

# From QMS ideal to performance reality

## - a hybrid performance management approach for genebanks



Mellissa Wood and Jenin Assaf  
Director of Operations  
Global Crop Diversity Trust  
[www.croptrust.org](http://www.croptrust.org)



# Overview

- Introduction to Trust
- Quality Management Systems
- The Ideal
- The Reality
- Trust and CGIAR approach
- Performance indicators
- Summary

- ITPGRFA
- Crop and regional strategies
- Improved information systems
- Improved transport systems
- Svalbard Global Seed Vault

- Threats to global food security



# Global Crop Diversity Trust

*To ensure the long-term **conservation** and **availability** of plant genetic resources with a view to achieving global food security and sustainable agriculture*

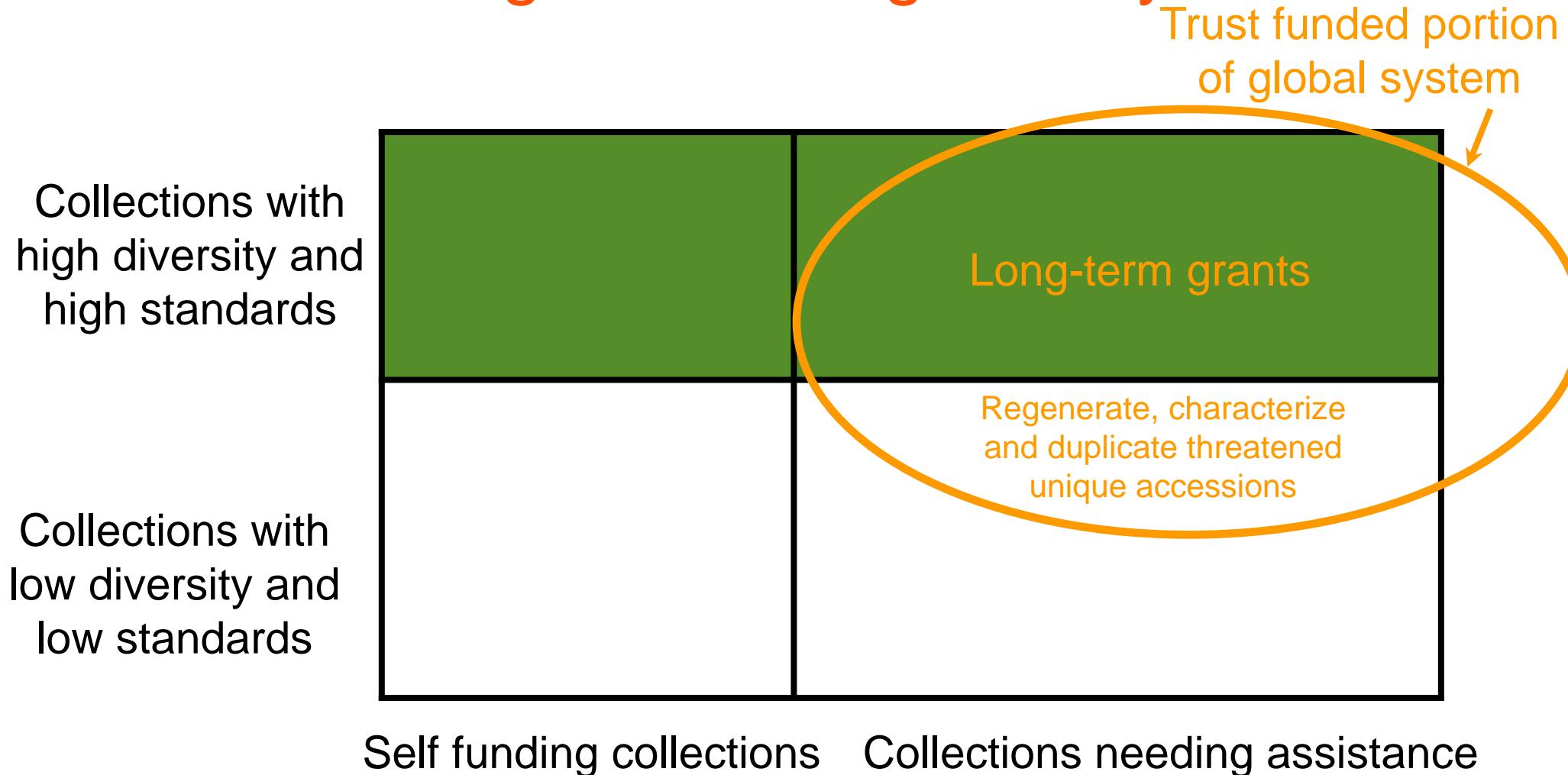
More specifically:

- **Safeguard** ex-situ collections of crop diversity of global importance
- **Rescue** threatened valuable diversity
- Promote the **access** and use of diversity
- Actively **implement** Treaty Articles (5, 6, 7, 8, 12, 13, 14, 15, 16, 17)

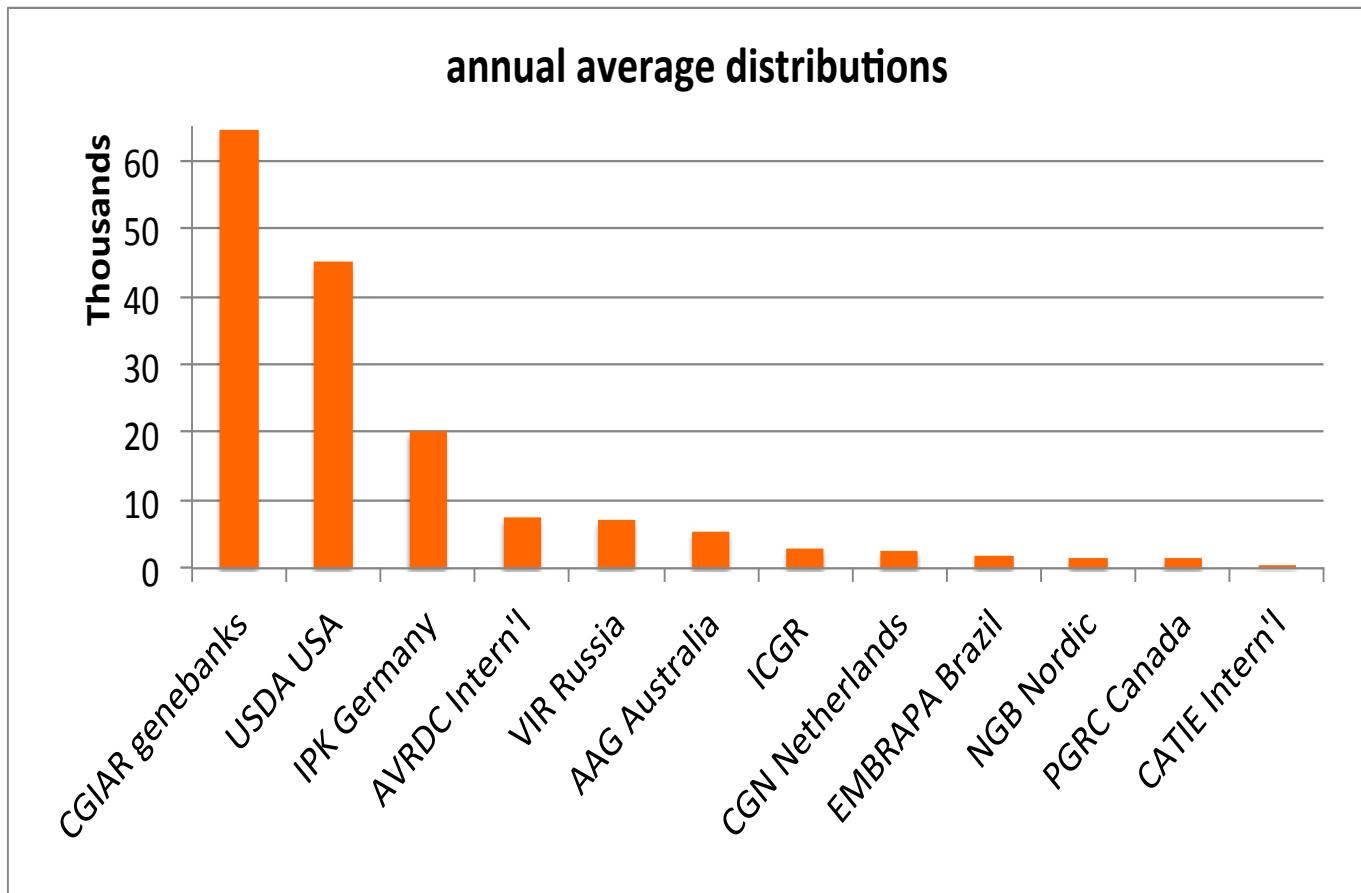
• An essential element of the Treaty Funding Strategy



# Building a rational global system

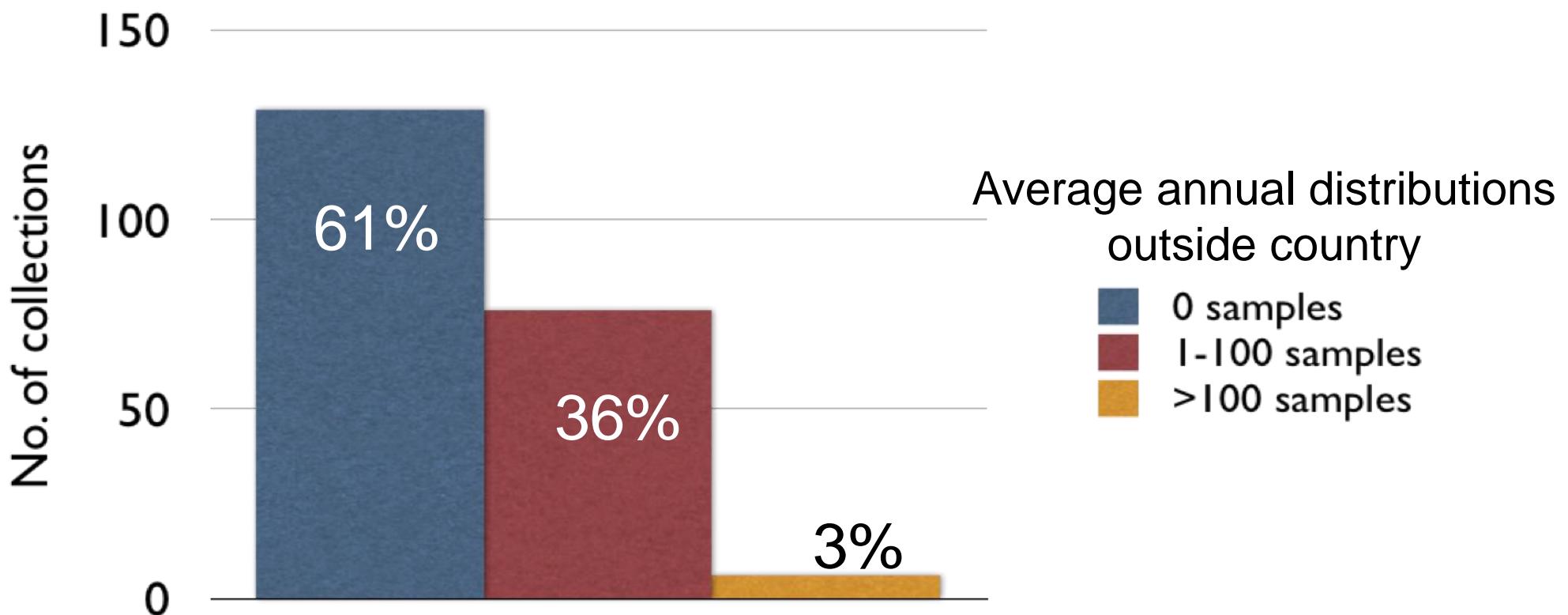


# Genebank samples distributed internationally per year



Source: Collections online databases, publications, and personal communications between Trust and Genebank Managers, 2008-2010

# Distributions of germplasm samples from 211 national collections

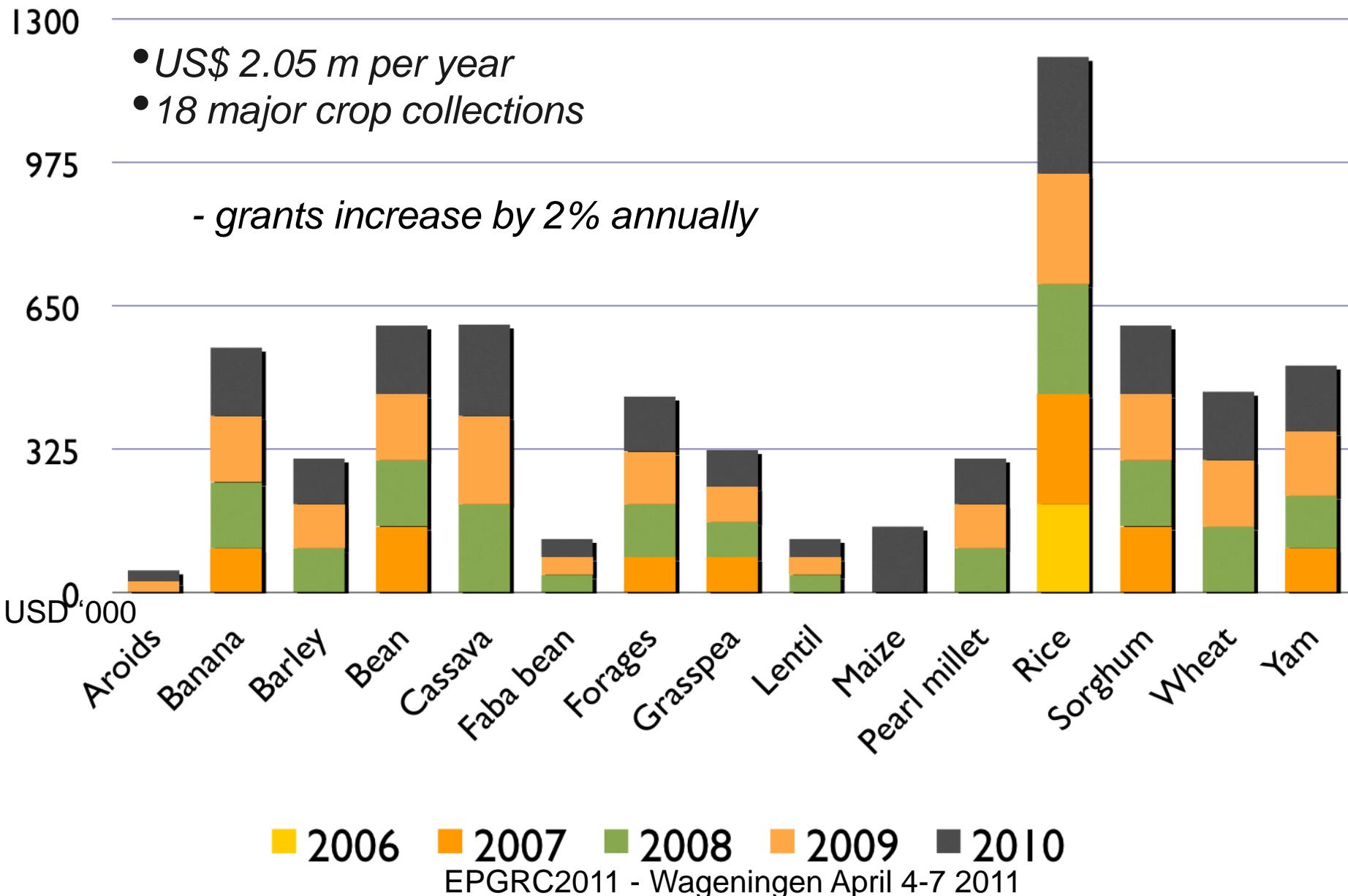


Source: Personal communications between Trust and collection holders, 2008-09; data on average annual distributions between 2005-2007 from 211 crop collections in 77 institutes in 69 countries.

# Long-term grants

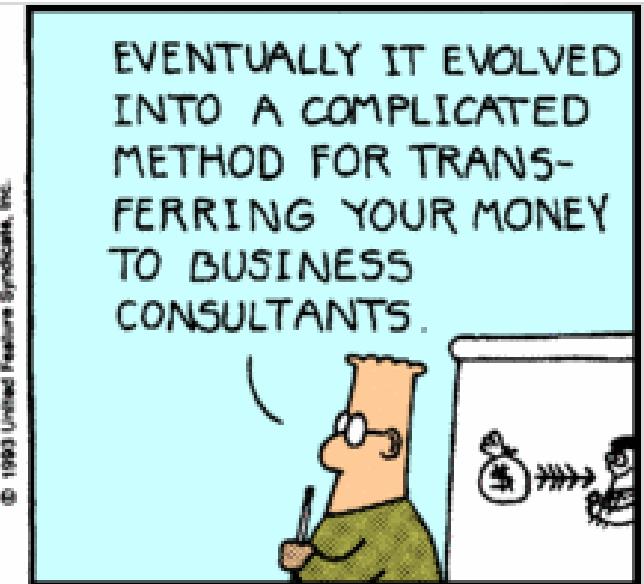
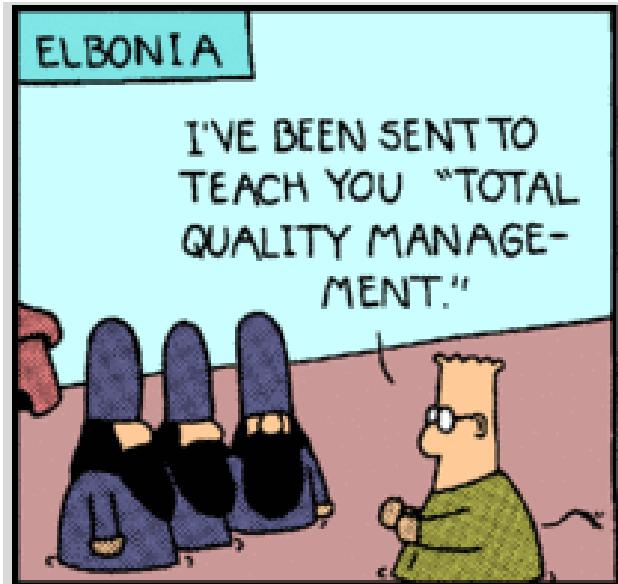


# Long-term grants - annual funding forever





# Quality?



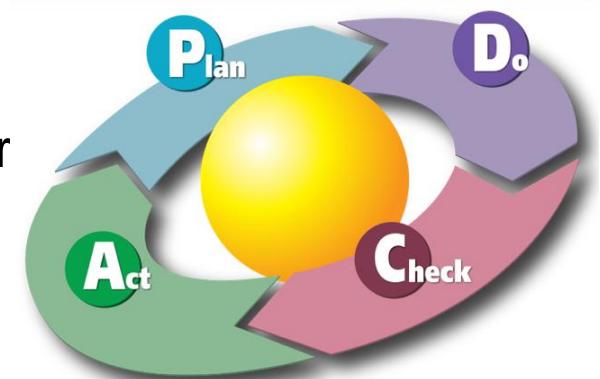
# Quality = capability to meet expectations

- Ancient & Medieval worlds
  - Codes - law and life
  - Standard measures and yardsticks
  - Guilds, master & apprentices
- Industrial revolution
  - Mass production, streamlining and optimizing using technology

⇒ Standards and procedures
- Current
  - Including human capacity & taking a systems approach

⇒ Flexibility

⇒ Quality (technology + human capacity)





## What is a Quality Management System?

*“A set of policies, processes and procedures that ensure a common sense approach to the management of an organization; the system should ensure consistency and improvement of working practices, which in turn should provide products and services that meet customer's requirements”*

- Number of elements
- Norm in many businesses (drug companies, food control, environmental)
- Formal (certified or accredited) or informal

# Why do genebanks need quality management systems?

## Outputs

- Stop things from going wrong
- Functioning equipment, quality supplies & processes
- Reduce costly mistakes and manage budget constraints
- Assure quality of the service or research provided
- Performance audits meeting requirements of users or funding agencies
- Harmonized, optimized and recorded procedures across individuals and departments
- Capturing experience and knowledge of past employees
- Mechanisms for feedback and improvement

## Outcomes

- Effective risk management
- Cost efficiencies
- Improved performance
- Improved trust
- Improved collaboration
- Meeting client demands
- Trained and competent staff
- Transparency and greater knowledge sharing, Perpetuate knowledge

# International QMS standards

ISO 9001:2008 series – implementation of a quality system of processes **CERTIFICATION**

- Generic standard – can be applied to business enterprise, public administration, government department, research institute
- ISO 9001 certification certifies consistent processes are used BUT does not guarantee compliance (or quality)
- Implemented by over a million organizations in 176 countries
- Certified - IPK Germany, CGN Netherlands and other national genebanks

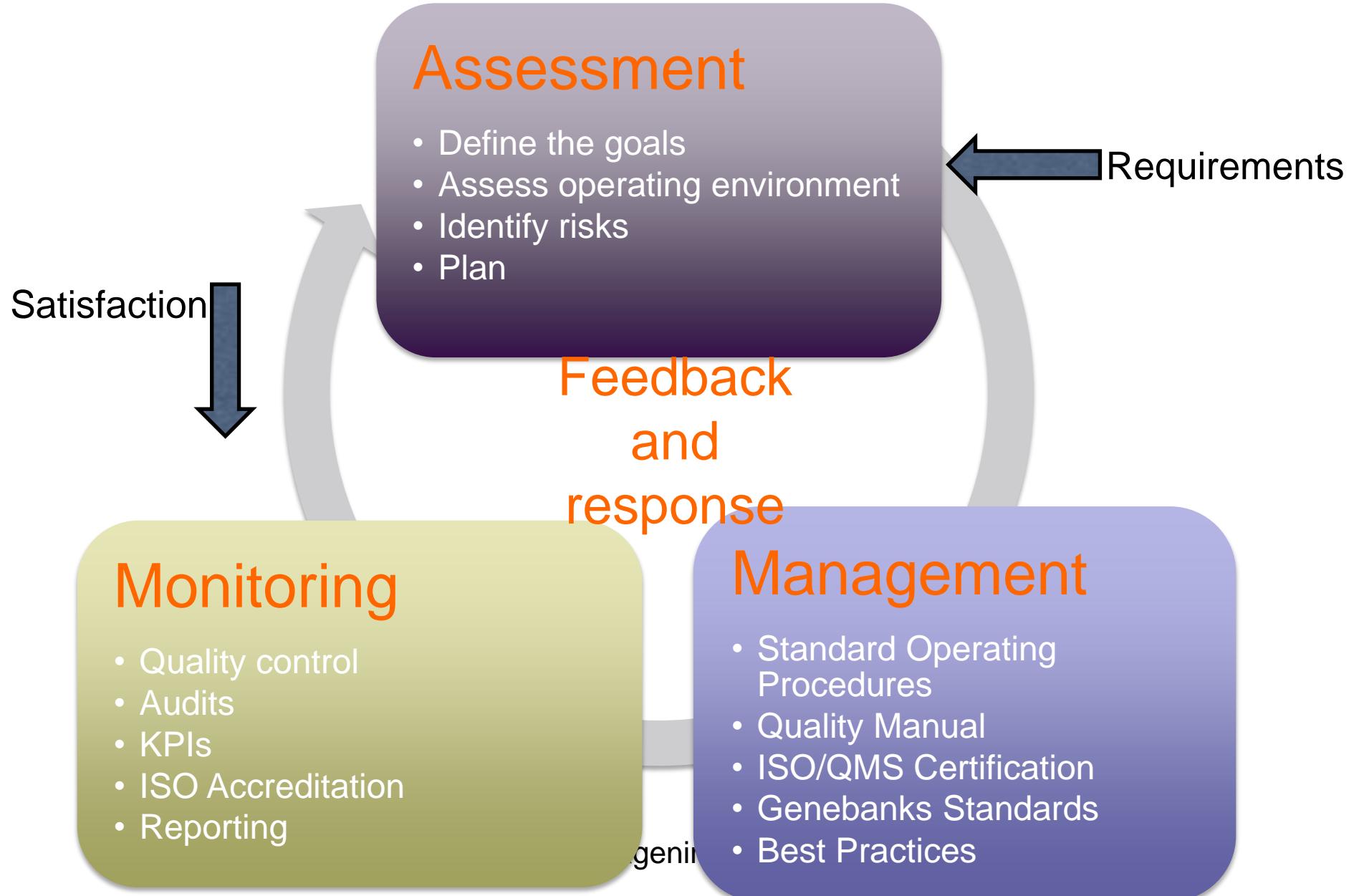
ISO 17025:2005 – testing and calibration **ACCREDITATION**

- Applicable to all laboratories, regardless of activities
- Applicable to administrative and technical operations
- Tested by 3<sup>rd</sup> party audit. Formal recognition of competence
- Accreditation – CIP (genebank and lab), CIMMYT (la)  
EPGRC2011 - Wageningen April 4-7 2011



International  
Organization for  
Standardization

# Ideal – Quality Management Approach



# Reality

- Lack of uniformity in genebank operating environments
  - geographic location, security, political stability,
  - funding, capacity and skills
- Variance in the biology and quality level of crop management
- Difficulty in defining and adhering to certified procedures for some activities in uncontrolled environments
- Internally imposed system requirements on many genebanks that reside within larger institutions
- No existing, systematised approach to date



# QMS options for CGIAR genebanks

## 2008 Viability study

1. Documentation of processes – full or partial documentation of processes and procedures
2. Certification - ISO 9001
3. Accreditation – ISO 17025
4. Hybrid – combination of QMS (for critical, high risk, or achievable operations) plus documentation of procedures

*The adequate and effective functioning of any genebank can only be guaranteed on a long-term basis if an adequate QMS is in place*

# Why is the Trust interested in genebank quality?

- No traditional milestones or outputs
- “Business as usual”
  - ⇒ Needed to measure annual progress for Trust and donors
  - ⇒ Needed to facilitate an approach for genebanks to monitor, report and improve their overall performance and effectiveness

1. *Conservation of crop germplasm and recording of associated information*
2. *Distribution of crop germplasm and associated information*
3. *Contributing to the development of a global system and promoting global collaboration*



- 439,943 accessions
  - Seed 409,813 accessions
  - Vegetative (mix of cryopreservation, in vitro and field) – 14,963 accessions
- Across 18 crop collections
- Held by 7 CGIAR genebanks + 1 regional genebank





# Performance Indicators: development

- Focus on quantitative indicators – with targets
- Balancing the need to keep it simple while clarifying EXACTLY what is required
- Agreed/understood terminology
- Testing with users
- Harmonise with other activities and/or normal genebank operations
- Balancing the need to keep them stable against improvement
- Avoiding “perverse” indicators
- Used since 2007. Began with a baseline.
- Applicable both in CGIAR genebanks and non-CG genebanks (2009)
- Built into reporting systems of genebanks



## Performance Indicators

Category A - Conserving and making available the collection (19 PIs)  
“critical core operations”



Category B - Promoting global collaboration in crop conservation (11 PIs)  
“leadership and collaboration”



[www.croptrust.org](http://www.croptrust.org) - our work



## Category A.

# Conserving and making available the collection

- Sound management and planning (5)
- Long term storage and management of collection to agreed scientific and technical best practices (5)
- Safety duplication of collection (2)
- Characterisation of collection (3)
- Documentation of collection and provision of data in publicly available information systems and Gensys (1)
- Distribution of germplasm in accordance with the ITPGRFA (5)

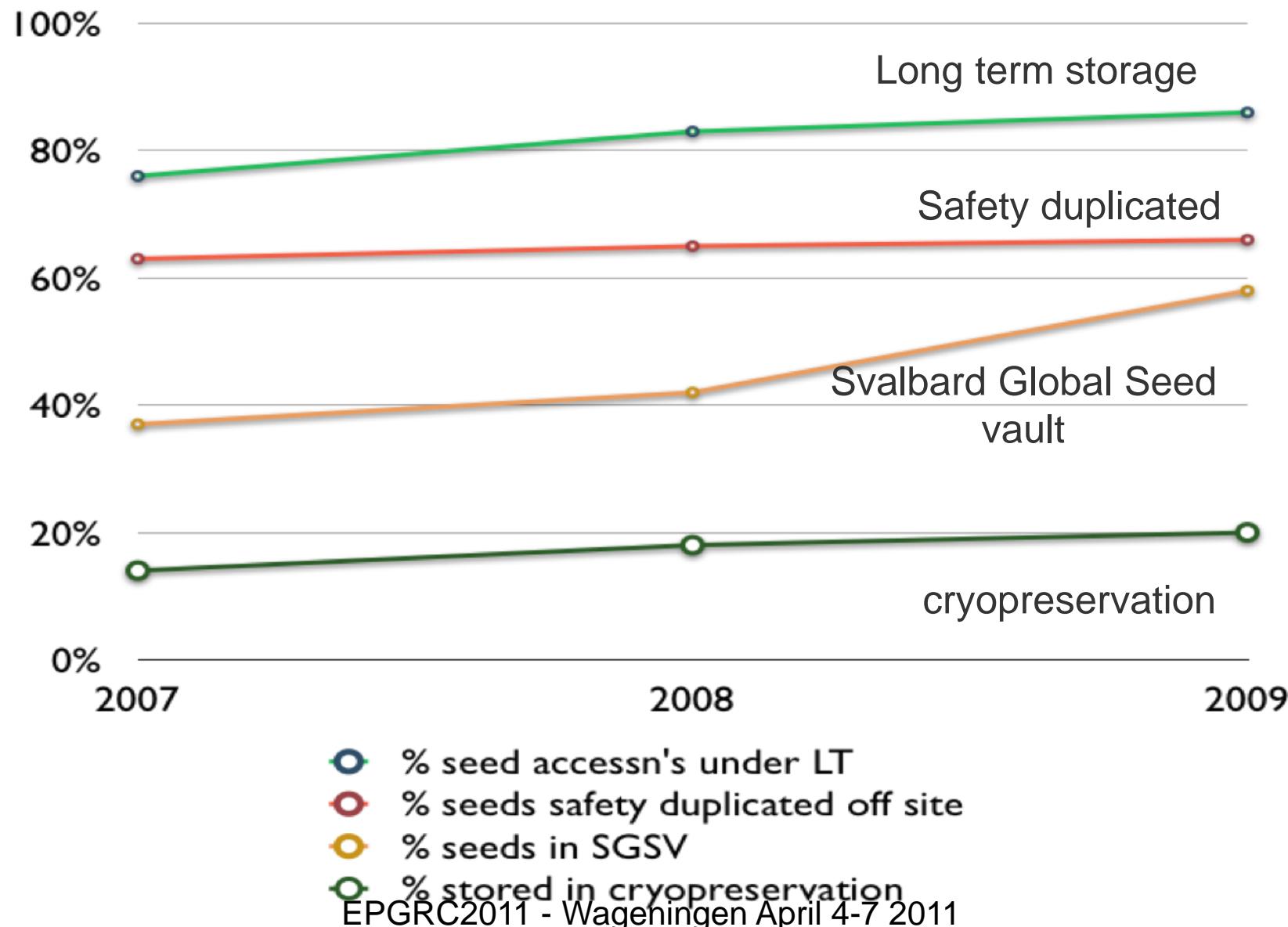
# Performance indicators: sound management and planning (x5)

- Interim approach
- Move towards redundancy of management PIs



# Results: are genebanks performing?

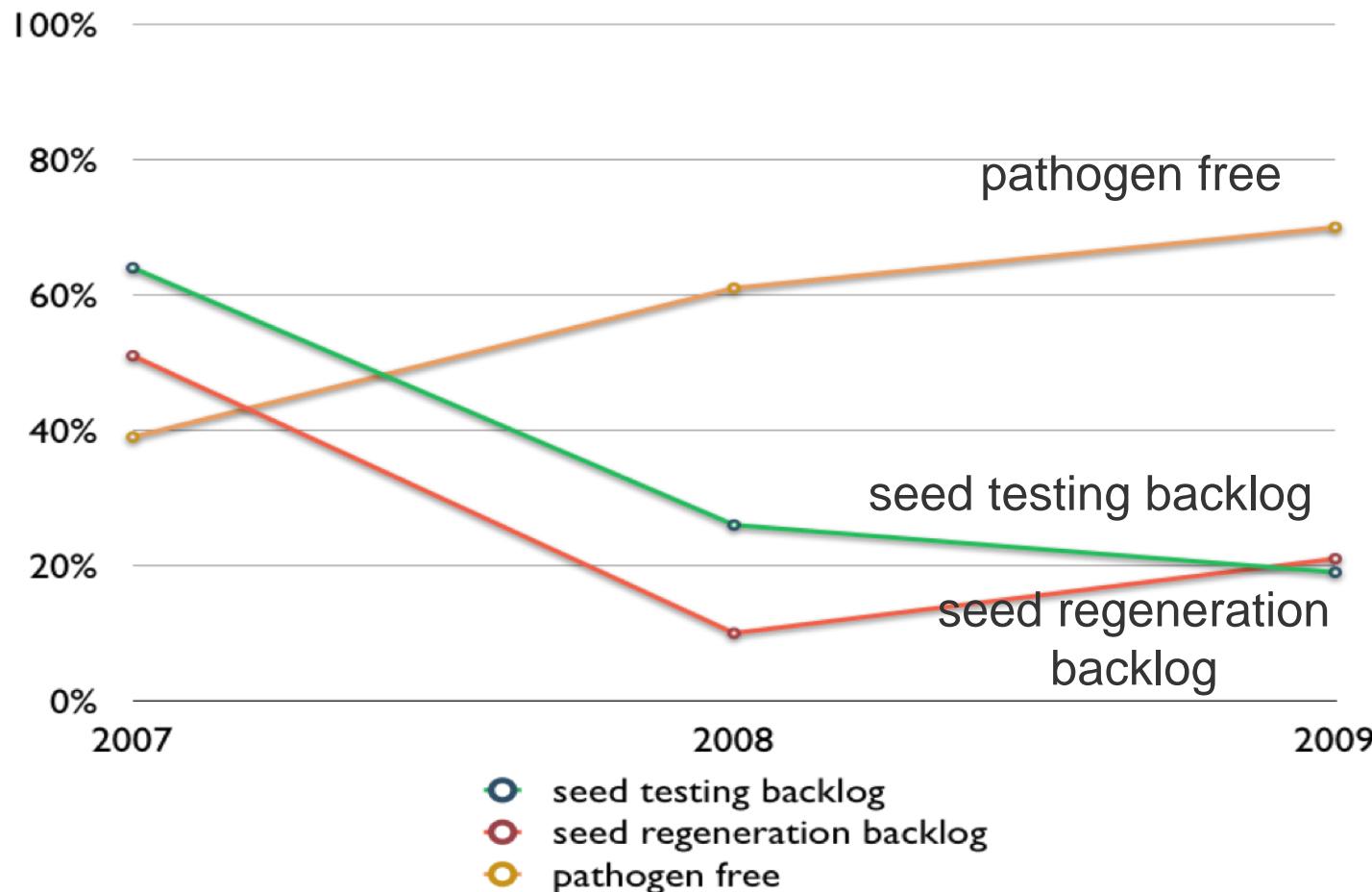
## Ensuring long term conservation



# Results: are genebanks performing?

## Ensuring germplasm availability

% of accessions requiring work to ensure availability or are pathogen free  
(averaged across all Centers)





## Summary

- Quality management approach (QMA) results in greater transparency, cost efficiencies, improved quality standards, greater knowledge sharing and trust among genebanks.
- Genebanks should aim towards adopting a QMA
- Options exist, including a 'hybrid' approach towards QMA
  - formal QMS plus internal documentation
- Too many challenges for Trust funded genebanks to adopt a consistent QMA
- Trust adopted a performance indicator approach (meet immediate needs) but built into this, indicators and a platform to actively encourage adoption of QMA
- Trust aims to work with genebanks **collectively** to move towards a consistent QMA
- Adoption of quality management approach is essential for collaboration between genebanks.
  - creates transparency and builds trust
  - **Key element for building a global system for PGRFA**

# Thank you for your attention



EPGRC2011 - Wageningen April 4-7 2011