Cluster annual report - 2017

CC3.2 – Sustainable RTB crop production systems

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RTB Cluster Report


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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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1. MAIN ACHIEVEMENTS

RTB Cluster 3.2 conducted a workshop in Hanoi to review the cluster structure, research contents and the position of the cluster within CRP RTB. The workshop report is partially completed pending the input from two centers. The main outcomes of the workshop were

- Review of four thematic areas: crop yield gap, integrated crop management, integrated cropping system management and RTB-livestock linkages. Participants suggested alternative structures for the cluster, since the current structure represents principally integrated crop management, but final resolution is pending.
- Participating centers agreed to a cross-cluster survey of ‘supply and demand’ of CC3.2’s role in the greater RTB portfolio to enhance the visibility of the cropping systems cluster within RTB, and to coordinate testing and scaling out of RTB cropping systems “products”.

IITA’s cassava agronomy and weed management projects generated their first set of decision support tools (DST) available to extension agents and lead farmers for validation for fertilizer recommendations, Scheduled planting and harvesting and best suited economical tillage operations. New DSTs currently under research are on weed assessment, timing and method of weed control.

Bioversity completed validation of soil health indicators in organic banana, which showed a shortened crop cycle and increased bunch size resulting from the application of a nutrient budget tool and residue management to increase nutrient accessibility.

CIAT completed an updated version of the DSSAT-based cassava yield model (YCA), integrating subcomponents on nitrogen and water limitations. Local partners in Vietnam have been trained on the use of this model as field experiments for data collection are ongoing. A characterization and priority setting exercise across cassava production and marketing systems in SE Asia was conducted based on cassava value chains research through key informant interviews and focus groups.

CIP continued research on soil fertility management to develop potato fertilizer formulations and recommendations for SSA including specific nutrient and nutrient-omission trials and fertilizer evaluations under Kenyan conditions.

MAIN ACHIEVEMENTS WITH GENDER AND YOUTH RELEVANCE

The 3.2 4-center (IITA, CP, CIAT, Bioversity) cluster management group planned for diverse sessions on gender and youth in the planning workshop held in Hanoi, beginning with specific efforts to have gender specialists and economists among the participants. The workshop also included several participants from Cluster 5.2, which has a farm-level perspective important to understand cropping systems in a livelihoods framework. An overview presentation was made in the workshop by Bioversity’s gender specialist Anne Reitveld, and in each theme discussions were included on the role of gender and youth. Capturing gender and youth dimensions in the products proposed for 2018 was highlighted with special attention to cross-cluster tools. Tools to characterize gender and youth in crop management and cropping systems decisions have already been developed in 3.4 and 5.2 in interaction with 5.3 The participants in the workshop also considered that a new 3.2 structure address more explicitly gender and youth.
MAIN ACHIEVEMENTS WITH CAPACITY DEVELOPMENT

RELEVANCE

In Nigeria and Tanzania the African Cassava Agronomy Initiative (ACAI) has launched a major activity on the training of extension agents (EAs) in establishing and conducting agronomic trials and validations. These activities comprise the collection of data with electronic devises and at validation level the use of decision support tools. In Nigeria alone some 200 EAs are involved in trials, validations and baseline surveys. ACAI supports 5 PhD students and about 10 MSc students.

The Sustainable Weed Management in Cassava Systems project has continued to train weed control service providers on the safe use of herbicides, with the target to have qualified services across the entire cassava growing zones of Nigeria. Service providers are as well trained in the use of mechanical weed control methods to keep herbicide use at a minimum.

In Bioversity’s deliverables on organic banana and positive selection experiments were conducted by 18 scientists from national research institutes in Peru, Ecuador, Dominican Republic, Nicaragua and Ghana. Students in Nicaragua and Peru conducted field trials for their undergraduate theses on positive selection in plantain, crop residue management and irrigation management. A training course on free living nematodes as indicators of soil health was also carried out in collaboration with INIA Spain with 7 participants from three countries. Follow-up courses were conducted in Peru and Ecuador with students, lab technicians and specialists.

CIAT’s yield modeling in cassava work on developing the YCA model has continued through 2017, culminating in a training in planned in 2017, implemented in early 2018, with Southeast Asian stakeholders on the use of the existing version of the model. Activities will continue throughout 2018 with deliverables mapped to cluster CC3.2.

CIP implemented learning farms and field trainings in Kenya on 1) input levels (seed quality, fertilizer level and late blight spray frequency), 2) seed replacement technology and soil amendments, and on 2) improved rotation patterns.

2. MAIN GAPS AND CHALLENGES

Based on the feedback from PMU, 3.2 centers emphasized cluster governance procedures in the organization of the workshop in Hanoi. One representative from each center formed the cluster steering committee. The functioning of this group was somewhat delayed initially, since Centers were slow to ratify their representation. Virtual meetings were held to discuss the workshop products and participation with leadership for the different themes distributed across the centers. Unfortunately, less than two weeks prior to the workshop, the CIP representative withdrew. CIP was represented in the workshop by a scientist based in Hanoi who participated actively, but it was clear that he was only a temporary member of RTB. The cluster leader also canceled workshop travel due to family reasons but participated through virtual linkages in certain sessions.

The Cluster group has been slow to complete the workshop report which also affected the preparation of the work plan for 2018 which was proposed to have a major emphasis on joint products, cluster governance and cross-cluster linkages. Cluster governance and the work plan of joint products for 2018 will suffer similar problems if the different official focal points and the cluster leader are not able to dedicate some time to 3.2 interactions and coordinated leadership. The latter is depending on the level of funding because with the current ‘full-cost-recovery’ policy, scientists cannot spend time without adequate provision of funds to cover their salaries.

Within the IITA projects mapped to CC3.2 no major challenges were encountered. All projects are well on track.
Partner engagement faced bottlenecks at times, yet these were tackled in consultations and removed.

The lack of budget will undoubtedly affect the finalization of certain outputs. Budget problems have already caused some centers to layoff scientists reporting to CC3.2.

**MEASURES TAKEN AND ADJUSTMENTS PROPOSED**

No changes to the theory of change.

The challenges to cluster governance were addressed with repeated requests to CIP to identify a replacement member of the steering committee, which was eventually resolved.

To facilitate governance issues, the steering committee proposed to use virtual media for 2018 rather than a workshop.

For IITA bilateral grants, bottlenecks with partners were largely based on misconceptions of the roles partners were to play and tasks they were to accomplish. In consultations the actual role of these partners was made clear and in most cases the partners were not fully aware of the fact that decision making has been passed on to them. Due to the former modes of collaboration some partners have a more passive attitude, while the current mode of collaboration expects a greater active and leading role. This is a learning process that will be followed up.

**3. PARTNERSHIPS: ACHIEVEMENT 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>U</th>
<th>Topic of partnership</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>FUNAAB and NRCRI</td>
<td>Collaboration in ACAI, stepwise acquisition of responsibility for the activities conducted by the development partners on Cassava fertilizer recommendations, best planting practices, scheduled planting and harvesting and intercropping.</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>FUNAAB, NRCRI and UAM</td>
<td>Collaboration on disseminating results of the Cassava Weed Management project</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>National research institutes in Ecuador (INIAP), Peru (INIA) and Dominican Republic</td>
<td>Completion of studies and experiments to address yield loss due to red rust thrips and develop soil health indicators which can be used to improve productivity through improvement of soil health in organic export bananas by smallholders</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></td>
<td>Please provide a short description of main activities and results obtained</td>
<td></td>
</tr>
<tr>
<td>BA3.3</td>
<td>Banana plant pathologists from Bioversity participated in the Hanoi workshop to discuss cropping system approaches for addressing disease threats in banana, particularly Fusarium Wilt. Their contributions helped to focus the identification of cross crop and center products such as soil health as part of the cluster agenda</td>
<td></td>
</tr>
<tr>
<td>BA3.4</td>
<td>The BBTD earmarked project addressed considerable time and resources to tools for the characterization of the role of gender and youth in banana cropping systems in BBTD affected zones. These tools are applicable to different topics in 3.2. The gender specialist who worked on the BBTD tool participated in the Hanoi workshop</td>
<td></td>
</tr>
<tr>
<td>CC5.2</td>
<td>The cluster leader from 5.2 participated in the Hanoi workshop and together with other scientists who also participate in 5.2 was able to provide suggestions about the collaboration among the two clusters. Some efforts were made to hold cross cluster discussions during 2018 planning, but the review of possible overlapping products remains to be addressed.</td>
<td></td>
</tr>
</tbody>
</table>

*e.g. scientific or efficiency benefits

### 4. FUND RAISING

Provide an update on projects started or awarded in 2017.

For Bioversity 3.2 team the year was characterized by proposals presented, but not received – a Fontagro pre-proposal on ecological intensification of organic banana, a concept note on banana cropping system approach to Fusarium wilt in banana in Vietnam, a proposal for endophyte enrichment of banana cropping systems in West Africa. For IITA a concept note on a yam agronomy initiative was submitted to BMGF. The CN is on hold until end of 2018.

### 5. INNOVATIONS¹

List the innovations that: 1) have been made available for use to next-users in 2017; 2) have demonstrated uptake by next users in 2017.

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¹ Research and development innovations are new or significantly improved (adaptive) outputs - including management practices, knowledge or technologies.
<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>Cassava Fertilizer recommendation DST</td>
<td>Validation</td>
<td>NRCRI, FUNAAB, IPNI</td>
<td>Nigeria Tanzania</td>
<td></td>
</tr>
<tr>
<td>Cassava Maize intercropping DST</td>
<td>Validation</td>
<td>NRCRI, FUNAAB,</td>
<td>Nigeria</td>
<td></td>
</tr>
<tr>
<td>Best planting practices for cassava DST</td>
<td>Validation</td>
<td>FUNAAB, 2 development partners</td>
<td>Nigeria</td>
<td></td>
</tr>
<tr>
<td>Cassava scheduled planting and harvesting DST</td>
<td>Validation</td>
<td>FUNAAB, 2 private sector operators</td>
<td>Nigeria</td>
<td></td>
</tr>
<tr>
<td>Cassava planting density recommendations</td>
<td>AV</td>
<td>FUNAAB, NRCRI, UAM</td>
<td>Nigeria</td>
<td></td>
</tr>
<tr>
<td>Best weed control options in cassava</td>
<td>AV</td>
<td>FUNAAB, NRCRI, UAM</td>
<td>Nigeria</td>
<td></td>
</tr>
<tr>
<td>Banana post harvest loss diagnostic</td>
<td>Unplanned</td>
<td>AV</td>
<td>INIA, INIAP, IDIAF</td>
<td>Organic export banana growers globally</td>
</tr>
<tr>
<td>Nutrient balance to guide more efficient fertilization in organic banana</td>
<td>CC3.2.4.4</td>
<td>AV</td>
<td>INIA, INIAP, IDIAF</td>
<td>Organic export banana growers globally</td>
</tr>
<tr>
<td>Soil health indicators in organic banana for improved crop productivity</td>
<td>CC3.2.5.5</td>
<td>AV</td>
<td>INIA, INIAP, IDIAF</td>
<td>Organic export banana growers globally</td>
</tr>
<tr>
<td>Use of positive selection to improve plantain productivity</td>
<td>AV</td>
<td>IDIAF, UNAN-Leon, UNA, CRI - Ghana</td>
<td>Smallholder plantain growers in Latin America and Africa</td>
<td></td>
</tr>
</tbody>
</table>

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