientists are using social networks and cloud services routinely, while others are not; etc. These disparities, plus the fact that we are working in different time zones and languages, makes information and knowledge management a challenge.

**MEASURES TAKEN AND ADJUSTMENTS PROPOSED**

*Need to show outcomes and promote the use of the toolbox.* Several actions are contributed to facing these challenges. First, we are piggybacking into existing projects to test and refine the tools. Each scientist from our cluster is affiliated with at least one project, mostly bilaterally funded, and she/he has the responsibility to develop/test and refine at least one of the tools described above, and at the same time reflect critically on the use of tools, and identify and document outcomes. Second, dedicated gender funding for this cluster *(type 3)* is allowing to have gender experts at key moments during the projects, especially in the design phases of new studies, which will increase the chance to achieve outcomes. Finally, we are mainstreaming the use of the toolbox among other clusters and CG centers: each core member of the cluster is promoting the toolbox at her/his center to promote the use of it in relevant seed projects, and therefore, achieve outcomes.

**Improve knowledge and information management.** A number of actions were taken to face this challenge. First, we are testing a “tool reflection sheet” *(link)* to reflect on the use of the tools and systematize the information coming from specific interventions. Second, we have recruited a Communications, Knowledge Management and Reporting Manager, who will work with cluster members and next users to improve awareness about, and use of, the cluster’s outputs *(e.g. the toolbox)*; and identify and disseminate outcome stories. Third, we created a Dropbox directory in which all the information of the cluster is being stored, providing access to all members. Fourth, we created an internal Web site *(link)* to facilitate access to key information, such as documents *(business plan, proposal for Phase 2, deliverables, etc.*), members, toolbox, events, news, etc. Finally, we promoted the use of a Zotero library, where nearly 3000 references are stored and can be shared.

**2. PARTNERSHIPS: ACHIEVEMENTS AND CHALLENGES**

**List of Key External Partnerships**

Please list up to three important partnerships for 2017, using the following table.

<table>
<thead>
<tr>
<th>FP</th>
<th>Stage of research*</th>
<th>Name of partner</th>
<th>Topic of partnership</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1, 2, 3</td>
<td>WUR</td>
<td>Development of the Toolbox for RTB Seed Systems and socio-economic tools: small N case study, means-end chains, four square method, and seed tracing.</td>
</tr>
<tr>
<td>2</td>
<td>1, 2, 3</td>
<td>UFL</td>
<td>Development of biophysical tools and tools linking biophysical and socio-economic components: impact network analysis, degeneration models, and management performance mapping.</td>
</tr>
</tbody>
</table>

* Please mark: 1 – for Discovery/Proof of concept; 2 – for Piloting; 3 – for Scaling up and scaling out.
Status of Internal (CGIAR) Collaborations among Programs and between the Program and Platforms

<table>
<thead>
<tr>
<th>Name of CRP or Platform</th>
<th>Brief description of collaboration (give and take among CRPs) and value added*</th>
<th>Relevant for RTB FPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIM</td>
<td>In collaboration with PIM, through the project “Making seed systems and markets for vegetatively propagated crops (VPCs) work for the poor” we conducted three case studies: Kenya (potato); Nigeria (cassava) and Vietnam (potato and cassava). The cross crop and country study will allow us to understand and draw out insights on: the types of public policies, regulations or regulatory reforms are in place or not viz quality assurance for the seed of RTB crops; the current level of access, availability, and quality of RTB planting material; and the level/type of quality assurance that is effective to increase access, availability, and quality of RTB planting material. The findings will form an evidence base for a more informed dialogue with regulatory bodies on options for the types of public policies, regulations or regulatory reforms are required to provide effective quality assurance for VPC planting material.</td>
<td>2</td>
</tr>
<tr>
<td>Group on Scaling Readiness (cluster 5.4)</td>
<td>At the end of 2017 the RTB Scaling Fund selected Sweetpotato Triple S (Storage in Sand and Spouting) for the conservation and multiplication of quality planting material to receive support to improve the readiness of the technology for scaling. It is expected that lessons from the scaling process will be extended to other RTB crop seed technologies, including cassava seed systems in Southeast Asia in 2018.</td>
<td>2, 3</td>
</tr>
</tbody>
</table>

* e.g. scientific or efficiency benefits

3. FUND RAISING

Members of cluster CC2.1 provided support to design and implement the following projects:

- Strengthening food system resilience in Asia’s mega deltas with salt tolerant sweetpotato and potato (donor: GIZ)
- Improving farmers’ livelihoods through sustainable intensification and diversification of agri-food systems with climate-smart potato technologies (Government of Assam, India, and World Bank)
- Scaling Sweetpotato Triple S PLUS – gender responsive options for quality planting material, higher yields and extended shelf life for storage roots (RTB)
- Gender and the moral economy of sweetpotato vines. A study in Tanzania (RTB)
- Understanding potato seed degeneration in Ecuador (McKnight)
- Enhancing rural livelihoods in Georgia: Introducing integrated seed health approaches to local potato seed systems (ADA).
- BEST Cassava Seed Systems in Tanzania and YIIFSWA-II for yam in Nigeria and Ghana: to adopt/adept Seed Tracker for seed value chain management and e-seed certification (BMGF)
- Accelerated Value Chain Development- Root Crop Component (USAID-Kenya)
- Improving scalable banana agronomy for small scale farmers in highland banana cropping systems in East Africa (BMGF)
- Appui à la Recherche et au Développement Agricole (AREA) in Haiti (USAID)
In addition, UFL and WUR are co-funding seven PhD students. One of the four WUR PhD researchers has a scholarship. The three others who are registered at WUR are external PhD candidates. This implies that budget for their capacity development has to be mobilized from a variety of sources (e.g., Borlaug scholarship by Kwame Ogero). Supervisors add their time and smart design of the PhD project in combination with RTB’s CC 2.1 activities have so far been able to provide the researchers with the required support.

### 4. INNOVATIONS

<table>
<thead>
<tr>
<th>Title of innovation (minimum required for clarity)</th>
<th>Corresponding output in MEL</th>
<th>Phase of research *</th>
<th>Partners involved</th>
<th>Geographic scope: for innovations in phases AV* or USE* only (one country, region, multi-country, global)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-stakeholder for intervening in RTB seed systems</td>
<td>CC2.1.2.1 - Multi-stakeholder framework for intervening in RTB seed systems developed and validated.</td>
<td>Used in three projects</td>
<td>RTB, CIP, WUR</td>
<td>Global</td>
</tr>
<tr>
<td>Impact Network Analysis</td>
<td>CC2.1.2.2 - Impact network analysis (INA) validated as a tool to understand and describe RTB seed systems</td>
<td>Used in one published project, one project in review, and others in progress</td>
<td>UFL, CIP, CIAT, IITA, Bioversity</td>
<td>Global</td>
</tr>
<tr>
<td>Integrated seed health approach</td>
<td>CC2.1.2.3 - General and crop-specific models and decision support systems for understanding and managing seed degeneration</td>
<td>Used in the design of three projects</td>
<td>CIP, UFL</td>
<td>Global</td>
</tr>
<tr>
<td>Seed Tracker</td>
<td>CC2.1.6.2 - Seed Tracker for RTB Crops</td>
<td>Used in cassava and being adapted for yam</td>
<td>IITA</td>
<td>Global</td>
</tr>
</tbody>
</table>

* Phases: AV - available/ready for uptake, USE - uptake by next users.

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2 Research and development innovations are new or significantly improved (adaptive) outputs - including management practices, knowledge or technologies.