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RESEARCH PROGRAM ON
Wheat



WHEATPLUS (2016 – 2020): MEETING THE INCREASING DEMAND FOR AFFORDABLE FOOD BY POOR CONSUMERS

Draft version September 2013



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INTRODUCTION

This draft description of the 2nd Phase of the CGIAR Research Program on Wheat is intended for Consortium Board and Fund Council review and discussion in November 2013.

Wheat provides 21% of the food calories and 20% of the protein for more than 3.5 billion people in 94 countries. Farmers in low & middle income countries account for 66% of global wheat production. Demand for wheat in the developing world is projected to increase 60% by 2050. WHEATs vision of success is that increasing demand for food is met at affordable prices for poor consumers, based on higher yields leading to increased production. Such yields are achieved in more sustainable and resilient farming systems, not least because farmers in those systems have gained better access to cutting-edge technologies.

Based on WHEAT Partner Priorities Survey results, the majority of R&D partners put 1st priority on WHEAT 'food impact': *To meet the increasing demand for food and to stabilize food prices at affordable levels for poor consumers.* WHEAT has yet to extensively interpret the results of the survey together with its partners.

WHEAT INTENDED IMPACTS

The 2011 WHEAT proposal made the case for the following impacts (see also Annex 1):

- i) To focus on sustainable increase of production in the target regions with more equitable participation of the poor, disadvantaged, men and women in the value chain.
- ii) To keep wheat and wheat-based products affordable for the poor consumer for whom wheat is a preferred food staple.

AIMING FOR INTERMEDIATE DEVELOPMENT OUTCOMES TOWARDS IMPACT

The following table describes the role of WHEAT with respect to the generic list of CRPs IDOs, which is currently being refined by a Consortium working group.



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Eleven generic IDOs and how they relate to WHEAT

Common IDO	Match with WHEAT impact targets / value proposition?	Have as WHEAT IDO?	Comments
Improved productivity in pro-poor food systems	Y	Y	
Increased stable access to food commodities by rural urban poor	Y	Y	For wheat products
Increased consumption of safe, nutritious foods by the poor, vulnerable women and children	Y	Y	Contribute to CRP4 IDOs
Increase and more equitable income from agricultural, NRM and environmental services earned by low income chain actors	Y	Y	WHEAT systems R&D component
Increased control by women and other marginalized groups over assets, inputs, decision-making, and benefits / over resources & participation in decision-making	Y	Y	New draft IDO, but really multi-CRP challenge
Increased capacity for innovation within low income vulnerable rural communities to adapt to environmental and economic variability, shocks, change	N	Y	Multi-CRP challenge (Systems CRPs tap into Commodities CRPs for appropriate technologies)
Additional policies supporting sustainable and equitable agricultural and NRM adopted at country level / More efficient, effective, equitable policies ...	Y	N	To be addressed by the link between WHEAT and CRP2
Minimized adverse environmental effects of increased production and intensification*	Y	Y	
Greater resilience of systems through enhanced ecosystem services	N	N	Contribute to Systems CRPs IDOs
Increased carbon sequestration and reduction of greenhouses gases through improved agricultural and NRM (*proposed to merge with environment IDO)	Y (2 nd order impacts)	N	Contribute to CCAFS IDOs
Genetic diversity for future generations	Y	Y	WYN, SeeD, Genebank CRP

WHEAT is aiming for eight IDOs. The pre-condition for achieving a particular IDO is that WHEAT delivers a cluster of Flagship Projects that relate to three Research Strategies:

1. Sustainably grow more with less in support of poverty reduction, improved livelihoods and sustainable development
2. Improved varieties onto research & farmers' fields for greater food security of the rural and urban poor, increased farmers income
3. Frontier genetic research: Novel diversity and sustained yield gains in the face of climate change and resource scarcity.



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<i>Research Strategy</i>	Sustainably grow more with less for improved livelihoods	Improved varieties onto research & farmers' fields	Frontier genetic research: Novel diversity & sustained yield gains
<i>Relate to System Level Outcomes</i>	Rural Poverty, Sustainability	Food Security, Rural Poverty	Food Security, Sustainability
<i>IDO 1</i>		Smallholders' modern wheat varieties adoption translates into higher, more stable yields in wheat target region	
<i>IDO 2</i>	IDO on increased capacity for innovation ... to adapt to ...		
<i>IDO 3</i>	Accelerated varieties release scaled out; farmers have more & better access to quality seed & use them to enable increased production and availability for rural & urban poor		
<i>IDO 4</i>	Farmers improve their household income & livelihood		
<i>IDO 5</i>	Farmers enhance soil productivity and minimize negative effects on the environment		
<i>IDO 6</i>			Faster and more significant genetic gains in breeding programs worldwide, using more effective approaches for complex traits
<i>IDO 7</i>	Greater women farmer equity in wheat production & value chains; young farmers seize opportunities in wheat-based systems		
<i>IDO 8</i>	Increased consumption of nutritious foods by vulnerable women and children in urban and rural areas		

The following points will be addressed while developing the pre-proposal (due by June '14), based on feedback from Stakeholder and Management Committee members:

- WHEAT will also deliver outputs, which other CRPs will use to reach their IDOs: WHEAT delivers more nutritious wheat varieties (higher zinc content) with good end-use quality. The responsibility to turn this output into poor peoples' improved nutrition lies within CRP A4NH (Nutrition & Health).
- IDOs can only be achieved by development partners, who use WHEAT outputs and research outcomes, to turn IDOs into reality over time. WHEAT R4D partners must review and refine the IDOs, making them 'theirs'.
- Some of the necessary 'IDO development partners' are not directly involved in WHEAT research & development projects. They are actors (independent institutions), who have different priorities and agendas, compared to WHEAT.



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- Much work remains to make IDOs practical and provide real strategic value – i.e., for intra-CRP and cross-CRP targeting, planning, management, monitoring and reporting. This includes agreeing on using ‘common’ indicators for a particular IDO and setting targets per IDO; best done with the relevant R&D partners.
- Partners request that capacity development is incorporated in IDOs.
- Based on donor feedback in June, WHEAT assumes that all CRPs will focus on ‘common’ or ‘generic IDOs’, for which standard progress indicators will be defined. A simple logic of indicators along the impact pathway and options for WHEAT progress indicators are shown on the following two pages.

WHEAT IDOs and progress indicators

Tracking progress towards IDOs would most likely require using 2-3 indicators per IDO. Most CRPs have 5-6 IDOs; they would be tracking 10-15 indicators.

		Commodity CRPs	MAIZE or WHEAT		
	CGIAR Research Program (CRP)/ IDO'S	CRP 3.1	Indicator	Indicator	Indicator (MAIZE)
	Common IDO's	Wheat	Germplasm	Systems	Storage
1	Improve productivity in pro-poor food systems	Smallholders' modern wheat varieties adoption translates into higher, more stable yields in wheat target region	% adoption On-farm (land, labor, energy, water, nutrient) productivity increase among adopters	% adoption On-farm (land, labor, energy, water, nutrient) productivity increase among adopters	
2	Increase and stable access to food commodities by rural urban poor	Accelerated varieties release scaled out, Farmers have more & better access to quality seed & use them (adoption & replacement rates over time go up) to enable increased production and availability for rural & urban poor	Food-secure days	Food-secure days	Food-secure days
3	Increased consumption of safe, nutritious foods by the poor, especially among vulnerable women and children	Add to WHEAT IDO list	Malnutrition among women and children in participating communities	Malnutrition among women and children in participating communities	Malnutrition among women and children in participating communities Healthy grain consumption



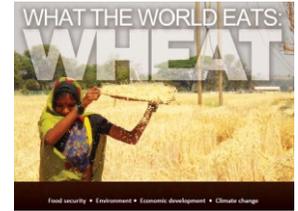
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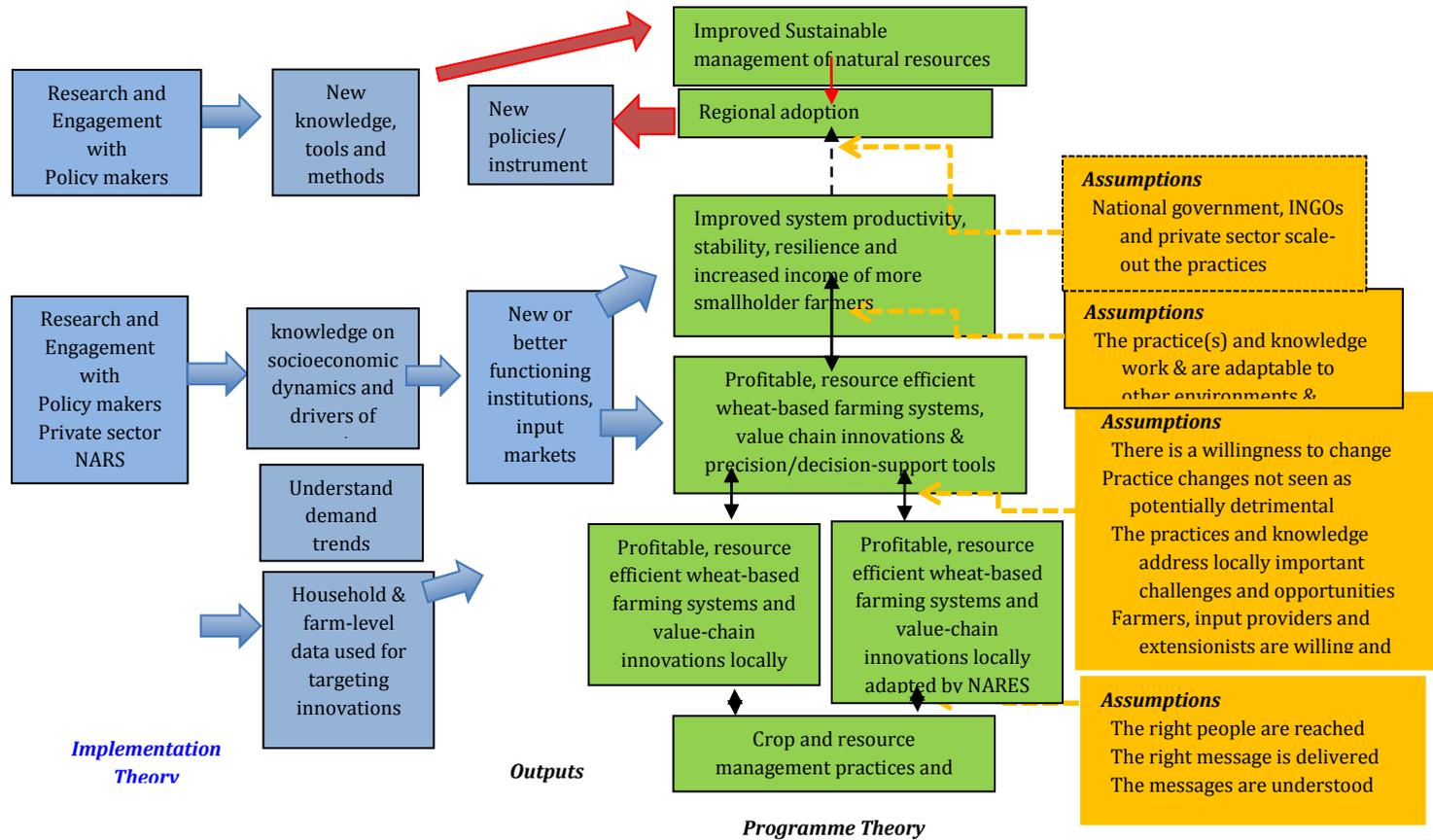
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4	Increased and more equitable income from agricultural and natural resource management and 7 environmental services earned by low income chain actors	Farmers improve their household income & livelihood	Producer & consumer benefit	Income increase in participating communities	Income increase in participating communities
5	Increased control by women and other marginalized groups of assets, inputs, decision-making, and benefits	Greater women farmer equity in wheat production & value chains and more youth seize opportunities in wheat-based systems		Income increase by women	Income increase by women
6	Increased capacity for innovation within low income and vulnerable rural communities to adapt to environmental and economic variability, shocks and longer term changes	Add to WHEAT IDO list X		# participating communities	
8	Minimized adverse environmental effects of increased production and intensification	Farmers minimize unsustainable effects on soil, environment	Land, labor, energy, water, nutrient savings	Land, labor, energy, water, nutrient savings	
			Reduced pesticide use	Reduced pesticide use	Reduced pesticide use
9	Greater Resilience of agricultural/ forest/ water based/ mixed crop livestock, aquatic systems through enhanced ecosystem services	X	Income variation	Income variation	Income variation
11	Genetic diversity for future generations	Faster and more significant genetic gains (research) in breeding programs worldwide, using more effective approaches for complex traits	Diversity distributed		

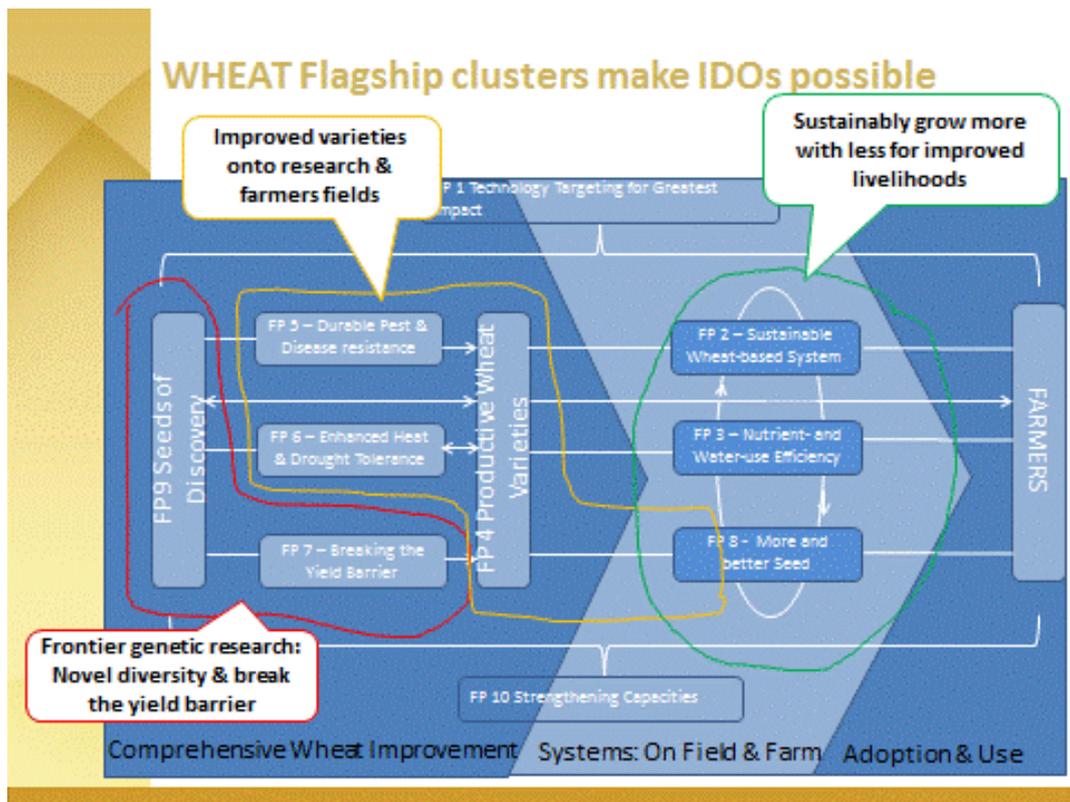


UNDERLYING IMPACT PATHWAYS AND THEORY OF CHANGE



- WHEAT Impact Pathways and underlying Theory of Change are generic and high-level at this stage. They are being elaborated in interaction with the WHEAT Management Committee and Strategic Initiative Leaders, and discussed with partners at the WHEAT General Meeting (March 2014).
- Wheat is the most exported and globally traded food cereal. Developing a probable impact pathway, aiming at affordability for wheat-dependent poor consumer and producers, will be a complex undertaking and require scenario-building.

CLUSTERING FLAGSHIP PROJECTS TO GET TO IDOs



WHEAT planned its Phase I already along “Flagship Products”, called at that time “Strategic Initiatives”. Through a WHEAT-specific partnership survey, the logic of this mutually reinforcing logic of Flagship Projects was confirmed: Frontier genetic research outputs flow into pre-/breeding-based research, which will reach farmers’ fields through variety release-to-extension and, later, via systems R&D. For partners to achieve a particular IDO, WHEAT must deliver on a cluster of outputs, which needs to be further reviewed in collaboration with various groups of collaborators.

EXPANDING AND REFINING PARTNERSHIPS FOR IMPACT

WHEAT plans to maintain its governance and management structure, with a majority non-CGIAR Stakeholder Committee and three non-CGIAR Primary Research Partners working on the Management Committee. A future change will be to more strongly search for lead partners among non-CGIAR partners.

Cross-CRP collaboration will grow at CGIAR Center and partner-led projects levels:

<i>Research Strategy / CRP collaborators</i>	Sustainably grow more with less for improved livelihoods	Improved varieties onto research & farmers' fields	Frontier genetic research: Novel diversity & break the yield barrier
<i>'Commodities' CRPs</i>	Give&Take: Innovation systems approaches for intensive systems	Give&Take: Accelerated varieties release (NARS processes, policies, regional collaboration)	Give&Take: Technologies & methods (know-how exchange)
<i>'Systems' and NRM CRPs</i>	Give: precision agriculture and N, P, water use efficiency for wheat Take: systems approaches, technologies & methods; help ensure positive or neutral ecosystem impacts	Give: Provide appropriate germplasm Take: Need for further adaptation	
<i>Nutrition & Health</i>	Give: Provide outputs (high zinc varieties), which CRP4 turns into outcomes Give&Take: Collaborate on technology adoption by NARS		
<i>CCAFS</i>		Give: Technologies & information Take: Test in pilot sites; provide models, tools	Give: Increased genetic yield Take: Model impact on CC
<i>Policies, Markets</i>	Give&Take: develop value chains (multi-crop; geographic focus)	Give: First user adoption drivers Take: Economic models, policies	
<i>GCP</i>		Give: use & promote IBP tools Take: new diversity for drought/heat tolerance (India, China)	
<i>Major national, int'l wheat research projects</i>		Give&Take: products and outputs; technologies & methods	

The CGIAR conducted a comprehensive Stakeholder Perceptions Survey related to all its CRPs. Together with GRiSP and MAIZE, WHEAT was among the top three rated CRPs – significantly above all-CRPs average for all key performance indicators. This represents a solid foundation for the partnership that is upholding WHEAT. Changes to how WHEAT 'lives' partnership will feature:

- WHEAT will need *strong (not more)* partners to build the Global Phenotyping Network and to expand its Capacity Development scope – and *different* partners, to grow its gender-related R&D competence and link with traders, wheat processors & end-product producers, to have more influence on wheat value chains;
- WHEAT must do a better job at communicating to partners, their ability to become involved and influence WHEAT;
- Before and during Phase 2, more joint fundraising should take place with partners. Non-CGIAR partners are expected to lead on certain WHEAT components. Two current examples to follow include: ASARECA leading a jointly funded competitive call for a multi-country wheat potential study; and the continuation of WHEAT Competitive Partner Grants, to fill research gaps in the WHEAT portfolio.
- Regional Collaboration: WHEAT is reviewing its approach to innovation systems and applying that learning to its large, multi-partner research programs (e.g. CSISA) oriented towards the sustainable intensification of cereal based systems, which make up more than 25% of WHEAT Total Budget.

The expansion of WHEAT Flagship Projects' scope, including partnership, is shown below, e.g., the Heat & Drought Consortium will be an expansion of Flagship Project 6. The expansion projects are at different stages of development. They rely on strong partners and improved partnership practices, as mentioned above. The Global Network of Phenotyping Platforms would bring together at least 8 NARS, to precision phenotype for particular trait(s) in diverse environments.

<i>Research Strategy / Flagship Product</i>	Sustainably grow more with less for improved livelihoods	Improved varieties onto research & farmers' fields	Frontier genetic research: Novel diversity & break the yield barrier
Technology targeting for greatest impact			
Sustainable wheat-based systems	CSISA & MASAgro: Innovation systems based approaches for the sustainable intensification of cereal based farming and food systems		
	Wheat for Africa Coalition (W4AC)		
Nutrient- and water-use efficiency	Comprehensive NUE Strategy: Precision agriculture, agronomy & systems, biological nitrification inhibition (BNI; frontier research)		
Productive wheat varieties		Global Network of Phenotyping Platforms for key traits	Global Breeding Platform for core traits (that all germplasm needs to have)
	Wheat for Africa Coalition (W4AC)		Develop genomic selection to reduce total breeding cycle time
Durable disease and pest resistance	W4AC	Global Network of Phenotyping Platforms for key traits	
		Global Fight against Rust(s): Cornell-led Durable Rust Resistance Wheat (DRRW)	
		Fight the intercontinental damage by Fusarium Head Blight	
Enhanced heat and drought tolerance	W4AC	Heat & Drought Consortium (HEDWIC)	
		Global Network of Phenotyping Platforms	
Breaking the yield barrier		Global Network of Phenotyping Platforms	Wheat Yield Network based on MEXIPLAT Platform, Genomic Selection by GBS
			Hybrid wheat for greater genetic gains
More and better seed	W4AC		
Seeds of discovery (tackle black box of gen. resources)			SeeD: unlock the entire native genetic diversity of wheat to better tap biodiversity (global)
Strengthening capacities	WHEAT Academy: International Capacity Development		

The WHEAT Partner Priorities Survey identified the need for the following 'new' Flagship Projects:

1. Post-harvest management, quality related to health, value addition and marketing:
 - a. Mobilize all stakeholders' resources along the value chain
 - b. Improve quality, with regard to nutrition/health, competitiveness/markets
 - c. Strengthen the relationship between research, extension + NGOs, farming communities and small scale industry
2. WHEAT Academy: Researchers interact on one global platform (information resources)

PHASED WORKPLAN COVERING THE 9 YEAR PERIOD FROM 2015-2023

The key scope changes, which will drive revisions to the WHEAT Work plan, are shown on p.11. A high-level phased workplan will be developed together with partners, once the Phase 2 guidelines by the Consortium Office are finalized.

REQUIRED INVESTMENT (BUDGET)

The original WHEAT Proposal made the case for a US\$ 228mn total 3-year budget. Together with partners, budget estimates will be developed in 2014.