Reciprocal genebank visits

BPGV (INIAV) – Ana-Maria Barata
CGN (WUR) – Erik Wijnker, Theo van Hintum
GRC (LSFRI Silava) - Agnese Gailīte, Dainis Ruņģis

- BPGV, Braga, Portugal
  - 10-11 March 2025
- CGN-Plant, WUR, Wageningen, Netherlands
  - 18-19 March 2025
- GRC, LSFRI Silava, Salaspils, Latvia
  - 8-9 April 2025

BPGV - Portugal

- Established in 1977 - large collection (over 47 000 samples from 150 species and 90 genera, including cereals, aromatic and medicinal plants, fibers, forages, pastures, and horticultural crops)
- The conserved Portuguese plant genetic diversity has a large potential to contribute to world food supply, and is an important source of germplasm for breeding and research. The current collection appears to cover most of this diversity as far as landraces are concerned.
- The BPGV is a well-organized genebank, with good facilities and qualified and enthusiastic staff.

BPGV - Portugal

- Annual funding only covers staff salaries and utilities, and the GB does not have financial autonomy, which limits the flexibility to reallocate funds or hire new staff.
- Therefore, basic genebank functions, such as the regeneration and characterization of accessions, rely on project funding, which often prioritizes the evaluation of accessions over regeneration and other core GB activities.

BPGV - Portugal

- Strengths
  - Large amount of diversity conserved
  - Motivated and knowledgeable staff
- Weaknesses
  - Achieving ‘steady state’ (regeneration, viability testing)
  - Accessions not available for online ordering via Grin-Global
- Opportunities
  - Descriptor data available via Grin-Global
  - Large amount of work already done to organise collection
- Threats
  - Lack of financial autonomy
  - Funding for core activities is project based

BPGV - conclusions

With the current facilities, the available valuable genetic resources, the current motivated and knowledgeable staff BPGV has the potential for becoming one of the more important genebanks in Europe.

The main challenge lies in achieving a “steady state” in genebank operations in which basic operations like regeneration, viability testing and seed distribution are supported by sufficient capacity (and funding).

This may require more autonomy to the Genebank management, some difficult decisions regarding the composition of the collection and quality management to anchor the procedures and realign them to international standards.

CGN - Netherlands

- Established in 1985, now holds 23 545 plant genetic resource accessions from 33 crop collections, originating from 159 countries. The focus is on vegetables and wild potatoes
- Currently, the collection is being actively expanded via national and international collecting missions, as well as joint regenerations with ‘twinning partner genebanks’

CGN - Netherlands

- Very focussed on ‘core’ genebank activities – high quality conservation, full availability of all conserved material
- ISO 9001 certified since 2004
- However, has staff dedicated to other important topics, e.g. research and policy

CGN - Netherlands

- The core activities of CGN-Plant are funded by 5-year agreements with the Ministry of Agriculture, Nature, and Food Quality, which contracts CGN to fulfil “statutory tasks”
- The CGN has significant flexibility regarding the use of the funds allocated under the contract with the ministry, operating as a separate business unit in WUR-Wageningen Plant Research, and can therefore utilize a business-like approach to fulfil the required activities (e.g. outsourcing of tasks).

CGN - Netherlands

- Strengths
  - Trusted partner (both within PGRFA community as well as research/policy)
- Weaknesses
  - Previously, some tasks were outsourced to breeding companies, which can lead to a loss of expertise and knowledge
- Opportunities
  - Expansion of collection
- Threats
  - Maintenance of ‘steady state’ during period of rapid expansion of the collection

CGN - conclusions

- The genebank staff are very motivated and focussed on the message of conservation for future generations and immediate access to material.
- This strict prioritisation of genebank activities can guide other genebanks, however in many cases this may be hampered by insufficient autonomy in terms of decision making and setting of priorities (as well as funding).

GRC - Latvia

- Small collection (<2000 accessions) – mandate is to conserve material of Latvian origin
- Rely on cooperation with crop experts/curators for regeneration and characterization and evaluation
- Cooperation with NordGen for documentation (GENBIS)

GRC - Latvia

- Strengths
  - Good cooperation within the Nordic-Baltic region (NordGen)
- Weaknesses
  - Lack of resources for expansion of activities
- Opportunities
  - On-line ordering has increased distribution
  - GENBIS (Grin-Global) provides a platform for adding descriptor data and other metadata
- Threats
  - Limited staff
  - Small proportion of collection that is safety duplicated

GRC - conclusions

- Safety duplication of entire collection is crucial
- Expanding genebank staff should be considered - genebank functioning relies significantly on in-kind contributions of partner organizations
- Nevertheless, the genebank may not be far from reaching a “steady state”. However, the extra effort required to reach a steady state will be at a cost to other work. Efficiency may be increased by rationalizing the collection

Discussion

- Staff and management in all visited genebanks are motivated and knowledgeable
- All the visited genebanks have to deal with legacy issues (e.g. rationalisation of collections, documentation in paper archives, storage in glass jars etc)

Discussion

- Definition of collection (re: AEGIS)
- What material should be publicly visible? (EURISCO – Arabidopsis, Kew collections)
  - The creation of an archive, in one way or the other, may allow staff to temporarily “park” material, until material later (or not) becomes part of the collection. This archive allows for curation decisions to be taken, material to be regenerated, etc. without the material “officially” entering the collection.

Discussion

- Genebank protocols (tips and tricks/lifehacks) could be more widely shared
  - often protocols are modified to adapt to circumstances,
  - or could be modified to be more efficient, but are not because of inertia (existing GB instructions or protocols etc.)

Efficiency of genebank operations can be increased by rationalizing operating procedures (i.e. accessions of uncertain status can be archived; lowering frequencies and sample sizes for viability tests…….)

Discussion

- The “steady state” is a good concept for assessing actual genebank operations: the question as to whether viability monitoring- and regeneration capacity match the physical size of the existing collection.
  - simple input variables (available yearly capacity for viability testing and regeneration) should match the collection needs (e.g. “(desired testing frequency x collection size) + regenerated accessions” should match testing capacity.
  - these numbers can very easily be assessed by reviewing how many tests and regenerations have been performed in recent years at a certain genebank

Discussion

- Scope of reviews –
- Genebank vs Genetic Resource Centre
  - In situ and on farm
  - Public relations and outreach
  - Hobby varieties
  - Etc…

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