



CRP 3.4 Roots, Tubers, and Bananas **For Food Security and Income**

Presentation to Fund Council
7 July 2011



OUTLINE

Rationale

What's New

Linkages

Governance & Management

Monitoring & Evaluation

Finances

Potential Risks



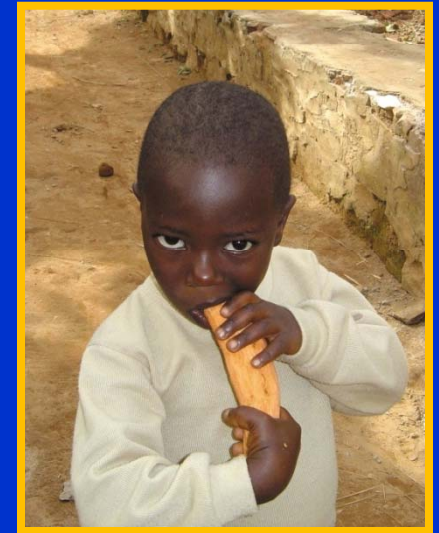
RATIONALE

SYSTEM LEVEL OUTCOMES:

- 1) Reducing Rural Poverty
- 2) Improving Food Security

DIRECT IMPACTS

- 3) Improving Nutrition and Health
 - 4) Sustainable Management of NR
- IMPACT THROUGH LINKAGE WITH
OTHER CRPs 4, 5, and 7



RATIONALE

THEME 3: GLOBAL FOOD SECURITY

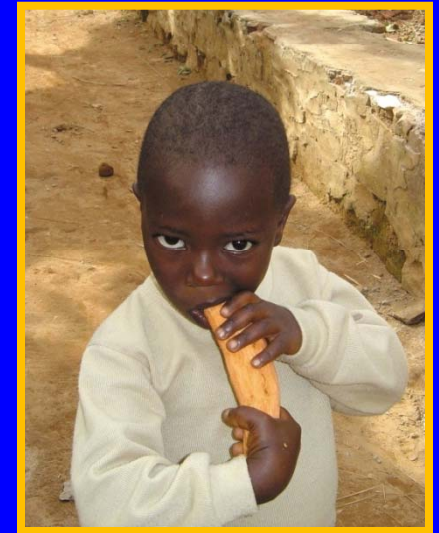
Diversify global food supplies

Buffer against market shocks

Annual productivity growth of 3%

Crisis mitigation crops

Resilience to drought & climate change





PROJECTED IMPACTS

**181 million beneficiaries
(small-scale farmers and families)**

Crop	Africa	Asia	LAC	Total
Potato	11	41	3	55
Cassava	56	35	12	103
Sweetpotato	61	23	2	86
Banana	56	29	4	89
Yam	54	0	0	54
Total*	84	81	16	181

Source: FAOSTAT

* Based on estimated adding together the figures for potato and cassava beneficiaries and 10% of the rest of the crops to assume overlap in same production systems.

RATIONALE

THEME 3: GLOBAL FOOD SECURITY

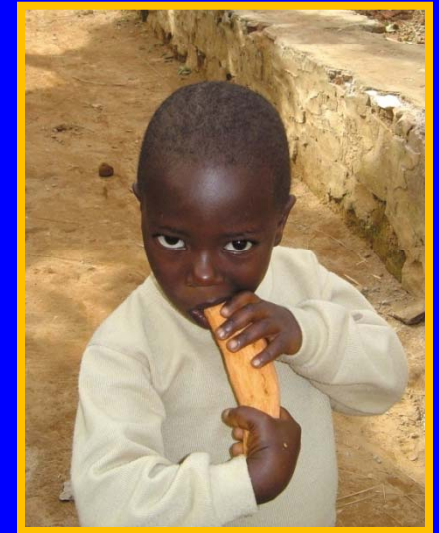
Diversify global food supplies

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RESEARCH COMPONENTS:

7 Themes

1: Genetic resources

2: Accelerating genetic enhancement

3: Pests and diseases

4: Seed access/ quality

5: Cropping systems

6: Postharvest technologies, value chains, markets

7: Partnerships for enhanced impacts





A collaboration of:



And a wide spectrum research-for-development stakeholders and partners



WHAT'S NEW?



New synergies: Commonalities of crops

- Managing germplasm (research to reduce conservation costs, ISO)
- Seed systems
- Soil fertility and plant nutrition
- Post-harvest issues

CENTER	BANANA	CASSAVA
Bioversity	Yellow bar	Light orange bar
CIAT	Yellow bar	Red bar
CIP	Light orange bar	Light orange bar
IITA	Yellow bar	Red bar

What's New?



New research breakthroughs/ approaches

- Diversity collected; cheap, rapid screening methods
- Quick-breeding strategies; use of heterosis in RTB crops
- Surveillance network and novel disease diagnostics
- Epidemiological research (new insights into info gaps and disease management)
- Policy influence for “Quality Declared Seed”
- Gender mainstreaming

GENDER MAINSTREAMING

Theme 1: Women are the keeps of the seed & knowledge

Theme 2: Participatory breeding; understanding trade-offs

Theme 3: Shifting roles; capacity strengthening

Theme 4: Biophysical & SE framework for seed systems

Theme 5: Understanding gender roles in cropping systems

Theme 6: Market development with gender equity

Theme 7: Women as transmitters of knowledge; M&E of gender



LINKAGES

AMONG THE CGIAR CENTERS

WITH OUR R&D PARTNERS

AMONG THE CRPs



STAKEHOLDER CONSULTATIONS

Main geographical area of action	Regional workshop* (countries represented)	Regional survey (attended workshop)**	Regional survey (did not attend workshop)	Global partner survey	Interview	Total	
West Africa	13 (4)	13	26	1	0	40	
East and Central Africa	11 (3)	7	12	0	0	23	
Southern Africa	14 (5)						
Total (Africa)	38 (11)						
Total (Latin America and Caribbean)	19 (10)						
South, West & Central Asia	29 (3)						
Southeast & East Asia and Pacific	14 (3)						
Total (Asia)	43 (6)						
Total (SH with global action)	0						
Total stakeholders consulted	100 (27)						
		Type of institution to which respondent belongs	Regional workshop	Regional survey (did not attend workshop)	Global survey partner	Interview	Total
		NARES (developing country)	65	32	3	6	106
		University (developing country)	4	23	1	0	28
		Advanced research institution	0	0	24*	0	24
		Donor	4	7	8	0	19
		Policy/development institution	3	11	3	0	17
		Farmer organization	5	9	1	0	15
		Commercial input supply, product processing or marketing	6	5	3	0	14
		NGO	5	6	2	0	13
		Regional research organization	6	3	0	0	9
		Other international public organization	1	6	1	0	8
		Other CGIAR Centre	1	0	1	0	2
		Total	100	102	47	6	255



2009-5 Working Paper

Incorporating stakeholder perspectives
in international CGIAR agricultural research: the
case of the CGIAR Research Program for
Roots, Tubers and Bananas for Food
Security and Income

Jonathan Woolley, Vincent B. Johnson, Bernardo Ospina,
Berga Lemaga, Tania Jordan, Graham Thiele

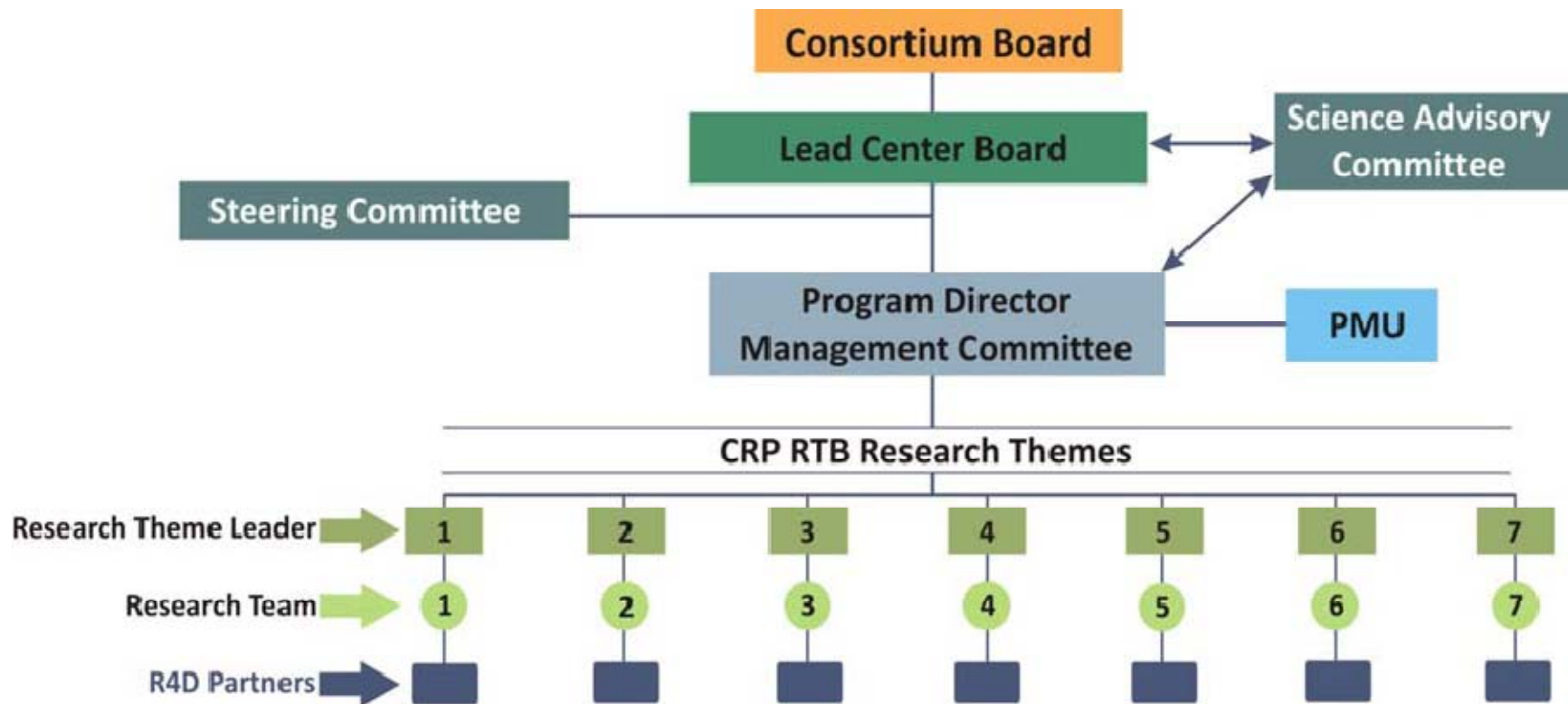


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Sample mapping of CRP RTB themes with other CRPs

	CRP 1.1/1.2	CRP 2	CRP 3s	CRP 4	CRP 5	CRP 7
Theme 1 Genetic resources	Interaction genetic resources/ Ecosystem	Policy germplasm exchange, market diversity	Exchange knowledge on conservation, info etc	Nutritional traits diversity		Climate change effects on genetic resources
Theme 2 Dev. varieties	Linkage to livelihood options		Varieties for animal feed			Climate prediction to define most relevant traits
Theme 3 Managing pests	Validate technology and system interact		Common platform for cereal rusts and LB platform			Climate effects on spread and severity of pests and diseases
Theme 4 Planting material	Validate prototype seed systems	Tools and action frameworks for farmer access		Provide planting material for nutrition component		Adapt to climate change
Theme 5 Crop system	Mixed cropping systems	Systems adapted to value chains			Trade off analysis for resource use	Exchange tools and methods for water/soil management
Theme 6 Postharvest/value	Contribute to enhanced livelihood	Use, test and improve value chain methods		Value linkages for nutrition and health impacts		
Theme 7 Impact thru partners	Situate priority setting in agroecosystem	Priority setting and impact assessment		Priority setting and impact assessment for nutrition		Climate change factors in priority setting and impact assessment

Governance and Management





MONITORING AND EVALUATION

Performance Monitoring

(Performance agreements)

Program Monitoring

(Steering and Management Committees)

Development Outcome and Impact Measurement

(Research objectives, Theme 7)

Fiduciary Monitoring

(Lead Center Board)

CRP - RTB Investments by Theme (US\$ Million)

Research Theme	Base Scenario				
	2011	2012	2013	Total	%
T1 – Conserving and accessing genetic resources	6.4	6.5	6.7	19.6	10.7
T2 – Accelerating the development and selection of varieties with higher, more stable yield and added value	14.8	15.7	16.7	47.3	25.8
T3 – Managing priority pests and diseases	6.3	6.7	7.0	20.0	10.9
T4 – Making available low-cost, high-quality planting material for farmers	5.5	5.7	5.9	17.1	9.4
T5 – Developing tools for more productive, ecologically robust cropping systems	3.6	3.8	4.0	11.5	6.3
T6 – Promoting post-harvest technologies, value chains, and market opportunities	4.7	4.8	5.0	14.5	7.9
T7 – Enhancing impact through partnerships	5.1	5.3	5.5	15.9	8.7
Sub-total	46.4	48.5	50.9	145.9	79.7
Institutional overhead of participating Centers	9.1	9.5	9.9	28.4	15.5
Total budget before CRP Management Cost	55.5	58.0	60.8	174.3	95.2
CRP Management Cost	2.8	2.9	3.0	8.7	4.8
Total budget	58.3	60.9	63.9	183.0	100

CRP - RTB Funding (US\$ Million)

Funding	Base Scenario				
	2011	2012	2013	Total	%
Projected unrestricted funds (W1)	19.0	19.9	20.9	59.8	32.7
Bilateral projects (assured)	18.9	14.4	11.9	45.3	24.8
Other income	0.9	0.6	0.5	2.0	1.1
CGIAR Fund – Funding Gap (Research) (W2)	16.6	23.0	27.5	67.1	36.7
CGIAR Fund – Funding Gap (CRP Management) (W2)	2.8	2.9	3.0	8.7	4.8
Total	58.3	60.9	63.9	183.0	100



POTENTIAL RISKS AND MITIGATION

Risk	Mitigation
Persistent cereal bias limits capacity to generate additional funding and mobilize donors, NARS and other stakeholders	Evidence based advocacy and analysis of role of RTBs in global food security system - to raise profile RTBs
Poor evidence base for RTBs makes priority setting problematic	Invest in data collection and GIS mapping to improve evidence base
Complexity of reporting	FC and CB advocate for minimal reporting



**ROOTS, TUBERS,
AND BANANAS**
for food security and income

8 September 2010

Collaborating CGIAR Centers



By 2021

RTBs will play an enhanced role within a diversified global food security system

through reducing risks of food shortages and nutritional shortfalls and improving incomes

benefiting 250 Million women, men and children



Table Investment by Themes and Product Lines and Crop

	Crosscut	Bananas	Cassava	Potato	Sweet potato	Yams	Other
Theme 1. Conserving and accessing genetic resources							
PL 1. Ex-situ and in-situ conservation methodologies optimized	1	1	1	1	1	1	1
PL 2. Increased coverage of gene pools in global genebanks	1	1	1	1	1	1	2
PL 3. Collections of RTB phenotyped and genotyped	1	1	1	1	1	1	2
PL 4. Collections of RTB documented	1	1	1	1	1	1	1
PL 5. Safe exchange of RTB genetic resources	1	1	1	1	1	1	2
Theme 2. Accelerating the development of varieties							
PL 1. Breeding tools, strategies, and approaches	2	2	1	1	0	1	1
PL 2. Trait capture and gene discovery	2	2	1	1	1	1	2
PL 3. Population development and pre-breeding	2	2	1	1	1	1	1
PL 4. Variety development	2	2	1	1	1	1	1
PL 5. Aligning research with farmers' and end-users' priorities	2	2	1	1	1	2	2
Theme 3. Managing priority pests and diseases							
PL 1. Detection, surveillance, and mapping	2	2	1	1	1	1	/
PL 2. Ecology, biology, and epidemiology of pests and diseases	2	1	1	1	2	1	/
PL 3. Ecology and management of beneficial organisms	2	2	1	1	2	1	/
PL 4. Specific management strategies	2	1	1	1	2	1	/

0 = Existing PL (ie already funded)

1= Expanded PL (ie partially funded)

2= New PL (ie not currently funded)

Continues . . .



Table Investment by Themes and Product Lines and Crop

	Crosscut	Bananas	Cassava	Potato	Sweet potato	Yams	Other
Theme 4. Low-cost, high-quality planting material for farmers							
PL 1. Policies, strategies, and decision support tools	2	2	2	2	1	2	/
PL 2. Lower cost, more effective mass propagation methods	2	2	1	1	2	1	/
PL 3. Farmer-based quality seed production and management	2	2	1	1	1	1	/
Theme 5. Robust cropping systems							
PL 1. Ecological and physiological understanding	2	1	2	2	2	1	2
PL 2. Increasing productivity in RTB cropping systems	2	1	1	2	2	2	2
PL 3. Integrated decision and management tools for RTB crops	2	2	1	2	2	1	2
Theme 6. Promoting postharvest technologies							
PL 1. Postharvest approaches to improve food security	1	1	1	2	1	2	1
PL 2. Improving linkages to markets	2	1	1	1	1	2	1
PL 3. Marketing strategies to add value and promote consumption	2	2	1	2	1	2	0
Theme 7. Enhancing impact through partnerships							
PL 1. Targeting and setting priorities	2	/	/	/	/	/	/
PL 2. Building effective partnerships	1	/	/	/	/	/	/
PL 3. Communication and knowledge sharing	1	/	/	/	/	/	/
PL 4. Capacity strengthening	1	/	/	/	/	/	/
PL 5. Outcome and impact assessment	1	/	/	/	/	/	/

0 = Existing PL (ie already funded)

1= Expanded PL (ie partially funded)

2= New PL (ie not currently funded)

CRP - RTB Expenditures by Cost Categories (US\$ Million)

Cost Category	Base Scenario				
	2011	2012	2013	Total	%
Personnel cost	18.4	19.2	20.1	57.6	31.5
Travel	2.9	3.0	3.1	9.0	4.9
Operating expenses (supplies and services)	12.4	13.5	14.4	40.2	22.0
Training/Workshop	0.8	0.8	0.9	2.5	1.4
Partners/collaborator contracts	9.4	9.7	10.1	29.2	15.9
Capital and other equipment for project	2.6	2.4	2.4	7.4	4.0
Sub-total	46.4	48.5	50.9	145.9	79.7
Institutional overhead of participating Centers	9.1	9.5	9.9	28.4	15.5
Total budget before CRP Management Cost	55.5	58.0	60.9	174.3	95.2
CRP Management Cost	2.8	2.9	3.0	8.7	4.8
Total budget	58.3	60.9	63.9	183.0	100

CRP - RTB Management (Expenditures by Cost Categories) (US\$ Million)

Cost Category	Base Scenario			
	2011	2012	2013	Total
Personnel cost	0.71	0.66	0.67	2.04
Travel	0.22	0.22	0.22	0.65
Operating expenses (supplies and services)	0.17	0.18	0.18	0.53
Training/Workshop	0.03	0.03	0.03	0.09
Partners/collaborator contracts/consultancy contracts	0.33	0.28	0.25	0.87
Capital and other equipment	0.03	-	-	0.03
Contingency	0.07	0.06	0.06	0.19
Sub-total (Direct Management Costs)	1.6	1.4	1.4	4.4
2% on pass through funds (W1 and W2 to other Centers)	0.5	0.5	0.6	1.6
Total Management Budget of Lead Center	2.0	2,0	2.0	6.0
CGIAR System Costs	0.8	0.9	1.0	2.7
Total Management Budget	2.8	2.9	3.0	8.7

Projected impacts

Illustration of high rate of returns in RTBs, not comprehensive

Returns on research investments on the development of RTB technologies

Theme	Product line	Crop/Technology	NPV of total surplus change (million US\$)		Annuity (million US\$)	
			Discount Rate			
			5%	10%	5%	10%
2.3	2.2.3 3.4	Cassava: productivity improvement in Africa	2,987	1,263	194	134
4	4.1	Banana and plantain: BBTV clean planting material in Burundi, Malawi, and IDRC	1,268	553	82	59
5	5.2	Plantain: improved resource use efficiency in Ivory Coast, Ghana, and Nigeria	1,947	994	127	105
2.3	2.2.3 3.4	Banana and plantain: productivity improvement in the rest of Africa	5,782	2,182	376	231
2	2.2.3	Potato: late blight-resistant varieties (world)	1,757	814	114	86
2.3	2.2.3 3.4	Yam: productivity improvement in Africa	1,079	443	70	47
2	2.2.3	Sweetpotato: virus and weevil resistant varieties in Africa	676	279	44	30
TOTAL – ALL CROPS			15,495	6,529	1,008	693