SVALBARD GLOBAL SEED VAULT

Annual Progress Report 2024

NordGen

NordGen report on the agreement on the funding, management and operation of the Svalbard Global Seed Vault.

Contents

Front page photo: Harsh weather during the seed deposit event in February 2024. The Norwegian Minister of Agriculture Geir Pollestad and NordGen CEO Lise Lykke Steffensen carry one seed box from NordGen to the Seed Vault entrance. Photo: Sara Landqvist, NordGen.

2024 at a glance

- In total 64,331 safety duplicates from 54 depositors were added to the Seed Vault collection in 2024. By the end of the year the total holding of seed accessions in the Seed Vault was 1,331,458 samples deposited by 123 genebanks/institutes.
- 21 genebanks deposited seeds for the first time in 2024. This is the highest number of newcomers since the opening of the Seed Vault in 2008. New depositor genebanks were located in Kazakhstan, Nigeria, Kenya, Madagascar, Benin, Bosnia & Herzegovina, Ghana, Burkina Faso, Cameroon, Zambia, Indonesia, Armenia, Malaysia, Bolivia, Palestine territories, Bangla Desh, Papua New Guinea, Chad and Suriname.
- The partners cooperated closely within the Crop Trust managed BOLD- and Seeds for Resilience-projects, which provided financial support to genebanks in developing countries for seed production and Seed Vault deposits. The significant number of new depositors is partly a result of activities in these projects.
- New samples of test seeds belonging to the 100-year seed germination experiment in the Seed Vault were deployed in 2024 and the last samples needed for the finalizing the establishment of the experiment were delivered by ICRISAT in October.
- By the end of 2024, all boxes deposited between 2008 and 2021 has been equipped with nanofilm labels displaying data on conserved seed samples.

Foreword

NordGen manages and operates the seed deposits at the Svalbard Global Seed Vault in partnership with the Norwegian Ministry of Agriculture and Food (LMD) and the Global Crop Diversity Trust (Crop Trust) and in accordance with the Three Party Agreement between the partners, signed for ten years and valid from 1st of July 2017.

The objective of the Seed Vault is to provide a safety net for the international conservation system of plant genetic resources, and to contribute to securing the maximum amount of plant genetic diversity of importance to humanity for the long term. We are happy to note that the success of the Seed Vault has continued also this year, not at least confirmed by the high number of new depositors during 2024. The 15-year anniversary in 2023 boosted the public interest and awareness about the Svalbard Global Seed Vault, and this increased attention has continued in 2024.

By the end of 2024, the Seed Vault holds 1,331,458 safety duplicates representing wide inter- and intra-specific crop diversity deposited by 123 genebanks from around the world. Twenty-one of these deposited seeds for the first time in 2024. This result is partly due to high activity in the BOLD- and Seeds for Resilience projects, and we appreciate good cooperation with Crop Trust in these two projects, funded respectively by the Norwegian and German governments.

We take this opportunity to thank our partners LMD and the Crop Trust for the good collaboration. I would also like to thank Statsbygg for the cooperation and excellent working conditions when handling seed deposits in Svalbard.

It is with great satisfaction we see that the confidence and global interest for the Svalbard Global Seed Vault and for depositing seeds has remained on a high level also in 2024.

Lise Lykke Steffensen
Executive director NordGen

1. Introduction

This annual progress report for the Svalbard Global Seed Vault gives an overview of the NordGen operation of the Seed Vault and related activities in 2024. NordGen's responsibilities are stated in the Three-Party Agreement providing for the long-term funding, management and operation of the Svalbard Global Seed Vault. The annual progress report is prepared by NordGen in accordance with obligations in the Three-Party Agreement Article 3.19.a).

The overall guidelines for the NordGen mission is to fulfil the objectives for the Svalbard Global Seed Vault as they are expressed in the standard deposit agreement between depositors and the Royal Norwegian Ministry of Agriculture and Food, saying that the Seed Vault was established with the "*objective to provide a safety net for the international conservation system of plant genetic resources, and to contribute to the securing of the maximum amount of plant genetic diversity of importance to humanity for the long term in accordance with the latest scientific knowledge and most appropriate technique*".

The operation of the Seed Vault is collaborative at several levels. At the management level NordGen collaborates closely with LMD and Crop Trust. At the facility operation level NordGen cooperates with Statsbygg in Longyearbyen. At the seed logistics level, we cooperate with the institutions sending safety duplicates as well as the chain of logistics and security partners involved in shipment and transport to the Seed Vault. The partnerships at all levels have worked very well also in 2024.

2. Seed deposits and depositors in 2024

In total, 54 genebanks deposited 64,331 seed samples in 2024, which represents a significant increase in the number of depositors compared to 2023, while the number of deposited seed samples is quite equal to the previous year. Five institutes deposited seed two times during the year. Three Seed Vault openings were organized, as scheduled and pre-announced. Twenty-one genebanks deposited seeds for the first time in 2024, eighteen of these supported by the BOLD-project:

1. Kazakh Scientific Research Institute of Agriculture and Plant Growing
2. Union Of Agricultural Work Committees, Palestine
3. Seed Savers Network Association, Kenya
4. Biodiversity Education and Resource Centre, Nigeria
5. The National Center for Applied Research on Rural Development , Madagascar
6. University of Sarajevo, Faculty of Agriculture and Food Sciencies, Bosnia & Herzegovina
7. University of Cape Coast, Ghana
8. Ahmadu Bello University, Nigeria
9. Institute of Environment and Agricultural Research, Burkina Faso
10. Ecogerm Farmers, Cameroon
11. Borneo Institute, Indonesia
12. Agrobiotechnology Scientific Center, Armenian National Agrarian University Foundation
13. Laboratory of Genetics, Biotechnology and Seed Sciences, Benin

14. Institut National des Recherches Agricoles du Benin
15. Malaysian Agricultural Research and Development Institute
16. Instituto de Agroecologia y Seguridad Alimentaria, Facultad de Ciencias Agrarias, Bolivia
17. Bangladesh Rural Advancement Committee
18. National Agricultural Research Institute, Papua New Guinea
19. Institut Tchadien de Recherche Agronomique pour le Développement, Chad
20. National Horticultural Research Institute, Nigeria
21. Anne van Dijk Rice Research Centre Nickerie, Suriname

Table 1. Seed Vault deposits at the Seed Vault opening in February 2024.

Institute / Genebank	**Acronym**	**Country**	**Acc.**
Margot Forde Germplasm Centre	AGRESEARCH	New Zealand	205
World Agroforestry Centre	ICRAF	Kenya	232
Institute of Biosciences and BioResources	IBBR	Italy	200
National Agricultural and Food Centre	SVKPIEST	Slovakia	199
Leibniz Institute of Plant Genetics and Crop Plant Research	IPK	Germany	2679
Nordic Genetic Resource Center	NordGen	Nordic	1015
Julius Kühn Institute	JKI	Germany	5
The Norwegian Forest Seed Centre	NFSC	Norway	57
Kazakh Scientific Research Institute of Agriculture and Plant Growing	KSRIAPG	Kazakhstan	522
Fabia CSB Bogdanci	FABIA	N-Macedonia	197
Biodiversity Education and Resource Centre	BERC	Nigeria	362
Seed Savers Network Association	SSNA	Kenya	1000
The National Center for Applied Research on Rural development	FOFIFA	Madagascar	1045
Groupe de Recherche, Innovation agricole, Gestion de la biodiversité et Action pour un développement Durable et Equitable à la Base	GRIGADEB	Benin	777
University of Sarajevo, Faculty of Agriculture and Food Sciencies	FAFS	Bosnia & Herz.	252
University of Cape Coast	UCC	Ghana	100
Ahmadu Bello University	ABU	Nigeria	406
Agricultural Research Institute of Burundi	ISABU	Burundi	212
Institut d'Economie Rurale	IER	Mali	1601
Institute of Environment and Agricultural Research	INERA	Burkina Faso	1040
Ecogerm Farmers	EGF	Cameroon	990
Zambia Agriculture Research Institute, National Plant Genetic Resources Centre	ZARI	Zambia	454
Totals	**22 depositors**		**13550**

Table 2. Seed Vault deposits at the Seed Vault opening in May 2024.

Institute / Genebank	Acronym	Country	Acc.
National Agrobiodiversity Center	RDA	South-Korea	4000
World Vegetable Centre	WorldVeg	Taiwan	4800
Seed Savers Exchange	SSE	USA	38
Taiwan Agricultural Research Institute	TARI	Taiwan	170
Barley and Wild Plant Resources Center, Okayama University	BWPRC	Japan	654
Spanish Plant Genetic Resource Centre	CSIC	Spain	208
Centro Internacional de la Papa	CIP	Peru	215
Plant Breeding and Acclimatization Institute	IHAR	Poland	850
International Centre for Agricultural Research in Dry Areas	ICARDA	Lebanon	3752
Borneo Institute	BIT	Indonesia	294
Agrobiotechnology Scientific Center, Armenian National Agrarian University Foundation	ASC / ANAU	Armenia	1865
Laboratory of Genetics, Biotechnology and Seed Sciences	GbioS/PAGEV	Benin	2701
Institut National des Recherches Agricoles du Benin (new)	INRAB	Benin	324
Malaysian Agricultural Research and Development Institute (new)	MARDI	Malaysia	207
National Centre for Genetic Resources and Biotechnology	NACGRAB	Nigeria	642
Totals	**15 depositors**		**20720**

Table 3. Seed Vault deposits at the Seed Vault opening in October 2024.

Institute / Genebank	Acronym	Country	Acc.
SADC Plant Genetic Resource Centre	SPGRC	Zambia	433
World Vegetable Centre (Tanzania department)	WorldVeg	Taiwan	2137
Suceava Genebank ”Mihai Cristea”	BRGV	Romania	158
National Rice Seed Storage Laboratory for Genetic Resources, Rice Department	NRSSL	Thailand	72
Zambia Agr. Research Institute, National Plant Genetic Resources Centre	ZARI	Zambia	392
International Crop Research Institute for the Semi-Arid Tropics	ICRISAT	India	2950
Instituto de Agroecologia y Seguridad Alimentaria, Facultad de Ciencias Agrarias	IASA	Bolivia	500
Union Of Agricultural Work Committees	UAWC	Palestine	23
Centro Internacional de Mejoramiento de Maiz y Trigo	CIMMYT	Mexico	5442
National Plant Genetic Resources Laboratory	NPGRL	Philippines	983
University of Costa Rica	UCC	Costa Rica	130
Bangladesh Rural Advancement Committee	BRAC	Bangla Desh	725
National Agricultural Research Institute	NARI	Papua New Guinea	520
Plant Breeding and Acclimatization Institute	IHAR	Poland	1290
International Rice Research Institute	IRRI	Philipines	7260
International Livestock Research Institute	ILRI	Ethiopia	1750

Institut Tchadien de Recherche Agronomique pour le Développement	ITRAD	Chad	1145
Centro Internacional de la Papa	CIP	Peru	20
Anne van Dijk Rice Research Centre Nickerie	ADRON	Suriname	577
Institut d'Economie Rurale	IER	Mali	212
National Horticultural Research Institute	NIHORT	Nigeria	200
Agricultural University of Tirana	IPGR	Albania	850
International Centre for Agricultural Research in Dry Areas	ICARDA	Morocco	2292
Totals	**22 depositors**		**30061**

During 2024 NordGen has, on behalf of LMD, signed Deposit Agreements (DA) with 18 new institutions, and by the end of the year 134 institutions have signed the DA. Out of these 123 are active depositors, and by the end of the year the total holding of seed accessions in the Seed Vault was 1,331,458.

Two depositors that have deposited non-PGRFA seed samples with special permissions from the Norwegian Ministry of Agriculture and Food are not included in the publicly accessible part of the Seed Portal. These are the Forest Research Institute, Myanmar (deposited wild growing orchid seeds) and the University Centre in Svalbard (depositing non-PGRFA seeds from the Svalbard wild flora). Figures for seed deposits and withdrawals during the years from 2008 to 2024 are shown in Table 2 and visualized by graphs in Figure 1.

Table 4. Deposited and withdrawn seed accessions pr year and in total for the years 2008-2024. Figures showing status at the end of each year.

Year	Deposited pr year	Accumulated	Withdrawals	Current holdings
2008	320549	320549		320549
2009	169505	490054		490054
2010	111101	601155		601155
2011	113364	714519		714519
2012	58078	772597		772597
2013	29155	801752		801752
2014	38052	839804	3[1)]	839801
2015	36130	875934	38073[2)]	837858
2016	42979	918913		880837
2017	64403	983316	54354[2)]	890886
2018	92638	1075954		983524
2019	32572	1108526	24064[2) 3)]	992032
2020	82501	1191027	40 [4)]	1074533
2021	50926	1241953		1125419
2022	69825	1311778		1195244
2023	71895	1383673	12 [5)]	1267127
2024	64331	1448004		1331458
Totals		**1448004**	**116506**	**1331458**

[1] *Three Hordeum accessions withdrawn by NordGen for regeneration*
[2] *ICARDA withdrawals in 2015, 2017 and 2019*
[3] *Seven Secale accessions withdrawn by Agroscope, Switzerland for regeneration*
[4] *40 samples withdrawn from the 2020 seed deposit before departure from ICARDA. These samples were already registered in the Seed Portal and the number appear as a virtual withdrawal.*
[5] *A review of the total NordGen deposits in 2023 revealed that 12 registered accessions did not exist in the seed boxes and the corresponding data was removed from the Seed Portal.*

A complete list of signatories and their deposited seed samples are shown in Annex 1. Further details and key figures for the years 2017 to 2024 for seed deposits, stored boxes, depositors and seed deposit events are shown in Annex 3.

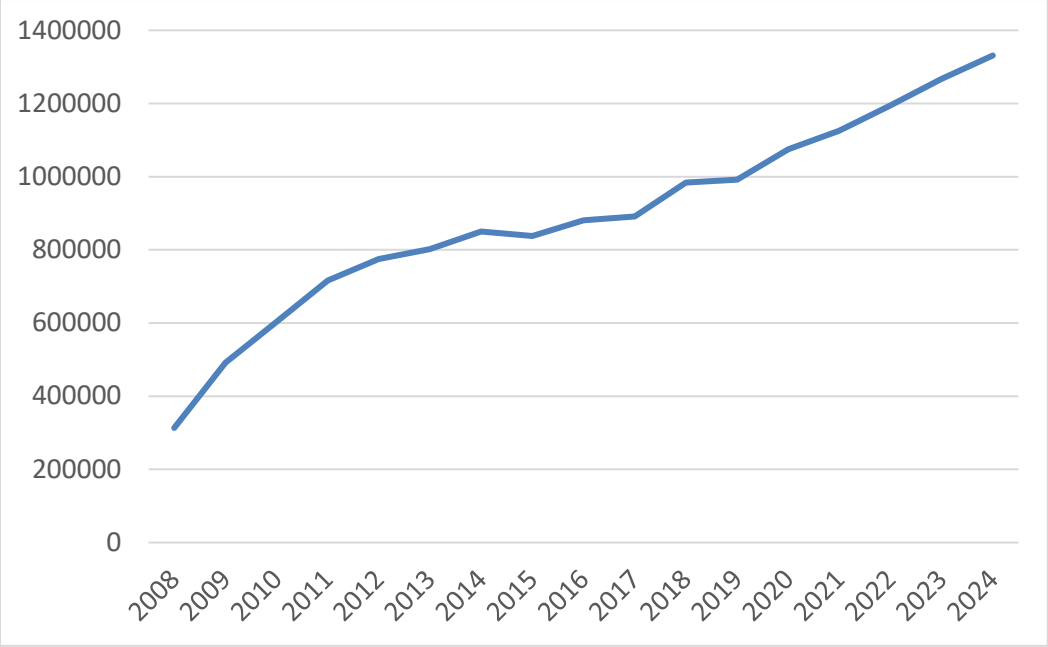

Figure 1. Seed samples conserved in the Svalbard Global Seed Vault, accumulated numbers over 2008 to 2024. ICARDA withdrawals took place in 2015, 2017 and 2019, causing drops in the total numbers of deposited samples during these three years.

Figure 2 shows the proportion and numbers of safety duplicates deposited by different categories of genebanks by the end of 2024. The largest share (56,3%) of the current holdings in the Seed Vault is deposited by IARCs represented by institutes belonging to the Consultative Group of International Agricultural Research Centres (CGIAR), the Asian Vegetable Research Centre (AVRDC) and the Tropical Agricultural Research and Higher Education Centre (CATIE), all holding collections of PGRFA in trust for the UN Food and Agriculture Organisation (FAO).

Thirteen [1)] of the current 123 depositors are International Agricultural Research Institutes (IARCs), 93 are national gene banks and universities, two are regional genebanks and fourteen are NGO gene bank collections. One of the depositors is a private company that has deposited seeds in cooperation with the country's government (Singapore).

Two depositors are regional genebanks, SPGRC and NordGen, standing for 3,3% of the total number of deposited accessions, while 39,6% of the seed samples in the Seed Vault have been deposited by national genebanks and universities.

[1)] *ICARDA is registered twice in the database due to one added WIEWS code related to the relocation and split of the genebank to Lebanon and Morocco.*

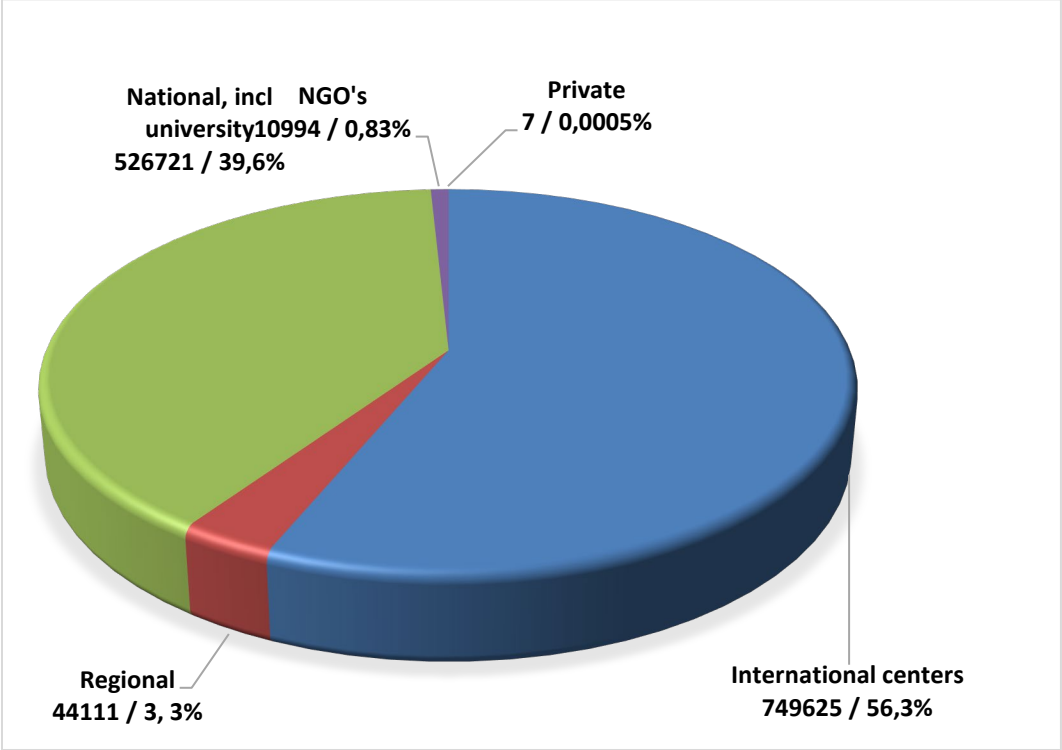

Figure 2. The proportion and numbers of safety duplicates currently deposited in The Seed Vault at the end of 2024 by different categories of genebanks.

In total, 210 seed boxes were taken into the Seed Vault in 2024. Over the years, 4195 regular seed boxes have been deposited in the Seed Vault. 325 boxes have been taken out, and consequently the number of regular seed boxes in the Seed Vault at the end of 2024 is 3870.

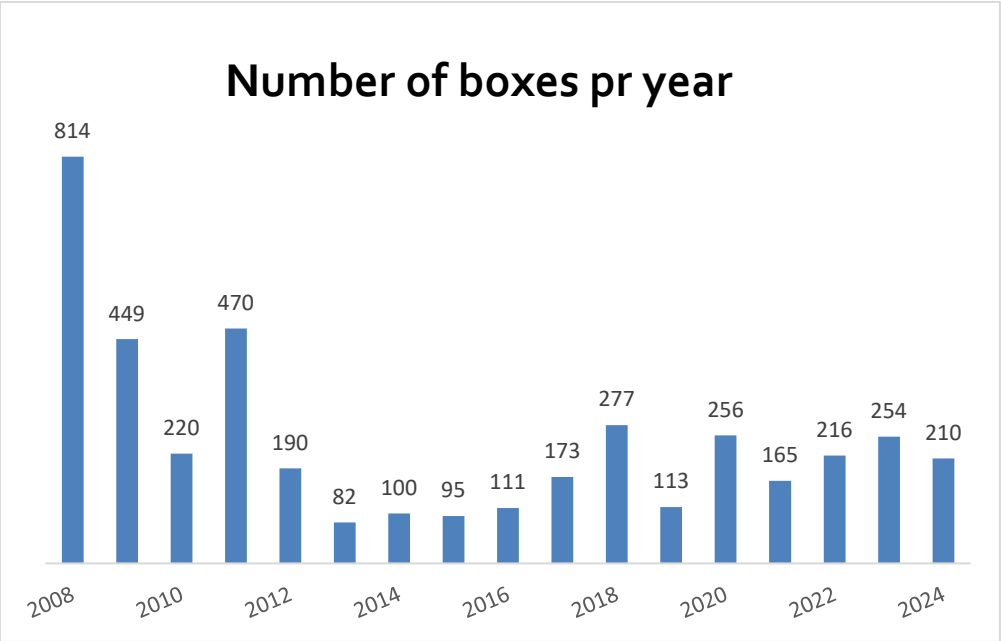

Figure 3. Numbers of boxes deposited per year 2008-2024. (Withdrawals not shown.)

In addition, there are 109 boxes registered as test boxes in the Seed Vault. Thirty of these belong to the *100-year Seed Longevity Experiment in the Svalbard Global Seed Vault*. Eight genebanks have deposited test samples in one or more separate boxes. In addition, boxes that contain seeds not categorized as regular crop seeds in the Seed Portal database are marked as test boxes (pasture seed mixtures from the Millennium Seed Bank, orchid seeds from the Forest Research Institute, Myanmar and seeds from the wild flora in Svalbard, deposited by the University Centre in Svalbard).

Seed shipment logistics imply that depositor genebanks send their seeds directly to Svalbard. Logistics in Svalbard have been handled in collaboration with the local company Pole Position Logistics, who pick up the seed boxes upon arrival, store them temporarily until the Seed Vault opening date and bring the boxes to the airport for scanning and afterwards to the Seed Vault.

Security screening of seed boxes upon arrival in Svalbard has been handled in collaboration with Avinor at Longyearbyen airport and the security company Avarn Security Aviation AS. Statsbygg has provided support with logistics and technical backstopping in Svalbard and accompanied at all work inside the Seed Vault. The work carried out in Svalbard has been carried out smoothly and efficiently in 2024. All seed samples and seed boxes that have been shipped to Svalbard have arrived safely and have been secured in the Seed Vault.

3. BOLD project support

Through 2024, NordGen has cooperated closely with Crop Trust within the Norwegian funded BOLD WP4 project, funding genebank activities with the purpose of securing duplicates of genebank

collections in the Seed Vault. This project is the main reason for the high number of new depositors and new Deposit Agreement signatories in 2024.

Work package 4 of the Crop Trust organized BOLD-project (*Biodiversity for Opportunities, Livelihoods and Development*) aims directly at supporting seed production, packing and depositing seed duplicates from genebanks in the Seed Vault. Genebanks in the least developed and low-income countries have been prioritized.

Forty-two genebanks have signed BOLD project contracts. NordGen has informed about guidelines and routines for depositing seeds in the Seed Vault through individual email communication and meeting genebank representatives in workshops organized by Crop Trust. Eight BOLD partners were already depositors to the Seed Vault from previous years and twenty-six new genebanks receiving BOLD support have signed the Deposit Agreement during 2023 and 2024. Some BOLD partners located in southern Africa are formally depositing seeds under the deposit agreement signed by the regional SPGRC genebank.

4. Data management

NordGen maintains and updates the Seed Portal database. The Seed Portal keeps accurate records of deposited seed samples, depositors, species, seed deposit events etc., and it displays basic data in a publicly accessible interface at https://seedvault.nordgen.org/.

After the introduction of the Seed Portal 2.0 in 2021, a significant cleanup of the database taxonomy has been carried out. The genera and species database registers are updated and are now consistent with internationally agreed taxonomy. The register of full scientific names (the Seed Portal taxon list) consists of a broad diversity of taxonomic levels, use and spelling of authors and taxonomy practices in genebanks. During the last years around 2000 taxon names have been corrected, merged and removed from the database.

However, from 2024 the Seed Portal policy has been to accept this diversity and leave the taxonomy database as a comprehensive list for validating samples, still with strict references to correct binomial species names (genus + species epithet). Reviewing and harmonizing the full scientific name taxonomy is considered not to be one of the Seed Portal objectives.

Some improvements in the Seed Portal functionalities have been completed during 2024. Weaknesses and bugs related to a cross-browser routine and deletion of incorrect data have been mitigated, and a multi-action functionality for box information has been developed. Changes have been made to improve communication with genebanks during the validation process, and a couple of improvements in the public interface have been introduced, most importantly a new "Depositor taxon synonym" search function where all taxa belonging to each genera are listed.

NordGen switched to a new data service partner in 2024. This company was not as familiar with the system as the previous partner, that also developed the system. The costs were therefore significantly higher than budgeted. After being introduced to the system, NordGen expects that costs for future improvements will be lower.

By the end of the year, 1184 genera and 6297 species are represented in the Seed Vault. Having the genera and species registers updated provides opportunities for reporting increases in these numbers. During 2024 seeds of 20 new genera and 154 new species were deposited in the Seed Vault.

In total, 59 datasets have been validated and uploaded to the Seed Portal in 2024 (24 sets in 2021, 34 in 2022 and 46 in 2023).

5. The International Advisory Panel

The International Advisory Panel (IAP) did not meet in 2024, however, NordGen has through the year provided information to new IAP members and prepared for the IAP meeting in February 2025, both regarding logistics and background documents.

IAP members appointed in 2024 for the fourth meeting in February 2025:

- Alwin Kopse, Federal Office for Agriculture, Switzerland, Chairperson
- Dagmar Janovska, Crop Research Institute, Czech Republic
- Axel Diederichsen, Plant Gene Resources Canada
- Mohd Norfaizal Bin Ghazalli, Agrobiodiversity and Environment Research Centre, Malaysia
- Oliver Oliveros, UN Agroecology Coalition, Italy
- Marie-Noelle Ndjiondjop, AfricaRice, Cote d'Ivoire
- Kristin Børresen, Graminor, Norway

6. Public awareness activities

In accordance with the Three-Party Agreement and with the work plan and budget for 2024, NordGen has worked considerably with public outreach activities, coordinated with the partners in the Seed Vault Communication Group.

The Seed Vault 15-year anniversary was celebrated in 2023, and after that the general public interest and the number of inquiries from media has increased. Good work in the three partner Communication group and assistance from external public awareness companies coordinated by Crop Trust regarding media outreach in connection with Seed Vault openings has contributed significantly to comprehensive media coverage during 2024.

As in previous years, information about the Svalbard Global Seed Vault has been passed on through several platforms: responding to questions about the operation from the public and from media,

presentations and lectures for different scientific and public audiences, media interviews, social media posts and written articles. NordGen has contributed text and photos for information material and the Seed Vault official web site. Information about lectures in 2024 can be found in annex 4. A significant part of the presentations has been given through online platforms.

NordGen arranged a side event to the COP16 of the Convention on Biological Diversity in Cali, Columbia on Monday the 21st of October. The title of the side event was "*From deserts and rainforests to the Svalbard Global Seed Vault: The genebanks' role in conserving and promoting a sustainable use of genetic resources*". In addition to a presentation by NordGen director Lise Lykke Steffensen, the side event included contributions from Stefan Schmitz, Crop Trust, Svanhild-Isabelle Torheim Batta, Norwegian Ministry of Agriculture and Food, Peter Wentzl, CIAT and Álvaro Toledo, ITPGRFA.

Seed Vault opening occasions are first and foremost occasions for bringing new seeds. However, as the Seed Vault has strengthened its position as an iconic symbol for the importance of conserving plant genetic resources, the Seed Vault openings are also important events for dissemination of information to media, to genebanks, other visitors and to the general public.

Coordinated by the Communication Group, press releases are produced and distributed at all deposit events, containing information about the upcoming seed deposits, highlighting and inclusion of information and quotes from some of the depositing genebanks and statements from the Seed Vault partners.

NordGen has received journalists and media teams and given interviews at all three Seed Vault opening occasions. Several interviews are also given by online platforms. When genebanks or other stakeholders are represented, meetings and ceremonies are organized in the management building. Highlights of the three Seed Vault openings are:

<u>27th and 28th February 2024:</u>

a) The Norwegian Minister of Agriculture and Food, Geir Pollestad attended the seed deposit events on Tuesday the 27th of February. A seed depositor certificate was handed over from the Minister to representatives from first time depositor genebank Kazakh Scientific Research Institute of Agriculture and Plant Growing (KSRIAPG).
b) The NordGen board visited Svalbard and assisted NordGens seed deposit
c) A new information point about the Seed Vault was opened in the Svalbard Museum.

Figure 4. The Norwegian Minister of Agriculture and Food, Geir Pollestad handed over a depositor certificate to first time depositor Kazakh Scientific Research Institute of Agriculture and Plant Growing KSRIAPG. From the left, Meiirman Galiolla, KSRIAPG, Minister Geir Pollestad, Sakysh Yerzhanova, KSRIAPG, Åsmund Asdal, NordGen and Jaspreet Stamm, Crop Trust.

Figure 5. The NordGen board assisted a seed deposit from NordGen in February 2024. Standing from the left: Geir Dalholt, Norway, Trondur Gilli Leivsson, Faroe Island, Mette Kjöbek Petersen, Sweden, Tove Jern, Finland, Katrin Vilhelm Poulsen, Denmark and Hrannar Smári Hilmarsson, Iceland. Sitting: Anne-Mette Hjortebjerg Lund, Katileena Lohtander-Buckbee, Finland, Lise Lykke Steffensen, NordGen, Birgitte Jacobsen, Greenland and Ulrika Carlson-Nilsson, NordGen.

28th and 29th May 2024:

a) A seed deposit event was organized at the research station belonging to the Taiwan Polar Institution in Longyearbyen with representatives from Taiwanese academic institutions and from the Paiwan indigenous people in Taiwan. A group of around 25 delegates, media included from Taiwan attended when foxtail millet seeds were delivered at the Seed Vault by Vilkian Clan

Chief Chun-Hui Meng and genebank director Shu Chen from Taiwan Agricultural Research Institute.

b) A delegation from the Spanish genebank at Agencia Estatal Consejo Superior de Investigaciones Científicas CSIC and IMIDRA delivered two seed boxes for seed deposit. The event was documented by a team from the Spanish Documentos TV.

c) A barley deposit from Yokohama University was documented by a TV-team from TV Tokyo hosted by the leading Japanese actor Kuranosuke Sasaki. At the occasion of TV-Tokyo celebrating its 60th anniversary this year, a special program with the theme "Seeds of Hope" was produced.

Figure 6. Seed delivery from Taiwan Agricultural Research Institute, consisting of 170 samples of Foxtail millet (Setaria italica) collected from the indigenous Paiwan people, Vilkian clan living in central parts of Taiwan. Seeds were handed over by Vilkian Clan Chief, Chun-Hui Meng and director Shu Chen from TARI to Seed Vault Coordinator Åsmund Asdal, NordGen. Photo: Daniel Chang,GoExplore

Figure 7. A delegation from the Spanish genebank at Agencia Estatal Consejo Superior de Investigaciones Científicas delivered two seed boxes in May 2024, from the left, Luis Guasch, Guy Vancanneyt, José Pablo Zamorano Rodríguez, the Seed Vault coordinator and Elena Delgado.

22nd and 23rd October 2024:

a) Genebank Seed Lab manager Ovais Peerzada from the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) assisted when back-up samples from their genebank collection were deposited in the Seed Vault. He also delivered the last seed samples produced by ICRISAT for the 100-year seed longevity experiment in the Seed Vault.
b) Seeds were received from genebanks in two conflict areas. A seed deposit from the genebank organized by the Union of Agricultural Work Committees (UAWC) located in the Palestinian territories on the West Bank was accomplished and three seed boxes rescued from the Agricultural Plant Genetic Resources Conservation and Research Centre (APGRC) genebank in Wad Medani, Sudan were received. The seeds from Sudan were temporarily taken to NordGen Seed lab in Alnarp, Sweden for re-packing and final deployment in the Seed Vault in 2025.

Figure 8. Genebank Seed Lab manager Ovais Peerzada from (ICRISAT) delivered back-up seed samples at the Svalbard Global Seed Vault in October.

Figure 9. Three seed boxes that were rescued from the APGRC genebank suffering from civil war in Sudan, were received in Svalbard. The seeds were temporarily taken to NordGen Seed lab in Alnarp, Sweden for re-packing before final deployment in the Seed Vault. Photo APGRC

NordGen has received and responded to a significant number of emails from media, scientists, politicians and the public during 2024. No exact statistics are made, but the number of emails and inquiries is estimated to be on the same level as in 2023, which was higher than for 2022, due to extra publicity related to the 15-year anniversary.

7. Long term seed storage experiments

The *100 year Seed Longevity Experiment in the Svalbard Global Seed Vault* started in 2020. The project includes seeds of 14 different crops and six genebanks as project partners producing seeds for the experiment. According to the scientific design, seeds of five genotypes of each crop are produced over three years and deployed in the Seed Vault after drying and packing at the NordGen seed laboratory. Identical samples will be taken out and analyzed for germination every tenth year. Partners and crops are shown in table 10.

Table 10. Crops and genebank institutes included in the experiment.

Institute	Providing seeds of crops
National Rice Seed Storage Laboratory for Genetic Resources (NRSSL), Thailand	Rice (*Oryza sativa*)
Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Germany	Barley (*Hordeum*), pea (*Pisum)*, wheat (*Triticum*), lettuce (*Lactuca)* and *Brassica oleracea* [1)]
The International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), India	Groundnut *(Arachis),* chickpea (*Cicer*), pearl millet (*Pennisetum*), Sorghum (*Sorghum*) and pigeon pea (*Cajanus*)
Instituto Nacional de Investigação Agrária, INIAV, Portugal	Maize (*Zea mays*)
Empresa Brasileira de Pesquisa Agropecuária (Embrapa), Brazil	Soybean (*Glycine max*)
Nordic Genetic Resource Centre, Sweden	Timothy (*Phleum pratense*)

Due to the covid pandemic and to bureaucratic difficulties with shipments of seeds from genebanks located outside Europe, the establishment of the project took more time than expected. However, NordGen is happy to report that all seed samples for the project have been produced and delivered. When this report is delivered, all test material is in place in the Seed Vault, the last samples in February 2025.

Some seed analysis remains before the final start up report can be finalized. All background data and test plans will be printed on paper and nanofilm and placed in the Seed Vault, in addition to digital information in the NordGen archive. Seed material and seed boxes are uploaded as test boxes to the Seed Portal database.

8. Accession data on nanofilm

The nanofilm project increases the security and integrity of conserved seed sample data by printing box wise data on nanofilm and attaching film stripes to all seed boxes in the Seed Vault. Preparing accession data and producing film stripes for 3142 boxes deposited before the end of 2021 was completed in 2022. Attachment of film labels have been carried out during spare hours and days during Seed Vault opening weeks. After an additional effort involving several NordGen employees in October 2023 and further work during Seed Vault opening weeks in 2024 the backlog from years up to 2021 has been caught up.

Film stripes/labels to 470 boxes deposited in 2022 and 2023 have been printed and attaching them to the boxes will be done during 2025. The long-term plan is to, once a year, produce film stripes and attached these to the boxes, i.e. labels for boxes deposited in 2024 will be produced and attached to boxes in 2025. By this, continuous nanofilm labelling of seed boxes will enter into a yearly routine and be included in yearly workplans and budgets.

New film label holders of new and improved quality sufficient for boxes expected to be deposited over 6-8 more years have been purchased and paid for by the 2024 budget. The new design makes it easier to attach the labels to boxes and will save working hours for this task in the future.

9. Financial result

Key figures for funding and the financial result and account wise budget and spending for 2024 are shown in Annex 2. The financial result, as the difference between budget and spending for 2024, summarized for core activities and projects shows a total overspending of SEK 31.637,-.

Approved budget for 2024 was SEK 3,476,170, - while total contribution from partners amounted to SEK 3,547,993, -. The positive difference is due to the exchange rate between SEK and Euro. Due to this the deficit has been covered and SEK 40,186, - has been added to the working capital fund.

The deficit in spending vs. approved budget is mainly due to overspending related to improvements and upgrade of the Seed Portal and travel costs for the IAP meeting incurred already in 2024.

Weaknesses and bugs in the Seed Portal have been mitigated and improvements in the public interface and in genebank communication tools have been implemented. NordGen switched to a new data service partner in 2024, and because this new company needed extra working hours to become familiar with the system, higher costs were incurred. Major parts of this extra expenditure were compensated by lower travel costs in more project accounts.

Some costs for IAP members travel in 2025 had to be paid for already in 2024.

Directing and interaction with partners

Total spending compared to the budget shows a surplus of SEK 46,354. Spending on working hours is quite in accordance with the budget, while the surplus is due to lower travel costs.

Administration, planning and documentation

Total spending is quite in accordance with the budget.

Liaising with depositors and handling of seeds

Total spending for 2024 shows a minor surplus. Lower spending on travels have been re-allocated to the data management account.

Data management

Spending on data management shows in total a minor deficit. Lower spending on working hours and travels (also less travel costs on other accounts) has been used to cover an upgrade on the Seed Portal (see above).

Communication attracting new depositor genebanks

Total spending shows a deficit of SEK 65,029, -, which is due to extended communication with a significant number of depositor genebanks that are partners in the Crop Trust organized BOLD project. The number of new DA signatories and new depositing genebanks have been significantly higher than previous years. Travel expenses for participation in BOLD workshops/meetings have been covered by the Crop Trust, resulting in lower travel costs being charged to the Seed Vault budget.

Public awareness activities

Total spending compared to the budget shows a surplus of SEK 33,869. Lower spending in travels costs reflects that many lectures have been given on-line and that travels to conferences and workshops have been covered by the organizers.

International Advisory Panel

Total spending shows a deficit of SEK 66,579. The costs are related to travel arrangements for IAP members for the meeting in 2025, booked and paid for already in 2024.

Long term storage experiment

Total spending is in line with the budget. Lower shipment costs have been used to cover some more germination and chemical analysis.

Conserving data on long-term storage medium

Total spending is quite in line with the budget. Attaching film labels to seed boxes has been carried out in connection with travels to Svalbard for handling seed deposits, and expenses have not been separated from cost accounts made on project *Liaising with depositors and handling of seeds.* Lower expenses for employee time and travel incurred on the nanofilm project have been used to purchase a stock of film label holders sufficient for about five years to come.

Annex 1. List of deposit agreements and depositors

List of depositors to the Svalbard Global Seed Vault listed in order of Deposit Agreement signature. Updated as of 31st of December 2024.

Acronym	Country	Institute name	Wiews code	SDA	Accessions end 2022
WARDA	International, Benin	Africa Rice Center	CIV033	2007/2008	21222
CIAT	International, Columbia	Centro Internacional de Agricultura Tropical	COL003	2007/2008	58406
CATIE	International, Costa Rica	The Tropical Agricultural Research and Higher Education Center	CRI001	2007/2008	1314
ILRI	International, Ethiopia	International Livestock Research Institute	ETH013	2007/2008	8983
ICRISAT	International, India	International Crop Research Institute for the Semi-Arid Tropics	IND002	2007/2008	125963
ICRAF	International, Kenya	World Agroforestry Centre	KEN023	30.01.2008	1990
CIMMYT	International, Mexico	Centro Internacional de Mejoramiento de Maiz y Trigo	MEX002	2007/2008	187083
IITA	International, Nigeria	International Institute of Tropical Agriculture	NGA057	2007/2008	23333
CIP	International, Peru	Centro Internacional de la Papa	PER001	2007/2008	9931
IRRI	International, Philippines	International Rice Research Institute	PHL001	2007/2008	133707
ICARDA	International, Lebanon / Morocco	International Centre for Agricultural Research in Dry Areas	SYR002/ LBN002	2007/2008	121951
AVRDC	International, Taiwan	The World Vegetable Center	TWN001	2007/2008	55742
NORDGEN	Regional, Sweden	Nordic Genetic Resource Center	SWE054	30.01.2008	29899

IPK	Germany	Leibniz Institute of Plant Genetics and Crop Plant Research	DEU146	30.01.2008	69671
CGN	Netherlands	Centre for Genetic Resources	NLD037	30.01.2008	22445
PGRI-NARC	Pakistan	Plant Genetic Resources Institute, National Agricultural Research Centre	PAK001	30.01.2008	4932
SSE	USA	Seed Savers Exchange	USA974	30.01.2008	4359
NGBK	Kenya	Kenya Agricultural & Live-stock Research Organisation (KALRO): Genetic Resources Research Centre	KEN015	26.02.2008	3958
NAC / RDI	South Korea	National Agrobiodiversity Center	KOR043	06.05.2008	Transferred to KOR011
IAS	North-Macedonia	Institute of Agriculture Skopje	MKDxxx	11.06.2008	0
NBPGR	India	National Bureau of Plant Genetic Resources	IND001	04.07.2008	3292
VIR	Russia	N.I. Vavilov All-Russian Scientific Research Institute of Plant Industry	RUS001	04.07.2008	6082
RAC	Switzerland	Station Federale de Recherches en Production Vegetale de Changins	CHE001	27.10.2008	11321
EMBRAPA	Brazil	Brazilian Agricultural Research Corporation	BRA008	06.11.2008	5122
AFT	Ireland	Oak Park Research Centre	IRL001	16.01.2009	577
DAFF	Ireland	Department of Agriculture, Food and Rural Development	IRL029	22.01.2009	435
TARI	Taiwan	Taiwan Agricultural Research Institute	TWN006	26.02.2009	10673
UAAS	Ukraine	Institute of Plant Production n.a. V.Y. Yurjev of UAAS	UKR001	03.03.2009	2782
PGRC	Canada	Plant Gene Resources of Canada, Canadian Genetic Resources Program	CAN004	05.11.2009	34952

ILRF	Georgia	I. Lomouri Research Institute of Farming.	GEO001	23.02.2010	305
AAS	North Korea	Pyongyang AAS	PRK013	18.03.2010	5700
UNALM	Peru	Universidad Nacional Agraria La Molina	PER002	25.05.2010	1296
ICCI	Israel	Institute of Cereal Crop Improvement, Tel Aviv University	ISR003	23.06.2010	941
DELEP	USA	Desert Legume Program. University of Arizona	USA971	24.08.2010	134
ARC	Sudan	Agricultural Research Corporation	SDN034	18.10.2010	Transferred to SDN002
SPGRC	Regional, Zambia	SADC Plant Genetic Resources Centre	ZMB030	09.11.2010	14212
NAGREF	Greece	National Agricultural Research Organization	GRC035	02.02.2011	25
ICABIOGRAD	Indonesia	Indonesian Center for Agricultural Biotechnology and Genetic Resources	IDN179	02.02.2011	1050
MPGRPPD	Myanmar	Department of Agricultural Research	MMR003	23.02.2011	718
INIAP	Ecuador	Instituto Nacional Autónomo de Investiga-ciónes Agropecuarias	ECU076	12.04.2011	168
NARO	Uganda	National Agricultural Research Organization	UGA031	26.05.2011	Transferred to UGA528
BARI	Bangladesh	Plant Genetic Resource Centre, Bangladesh Agricultural Research Institute	BGD164	10.06.2011	0
LSB	Italy	University of Pavia, Department of Earth and Environmental Sciences, Lombardy seed bank	ITA411	23.06.2011	2
NACGRAB	Nigeria	National Centre for Genetic Resources and Biotechnology	NGA010	06.09.2011	2092
IRAG	Guinea	Institut de Recherche Agronomique de Guinée	GIN020	07.10.2011	0

RNGRC	Tajikistan	Republican National Genetic Resource Center	TJK027	14.11.2011	1646
AGRI	Azerbaijan	Genetic Resources Institute of the Azerbaijan National Academy of Sciences	AZE015	17.02.2012	1522
INRB	Portugal	Instituto Nacional de Recursos Biológicos	PRT005	05.03.2012	Transferred to PRT001
ISABU	Burundi	Agricultural Research Institute of Burundi	BDI003	19.06.2012	1041
IER	Mali	Institute of Rural Economy	MLI002	19.09.2012	4136
PSARTI	Mongolia	Plant Science Agricultural Research Institute	MNG030	02.10.2012	360
INIA La Platina	Chile	Unidad de Recursos Genéticos -INIA La Platina	CHL002	03.10.2012	Transferred to CHL044
AUG	Georgia	Georgia State Agrarian University	GEO028	15.10.2012	120
NPGRL	Philippines	National Plant Genetic Resources Laboratory	PHL129	18.10.2012	3237
ASAU	Armenia	Armenian State Agrarian University, Laboratory of Plant Gene Pool and Breeding	ARM035	16.12.2012	175
CN FCRC	Thailand	Chai Nat Field Crops Research Center	THA214	01.03.2013	150
UzRIPI	Uzbekistan	Uzbek Research Institute of Plant Industry	UZB006	01.03.2013	2038
SARDI	Australia	South Australian Research and Development Institute	AUS006	12.06.2013	Transferred to AUS167
AGG	Australia	Australian Grains Genebank/Australian Tropical Crops Collection	AUS165	26.11.2013	27152
BWPRC	Japan	National University Corporation Okayama University	JPN009	26.11.2013	5922

NRSSL	Thailand	National Rice Seed Storage Laboratory for Genetic Resources, Rice Department	THA012	14.08.2013	1306
AGES	Austria	Austrian Agency for Health and Food Safety, Department for Plant Genetic Resources	AUT001	17.03.2014	2358
BGRIPGR	Bulgaria	Institute for Plant Genetic Resources "K.Malkov"	BGR001	17.03.2014	2119
NCGRP	USA	National Center for Genetic Resources Preservation, USDA	USA996	SIGNED 18.01.2015	156950
NFSC	Norway	The Norwegian Forest Seed Centre	NOR056	08.01.2015	265
Luke	Finland	Natural Resources Institute Finland	FIN027	21.01.2015	7
CRI	Czech Republic	Crop Research Institute	CZE122	28.08.2015	1982
UCR-CIA	Costa Rica	Universidad de Costa Rica	CRI092	08.09.2015	Transferred to CRI003
PdeP	Peru	Parque de la Papa	PER862	09.09.2015	750
AGRESEARCH	New Zealand	Margot Forde Germplasm Centre	NZL001	11.1.2016	2802
CHAIPATT	Thailand	Chaipattana Foundation	THA513	11.2.2016	34
APG	Australia	Australian Pastures Gene Bank	AUS167	11.3.2016	34735
GRIBL	Bosnia & Herzegovina	Genetic Resources Institute, University of Banja Luka	BIH039	16.6.2016	1148
INRA	France	National Institute for Agricultural Research	FRA040	16.6.2016	2
TLL	Singapore	Temasec Life Sciences Laboratories Ltd.	SGP008	19.8.2016	7
JHI	UK	James Hutton Institute	GBR251	09.11.2016	1416
MNREC	Myanmar	Myanmar Ministry of Natural Resources and Environmental Conservation	MMR075	09.11.2016	491 Orchid collection

RPCNASBAF	Belarus	Scientific Practical Centre of the National Academy of Sciences of Belarus for Arable Farming	BLR011	17.01.2017	341
METK (formerly ETKI)	Estonia	Centre of Estonian Rural Research and Knowledge	EST019	25.10.2017	236
SVKPIEST	Slovak Republic	National Agricultural and Food Centre	SVK001	08.01.2018	1431
INIAV	Portugal	Banco Português de Germoplasma Vegetal	PRT001	26.02.2018	1076
INIA	Chile	Instituto de Investigaciones Agropecuarias	CHL044	06.04.2018	145
DOA	Thailand	Department of Agriculture, Ministry of Agriculture and Cooperatives	THA032	09.08.2018	55
UKVGB	United Kingdom	University of Warwick	GBR006	13.08.2018	1090
LSFRI	Latvia	Latvian State Forest Research Institute "Silava"	LVA009	28.10.2018	179
BDNA	South-Korea	Baekdudaegan National Arboretum	KOR048	03.06.2019	10
APGRC	Sudan	Agricultural Plant Genetic Resources Conservation and Research Centre	SDN002	13.09.2019	2843
JKI	Germany	Julius Kühn Institute	DEU451	30.09.2019	19
IHAR	Poland	Plant Breeding and Acclimatization Institute	POL003	09.10.2019	11253
BRGV	Romania	Suceava genebank "Mihai Christea"	ROM007	23.10.2019	1216
MSB, Kew	United Kingdom	Royal Botanic Gardens, Kew	GBR004	18.12.2019	25
UCR	Costa Rica	Universidad de Costa Rica	CRI003	08.09.2015 (as CRI092)	187
LARI	Lebanon	Lebanese Agricultural Research Institute	LBN020	14.01.2020	453
ICGB	Israel	Wild Cereal Genebank, University of Haifa	ISR037	30.03.2020	661

CN	USA	Cherokee Nation	USA1005	21.01.2020	9
INRA	Morocco	Institut National de la Recherche Agronomique	MAR123	24.02.2020	983
JIC	United Kingdom	John Innes Centre, Germplasm Resources Unit	GBR247	10.07.2020	4933
RDA / NAC	South Korea	RDA genebank/National Agrobiodiversity Center	KOR011 (former KOR043)	12.10.2020 New code confirmed	38272
IFVCNS	Serbia	Institute of Field and Vegetable Crops	SRB002	23.08.2021	96
UNGB	Uganda	Uganda National Genebank	UGA528 (former UGA031)	06.09.2021 New code confirmed	946
CSIC	Spain	Agencia Estatal Consejo Superior de Investiga-ciones Cientificas	ESP004	28.02.2022	1187
VMT	Lithuania	State Forest Service	LTH021	28.04.2022	123
INIA	Uruguay	Instituto Nacional de Investigacion Agropecuaria	URY003	12.08.2022	3462
SBSTC-MOA	Iraq	Directorate of Seed Testing and Certification	IRQ001	29.08.2022	418
IPGR	Albania	Institute of Plant Genetic Resources	ALB026	24.10.2022	1900
SCVIC	Armenia	Scientific Centre of Vegetable and Industrial Crops	ARM008	23.01.2023	234
ASC / ANAU	Armenia	Agrobiotechnology Scientific Center, Armenian National Agrarian University	ARM059	06.02.2023	1865
BRAC	Bangladesh	Bangladesh Rural Advancement Committee	BGD099	07.02.2023	725
IBBR	Italy	Institute of Biosciences and BioResources - National Research Council	ITA436	10.02.2023	592
GRIGADEB	Benin	Groupe de Recherche, Innovation agricole, Gestion de la biodiversité et Action	BEN098	13.02.2023	1203

		pour un développement Durable et Equitable à la Base			
HRPGB	Croatia	National Plant Genebank, Ministry of Agriculture	HRV044	15.02.2023	161
FABIA	North-Macedonia	FABIA CSB Bogdanci	MKD007	15.02.2023	341
OAU	Nigeria	Obafemi Awolowo university	NGA026	22.03.2023	0
KSRIAPG	Kazakhstan	Kazakh Scientific Research Institute of Agriculture and Plant Growing	KAZ014	15.05.2023	522
CSIR - PGRRI	Ghana	Council for Scientific and Industrial Research – Plant Genetic Resources Research Institute	GHA091	19.06.2023	420
EGF	Cameroon	Ecogerm Farmers	CMR205	19.06.2023	990
ABGBONN	Germany	Botanical Garden, University of Bonn	DEU038	13.10.2023	12
SSN	Kenya	Seed Savers Network Association	KEN214	23.10.2023	1000
BIT	Indonesia	Borneo Institute	IDN415	06.11.2023	294
INERA	Burkina Faso	Institute of Environment and Agricultural Research	BFA057	19.02.2024	1040
LSU	Zimbabwe	Lupane State University	ZWE107	05.04.2024	0
BERC	Nigeria	Biodiversity Education and Resource Centre	NGA136	15.01.2024	362
FOFIFA	Madagascar	The National Center for Applied Research on Rural Development	MDG036	18.01.2024	1045
ABU	Nigeria	Ahmadu Bello University	NGA021	14.03.2024	406
PFF	Bosnia & Herzegovina	Faculty of Agriculture and Food Sciences, University of Sarajevo	BIH036	19.02.2024	252
UCC	Ghana	University of Cape Coast	GHA021	11.06.2024	100

GbioS/PAGEV	Benin	Laboratory of Genetics, Biotechnology and Seed Sciences	BEN097	21.05.2024	2701
INRAB	Benin	Institut National des Recherches Agricoles du Bénin	BEN025	21.05.2024	324
MARDI	Malaysia	Malaysian Agricultural Research and Development Institute	MYS219		207
UAWC	Palestine	Union Of Agricultural Work Committees	PSE001	30.10.2024	23
PhilRice	Philippines	Philippine Rice Research Institute	PHL158	12.08.2024	0
ITRAD	Chad	Institut Tchadien de Recherche Agronomique pour le Développement	TCD022	30.10.2024	1145
NARI	Papua New Guinea	National Agricultural Research Institute	PNG025	20.09.2024	520
MPGRC	Malawi	Malawi Plant Genetic Resources Centre	MWI401	09.09.2024	0
ADRON	Surinam	Anne van Dijk Rice Research Centre Nickerie	SUR007	28.10.2024	577
NIHORT	Nigeria	National Horticultural Research Institute	NGA003	30.10.2024	200
IASA	Bolivia	Instituto de Agroecología y Seguridad Alimentaria de la Universidad Mayor Real y Pontificia de San Francisco Xavier de Chuquisaca	BOL321	07.10.2024	500
FASF	North Macedonia	Faculty of Agricultural Sciences and Food, Skopje, North Macedonia	MKD001	28.10.2024	0

Annex 2. Budget and spending 2024

Budget - Svalbard Global Seed Vault
NordGens management and operation 2024

Activity area/activity		Budget currency SEK	Actual currency SEK	Budget against actual
Directing and interaction with partners	Management and meetings	281 850	280 932	
Project no 709513	Management assistance and meetings	69 327	63 892	
	Travels	40 000	0	
	Sub-total	**391 178**	**344 824**	**46 354**
Administration, planning and documentation	Administration management	81 128	69 531	
Project no 709524	Support accounts, archive & logistics	62 148	91 742	
	Support project coordinator	43 046	43 883	
	Documents and background information	485 292	486 439	
	Travels	15 000	1 323	
	Sub-total	**686 614**	**692 918**	**-6 304**
Liaising with depositors and handling of seeds	Communication & Seed handling	415 965	423 088	
Project no 709515	Seed handling in Svalbard	83 700	80 267	
	Travel	120 000	83 853	
	Contracted services	40 000	28 726	
	Sub-total	**659 664**	**615 934**	**43 730**
Data management	IT & Seed Portal support	33 993	86 364	
Project no 709514	Preparing datasets and Seed Portal update	207 982	61 902	
	Contracted services	30 000	159 563	
	Travel	15 000	0	
	Sub-total	**286 976**	**307 829**	**-20 853**
Communication attracting new depositor gene banks	Communication activities	138 655	221 773	
Project no 709525	Travel	25 000	6 911	
	Sub-total	**163 655**	**228 684**	**-65 029**
Public awareness activities	Respond to enquiries, lectures/articles, website	346 637	350 822	
Project no 709516	Travel	60 000	21 946	
	Sub-total	**406 637**	**372 768**	**33 869**
International Advisory Panel	Secretary	176 156	180 062	
Project no 709517	Secretary assistance	43 046	53 349	
	Logistics arrangments	0	0	
	Travel	0	52 370	
	Meeting costs	0	0	
	Sub-total	**219 202**	**285 781**	**-66 579**
	Basic costs Svalbard incl IAP 709517	**2 813 926**	**2 848 738**	**-34 812**
	Basic costs Svalbard excl IAP 709517	**2 594 724**	**2 562 957**	**31 767**
Long term storage experiment in the Seed Vault	Preparing and handling of test samples	94 994	91 946	
Project no 709529	Seed technician	60 000	61 307	
	Contracted seed analysis program	90 000	102 741	
	Shipment costs	30 000	18 745	
	Sub-total	**274 994**	**274 739**	**255**
Conserving data on long-term storage medium	Administration	0	0	
Project no 709523	Compiling data	0	0	
	Staff	41 850	61 803	
	Travel	60 400	0	
	Contracted services	85 000	122 527	
	Sub-total	**187 250**	**184 330**	**2 920**
	Sub-total	**462 244**	**459 069**	**3 175**
	Reservation of Currency difference 2024	**200 000**	**200 000**	

	Budget	Actual	Diff Budget/Actual 2024
Total Costs	**3 476 170**	**3 507 807**	**-31 637**
Total Costs EURO	**304 119**	**330 869**	

inkl reservation currency diff 2024

RESULT

Actual Costs 2024	**3 507 807**
Income 2024	**3 547 993**
Result 2024	**40 186**
Transfer to WCF 2024	**40 186**

INCOME	**BUDGET**	**ACTUAL**
	Total Income 2024	Total Income 2024
Crop Trust Funding 2024	1 572 939	**1 586 463**
NordGen Funding 2024	112 616	**112 616**
LMD Funding 2024	1 790 614	**1 848 914**
	3 476 169	**3 547 993**

WCF

	Working capital fund	
Total Working capital fund 31 dec 2021	**866 191**	2021
Total Working capital fund 31 dec 2022	**518 762**	2022
Total Working capital fund 31 dec 2023	**600 260**	2023
Prel Working capital fund 31 dec 2024	**640 446**	2024

Annex 3. Key figures - deposits and depositors

Seed deposits, depositors, seed boxes in the Seed Vault and seed deposit events for 2017-2024, actual numbers for each year and accumulated figures.

Year	2017	2018	2019	2020	2021	2022	2023	2024
Seed accessions [1) 2)]								
Accessions deposited	64403	92638	32572	82501	50926	69825	71895	64331
Deposited in total, by 31.12	983316	1075954	1108526	1191027	1241953	1311778	1383673	1448004
Withdrawals [3)]	54354		24064	40			12	
Withdrawals in total by 31.12.	92430	92430	116494	116534	116534	116534	116546	116546
Seed Vault collection by 31.12	890886	983524	992032	1074533	1125419	1195244	1267127	1331458
Depositors								
Depositors by year	15	30	7	42	22	31	41	54
New depositors	3	3	3	8	2	4	9	21
Depositors in total by 31.12	74	77	80	87	89	93	102	123
New signatories	2	6	6	5	1	5	14	18
Signatories in total by 31.12	79	85	91	96	97	102	116	134
Number of deposit events	4	3	4	3	3	3	3	3
Seed boxes [1)]								
Number of deposited boxes	173	277	113	256	165	216	254	210
Deposited boxes in total	2704	2981	3094	3350	3515	3731	3985	4195
Number of retrieved boxes	161		36					
Retrived boxes in total	289	289	325	325	325	325	325	325
Boxes in Seed Vault by 31.12	2415	2692	2769	3025	3190	3406	3660	3870

1) *Test seed samples and test boxes are not included.*
2) *Deposited seed samples not registered in the Seed Portal database are not included. These are seeds from Svalbard native flora, orchid seeds from Myanmar and pasture seed mixtures deposited by Royal Botanical Gardens, Kew in the UK.*
3) *Details on withdrawals in Annual report table 4*

Annex 4. Lectures and presentations 2024

Lise Lykke Steffensen:

30.1. Seed Banks and the protection of biodiversity. Presentation at the food conference Madrid Fusion, organized together with renowned chef Joan Roca. Madrid, Spain.

21.10. The Svalbard Global Seed Vault: What is a seed genebank and what do they do? Presentation at the side event to the COP16 of the Convention on Biological Diversity: "From deserts and rainforests to the Svalbard Global Seed Vault: The genebank's role in conserving and promoting a sustainable use of genetic resources". Cali, Columbia.

Åsmund Asdal:

06.2. Introduction to the Svalbard Global Seed Vault. First introduction – the Seed Vault and the International Advisory Panel. Online presentation for IAP chair Alwin Kopse.

14.2. The Svalbard Global Seed Vault. Osher Lifelong Learning Institute, University of Wisconsin-Milwaukee, USA. On-line lecture.

26.2. Svalbard Globale Frøhvelv – Noahs ark for frø i Arktis. Romerike Trainee, study tour to Svalbard. Svalbard hotel Polfareren, Longyearbyen, Norway.S

26.2. Management and operation of the Svalbard Global Seed Vault. Presentation for NordGen board and other guests at Svalbard Museum on the occasion of opening of the new Seed Vault information point at Svalbard Museum. Longyearbyen, Norway.

13.3. Conserving plant genetic resources in genebanks and in the Svalbard Global Seed Vault. Online presentation for Rabat American School, Rabat, Morocco.

17.3. Bevaring av plantegenetiske ressurser, hvorfor, hvem og hvordan. Online lecture for the Annual meeting in KVANN (Norwegian Seed Savers).

10.4. Svalbard Global Seed Vault – Noahs Ark for seeds in the Arctic. Presentation at Workshop and Botanical Excursion 10.-11. April 2024: Propagation and Potentiality: Seeds in Interdisciplinary Perspective. Hamburg Institute for Advanced Study e.V. Universität Hamburg, Germany. On-line presentation.

28.5. The Svalbard Global Seed Vault. Its mission and operation. Lecture on seed deposit event for delegations from Spanish depositor institutes CRF and IMIDRA. Seed Vault Technical building, Longyearbyen, Svalbard, Norway.

29.5. Introduction to the Svalbard Global Seed Vault. Lecture for delegations from Taiwan Agricultural Research Institute (TARI) and Taiwan Polar Institute (TaiPI). At TaiPI research station, Longyearbyen, Svalbard, Norway.

3.7. The Svalbard Global Seed Vault. Information to Nordox-partners from Portugal, Spain and Italy visiting Svalbard. Longyearbyen, Norway. Presented by Trond O. Kristiansen, Nordox.

14.8 Management and operation of the Svalbard Global Seed Vault. Lecture for National Rice Seed Storage Laboratory for Genetic Resources, Thailand visiting NordGen 13.-15. august 2024, Alnarp, Sweden.

14.8 Seed longevity experiments in Svalbard: Results from the ongoing investigations in the coal mine and plans for a new experiment in the Seed Vault. Lecture for National Rice Seed Storage Laboratory for Genetic Resources, Thailand visiting NordGen 13.-15. august 2024, Alnarp, Sweden.

06.9 The Svalbard Global Seed Vault – Noahs Arch for seeds in the Arctic. Presentation at Seed Talk conference, University of Clermont Auvergne, Clermont-Ferrand, France

19.09. Conserving duplicates of genebank collections in the Svalbard Global Seed Vault. On-line lecture for BOLD WP1 project partners. BOLD-workshop organized by Crop Trust.

26.09. Svalbard Global Seed Vault – Mission and operation. On-line lecture for students at the university course; "Emergency preparedness and response in the Arctic". University of Stavanger / UNIS.

16.10. Svalbard Globale Frøhvelv – Noahs ark for frø i Arktis. Evening lecture at Arendal public library. Organized by Aust-egdelaget.

24.10. Svalbard globale frøhvelv. Noas ark for frø. Lecture for visitors from Norwegian Institute of Bioeconomy Research, Division Landvik. Technical building, Svalbard Global Seed Vault, Longyearbyen, Norway.

07.11. Svalbard Global Seed Vault - Conserving Genetic Resources in the Arctic for Future Food Security. Lecture at Research Institute of Plant Genetic Resources, Tashkent, Uzbekistan on the occasion of celebrating the 100-year anniversary of RIPGR.

27.11. Safety duplication at Svalbard Global Seed Vault. Lecture at Crop Trust / BOLD WP1 Workshop: Capacity and resource development. Dubai, UAE, 25.-30. November 2024

28.11. Safety duplication at Svalbard Global Seed Vault. Lecture at Crop Trust Workshop: Running an Article 15 Genebank, Challenges and Opportunities. Dubai, UAE, 27.-29. November 2024

05.12. Memory of the Earth. Seeds in the Svalbard Global Seed Vault. Ice Memory Foundation on-line webinar on Governance of international scientific collections. Organized by Ice Memory Law & Governance, Ice Memory Foundation, France

Annex 5. Publications 2024

Asdal, Å. 2024. Note from the Svalbard Global Seed Vault, Norway. In Issam Kourbaj: Urgent Archive. Kettle's Yard. The Heong Gallery. University of Cambridge.