



International Crop Diversity Collections

Towards greater efficiency and sustainability

GENEBANKS ARE GOOD VALUE!

Cooperation 88 – C88

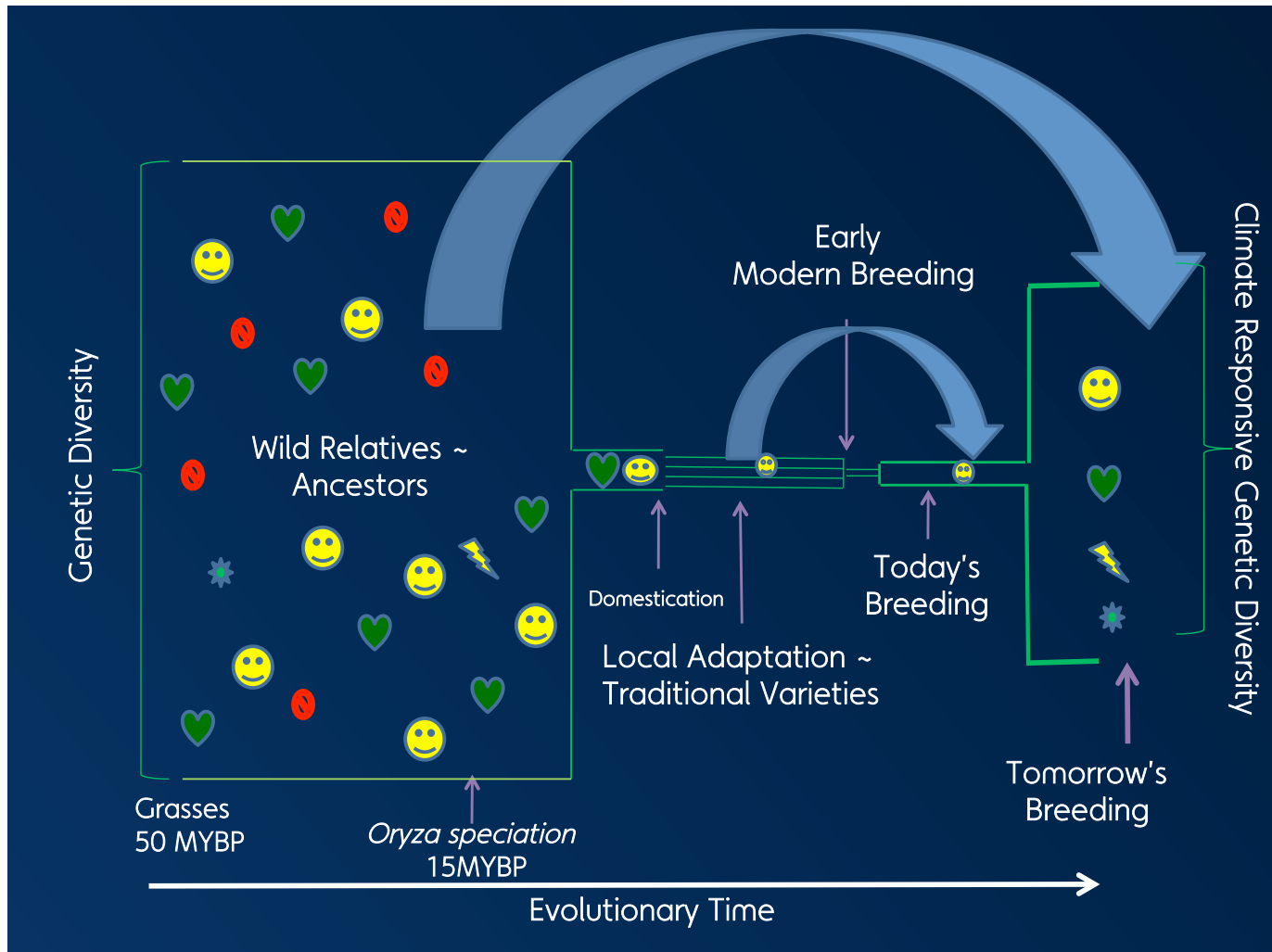
- 400,000 ha in China
- Economic benefits USD 350 M per year

Kasetsart 50 – KU 50

- 1 million hectares in Thailand and Vietnam
- Aggregate economic benefits > USD 97 M

"Only possible because of conserved germplasm in genebanks"

Robinson & Srinivasan, 2013

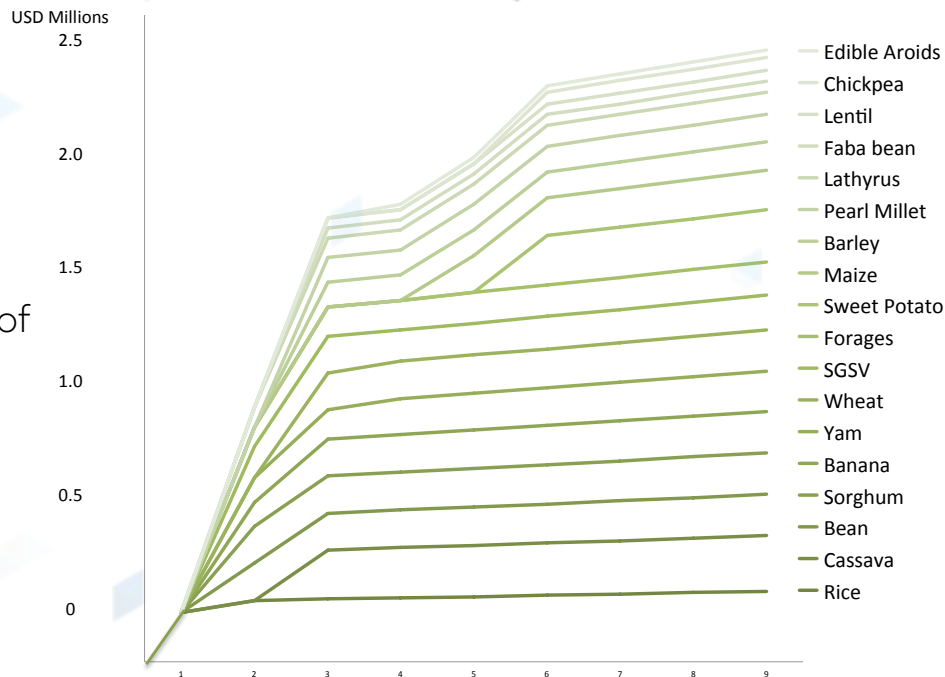


INTERNATIONAL GENE BANKS



CONSERVING FOREVER

USD 2.5 M in
Long-term Grants to support conservation of key collections and the Svalbard Global Seed Vault



WHAT MAKES THEM DIFFERENT?



Long-term
storage



Safety
duplication



Regeneration &
characterization



Information
management



Disease
testing



Distribution

COUNTRIES RECEIVING GERMPLASM



ROLE OF CROP TRUST

Building a Global System

Fundraising

Global Information Portals



Crop Conservation Strategies

Monitoring and Oversight

GENEBANKS CRP

- Crop & tree diversity is secured in perpetuity
- Germplasm is clean, available and disseminated
- Use is informed and facilitated
- Cost-effective global system is developed



In Trust for the International Community:

Plan and Partnership for Managing and Sustaining
CGIAR-held Collections of Plant Genetic Resources

ONLINE REPORTING TOOL

Performance Indicators

Main menu		IRRI	Performance indicators		2011	Baseline	Rice		
View Profile							Attachments	History	Correspondence
Logout (jgdt)		A.07 TABLE AS1 - Seed collection accession numbers							
Performance indicators									
Financials									
Other functions				LTS	MTS	Live plants	Summed total	Total number accessions counting individual accessions only once	
Grantee dump									
News									
Download User Manual									
Total number accessions in the costed collection:		115,974	114,409	4	230,387			116,034	
Estimated number of accessions that are unlikely to be well represented in other collections:		93,445	91,889	4	185,338			93,637	
Number of accessions legally available within the costed collection:		110,076	108,519	4	218,599			110,267	
Number of accessions of hosted black box duplicates:		0	0	0	0			0	
Number of accessions of genetic stocks within the costed collection:		1,280	1,262	0	2,532			1,442	
Number of additional accessions not formally part of the collection:		0	0	0	0			0	
Number of accessions with health status tested:		61,651	61,617	0	123,268			61,661	
Number of accessions with health status clean:		61,517	61,483	0	123,000			61,517	
Number of accessions with known viability:		115,972	114,409		230,381			116,034	
Number of accessions with acceptable viability:		112,185	111,611		223,796			114,971	
Number of accessions with acceptable seed number:		111,546	110,614		222,160			113,927	
Number of accessions with acceptable viability:		0	0		0			0	

TARGETS

	Indicator	Targets or Challenges
1	Availability: % collection which is clean (of seed-borne pathogens of quarantine risk), viable, in sufficient seed number to be made immediately available for international distribution from medium term storage	90% accessions in the current costed collection
2	Security: % collection held in long-term storage conditions in two locations and also in the Svalbard Global Seed Vault. For clonal crops the target is for 50% of the collection to be held in cryopreservation in two locations, with an intermediary target of 90% of the collection to be held in slow growth conditions in vitro in two locations	90% accessions in seed collections 90% accessions in in vitro collections (long-term target 50% accessions in cryopreservation)
3	Data availability: % collection with minimum passport and/or characterization data available online	90% accessions in the collection
4	Quality Management System (including risk management and user satisfaction)	Minimum elements of QMS are in place.

CHALLENGES

	Indicator	Targets or Challenges
5	Distribution of diversity: number of discrete accessions distributed in a single year and over a ten-year period	To ensure that a significant proportion of the diversity in the collection is explored and used.
6	Distribution of samples: number of samples disseminated in a single year and over a ten-year period	To increase distribution to more countries and more users
7	Increased efficiency: examples include days between harvest and storage; years since previous regeneration, duration between subcultures for clonal crops – to be refined	Increase storage efficiency
9	Cost per accession: per accession cost of routine genebank operations	Maintain costs per accession within an appropriate range, comparable with other genebanks

EXTERNAL REVIEWS



- Bioversity (Oct 2013)
- CIMMYT (Nov 2013)
- IITA (Mar 2014)
- AfricaRice (May 2014)



QUALITY MANAGEMENT

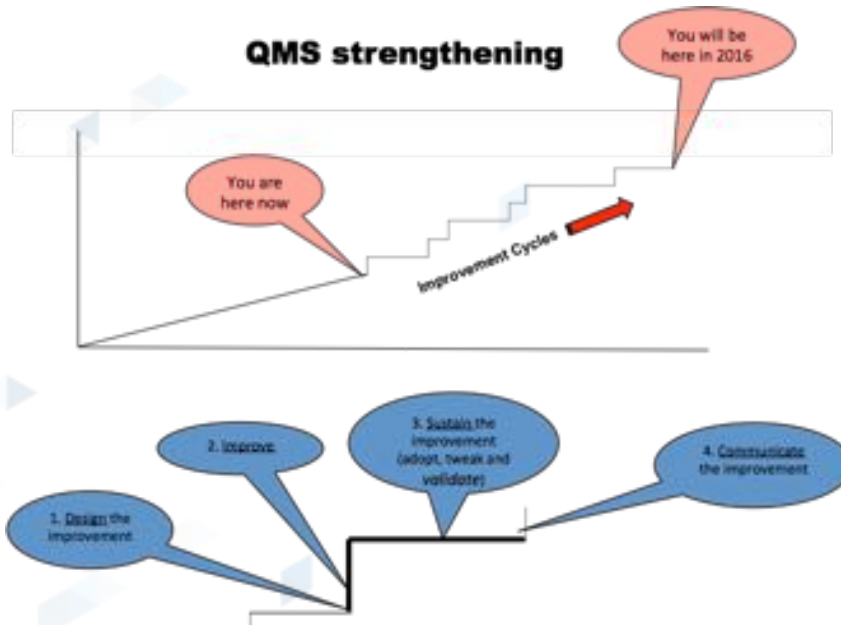
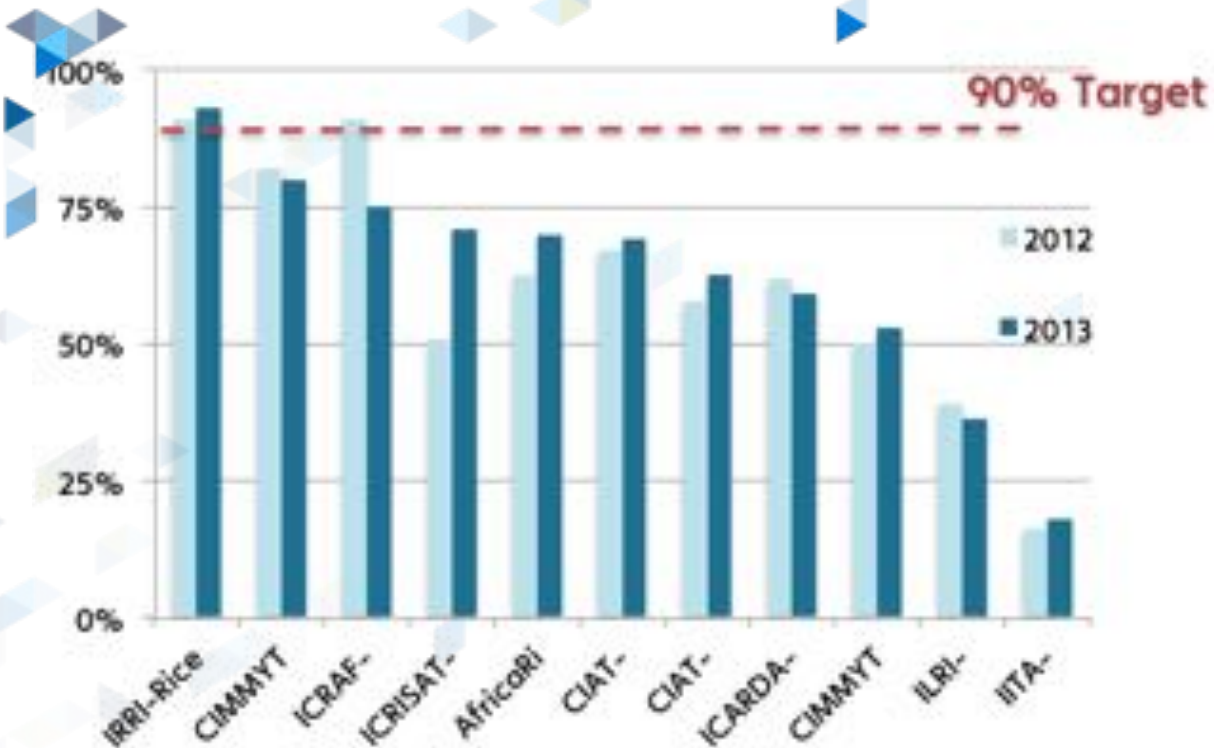


Figure 1 Improvement cycle in QMS

AVAILABILITY

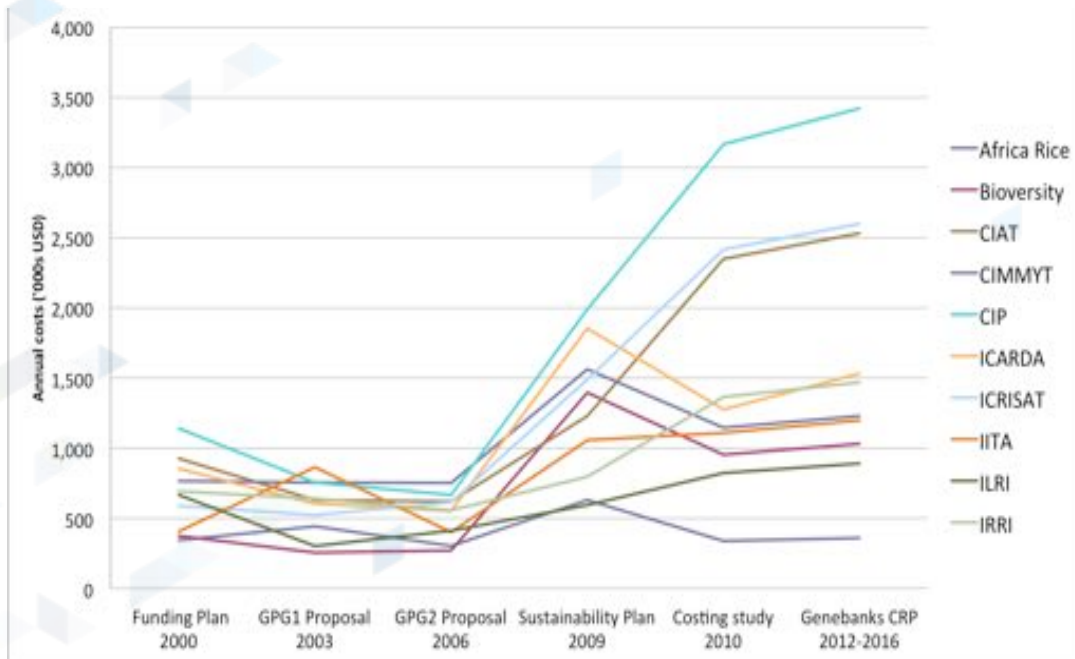


DETERMINING COSTS

Latest and most comprehensive costing study-2010

- Capital costs of facilities/infrastructure
- Capital cost of equipment
- Staff costs
- Labor costs
- Operating expenses

EVOLUTION OF GENE BANK COSTS



DETERMINING COSTS

Sample Annual Per Accession Costs

AfricaRice

Rice \$10.06

Bioversity

Banana and Plantain \$652.50

CIAT

Beans \$19.48

Cassava \$71.88

Tropical Forages \$26.82

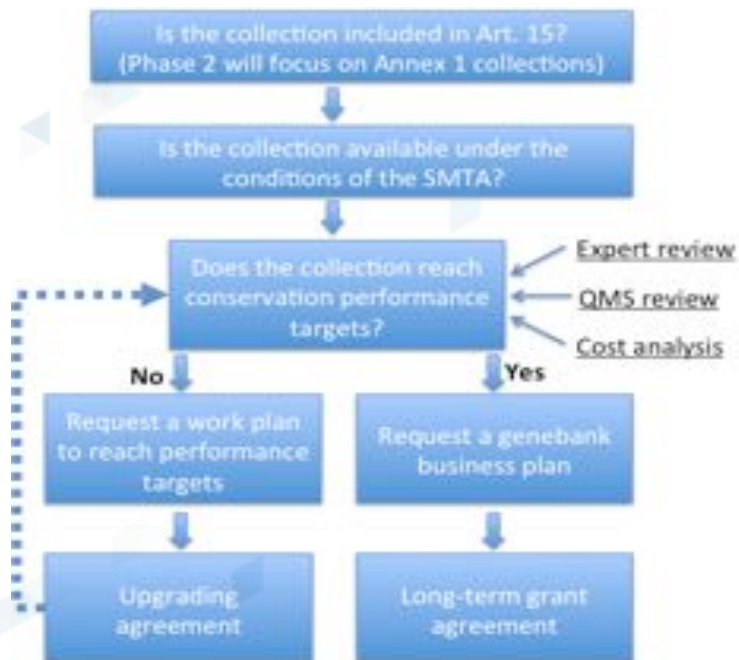
CIP

Andean R&T \$146.50

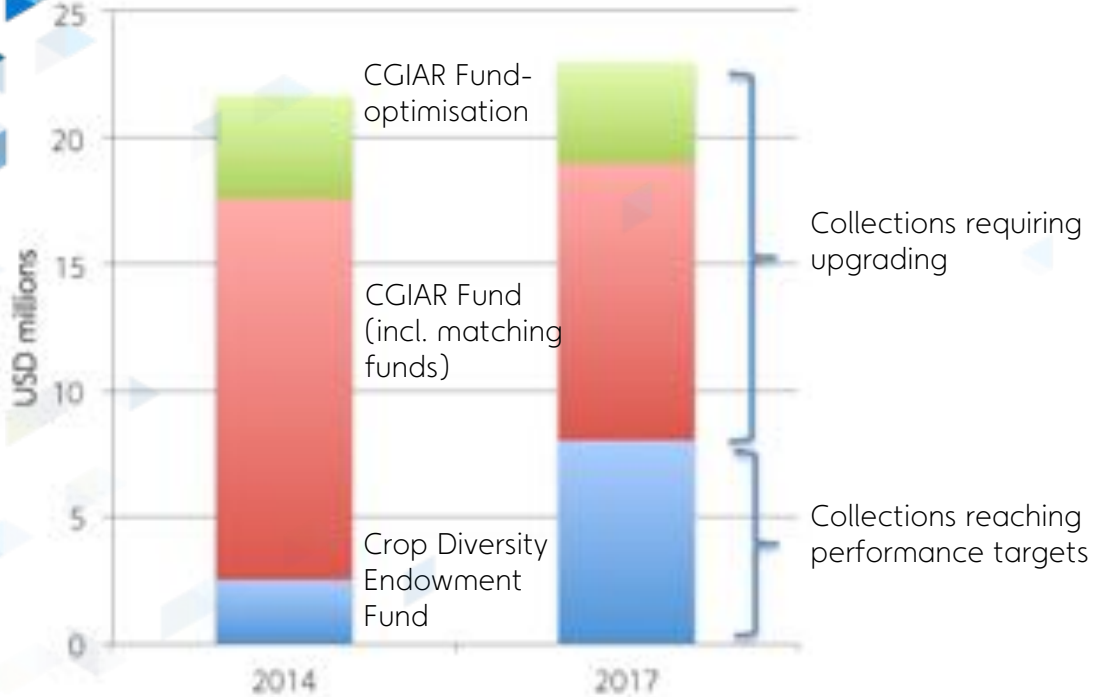
Potato \$171.49

Sweet Potato \$151.75

ROLE OF CROP TRUST



ANNUAL FUNDING NEEDS 2011-2021



ANNUAL FUNDING NEEDS 2011-2021



A photograph showing four hands of different skin tones, arranged in a circle, each holding a different variety of beans. From left to right: purple beans, yellow beans, white beans, and brown beans. The background is dark and slightly blurred.

"The Crop Trust Partnership is working hard to ensure that International Genebanks thrive and serve fully the breeders, researchers and farmers of today and tomorrow."



CROP TRUST
SECURING OUR FOOD, FOREVER