

ISPC Assessment of the Roots, Tubers and Bananas (RTB) CRP-II revised proposal (2017-2022)

ISPC CRP RATING¹: A

1. Summary

- The CRP on Roots, Tubers and Bananas focuses on improving the production, marketing and consumption of a set of vegetatively propagated staple crops: cassava, potato, sweet potato, yam and banana. The CRP aims to assist 20 million people to increase their income; 30,000 small and medium-sized enterprises to operate profitably in the RTB seed and processing sector; 8 million households to have high yields of RTB crops through the adoption of improved varieties and sustainable management practices, with 1.9 million ha converted to sustainable cropping systems; and 10 million people to improve diet quality².
- RTB crops are linked by a number of common challenges at the stages of breeding, seed systems, and post-harvest and yet (with the exception of potato) are the subject of only limited research investments in the United States and Europe. The CRP has five highly inter-dependent and complementary Flagship Projects.
- This is a well-developed CRP with a track record of strong and competent leadership. The quality of research in the first phase has often been excellent. The CRP is organized as an “alliance” of the four CGIAR centers with research mandates for these crops (CIP, IITA, CIAT, Bioversity) along with CIRAD.
- The alignment with the SRF is strong and plausible, with clear and focused differentiation of how the FPs are expected to contribute to sub-IDOs. The CRP is not trying to tackle everything, and within each crop, the research priorities have been rigorously and systematically identified.
- The feasibility of significant impacts on poverty or natural resources for RTB is limited by the often small share in total agricultural income from these crops in most smallholder contexts. Furthermore, a significant underlying challenge facing the CRP – and one that can limit impact prospects – is the relatively undeveloped seed sector for vegetatively propagated crops in most countries. Seed systems research features in the CRP Phase II, but this may well be an insufficient contribution to materially change the challenging conditions that provide poor incentives for private sector investment.
- RTB has embraced innovative and forward-looking thinking in developing the CRP. A strong case for feasible delivery for a number of the targets in the CRP has been made, reflecting a commitment to impact assessment of adoption processes. The link between research outcomes (adoption) to development outcomes is particularly strong in research on orange-fleshed sweet potato and biofortified cassava.

¹ A+: Outstanding - of the highest quality, at the forefront of research in the field (fully evolved, exceeds expectations; recommended unconditionally).

A: Excellent – high quality research and a strongly compelling proposal that is at an advanced stage of evolution as a CRP, with strong leadership which can be relied on to continue making improvements.

A-: Very good – a sound and compelling proposal displaying high quality research and drawing on established areas of strength, which could benefit from a more forward-looking vision.

B+: Good – a sound research proposal but one which is largely framed by ‘business as usual’ and is deficient in some key aspects of a CRP that can contribute to System-wide SLOs.

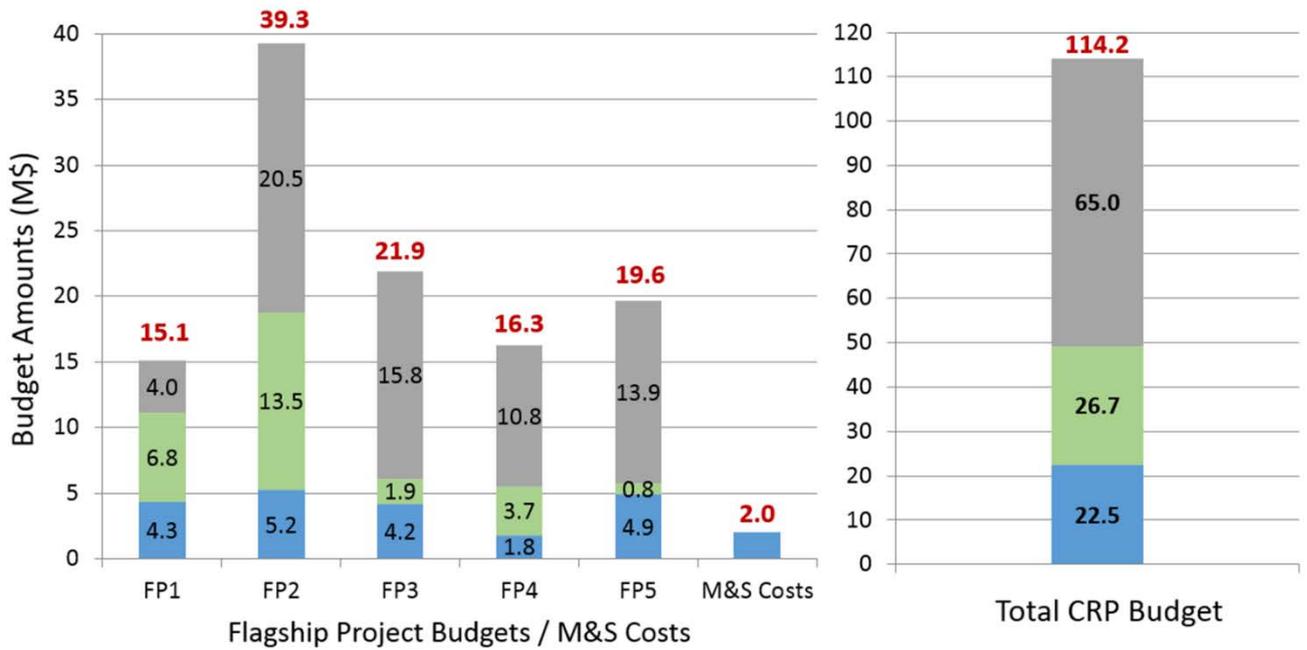
B: Fair – Elements of a sound proposal but has one or more serious flaws rendering it uncompetitive; not recommended without significant change.

C: Unsatisfactory – Does not make an effective case for the significance or quality of the proposed research.

² The CRP targets have not been independently verified.

**RTB 2017 FP and CRP Budgets:
W1/W2 Amounts, W3/Bilateral Amounts & Shortfalls (US\$M)**

■ Projected 2017 W1/W2 Amounts ■ Secured 2017 W3/Bilateral Amounts
■ 2017 Budget Amounts not yet Secured *Figures in red are Total 2017 Budgets Needed*



Data Source: CGIAR System Management Office

2. Characterization of Flagships

FP	Main strengths	Weaknesses/Risks	Rating
<p><i>FP1: Enhanced genetic resources</i> A “discovery” FP, comprising frontier science on breeding, transgenic varieties and in-situ conservation of genetic resources, supported by a breeding community of practice (CoP), that aims to deliver molecular and genomics tools for more precise trait selection in breeding.</p>	<ul style="list-style-type: none"> • Central to the success of the CRP as it provides the links to the underlying frontier research on which delivery is based. • Comparative advantage: well-established for next generation breeding and game-changing traits. • Likely to succeed based on rigorous prioritization and strong management. 	<ul style="list-style-type: none"> • Need to ensure that the feedback loop on which varieties are being adopted and why is continued. 	Strong
<p><i>FP2: Productive varieties and quality seed</i> One of three “delivery” FPs, containing the core breeding programs for each of the mandate crops (CoAs 2.2 – 2.7), as well as cross-cutting work on seed systems (CoA 2.1), that aims to deliver the new traits that farmers are looking for, via functioning seed systems.</p>	<ul style="list-style-type: none"> • Socioeconomic analysis on seed systems (CoA 2.1) addresses a critical issue that limits impacts from investments in breeding. The other clusters are the core breeding programs for each of the mandate crops. • Strong comparative advantage for the breeding program clusters, • Commitment to DNA fingerprinting of varietal adoption is welcome and indicative of genuine curiosity about impact. 	<ul style="list-style-type: none"> • Continuing challenge of private sector investment in seed sector for these crops. 	Strong
<p><i>FP3: Resilient RTB crops</i> One of three “delivery” FPs, focused on closing yield gaps for RTB crops in target countries through new tools and practices for managing pests and diseases (CoAs 3.1, 3.3 – 3.6) and improved production systems (CoAs 3.2).</p>	<ul style="list-style-type: none"> • Biotic and abiotic constraints are major factor in lowering yields of RTB crops, and climate change is making the challenge more difficult. • Comparative advantage supported by strong track record and relevant expertise across the participating Centers. 	<ul style="list-style-type: none"> • Insufficient recognition in proposal of importance of soil fertility and agronomy to the success of this flagship. 	Strong

FP	Main strengths	Weaknesses/Risks	Rating
<p><i>FP4: Nutritious RTB food and value-added through post-harvest innovation</i></p> <p>One of three “delivery” FPs, focused on increasing the role of specific RTB crops (particularly cassava and sweet potato) in diets, and as a source of income, through research on food processing, markets and policies.</p>	<ul style="list-style-type: none"> • Strong comparative advantage related to ability to close loop from knowledge of post-harvest issues and consumer preferences back to breeding program (FP2). • Strong track record of delivery as evident from recent award of the World Food Prize. • Comparative work across value-chains, and focus on lesson-learning suggest a pragmatic approach. 	<ul style="list-style-type: none"> • Challenge of attempting to influence trends in consumer perceptions regarding RTB crops, mitigated by strong partnership strategy. 	Strong
<p><i>FP5: Improved livelihoods at scale</i></p> <p>A cross-cutting FP aiming to support the scale-up of outputs from the other FPs via improved decision-making by a range of actors, resulting from evidence from: impact assessments, foresight, modelling, and gender and systems research.</p>	<ul style="list-style-type: none"> • Recognition of trends in consumption of RTB crops. • Links being made with other partners, commitment to continual improvement. 	<ul style="list-style-type: none"> • The track record on systems research is weak. • Risk of missing International Public Goods. 	Moderate

3. Assessment of CRP response to the ISPC major comments

Initial ISPC comment (16 June 2016)	CRP response/changes proposed (31 July)	ISPC assessment (14 September)
<p>1. Propose actions to reduce risks related to science quality, and particularly the high proportion of journal articles published in journals without an impact factor, both in terms of understanding how this came about and what will be done to resolve the problem.</p> <p>Major journals may be less interested in RTB crops than the major cereals, making high-impact publication less likely, but this does not address the central concern about why a significant proportion of CRP output is in journals without an impact factor. The risk management section on page 32 is largely focused on partnerships, but there could be some significant risks regarding the quality of science.</p>	<p>The proponents refer to the IEA Evaluation report which had made the same point, and explains again the nature of the science and why there have been fewer papers published in journals with an impact factor. The proponents also outline how the individual Centers are seeking to incentivize their researchers to publish in journals with higher impact factors.</p>	<p>Satisfactorily addressed.</p> <p>The need to publish in journals appropriate to the target audience for the research is recognized. The work being done by RTB and individual Centers to establish a culture which incentivizes publication in journals with an impact factor is welcomed. The RTB proponents have shown that they recognize the risks, but there is more that could and should be done to ensure high quality outputs. For example, project proposals for research to be funded through the CRP could stipulate the expected publication outputs.</p>
<p>2. Clarify the fate of research on pests and disease management of potato and sweet potato</p>	<p>The response highlights examples of pest and disease management research which is integrated within crop-specific clusters.</p>	<p>Satisfactorily addressed.</p>
<p>3. Respond to suggestions that CC3.2 on crop production systems would be better placed in FP5 and provide further details on the budget for this cluster of activity</p> <p>CC3.2 on crop production systems might be better placed in FP5 where collaboration in benchmark sites appears to be a prerequisite for its effectiveness. Presently, CC3.2 does not contribute to RTB outcomes in the second column of Table FP 3.2... Transfer of CC3.2 would give FP5 some definition, which is currently lacking in the full proposal.</p>	<p>The proponents justify retention of cluster CC3.2 in FP3. The argument made for this is based on their description of FP3 as being largely focused on production issues (i.e. supply of RTB crops) with research at the plot and field scale, whereas FP5 is organized around demand for RTB crops at the household, landscape and value chain levels. The W1&2 budget request is for \$0.56 million.</p>	<p>Satisfactorily addressed.</p> <p>RTB management are best placed to know how different clusters can be integrated. However, part of the ISPC concern related to the lack of an explicit contribution from CC3.2 to outcomes, and this point has not been addressed.</p>

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<p>4. Clarify a number of points highlighted in the comments on FP4 to understand the evidence base for expectations of future impact from bio-fortified cassava and sweet potato, in particular:</p> <ul style="list-style-type: none"> i. <i>10 million people with significantly improved diet quality</i> ii. <i>Evidence of the link between increased consumption of bio-fortified cassava and the incidence of vitamin A deficiency in children, and whether the evidence is as well-established as it was for OFSP at a similar stage in the “scaling” process</i> iii. <i>The adoption level of OFSP of 1.3 million households in 10 countries in Africa since 2010</i> iv. <i>The idea that researchers can influence consumers to pay a premium for nutritious (bio-fortified) varieties (as described on p. 100), requires several leaps of logic.</i> v. <i>Why get bio- fortified materials out to farm households in 20 African countries when the uptake of OFSP in Uganda and Mozambique... was as much as 80% below expectation?</i> vi. <i>How does scaling up of OFSP in the CRP on RTB differ from scaling up proposed in A4NH?</i> 	<p>The response provides references as evidence in support of the six sub-points identified in column 1. The only change to the main text of the proposal was to ‘correct’ the number of households which had adopted improved sweet potato planting material from 1.3 million to 1.7 million.</p> <p>The evidence presented as a rebuttal of the various critical points includes:</p> <p>Data on increased vitamin A intake from OFSP intervention programs in Mozambique (addressing <i>i</i>)</p> <p>Preliminary results from a Nigerian trial on acceptance of yellow cassava showed a positive consumer response to knowledge of the nutritional benefits of yellow cassava (<i>i, ii, iv, v</i>)</p> <p>Updated figures on adoption of improved sweet potato planting material and plans for enhancing distribution (<i>i, iii</i>)</p> <p>Emerging evidence from Rwanda on the emergence of a price premium for OFSP (<i>iv</i>)</p> <p>A defence of uptake in Uganda and Mozambique along with a reminder of the ‘challenges of working with a clonally propagated crop’ being disseminated through an ‘underdeveloped seed sector’ (<i>v</i>)</p> <p>Examples of cross-program learning between RTB and A4NH and other programs. (<i>vi</i>)</p>	<p>Satisfactorily addressed.</p> <p>The ISPC does not doubt the potential value of biofortified crops to improving nutrition, and the evidence for expected efficacy of RTB research (in going from research outcomes and intermediate development outcomes) compares favourably to other CRPs. However, the evidence presented does not convince that RTB-funded research will benefit 10 million people with ‘improved diet quality’.</p> <p>ISPC is not asking for further changes to the proposal (or targets) but wishes to emphasize the importance of critical research-oriented monitoring and evaluation that can contribute to System-wide learning on what are the most effective impact pathways towards System-Level Outcome 2 (Food and Nutrition Security) in different contexts. Confidence that this will happen is strengthened on the basis of the rewriting of FP5.</p>

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<p>5. Address remaining concerns regarding the content of FP5, particularly clusters of activity 5.2 and 5.4, through a detailed management response in the addendum.</p> <p><i>The clusters on Sustainable Intensification and Diversification (CC5.2) and on Institutional Innovation and Scaling (CC5.4) are problematic and likely represent low pay-off investments. The arguments are unpersuasive and not cogently presented, and the outputs are highly speculative and ill-defined.</i></p> <p><i>The absence of clarity in clusters CC 5.2 and 5.4 is communicated by the proposal for a competitive grants project that could elicit system-wide support to participate in seemingly priority projects related to RTB. Proposing illustrative research projects many years into the CRP's lifespan is an admission of mental fuzziness, at best.</i></p> <p><i>Research on extension and technology transfer has to be carried out in a manner that provides insights that can potentially be generalized to other contexts (i.e. rigorous, experimental examination of alternative mechanisms)... FP4 already contains a rich stock of experience in this area.</i></p>	<p>Clusters 5.2 and 5.4 have been substantially reframed.</p> <p>CC5.2 now focuses more on delivery of outcomes, by identifying entry points associated with RTB innovations. The research products are envisaged to be evidence-based options – the critical issue being the kind of evidence that will be generated.</p> <p>CC5.4 now builds much more on lessons which can be learned (with respect to RTB) from the approaches adopted by others for scaling. The proposed use of social networking analysis is welcomed as is the explicit recognition of the importance of capacity development.</p> <p>The scope of the competitive grants scheme has been made clearer through a change of title and a greater emphasis on scaling.</p> <p>A greater emphasis on learning lessons from earlier RTB experience is clarified in relation to extension and technology transfer.</p>	<p>Satisfactorily addressed.</p> <p>The arguments are more persuasive and more strategically focused on enhancing the delivery of RTB.</p> <p>ISPC comments on the Competitive Grant fund reflect the context of the start of Phase II. The change of title and tighter specification is welcomed.</p> <p>ISPC comments on extension and technology transfer research were pushing for more focus on production of international Public Goods. This is recognized in the final sentence on p 17 of the Addendum.</p>