Genebank Certification

moving towards a reliable and accessible system for conservation of plant genetic resources

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Genebank Certification

- status quo
  - there is an awful lot of work on PGR going on
    - 423 collections in Europe with 2,101,833 accessions
      - very many people, €€€ and PGR material
  - genebank objectives are very similar
    - conserve PGR for future generations
    - support use of PGR for current users
  - redundancy and missed opportunities
    - duplicated material
    - ineffectively used resources

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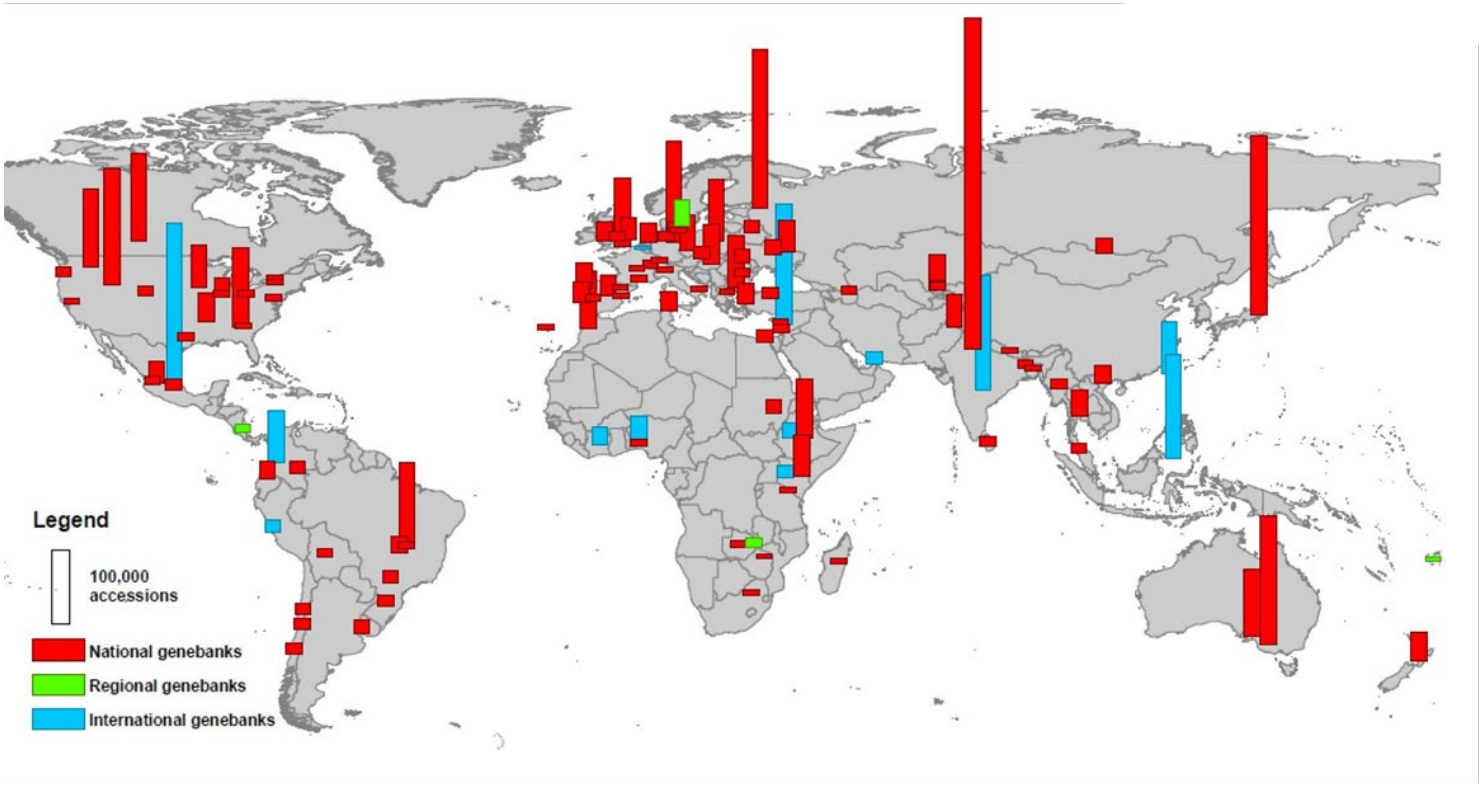
- FAO 3rd State of the World PGR (2025)



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- where do we come from?
  - various ideas about how a genebank-system should look like
    - regional genebanks (regional mandates)
      - a genebank doing the job for countries in a region
      - conserving locally adapted material in the perfect habitat
    - crop specific genebanks (crop mandates)
      - a genebank specializing on one crop(-group)
      - building expertise in the crop and its users

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- what happened in the real world
  - in politics
    - each country (or region) wants its own genebank
      - many small genebanks possibly under the critical mass
    - ABS rules hinder collaboration
      - from 'heritage of mankind' to 'national sovereignty'
      - IT-PGRFA trying to repair the damage to PGR access
  - in genebanks
    - uncritical acquisition resulted in too large collections
      - most genebanks have back-logs
      - genebank procedures are often below standard

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- current situation
  - unclear how well PGR are conserved
    - accessions in EURISCO or GeneSys do not always exist/live
    - creating an overview (and planning) is difficult
    - massive collecting is necessary to prevent genetic erosion due to the climate crisis
  - access to PGR for user is generally poor
  - some important genebanks are well organised
    - e.g. CGIAR

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- current situation
  - genebank methodology exists
    - we know how to do it
      - FAO Genebank Standards
      - knowledge and experience in the ECPGR network
    - on some levels improvements can be made
      - research is lagging behind

Let's Fly High

Genebanks of various sizes,
with various expertises,
in various environments
collaborate and together
conserve PGR for the future
and make it available for current
users

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- collaboration
  - to collaborate effectively genebanks need to be able to rely on each other
    - appropriate quality of operations should be assured
    - continuity should be guaranteed
      - ‘if I cannot do it anymore someone else should be able to take over’

What is needed ?

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- what we need to build
  - stronger coordination and political lobby
    - to assure political support
    - possibly the PGR Research Infrastructure (prepared by ProGrace)
  - a genebank certification system
    - blueprint has been created (in ProGrace) ready to be implemented
  - capacity building to help genebanks in
    - creating a quality management system
    - reaching the required operational standards

Genebank Certification

- required elements of a certification system
  - genebank needs quality management system
    - standard operating procedures (SOPs)
    - reporting/monitoring system
  - SOP's need to meet standards
    - agreed standards (FAO genebank standards, crop-specific specifications)
    - an authority needs to check and approve the SOPs
  - compliance needs to be confirmed independently
    - monitoring/certifying authority
  - costs (for individual genebanks) need to be kept low

We've already started

Genebank Certification

- AEGIS: a European Genebank Integrated System
  - based on ECPGR network
    - inclusive (starting point: all genebanks)
  - contains elements for
    - quality management (AQUAS)
    - identification of relevant genebanks (based on MoU's)
  - problem: it's not working
    - has to become more reliable to allow rationalisation

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- AEGIS: a European Genebank Integrated System

plants

MDPI

Opinion

AEGIS, the Virtual European Genebank: Why It Is Such a Good Idea, Why It Is Not Working and How It Could Be Improved

Theo van Hintum [1,*], Johannes M. M. Engels [2] and Lorenzo Maggioni [2,3]

Abstract: Europe is very active in terms of conserving plant genetic resources, with hundreds of genebanks and thousands of dedicated people involved. However, the resulting infrastructure is, along with being very expensive, far from efficient and not very reliable. In this opinion paper, the authors describe how this situation arose, and why the European Cooperative Programme for Plant Genetic Resources (ECPGR), the collaborative umbrella organization of the European countries involved, has not been able to improve this situation so far significantly. The principles of the decentralized virtual genebank (AEGIS) are described, and an analysis is made of the reasons for its lack of success. Possible changes for making AEGIS a success, or at least steps in the right direction, are proposed. These changes center around the creation of a system of certified genebanks with proper quality management, guaranteeing the long-term conservation of, and immediate access to the plant genetic resources conserved in it.

WAGENINGEN
UNIVERSITY & RESEARCH

Genebank Certification

- PGR Strategy for Europe
  - created by the European genebank community
  - one of the objectives
    - establish a certification system, that is economically sustainable and accessible to genebanks and collection holders
      - consolidating AQUAS ... along with simple performance indicators and a reporting system
      - establish and run a monitoring system ... and a certification mechanism

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PRO-GRACE
PROMOTING A PLANT GENETIC RESOURCE COMMUNITY FOR EUROPE

- establish a genebank certification system
  - EU project Pro-GRACE: work-package on setting up a 'blueprint for a genebank certification system'
    - collaboration with Crop Trust and CGIAR Genebank Initiative
    - assure political support via Inter-governamental Technical Working Group on PGR of the CGRFA
      - "The Working Group also recommended that FAO look into options on how and which capacity-building and evaluation mechanisms could be created to support genebanks in reaching the Genebank Standards and explore the possibility for creating an acknowledgement system."

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PRO-GRACE
PROMOTING A PLANT GENETIC RESOURCE COMMUNITY FOR EUROPE

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Keywords	genebank certification, standard operating procedures, quality management

Citation:

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- who should do what?
  - in ProGrace the certification system and capacity building programme was designed
    - if the 'research infrastructure' is funded this can make a flying start
    - if not, we should do it anyway
  - ECPGR will strengthen AEGIS
    - identify genebanks
    - inventory operating procedures
    - improve transparency of genebanks

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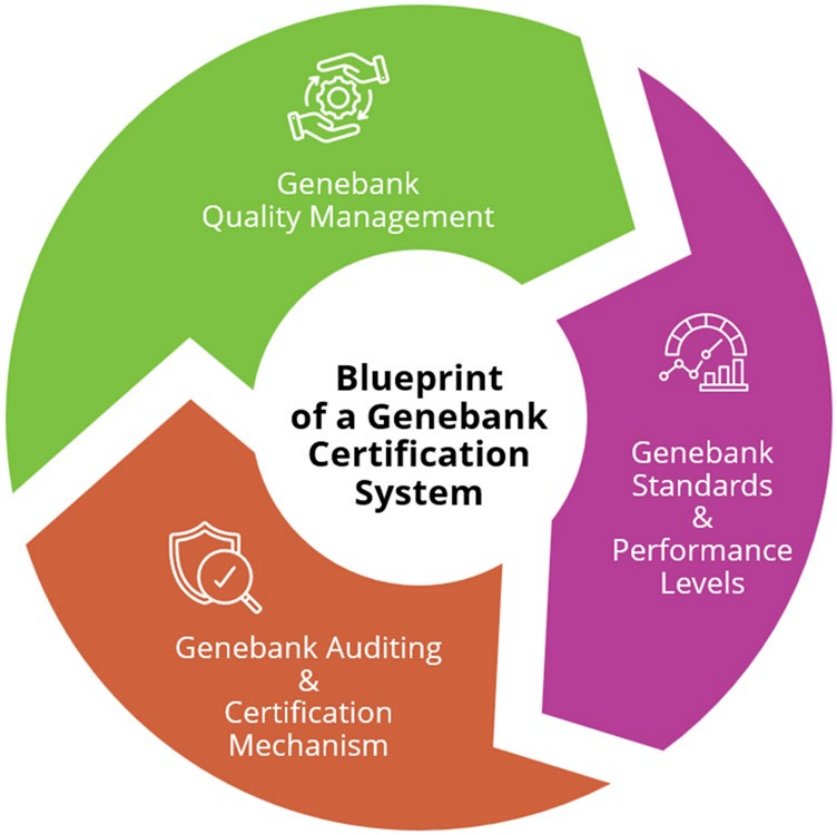
- PGR conservation needs quality certification



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- who should do what?
  - genebanks need to make steps toward quality management
    - responsibility of the genebanks !
      - supported by targeted capacity building
  - an international organisation (Crop Trust ?) should set up the Certification System
    - define procedures and minimal standards
    - set up infrastructure
    - create critical mass
      - CGIAR genebanks & European National genebanks

Conclusions

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- conclusions
  - a worldwide network of certified genebanks is required to properly conserve and provide access to PGR
    - reliable – for the future generation of users
    - accessible – for the current users
  - (nearly) everything we need is already there
    - some tools still need to be created
    - possibly the political support is not complete yet

Let's take the final steps

Thank you for your attention !