Checklist for the Peer Review of Genebanks[1]
Version March 2025

The checklist, largely based on the template for an Operational Genebank Manual, lists the topics to consider while reviewing. Section 0 'Organisation, Management and Funding' is new, for the others, the reported data in the Operational Genebank Manual, if available, can be used as a starting point of the discussion.

The checklists focuses on seed genebanks (especially section 3 'Germplasm Management'), a similar list can be made for other types of genebanks (field genebanks, in vitro *and cryo-collections).*

0. Organization, Management and Funding

0.1. In what larger organizational structure is the genebank positioned and how, who is in charge, in what hierarchy?
0.2. How is the genebank organized internally; how many staff, what kind of positions? Who is responsible for staffing? Are there problems related to staffing?
0.3. How is the genebank funded, is the funding sufficient, was/is/will it be it stable?
0.4. Is it clear what the components of the programme cost, are all costs (office rent, computers, greenhouses, freezers, etc.) budgeted?

1. Germplasm Acquisition and Accessioning

1.1. What material is added to the genebank, is there a policy, who decides?
1.2. What criteria are there for the material to be allowed in in terms of seed amounts, phytosanitary and legal/administrative requirements?
1.3. Does the genebank do collecting, and if yes, where, how and how often?

Are there documents to substantiate this?

2. Security

2.1. Is the material safety duplicated, if yes, what proportion and where?
2.2. How secure is the genebank? Think of earthquakes, fires, floods and other disasters.
2.3. Are there back-up generators, fire extinguishers, etc?
2.4. How is the temperature and humidity monitored, what happens if it deviates from the norms?

Are there documents to substantiate this or items to see?

[1] This checklist was first published as Supplemental Data for: van Hintum, T., Balding, S., Desheva, G., Dickie, J., Díez, M. J., Guasch, L., Hauptvogel, P., Holubec, V., Janovská, D., Lohwasser, U., Martín, I., Papoušková, L., Schierscher-Viret, B., Steffensen, L. L., Uzundzhalieva, K., Vaccino, P., Valcárcel, J. V. (2025). Genebank Peer Reviews: A powerful tool to improve genebank quality and promote collaboration. *Genetic Resources* 6 (11), 115–121. doi: 10.46265/genresj.OADZ7911.

3. Germplasm Management

Viability

3.1. What standards are applied regarding seed viability (for new seed or stored seed)? How is this measured/monitored; what are the protocols? How is dealt with dormancy/hard seededness, etc.? How are results recorded and analyzed? Who does the tests and analysis?

3.2. How and when is it decided to regenerate an accessions; what are the criteria, and how quick is it actually done?

Are there documents to substantiate this or items to see?

Storage conditions

3.3. How is the seed material treated, packed and stored? What criteria for seed moisture are applied? What are the conditions in the drying and storage rooms, what containers are used?

3.4. How much storage space is available, what is the age of the facilities and how long is it expected to last?

3.5. Are there criteria for the seed amounts, how many seeds are distributed to the user?

Are there documents to substantiate this or items to see?

Regeneration

3.6. How are the accessions regenerated; who does it and on what scale? Are there regeneration protocols; what number of plants are used, crossing schemas, isolation, pollination, etc.? Is there sufficient access to isolation cages, etc?

3.7. How are phytosanitary issues tackled; is there a regular check from the authorities? How is the phytosanitary information handled?

Are there documents to substantiate this or items to see?

Seed Processing

3.8. What happens to the seed after regeneration? Are there protocols for these treatments (pre-drying, threshing, cleaning, drying, time between harvest and packing, etc)?

Availability

3.9. What is the policy regarding requests and distribution of material. Who can obtain material, under what conditions, how many accessions, how much seed, any restrictions, etc.? How long does it take from the request to the distribution?

3.10. How many samples are distributed annually and to whom (in the institute, in the country, abroad – public, private).

3.11. What paperwork comes with the requests (SMTA, passport/C&E data, phytosanitary, etc.)?

Are there documents to substantiate this or items to see?

4. Information

4.1. How is the genebank documentation handled (hardware, software, personal)? What procedures exist to manage the information system (collecting data, entering data, back-up, generating reports, making data available)?

4.2. What types of data are stored and how do they support genebank operations?

4.3. How is the information made available to users; is there a website? Is the information made available to other databases (such as EURISCO), how and in what intervals?

Are there documents to substantiate this or items to see?

Overall

For all these components, and possibly other arising issues following questions can be asked:

- What is the overall impression in terms of quality of the operation/facility/procedure
- What are the strong and weak points
- What improvements can be suggested, and how urgent are these?