Cluster annual report - 2017

DI1.1 – RTB Breeding Community of Practice

Edward Carey, Trushar Shah, Merideth Bonierbale, Morag Ferguson, Elizabeth Arnaud, and Hernan Ceballos
RTB Cluster Report


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www.rtb.cgiar.org

Contact:
RTB Program Management Unit
International Potato Center (CIP)
Apartado 1558, Lima 12, Peru
rtb@cgiar.org • www.rtb.cgiar.org

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1. MAIN ACHIEVEMENTS

The primary achievement of the Breeding Community of Practice in 2017, was to hold a formative workshop with the NextGen Cluster (Report). The workshop brought together geneticists, breeders, bioinformaticians and gender specialists with representation of RTB crops, CGIAR and a few other partners institutions, and refined outputs and deliverables in line with cluster milestones. With respect to milestone M1.4 - SMART targets for traits linked with enhanced resilience of RTB populations to climate shocks formulated and included in breeding program designed for at least 2 RTB crops – a journal article discussing climate smart breeding approaches for RTB crops was published, and progress was made toward defining SMART targets for RTB breeding. A further significant achievement was the successful development of an integrative project, RTB-Foods: breeding RTB Products for end-user preferences which brings together breeders, gender specialists, food scientists to identify use-preferred product profiles for selected RTB crops in five countries and apply genomic approaches to breeding of these preferred types. This CIRAD-led project brings together an integrated multidisciplinary team of CGIAR, advanced research institutes and national breeding efforts in Uganda, Nigeria, Benin, Ivory Coast and Cameroon to integrate user preferences into cassava, yam, plantain/banana, sweetpotato and potato improvement.

MAIN ACHIEVEMENTS WITH GENDER AND YOUTH RELEVANCE

Progress was reported on the MEL with respect to reporting against two milestones particularly relevant for gender: M1.2 Participatory methods for trait definition and selection (including at least 30% of female participants) used in at least (5) RTB/partners’ joint assessments; and M1.6 Trainings for breeders and geneticists on gender roles and consumer preferences organized. These included a manuscript in review on cassava trait preferences of men and women farmers in Nigeria: implications for breeding (11276); Participatory varietal development methodology implemented involving the value chain actors for yam – an internal document with tables with gender preferences between varieties (5837); Protocols for collecting and reporting gender preferences for traits in PVS with gender specialists in potato (in Spanish), which suggests statistical analyses to be used for various classes of traits, and which has been incorporated into the highly interactive data analysis platform (HIDAP) (8676). Related relevant outputs and deliverables were also developed under the Gender in Breeding Initiative which held workshops and developed webinar materials related to consideration of gender in breeding.

MAIN ACHIEVEMENTS WITH CAPACITY DEVELOPMENT RELEVANCE

The milestone M1.5 Breeding community of practice established in collaboration with at least 15 stakeholders in 6 countries was achieved through both the formative workshop of the RTB Breeding community of practice Cluster team (8659), and through cross crop and crop specific communities of practice such as the Asian Cassava Breeders network (11307), as well as other Breeding Communities of Practice such as the sweetpotato breeders not reported specifically as MEL deliverables, but which perhaps should be (link to report meeting on the Sweetpotato Knowledge Portal). Additionally, through these communities of practice, plant breeders and technicians were routinely trained in electronic data capture, trial design and analysis (e.g., 5805 report of training activities on cassava breeding. To facilitate information sharing, a knowledge sharing portal was established during the RTB Breeding CoP cluster formative workshop, but needs more work to serve a useful role. The linkage and complementarity of the CGIAR Excellence in Breeding Platform to CRP RTB is highly relevant, and this platform, with its tools, services and approaches is most welcome by the RTB Breeding CoP Cluster Team and will certainly be welcome by the broad community of partners in RTB Breeding in the coming years.
2. MAIN GAPS AND CHALLENGES

It is fairly clear from this report that the alignment between deliverables, and outputs and milestones can be tightened up in a number of cases. The formative workshop of the Breeding CoP and NextGen clusters was well received, though it was not possible engage as widely as might be preferred with partners and stakeholders. The Activity/Product set (DI1.1.3) related to database support systems provides a logical and strong area of cross-crop integration and learning. The fact that individual RTB programs are busy with project implementation and development points up the need for continuing need to search for synergies not only within the cluster, but across flagsips and crops. Some, reformulation of specific deliverables in order to meet milestones may also be required, as the deliverables reported in 2017 were by and large not very robust with respect to providing clear evidence of contributions to outputs and milestones.

MEASURES TAKEN AND ADJUSTMENTS PROPOSED

Activity/Product leaders need to be actively engaged to ensure relevance and value of deliverables. Continued communication and coordination, both with CGIAR partners such as Excellence in Breeding to remain conversant with current thinking about best practices, and with Breeding CoP Cluster team members is essential to ensure relevance and maximize value of deliverables. Milestones by and large reflect realistic and practical measurements of work actually underway by RTB Breeding CoP members, in many cases under bilateral projects. It is simply a matter of taking advantage of, and in some cases strengthening, reporting of those activities without imposing a burden of double reporting under projects, and while being transparent about the complementarity of bilateral and window 1 and 2 funding.

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>Name of partner</th>
<th>Topic of partnership</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Discovery/Proof of Concept</td>
<td>Natural Resources Institute (Lora Forsyte)</td>
<td>Development of gender-aware user-preferred product profiles for RTB breeding under the RTBFoods project taking into account, food science and economic considerations as well. Methods to be shared widely with RTB Breeding teams as appropriate.</td>
</tr>
<tr>
<td>1</td>
<td>Discovery/Proof of Concept</td>
<td>Cornell University (Hale Tufan)</td>
<td>Development of gender-aware user-preferred product profiles for RTB breeding under the RTBFoods project taking into account, food science and economic considerations as well. Methods to be shared widely with RTB Breeding teams as appropriate.</td>
</tr>
<tr>
<td>1</td>
<td>Discovery/Proof of Concept</td>
<td>HZPC (Han van Doorn)</td>
<td>Valuable best-practice guidance from a private sector partner during formulation of the RTBFoods project, and subsequent assistance in project implementation as a member of the advisory panel.</td>
</tr>
</tbody>
</table>

* Please mark: 1 – for Discovery/Proof of concept; 2 – for Piloting; 3 – for Scaling up and scaling out.
4. FUND RAISING

**RTB-Foods: Breeding RTB products for end user preferences**, funded for 60 months by B&MGF. Led by CIRAD, it focuses on carefully defining priority product profiles for each of the RTB crops in collaboration with national programs over 5 countries. It also involves each of the CGIAR RTB breeding programs, drawing to a significant extent on breeding efforts already underway, bringing a focus on dissection of quality traits, application in NextGen breeding, and engagement with users both at the beginning and end of the breeding cycle/pipeline.

5. INNOVATIONS

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.

<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>Breeding API allows data exchange between databases as well as third party tools. Being implemented in RTBases, BMS, drupal, etc.</td>
<td>DI1.1.3.7 - Application programming interface (API) for breeding RTB community-Mathieu Rouard; (5827) brapi R package (software); (8684) BrAPI implementation for BMS and Cassavabase (report/working paper)</td>
<td>BrAPI use seems to be becoming quite routine.</td>
<td>Bioversity, BTI, IITA, BMS</td>
<td>Assists to make existing databases more effective, integrating with each other.</td>
</tr>
</tbody>
</table>

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

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