

Global strategy for the conservation and use of peanut genetic resources: summary for ITPGRFA stakeholders

This document is a concise summary of the [Global Strategy for the Conservation and Use of Peanut Genetic Resources](#) (Williams 2022). This summary supports decision making processes of the stakeholders engaging in the processes of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) by providing evidence-based information in an accessible format.

Non-Annex I crops: *Arachis hypogaea* L.
International collections: International Centre for Research in the Semi-Arid Tropics (ICRISAT), The International Center for Tropical Agriculture (Alliance of Bioversity International and CIAT), The International Livestock Research Institute (ILRI)

Composition and gaps in *ex situ* collections

It has been estimated that about 90,000 *Arachis* accessions are conserved *ex situ* worldwide, including extensive redundant duplication. Crop wild relatives (CWRs) are poorly represented *ex situ*. Among cultivated peanut, *var. hirsuta*, *peruviana* and *aequatoriana* are less well represented than the other varieties.

Several countries in Central and South America have yet to be systematically explored for indigenous peanut landraces. Gaps were found also in Africa and in Asia. The determination of botanical variety and better data on biological status are needed to have a more precise assessment of gaps.

Routine operations and quality management system

Generally, the germplasm is well conserved. Most institutions have established some form of genebank management system or follow written procedures and protocols for basic germplasm conservation, documentation and quality control processes. The characterization, evaluation and phytosanitary status of the collections vary widely across the genebanks surveyed.

Key metrics	Data source	Value	%
Estimated global number of accessions <i>ex situ</i>	Genesys, WIEWS, and Survey ¹ (2020)	86,195	
Estimated global number of accessions <i>ex situ</i>	Survey (2020)	58,223	
Estimated global number of accessions in the MLS	Survey (2020)	26,395	31%
Estimated global number of accessions notified as available in the MLS	GLIS portal (2023)	24,665	29%
Accessions with DOI	GLIS portal (2023)	27,680	32%
Estimated number of accessions safety duplicated at a different genebank	Survey (2020)	17,058	33%
Number of accessions safety duplicated at Svalbard Global Seed Vault	SGSV web portal (2023)	17,726	21%
Estimated number of accessions needing urgent regeneration	Survey (2020)	8,719	15%
Number of accessions available for distribution	Survey (2020)	29,629	51%
Number of seed samples distributed per year	Survey (2020)	9,863	
Number of seed samples distributed per year	ITPGRFA data store ²	3,170	
Passport data completeness index : median value in Genesys (Range 0-10)	Genesys (2023)	6.65	

¹Responses to the online survey conducted in 2020 were received from 27 genebanks.

²Annual average of germplasm distributions between 2015 and 2019. Source: The Plants that Feed the World (Khoury et al., 2023).

With support from



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Regeneration

There is a great variation among genebanks in terms of regeneration. From 0 to 100% of accessions of surveyed collections require urgent regeneration for a total of 8,719 accessions, i.e. 15% of the accessions held by the surveyed genebanks.

Safety duplication

Half of the genebanks surveyed have a safety duplicate of at least part of their collection. Totally, 33% of the estimated accessions *ex situ* are safety duplicated in another genebank and 21% are duplicated at the Svalbard Global Seed Vault. More than half of the genebanks surveyed reported restrictions for sending duplicate accessions outside their countries for safety back-up conservation. They cited national and international policy issues, lack of adequate seed stocks and phytosanitary issues as the primary reasons.

Crop descriptors

The use of standardized descriptor lists is widespread, particularly the IBPGR/ICRISAT Descriptors for Groundnut and the USDA Peanut Descriptors, as well as some institution-own descriptors. Updated documentation standards and descriptors for *Arachis* germplasm characterization need to be developed and universally adopted.

Documentation and information systems

Fifty-six percent of respondents make accession-level information publicly available. Seventy-one percent of the genebanks surveyed use some form of a searchable electronic database to store and retrieve their accession-level data. Passport (90%), taxonomy (76%) and characterization (71%) data is recorded by most of the genebanks, with information on storage conditions (52%), evaluation data (43%), images (33%), genotype data (24%) and distribution data (24%) being less frequent. Information on the biological status is missing from the passport data of many accessions. The strategy includes a recommendation to retain the original collector's number as a synonym.

Human and financial resources

Financial and staffing constraints are the most frequently reported constraints and threats by the survey's respondents.

Distribution and obstacles to use

Seventy percent of surveyed genebanks distribute material, but less than 40% distribute it internationally. The most reported obstacle to use is insufficient seed quantity. About 30% of the accessions conserved *ex situ* are estimated to be in the MLS.

Partnerships and networks

There is a paucity of existing regional or global networks. Five genebanks reported participating in at least one network and 19 reported having no network participation.

In situ and on-farm conservation

Natural populations of nearly all wild peanut species are poorly conserved *in situ* within their host countries' systems of protected areas. Although very few initiatives on on-farm conservation of peanut genetic resources have been reported to FAO and CBD, a few studies conducted in the last 20 years reported the cultivation of landraces by small-scale farmers. There is very limited evidence of any linkages between *ex situ* and *in situ*/on-farm conservation activities for peanut genetic resources.

Recommendations and priorities

Ex situ

- Developing and adopting documentation standards and a common information platform.
- Regenerating, characterizing and evaluating "unknown" accessions.
- Filling existing taxonomic gaps and ecogeographic gaps in collections.
- Ensuring safety duplication of unique accessions and collections.
- Training for peanut curators and technicians in developing countries.
- Initiating constructive policy dialogue on peanut ABS to promote and facilitate the addition of peanut and its wild relatives to the Plant Treaty's list of Annex 1 crops.
- Integrating *ex situ* and *in situ* approaches.

In situ

- Conducting an inventory of peanut landraces and associated knowledge.
- Conducting capacity building on *in situ* conservation methods.
- Developing and conducting *in situ* conservation of wild *Arachis* diversity.
- Conducting environmental impact assessment in areas with wild *Arachis* diversity.
- Strengthening public awareness and enabling policies.

Bibliography

- Khoury, C.K., Sotelo, S., Amariles, D. & Hawtin, G. 2023. The plants that feed the world – Baseline data and metrics to inform strategies for the conservation and use of plant genetic resources for food and agriculture. Rome, FAO.
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Acknowledgements

The development of this document was funded by the German Federal Ministry of Food and Agriculture (BMEL) as part of the project "Mainstreaming the Global Crop Conservation Strategies in Plant Treaty Processes".