

24 September, 2012

ISPC Commentary on the resubmission of the proposal CRP3.6: Dryland cereals *(Revision of August 2012)*

The revised proposal for CRP3.6 reflects considerable rethinking of the rationale for a dryland cereals program and how the components can be better integrated. There has clearly been significant interaction with stakeholders, and a good effort has been made to address concerns raised with the previous revision. The program has been restructured. New Product Lines (PL), each specific to one of the four crops (sorghum, finger millet, pearl millet and barley), are problem- and outcome-oriented. Combined with the PLs, five Strategic Components (SC) describe research approaches across crops and crop systems for achieving results. Considerable attention has been given to analyzing and elaborating the key barriers to adoption and to impact pathways. The ISPC notes a substantial change underpinning the revision with respect to enhancing collaboration with stakeholders and other CRPs. The sections on partnerships recognize the importance of collaborating with downstream agencies.

The ISPC's key concerns with earlier versions of CRP3.6 related to (i) the justification for expected impact on specified target populations and for research prioritization; and (ii) integration of research across the different crops. To address the second concern, new and a matrix-type structure of crop targets integrated with research approaches greatly improves program coherence and is likely to enhance synergy and efficiency across the crops. Better definition of the targeted farmer groups ranging from subsistence farmers to those able to link with commercial markets will help focus research and planning. Regarding the first concern, improved assessments of demand have been performed and proponents have identified several emerging niches for dryland cereals in different regions. However, a number of concerns remain. Although proponents provide more data on country statistics, poverty and target populations in two new Appendices (2 and 6), it still isn't clear how those data have been used in selecting the priorities. The proposal still lacks clarity in key assumptions and consistency regarding criteria used for targeting specific crops and geographic areas. For example, there is still a blanket assumption of a proposed 20% adoption across all target areas, and the budget in this August 2012 revision has not changed from the February 2012 revision, which featured a 35% increase for funding to ICARDA (and thus barley) compared to the original 2011 version. Moreover, all of this funding is classified as "funding gap". The ISPC accepts that initially the CRP is based largely on on-going research bound by existing grant obligations. However, during its early implementation phase, the CRP research program needs to make funding allocation consistent with the prioritization framework based on the data and analysis as described. This will be the task of the CRP leaders, the Consortium, and the new IEA.

Overall, the ISPC believes there is good justification in CRP3.6 for work on dryland cereals to be part of the CGIAR's research portfolio in an integrated program. The research proposed is relevant and elaboration of distinct products lines for each crop/target combination should improve ability to address constraints to adoption, monitor impact pathways, and make adjustments as the program proceeds.

Recommendation: The ISPC recommends that this CRP be approved so that program evolution can commence and expects that prioritization will be completed and reflected in adjusted budget

allocations as the program evolves. As with other programs, the ISPC finds insufficient detail to confirm how the proposal will meet its broad-brush targets. The ISPC considers it essential that program management reconsider with urgency the key assumptions on priority targets and predicted impacts so that the Program can focus its investments and efforts optimally on the basis of clear assumptions and set realistic targets for each crop and target group. The new program structure provides an excellent framework for achieving the needed prioritization, and the ISPC encourages the Consortium to work with the proponents to enhance the necessary program evolution. The ISPC's detailed assessment of the Program's response to the "must haves" is given below.

ISPC Must Have 1. Provide an improved analysis and presentation of the target populations who can realistically be expected to benefit from the CRP 3.6 research.

Not fully addressed. There are still gaps and inconsistencies in criteria used for prioritization and selection of crops, regions and countries. Improved data on poverty measures are used and better attempts have been made to combine these with other key selection criteria (mainly production area). However, the way the data have been used is very difficult to follow. In the set of tables presented and used for prioritization (tables 1-4), the pieces of information have been employed in varying ways; sometimes separate and other times combined. For example production tonnage and value (VOP) combined with an FAO classification of countries identifying the LIFDC was used to select crops in table 1, which clearly shows the low priority of barely in terms of the stated criteria (only 6% of barely is produced in LIFDCs). Table 2 presents different social development indicators, only one of which (poverty) is combined in table 3 with crop data to select regions (but this time area and not production data). Nevertheless, Table 3 confirms the low priority of NA and CWA (CWANA) in terms of both criteria if one excludes barely based on Table 1 data.

Countries selected in Table 4 use still different data and criteria. It is argued (p13) that "*Within these regions, targeting of specific countries was based on a number of factors including crop area, yield gaps, rural and urban population, and demand.*" However, there is no evidence on how those data on yield gaps and rural-urban population were employed, and the proposal confirms that "*In each region, the highest priority countries are those with at least 500,000 ha of a crop*". The proposal also argues that demand is used as a criterion "*Because dryland cereals are staples consumed within the country, demand is closely correlated with the area planted*". There is no information on international (or interregional) trade (exports/imports) in these cereals to support this very strong assumption, which, if accepted, would mean that area is simply considered to reflect demand. In conclusion, countries were selected based only on crude area criterion and thus the issue raised earlier about valid basis for selection of target countries, especially in WCANA, remains unresolved. There is strong emphasis on prioritization by country, which is not always consistent with expectations to produce international public goods. Greater consideration could be given to prioritization on a crop/trait basis and to spillover potential among countries.

In general, the cross-referencing and flow between the Appendices 2 and 6 and the text they are supposed to support is lacking. Appendix 2 does not provide interpretation of the data presented and it is hardly referenced in the text. In this Appendix a number of the parameters are unclear: Whether the *number of poor* relate to poor growing the dryland cereals or poor in general, and if the former, how were the data derived? How is the overlap in the *total number of poor* (barley/sorghum/ millets) related to the overlap estimates in Appendix 6 (Table 6-5)? What is the total from which the *proportion of poor* is counted? How has the *average yield gap* (for choosing countries) been calculated and has it been used in the analysis? How has the *travel time to markets* been calculated, and what is the significance of this parameter? In Appendix 6, it is unclear whether the derivation of both the demand and supply estimates is based on the IFPRI IMPACT model and how estimation of likely yield gains has been made for the four crops across 15 countries. Food security estimates appear uniform across crops and regions but there are

no references to support the assumptions. The calculations on food secure households and increases in them are unclear and inconsistent with the calculations of beneficiaries in Table 7 (p36) and in the text on p14. Calculation of added net income for various technologies across countries and crops is likely a near impossible task and the approach in the proposal results to very round, uniform numbers (Table 6-4).

The key assumption of reaching 20% of total area in 10 years remains central to all impact predictions as page 14 maintains that “*We have therefore set ourselves the realistic target of improving productivity on one fifth of the area under dryland cereals in these target countries, equivalent to 11.8 million ha*”. The proposal also claims that adoption rates for different crops in different countries are estimated based on experts’ opinion (both for crop improvement and management interventions - p142), and that the 20% will not be achieved uniformly in all countries (p14). Basis for making the 20% estimate therefore remains unclear. It is a pity none of the good effort made to understand adoption constraints for crops in target countries and regions and attempts to define specific PLs and SCs to address those constraints were used to inform this blanket 20% adoption assumption. It is also unclear what characteristics differentiate the targeted area of 20% from the total potential area. How is the 1/5 chosen? In Table 7, getting from year 5 to year 10 involves a fixed factor (except for PL4) of 2.2, 2.5 or 3.3 depending on the PL, which implies a more nuanced understanding of adoption potential. It is in the interest of the CRP to develop more realistic baselines against which it will be evaluated.

The attempt to define target beneficiaries better by considering two distinct farmer groups and to define PLs with specific reference to constraints and opportunities for these groups did address the ISPC concern about who are the likely beneficiaries on the suppliers/production side. However, the proposal doesn’t pin down what is done or where it will be done. For example, where are the markets, and what implications these markets have for research, such as on targeting specific traits. Questions raised earlier about likely beneficiaries on the side of consumers remain unanswered. This is because predictions and estimated impact and beneficiaries remain based on parameters of the previous IFPRI IMPACT model assumptions about the urban-rural and food-nonfood divide with respect to demand (Appendix 6). The IFPRI IMPACT model assumes constant shares for food-nonfood and predicts the same positive per-capita growth for both rural and urban populations. This despite the fact that the proposal itself admits low confidence in the validity of the IFPRI model predictions in light of growing evidence to the contrary (recent ICRISAT study showing rising share of non-food and others on declining share in urban diets - pages 17-18 and Appendix 3). Thus, the ISPC’s earlier questions about the likelihood of delivering higher benefits to higher income consumers remain.

ISPC Must Have 2. Justify and prioritize better the proposed work plans on a crop-specific basis; pool research efforts in identified areas across two or more of the dryland cereals for greater efficiency

Adequately addressed. The new structure helps elaborate crop-specific research plans and integration. In the new structure individual crop PLs are presented and well justified while cross-cutting SCs focus on a number of scientific issues and research approaches that apply across crops and PLs. Section pp21-22 (*Why work on these crops under a single CRP?*) discusses these points. For SC2 (development of improved varieties and hybrids, which now combines research on genetic resources and genomics) and SC3 (integrating sustainable crop, pest and disease management options) in particular, it will be useful to develop explicit plans for future cross-crop and cross-institution collaboration and monitor the gains for enhanced efficiency.

ISPC Must Have 3. Reduce the scope of research in terms of crops and target areas when likely effectiveness of the research at scale cannot be demonstrated

Not fully addressed. The ISPC expected that the scope would be guided by improved predictions of where the demand is coming from (food vs. non-food uses) and subsequently research would be focused

on constraints that, if addressed, will benefit the poor as primary target beneficiaries. The document addresses this subject in a number of places. In the logframes, SC1 of PL1, PL2 and PL6 promise to assess the nature of demand. In PL4, it looks as though promotion is planned to *stimulate* demand for finger millet. Is such promotion appropriate?

The *Introduction* identifies subsistence and commercial farmers (as two ends of a continuum) and this is useful. Throughout the document there are indications of where non-traditional demand may replace or overtake traditional demand for these cereals, but much of this is anecdotal. A comprehensive analysis of the alternative markets (feed, brewing, starch, ethanol, etc) is lacking, as is their growth trajectories and other crops that may compete with these dryland crops in those markets. Given the disparate nature of these markets, such an analysis would be too much to ask for at this time, but it would be nice to see that the CRP was explicitly geared up to follow these industries and end-uses to better track potential demand. It is difficult to judge how important such markets will be in justifying public research in these crops.

There are a few examples of claims of likely effectiveness that need to be better argued: There is discussion about the nutritional advantages of these crops but little indication of how a substantial market could be developed on the basis of quality attributes such as gluten-free finger millet. The assumption that finger millet is becoming more popular in urban areas needs to be substantiated. An argument that falling grain consumption of dryland crops threatens the fodder market in India seems unlikely. If there is demand for fodder, these fodder prices will rise or other substitutes will be found, and a drop in demand for food grain may be made up with a rise in demand for feed grain.

In general, this must have is closely related to #1 and therefore the questions raised about justification and prioritization apply here as well. In the budget, there is no indication of a reduced scope (a case in point is barley) although there have been some shifts of focus regarding geographic location.

ISPC Must Have 4. Do an analysis of current work to identify barriers to adoption and shifting to new areas of innovative research and approaches to overcome these barriers.

Adequately addressed. A section *Constraints to adoption of dryland cereals* (pp19-21) and Appendix 5 focus on adoption. Although the revision is much improved from the earlier version, there are a few considerations. The first is the nature of the studies reviewed. The document acknowledges that this is problematic; there are not many studies to choose from and they are quite disparate in form, making comparisons difficult. It is not clear how much reliance can be placed on the adoption levels reported in many cases. For instance, a relatively small number of studies (e.g. Ndjeunga et al.; Deb et al.) are the basis for many of the country estimates and there is no indication of the methods or samples used.

The second consideration is the nature of the constraints identified, which are quite a mixed bag. Figure 3 provides a list and Table A5-5 amplifies it. It would appear possible to divide this mixed list into three distinct categories: (i) things that limit the uptake of technologies (varieties) that are verified to be appropriate (lack of seed, lack of information); (ii) things that may make a technology (variety) on offer inappropriate (bird damage, long duration); and (iii) things that may limit the farmers' interest in *almost any* technology (low soil fertility, lack of irrigation, lack of markets).

There is some discussion of constraints: Seed and information are treated in SC4 (cat. I). The question of cultivar traits is discussed at several points (e.g. p64) in the justification for SC4 (on *seed*) (cat. ii). On one hand, the discussion indicates that cultivars are often not acceptable (p58, SC2) while on the other hand it is stated (Rattunde et al.) that techniques have been developed to provide a range of preferred cultivar options. Adoption risks for marginal farmers are mentioned (p26) (cat. iii). As the proposal points out, there is little information available to permit a discussion about uptake of crop management technologies.

The specific section on adoption is, however, not clearly reflected, or built on, in other sections of the document where the issues are discussed. The prioritization of constraints suggested in Table A5-3 is only reflected in the CRP structure where seed supply warrants a SC.

ISPC Must Have 5. Present new and innovative approaches to overcome constraints to adoption of the range of technologies by the poor and vulnerable, particularly in Africa, and to increase the likelihood of impacts in their livelihoods

Adequately addressed. The SC descriptions contain a brief section on *innovative contributions* although these are not explicitly linked to overcoming specific constraints. Some of the innovations proposed capture new opportunities, for instance in data management and communication (SC1) or tools and trends in molecular breeding (SC2). In SC3, the innovative contributions address integration of management components, addressing women's constraints specifically and incorporating evaluation in the research. In SC4, capacity building, information networks, and analysis of alternative delivery models are emphasized. In SC5 the contributions are of very different type and scale, including technological innovation, efforts on various types of links, and plans for monitoring.

ISPC Must Have 6. Present realistic and research-specific impact pathways that carefully address the conditioning factors and incorporate feedback loops.

No fully addressed. The revised proposal is more specific with some good examples of impact pathways. While Figure 4 presents a somewhat standard impact pathway that would apply for any crop, Figures 5 and 6 are closer to what is needed because they are connected to delivery mechanisms. The discussion in the text (pp29-32) emphasizes that the two examples are not exhaustive but illustrative of the challenges for the two types of farmers.

For subsistence farmers (at least in the example) there is heavy reliance on farmer field schools (FFS) and particularly farmer organizations (FO). If these are illustrative examples, it would be useful to consider what the pros and cons are of such groups, how they are established, how a CRP encourages or interacts with them, and also, what can be learned from past experience. In SSA, it would be useful to know roughly how common it is for farmers to belong to FOs and whether FOs are a feature of the areas where benefits from the CRP are likely to accrue (the 20% target area). The document has several references to FOs but not much specificity on their role in this CRP. For commercial farmers, the example chosen is pearl millet hybrids, which is a successful example in India. In SSA there may be more substantial challenges along the impact pathway for such commercial opportunities.

The ISPC urges the proponents to continue to develop realistic impact targets and pathways, and at an early stage of implementation, to develop early an appropriate M&E scheme to increase probability of impact.

ISPC Must Have 7. Show better integration of CRP3.6 with CRP1.1 (Dryland Systems), as well as justification for their separate identities or merger; there needs to be a plan to monitor the impact pathways for CRP 3.6 cereals research drawing lessons from both CRPs

Not fully addressed. There is a new section “*CRP interactions*” that contains detail on linkages with CRP1.1 (Dryland Systems). It is stated (p27) that ICARDA being the lead center on Dryland Systems “*will enable key linkages between the two CRPs*”. Those linkages could be more explicit to focus on crop, commodity systems and sites. The interactions (pp80-81) seem to show how the different CRP strategies (e.g. CRP1.1 action sites) may be integrated. Figure 9 indicates that much of the field data (baselines, uptake, etc) will be left to CRP 1.1. Another place to look for interactions with CRP 1.1 is in

SC3. There is an acknowledgement that much of natural resource management research will be done in collaboration with CRP 1.1, but no detail is given. CRP 1.1 is also referenced in the proposal with respect to collaborating in research on marketing and gender. There are a couple of shared output targets/milestones with CRP 1.1 in the logframes. However, the section on Impact Pathways makes no explicit reference to CRP 1.1 and it is not mentioned in the section on Monitoring and Evaluation. The possible creation of a monitoring unit in collaboration with CRP 1.1 is mentioned (p38). It will be important for the Consortium to evaluate whether the two CRPs capture the potential for synergies. This needs to be done beyond the milestone for SC1 of “*monitoring framework and process agreed by key stakeholders, including CRP 1.1*” in order to draw lessons from both CRPs. For the vision of the SRF to be delivered, monitoring of genuine discussions (and joint decision-making) between CRPs will be essential.

FC Must Have 1. Provide further attention to Monitoring and Evaluation system

Adequately addressed. There is a revised section on Monitoring and Evaluation (pp95-99) and M&E is also discussed in the section on SC1 (pp55-57). The M&E framework promises a great deal but will presumably be streamlined under a general CGIAR M&E system. For many of the measures listed in Table 11, details about their collection and analysis should be thought out carefully considering feasibility and resources. The *Research Approach* for SC1 (p56) assumes a very challenging task for which considerable capabilities would be needed.

FC Must Have 2. Present evidence of linkages with the Regional Fora

Adequately addressed. A new section (pp33-35) elaborates on these linkages and a role for regional representatives is also seen in the oversight and independent advisory committees.

FC Must Have 2. Provide information on formal commitment of other partners

Adequately addressed. It is clear that the revision has been developed in close consultation with partners and stakeholders and this implies commitment of the key partners.