

Annual Review 2024



NordGen

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INTRODUCTION



Lise Lykke Steffensen, NordGen's Executive Director, sums up the year of 2024. **See the video here.**

As a research institution under the Nordic Council of Ministers, NordGen has an important social responsibility as we are working for the sustainable use and conservation of genetic resources that are important for Nordic agriculture and forestry. Climate change is currently happening faster than nature's ability to adapt, that is why our mission is more important than ever.

We have several important tasks ahead of us to ensure future biological climate-smart solutions, resilience in our ecosystems and to increase the competitiveness in the Nordic countries. NordGen plays an important role in this complex work at a time when society faces major challenges: to mitigate the effects of climate change, reduce the loss of biodiversity, the need for a more plant-based diet. There is also a desire for an increased food self-sufficiency in the Nordic countries, something that is becoming increasingly obvious due to the war in Ukraine.

Tasks and needs like these don't go away in a few years. Society has a strong need for long-term, stable solutions that will continue to provide us with food, feed, fiber, energy, medicine, and much more. Therefore, the conservation and sustainable use of genetic resources is a lifelong task that requires knowledge and insight.

Fundamental elements for human life

Genetic diversity is a fundamental element for long-term and stable solutions, so that we can produce food, feed, fibers, energy, building materials, medicine and much more in the future. This is precisely why we work with conservation and sustainable

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utilization of genetic resources, tasks that requires knowledge and insight.

The year 2024 was a busy year with strengthened and new collaborations with universities, private companies and international organizations. It was the year when NordGen became the focal point for conferences, research projects, networks, workshops and other meeting places for knowledge exchange. Many new contacts, consortia and, not least, projects were created during the year. These collaborations will generate new research that will contribute to a sustainable development in the Nordic Region.

Strategy and results

In 2024, NordGen began the second year of the current strategy period 2023-2025. In the strategy, NordGen continues with its conservation activities, and at the same time prioritizes research-based work focusing on documentation, characterization and evaluation of the genetic resources. During the year 2024, there has been particular focus on three major areas:

1. Research in collaboration with the profession and universities.
2. Reduction of back-logs.
3. Use and documentation of the genetic resources within farm animals and plants in particular.

All three areas have a major impact on the work at NordGen. At the same time, it has been a year in which great results have again been achieved for NordGen's entire operations. The solid platform that NordGen has built over the past few years is also reflected in the financial results of 2024 which is the best ever in NordGen's history. The revenue for this year has never been higher and has almost doubled over the past 8 years, mainly on the basis of external project funding.

In the following pages you can read more about our activities and achievements in 2024.



NordGen's Anna Palmé during her presentation at the Nordic Conference on Genetic Resources: Possibilities and Urgency.



A section of NordGen's field cultivation of cereals, July 2024.



ABOUT NORDGEN

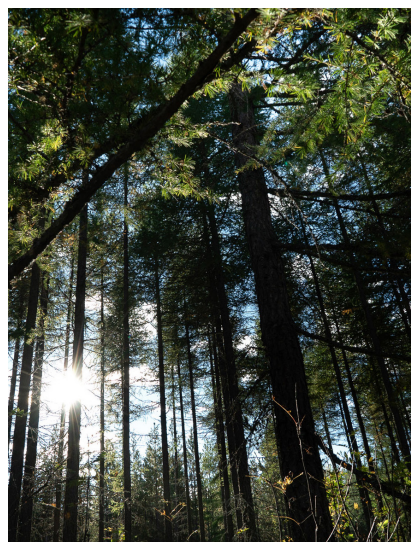
Nordic Genetic Resource Center (NordGen) is the Nordic Knowledge Center for plant, animal and forest genetic resources as well as the Nordic genebank for seeds and plants. The institution was established in 2008 as a merger between the Nordic Genebank (established 1979), Nordic Genebank for Farm Animals (established 1983) and the Nordic Council for Forest Reproductive Material (NSFP) (established 1970).

As a knowledge center, research institution and genebank, NordGen's mission is to safeguard the Nordic genetic resources and facilitate the sustainable use for agriculture, horticulture and forestry, for current and future generations. The mission also includes providing knowledge and genetic material to facilitate sustainable food and feed production and other biobased solutions in the Nordic region's changing climate.

NordGen also promotes collaboration between farm animals, plants, forest and the environmental area as well as disseminates knowledge and raises awareness about genetic resources. NordGen also fosters management and competences within the three disciplines.

NordGen provides technical advice and information to decision makers in the Nordic countries in national and Nordic collaborations and international negotiations on the conservation and sustainable use of genetic resources.

NordGen has a special responsibility for conserving and documenting genetic variation of Nordic material to ensure biodiversity and sustainable use of genetic resources. As early as 1979, the Nordic countries decided that a joint Nordic genebank for plants should conserve and facilitate the utilization of national plant genetic resources.



A stand of Siberian larch (Larix sibirica) photographed outside Rovaniemi in Finland, 2024. The top photo shows the native breed Jämtget captured in Sweden the same year.

In the 2004 Kalmar Declaration, the Nordic countries have adopted the basis for how NordGen should manage access and rights to genetic resources. All accessions in the genebank, except for collections held by NordGen for other genebanks, are under joint Nordic management and are a common good.

The genebank's seed collection should contribute to more resilience and new solutions to avoid biodiversity loss and contribute to increased use of genetic resources to achieve sustainable climate solutions, robust food and feed supply including new protein sources, better health and sustainable ecosystem services. At the same time, efforts will be made to improve documentation by characterizing and evaluating the seed collection, so that more data becomes available to the Nordic community.

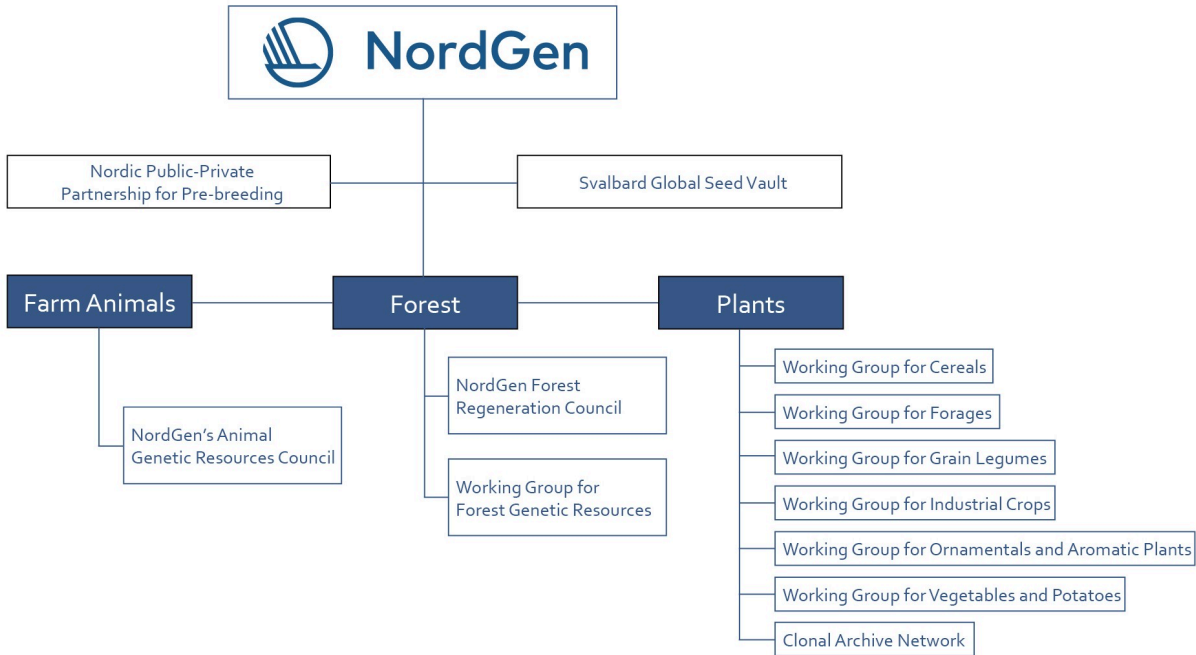
NordGen manages the program Nordic Public Private Partnership for Pre-breeding (PPP), which aims to support the development of Nordic plant pre-breeding.

NordGen has the operational responsibility for the Svalbard Global Seed Vault in a partnership with the Ministry of Agriculture and Food in Norway and the Global Crop Diversity Trust.



Swedes planted for overwintering in NordGen's greenhouse, photo from the autumn 2024.

Figure 1: Organogram – NordGen.





KNOWLEDGE CENTER

As the Nordic knowledge center for genetic resources, NordGen participates in and leads research projects, arranges outreach activities and shares information with relevant stakeholders concerning conservation and sustainable use of genetic resources important for food and agriculture. NordGen is also participating in several Nordic, European and International networks and commissions.

Top photo: A delegation from Abu Dhabi Agriculture and Food Safety Authority visited NordGen during 2024.

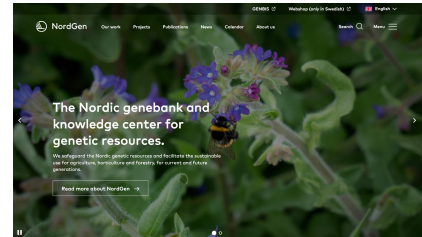
Our most important tools for exchanging knowledge within the Nordic countries are our working groups and councils. The different working groups of NordGen Plants, the working group and the council of NordGen Forest and the council of NordGen Farm Animals are vital advisory groups consisting of experts within each field from all the Nordic countries. The Board of NordGen also provides valuable input and knowledge exchange. Information is disseminated through our website nordgen.org, social media, project reports, press releases, arranged events, network meetings and targeted e-mails.

Social media followers	2022	2023	2024
Instagram	2470	3014	3428
Facebook	3789	4300	4784
LinkedIn	1994	2732	3602
X	1610	1951	1957

Table 1: Social media statistics, numbers from the month December. NordGen stopped using X during 2024.

In 2024, NordGen continued developing its competence within digitalization considerably. Video online meetings and seminars has increased the bridgebuilding over country borders, both internally and externally. Externally, our digital competence has enabled us to reach a wider audience that can take part in important knowledge sharing events concerning genetic resources without having to spend time and resources on travelling. It is expected that NordGen will continue to use these digital options at future events.

During the year, a new NordGen website was also launched. In addition to a more appealing and user-friendly design, the new website is also much easier to work in for NordGen's communications unit.



The new website was launched in June 2024.

Conference on genetic resources

On 11 December, NordGen organized the "Nordic Conference on Genetic Resources - Possibilities and Urgency" in Malmö. About 140 participants attended the conference on-site in Malmö and almost 160 registered for the online streaming to listen to 12 speakers from a wide range of areas connected to different fields of genetic resources. The key takeaways from the conference were that genetic resources are excellent tools for the green transition. However, the Nordic collaboration needs to be maintained and communication accelerated to reach viable change.

In addition to this conference, NordGen organized two other conferences during 2024. Read more about these events in the chapters on [forests](#) and [farm animals](#).



Some examples from the conference: The poster exhibition contained 24 posters, Lise Lykke Steffensen during her presentation "Genetic Resources as tools for mitigating climate change and promote green transition", panel discussion and Michael Zöllner during the presentation "How to engage the business community in stronger biodiversity".

Other visits and external events

During 2024, interest in visiting NordGen remained high and the premises in Alnarp were visited by journalists, politicians, students, companies and other genebanks. Guests included delegations from Thailand National Rice Seed Storage Laboratory (NRSSL), The European Regional Focal Point for Animal Genetic Resources (ERFP) ad hoc action group, several Botanical gardens of Lithuania, Nordic Council of Ministers Senior Official Committee and Abu Dhabi Agriculture and Food Safety Authority.

In April, NordGen also hosted a meeting with the Ukrainian genebank and international experts to develop a strategy for securing Ukraine's invaluable plant genetic resources for food and agriculture. On 14 June, stakeholders and other guests were invited to the "NordGen Day" in Alnarp for a day focusing on genetic resources including tours of the main building and laboratories, excursions of the greenhouse and field cultivations, festivities and information stands on NordGen's operations.

In the following pages, our different sections and their activities during 2024 will be introduced.



International experts and representatives from the Ukrainian genebank met in Alnarp.

Knowledge centre - NordGen Plants

We live in a time when climate change is affecting our ability to grow our own food. Drought, floods and higher mean temperatures means that developing new plant varieties that can withstand the new challenges are more important than ever. But no plant breeding is possible without the green infrastructure stored in the DNA of seeds. And not even advanced gene technology can replace the natural genetic diversity that we find in our wild, semi-wild and cultivated crops. The most important task of NordGen Plants is to safeguard and facilitate the sustainable use of plant genetic resources that are important for agriculture in the Nordic countries. By doing so, we create conditions for a more environmentally friendly agriculture that can better withstand diseases, climate change and at the same time produce more nutritious food that corresponds to the consumers' demands.

Key activities

The research conducted at NordGen Plants is mostly carried out within different projects. Read more about this under the section "Projects".

Nordic collaboration

NordGen is part of and arranges several different meetings and seminars for the Nordic stakeholders concerning plant genetic resources. 2024 was again a year filled with many interesting meetings in Alnarp and in other locations in the Nordic region. During the year, NordGen continued to experience an increased demand for knowledge on utilization of the plant genetic resources from both public and private research programs, that reaches out to NordGen for collaboration within utilization of the genebank collection. One such current example is the collaborative project on [the Nordic oat collection](#) between NordGen, Oatly, Lantmännen and ScanOats. Another ongoing project is focusing on [Nordic flax](#) in collaboration between NordGen, Skånelin, Science Park Borås and the project "1 KVM LIN". In this project 15 Nordic flax varieties were cultivated during 2024 to find out which varieties that are suitable for fiber respectively oil production. Many other Nordic projects were also ongoing during the year in NordGen's different plant working groups.



Parts of NordGen's outdoor cultivations during 2024.



One of the flax varieties that was cultivated during 2024.

International collaboration

Preserving and distributing genetic resources requires international collaboration, and the foundation for this work is laid out in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the Convention on Biological Diversity (CBD), ratified by all the Nordic governments.

To NordGen, as part of the global genebank community, international collaboration is crucial. Forums for this work is the Governing Body to the ITPGRFA and the Commission on Genetic Resources for Food and Agriculture (CGRFA), The European Cooperative Programme for Plant Genetic Resources (ECPGR) and the Conference of the Parties (COP) to the CBD.



In October 2024, NordGen participated in the COP16 on biological diversity that was held in Cali, Colombia. In high competition, NordGen was granted an official side event on the role of genebanks in the Kunming-Montréal Global Biodiversity Framework.

NordGen Plants is the largest department. It is divided in two, with the genebank maintaining the Nordic seed collection of about 34,000 seed samples and the research department working in a close relationship with public institutions, plant breeding companies and other organizations in order to identify green solutions for a more sustainable society.

A central part of NordGen Plants is the seven different Working Groups on plant genetic resources that together with the national programs constitute the very core of NordGen's network of Nordic experts. They are an important link between the Nordic and the national technical work within a specific species group. The working groups contribute with insights to each Nordic country's operations with genetic resources and is also important for knowledge exchange and network contacts.

Knowledge centre - NordGen Farm Animals

The genetic diversity that our Nordic native farm animal breeds carry is invaluable. Over hundreds of years, they have developed desirable traits that make them robust and well adapted to the Nordic climate and way of life. Native breeds have a wider genetic base than commercial breeds and great potential for future food production in a sustainable way. For example, research shows that milk from Nordic native cattle breeds is among the best in the world when it comes to cheesemaking and contain valuable nutrients that could be used to develop bioactive food components. If further investigated, the variation found in the local breeds can help adapt Nordic agriculture to the needs of the market, climate change and new production systems. However, many of the ~160 Nordic farm animal breeds are at risk of extinction today. NordGen Farm Animals is working to reverse that trend.

Key activities

During 2024, NordGen Farm Animals has worked in several projects and continued in maintaining networks that serve as a platform for discussing joint research applications and increased communications on its activities. The increased communication and knowledge sharing with stakeholders supports the current strategic goal to proactively strengthen NordGen's position as a Nordic knowledge center for genetic resources.

40 years of Nordic collaboration marked with conference

What's the status of the Nordic farm animal breeds compared to those in other European countries? Do grazing animals always promote biodiversity – and why are the Icelandic breeds often less vulnerable than other native breeds in the Nordics? These were some of the questions that were answered during the "NordGen Farm Animals Conference" that was organized in Uppsala, Sweden, 7-8 February 2024. About 70 participants attended the conference physically and just as many registered for the online streaming. The program included both Nordic and international speakers, as well as the display of a poster exhibition during the conference.



The Swedish native breed Orusthöna photographed in Slotsskogen, Gothenburg 2024.



About 70 people participated on site in Uppsala.

The first status report on the conservation of farm animal genetic resources (AnGR) in the Nordics

On October 16, 2024, NordGen Farm animal published "The first status report on the conservation of farm animal genetic resources (AnGR) in the Nordics – 40 years of Nordic collaboration in the conservation of Animal Genetic Resources." The landmark report presents the status of all Nordic native breeds and offers the first comprehensive overview of the 40-year journey in official Nordic collaboration for conservation Nordic farm animal genetic resources (AnGR).

The report examines the diversity, distribution, and conservation status of these breeds while outlining the methods currently used for conservation. It also highlights internal and external pressures affecting the Nordic region's genetic resources. Additionally, it highlights the progress made over four decades and provides a thorough assessment of conservation effort across the region.



Northern European horse network

Through an ERFP ad-hoc action ("European Regional Focal Point for Animal Genetic Resources") – we expanded the Nordic native horse network in 2022 – now called "The Network for native horse breeds in the Baltic Sea region and Northern Europe". The network's primary goal is to strengthen cooperation across Northern Europe by seeking new regional projects and hosting workshops. Additionally, the network is also committed to promotional activities, including producing content that highlights these breeds' historical importance and local value to of these breeds, which in turn benefits local businesses.

Another key objective is to increase the breeds' visibility and appreciation among the public. In 2024, the network expanded to include new member countries in the Baltics and the United Kingdom, further strengthening regional collaboration. As part of this, the network held a physical workshop in the Baisogala, Lithuania, on October 17th. The network continues its work by in-depth analysis the data received all its member countries.

Project activities

A significant part of the work conducted during 2024 in the farm animal section was carried out in various projects. Read more about the projects "NordFrost", "NaNo Horse", "Hästnäring i Norden", and "Quality assessment of gene-banked rooster semen" in the chapter "Projects".



Jutland horse at The Living Museum Karensminde, Denmark, 2024.

NordGen Farm Animals is a service and knowledge centre working to conserve and promote sustainable management of the animal genetic resources in the Nordic region. Contributing to the Nordic countries' own work by promoting the genetic, economic, cultural, historical and social values that come with a wide variety of different animals in Nordic agriculture.

NordGen Farm Animals' activities are providing tools and advice to preserve the genetic variation in living populations (*in situ*) but also to establish cryo-storage of genetic material (*ex situ*). Through a variety of projects, NordGen Farm Animals are working to initiate research and development projects related to categorization, conservation, management and sustainable use of animal genetic resources.

NordGen Farm Animals also organizes workshops, seminars and courses for various Nordic stakeholders and promotes good collaboration between them. Actively distributes information about animal genetic resources and partake in international networks. Works to promote sustainable breeding practices and good principles for fair trade in animal genetic material.

Knowledge centre - NordGen Forest

Nordic forests provide wood and bioenergy, protection against wind and erosion, biodiversity and is a carbon dioxide sink. The trees planted today will grow for decades to come but climate change can hit our forests hard, and we must deal with the emergence of new pests and diseases that haven't existed in the Nordic region before. Within the forest industry there is a need for strong, resilient forests in the future and an important key to this resilience is genetic diversity. Since different trees carry different genes, chances are that some of them can resist the new threats. For example, the ash dieback disease is today threatening the Nordic ashes. But by identifying particular trees that carry resistance genes, the species could be saved. NordGen Forest is working to exchange knowledge about these kind of issues in the Nordic forest community.

Key activities

For NordGen Forest, the year 2024 was again a year filled with fruitful meetings on site in several Nordic countries. For example, a successful forest conference was arranged in Rovaniemi, Finland.



Silver birch (Betula pendula) in Kivalo experimental forest outside Rovaniemi, Finland, 2024.

Thematic day, conference and seminar

The first NordGen Forest event in 2024 was a thematic day organized on 14 February in Ås, Norway. About 60 persons participated during the day of presentations entitled "Forestry – more than just spruce." Representatives from Skogfrøverket, Skogkurs, NIBIO, NMBU and AHO (The Oslo School of Architecture and Design) were included in the presentation program. The first part of the day was devoted to new strategies for forest seed breeding and the method "breeding-without-breeding", as well as fertilization and the establishment and planting of pine. The second part of the thematic day was about broadleaved trees, with a focus on silver birch and common alder.

The annual NordGen Forest conference was arranged on 18-19 September 2024 in Rovaniemi, Finland. About 50 persons participated in the conference that was entitled "Forest regeneration in the north – the past, the present and the future." During the first day, 15 speakers gave presentations covering several interesting topics covering forest tree seed and seedling production with a certain focus of the history, current state, and



Øyvind Meland Edvardsen, one of several speakers during the thematic day in Ås.

future of forest regeneration in this northern region of Finland. For example, the presentations revolved around the OptFORESTS questionnaire, experiments on spruce seedlings growing in peat substitutes and the disease Scots pine blister (*Cronartium pini*).

The seminar of NordGen Forest Working Group on Genetic Resources were arranged as planned in August. The Working Group gathered in Växjö, Sweden, for meetings, forest excursions and a visit to Södra pulp factory. The forest excursion included visit both to old and newly established oak forest.

Scholarships

A total of 22 applications (9 from Sweden, 1 from Finland, 2 from Iceland, 0 from Denmark, 3 from Norway and 7 from countries outside the Nordic region) were received by the deadline on 15 February 2024. Eight of them were granted. Four out of the approved applications were from Sweden, two from Iceland, one from Lithuania and one from Finland. The grants (in total NOK 99.900) were given to travels and field work, supporting activities in several Nordic countries. During 2024, the grants were for example used to attend workshops and the IUFRO congress.



Excursion to Fin Forelia Oy during the NordGen Forest conference in Rovaniemi.

NordGen Forest addresses conservation and sustainable use of forest genetic resources, by being a forum for researchers, practitioners and managers working on forest genetic resources, seeds, planting stock and regeneration. We facilitate flow of scientific information and knowhow between these groups.

NordGen Forest consists of two bodies: The NordGen Forest Regeneration Council, which meets twice a year and organize our conferences and thematic days, and the NordGen Forest Working Group on Genetic Resources, which meets once a year. In cooperation with Nordic Forest Research (SNS), NordGen Forest also grants scholarships to enhance knowledge and competences in the area of seed, plants and forest regeneration.

NordGen Forest is focusing on knowledge exchange about conservation and sustainable use of forest genetic resources, forest seed and plant production and regeneration of forests. By disseminating knowledge and experience between the various actors and to the public, we aim to support better plant production and better regeneration methods of forest, as well as conservation of forest genetic resources. We conduct various types of projects and information activities.



GENEBANK

NordGen's genebank is a joint plant genebank for all the Nordic countries. It conserves and documents seeds and living plant samples of Nordic heritage and of importance for the Nordic countries. The genebank ensures that the genetic resources that underpin our food supply are both secure in the long-term for future generations and available in the short term for use by farmers, gardeners, plant breeders, and for research and development.

The seed and plant collections of NordGen are important to ensure that agricultural and horticultural plants do not become endangered or extinct over time. Because these plants may contain genes which enables them to resist diseases, have enhanced nutrition composition or survive in changing or harsh climate environments. The services of the genebank are a common public good. The plant genetic resources stored in our genebank are available for research, education, and breeding purposes.

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The plant genetic resources stored in our genebank are available for research, education, and breeding purposes.



The seed samples are conserved in bags made of laminated layers of plastic and aluminum.

Plant groups represented in the active collection	Number of seed samples
Cereals	21,625
Grain legumes	2,869
Vegetables	1,937
Forages	4,710
Oil, textile fibre and root crops	1,684
Medicinal plants and spices	587
Ornamentals	286
Potatoes	96

Table 2: Plant groups and number of seed samples (accessions) in the Nordic seed collection.

The genebank contains about 34.000 seed samples (accessions) in the active collection from 438 different plant species. These species carry a wide palette of different genetic traits that constitutes the green infrastructure for research and development of a sustainable agriculture and green growth.

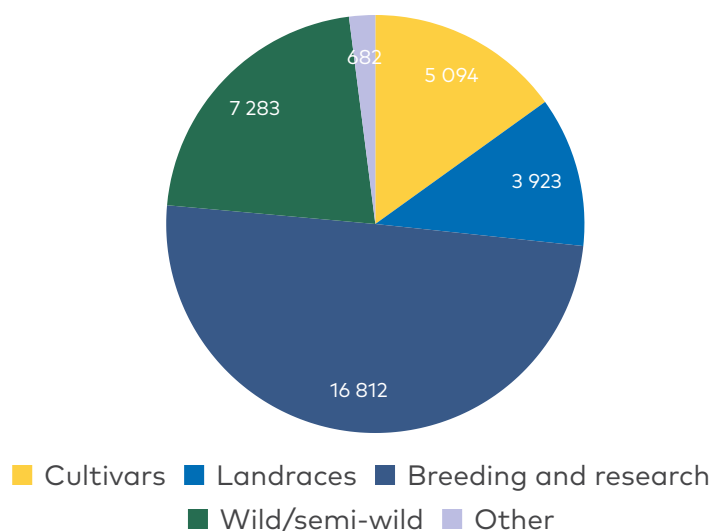


Figure 2: Plant groups represented in the Nordic seed collection.

Laboratories

NordGen has a well-equipped seed laboratory for quality assessment of seed samples and follows the FAO's international genebank standards. This includes, among others, species identification, seed drying, seed cleaning, estimation of thousand grain weight and seed viability. The molecular laboratory provides facilities to prepare and conduct DNA extractions, both PCR-based marker analyses as well as prepare samples for more complex downstream analyses. The *in vitro* laboratory provides sterile working conditions and incubators for tissue culture or germination in controlled light and temperature. A room for cryo-preservation is planned for in the new building and will enable safe long-term storage of different kind of samples.

Cultivation facilities

NordGen greenhouse and field team has experience with regeneration of a very broad variation of agricultural and wild plants. This includes valuable knowledge about specific requirements of sowing, transplanting, isolation, fertilization, watering, weeding, winter storage and seed harvest. The team can also assist in recording plant descriptors during the regeneration



Planting of clover in NordGens garden, 2024.

Reducing the regeneration backlogs

Due to historic accumulation of new material to the collection of plant genetic resources at NordGen, a backlog of accessions which needs handling to secure long- term conservation has been built up 2008-2016. To further expand NordGen's regeneration activities to reduce the backlog, the Board of NordGen adopted in 2019 a project plan to eliminate the backlog by end of 2024. The project named 'No regeneration backlog by 2024' was funded by an extraordinary grant from the Nordic Council of Ministers. In 2024 the project ended as planned and all expected goals were met.

Genebank - Sustainable use of plant genetic resources

NordGen provides genetic material to facilitate sustainable food and feed production and other biobased solutions in the Nordic region's changing climate. The best way to preserve genetic diversity is to use it and the Nordic seed collection is no exception.

Therefore, NordGen sends out thousands of seed samples annually to scientists, plant breeders, companies, museums, botanical gardens and home gardeners with an interest in old cultural plants. Seeds are primarily requested by Nordic and European countries.

The seed samples are mainly ordered by universities and research/breeding institutes while others interested in the material are seed saver organizations, museums, schools and municipalities for education or demonstration use.

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The best way to preserve genetic diversity is to use it and the Nordic seed collection is no exception.

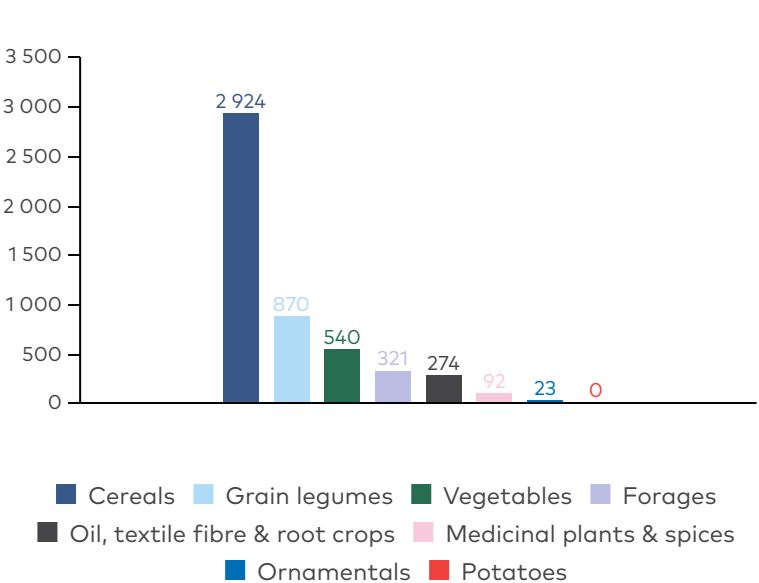


Figure 3: Crop of requested accessions in 2022 (number of bags).

In addition to the distribution of seed samples for scientific purposes, the seed lab also handles the seed orders in NordGen's online shop where the number of orders per year has reached over 1000 since 2020.

Webshop

As one of the ways to promote the sustainable use of plant genetic resources to the general public, NordGen has established an online shop where we distribute our surplus of seeds for a small admin fee. During springtime, hobby growers and home gardeners with an interest in older varieties of vegetables, flowers and cereals can order seed samples and mini tubers of potatoes from NordGen. In 2024 the website work with the online shop continued, for example a new sales website was launched, a solution that works in a much more stable way for users and administrators.

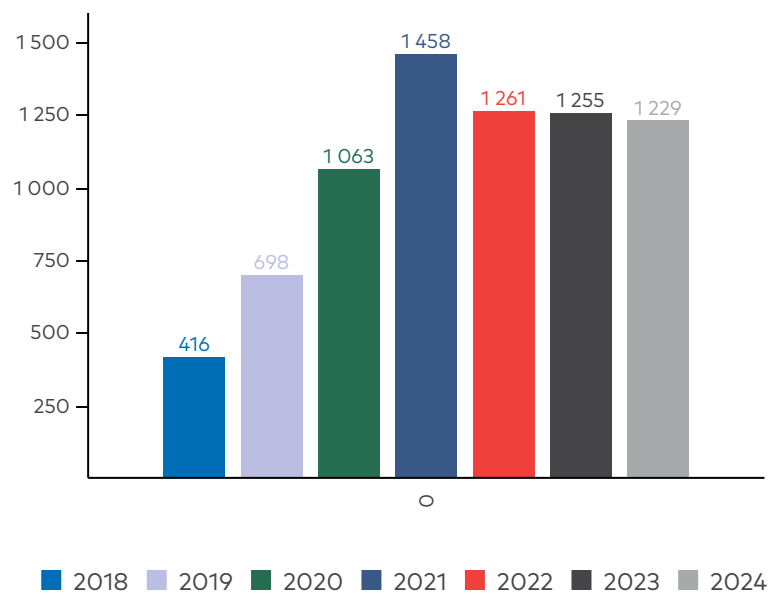


Figure 4: Number of orders in the online shop 2018-2024.



Giftbox with seeds of vegetables available in NordGen's webshop.

Genebank - Digitalization

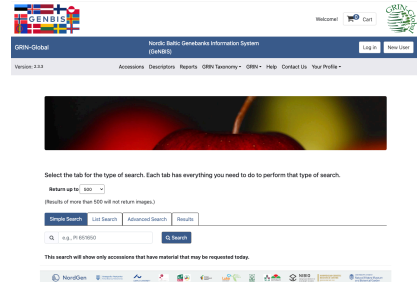
The very core of NordGen's genebank is the information system that contains all the data gathered over the years about the seeds and the plants in the Nordic seed and plant collection. This data is unique and invaluable for the research and development of new crop varieties needed to support future food production in the Nordic countries.

During the last few years, NordGen has been on an ambitious digitalization journey to that the genebank information system is future proof. In 2019, NordGen decided to implement the internationally well-known genebank data management software GRIN-Global.

The project reached a very important milestone in 2020 with the launch of the [Nordic Baltic Genebanks Information System, GENBIS](#), which is built within the GRIN-Global data management system. This is a critical step bringing improved possibilities for strengthening documentation processes in the genebank, and will secure efficiency, security and accuracy in the seed handling and documentation as well as providing a more user-friendly interface for seed requesters.

GENBIS is not only serving NordGen but also enable users to explore data from eleven different genebanks, including the Nordic and Baltic national genebanks. This has in a positive way impacted collaboration between NordGen and the Nordic and Baltic national programs for plant genetic resources.

In 2024, NordGen continued the collaboration with partner countries and maintained the efforts to optimize data servers and develop an improved interface. Additionally, the first digital object identifier (DOI) for accessions was registered the same year.





PROJECTS

To participate in and lead different projects is an important part of NordGen's operations. In close collaboration with public institutions, private companies and other organizations, the overall purpose of all projects is to conserve and promote the sustainable use of genetic resources for Nordic food and agriculture. The funding for the projects is granted by the European Union, the Nordic Council of Ministers, directly from the Nordic countries through its government bodies or from public and private foundations and other organizations. Below is a summary of some of our more high-profile projects that were active in 2024.

Top photo: The Danish native breed Jutland horse, 2024.

See, sow and taste

Where does our food come from? How is it cultivated and which plants can thrive here in our cold climate? In the project **"See, Sow and Taste"** children and young people learned more about these important issues through hands-on exercises. The project, which was financed by the Nordic Council of Ministers and active during 2023-2024, was a pedagogic and cultural pilot project lead by NordGen in collaboration with other Nordic institutions and actors in Lithuania.

The project started 2023 with a collaboration with The Botanic Garden and The Nordic House in Reykjavík. During the spring, NordGen developed education material that was distributed along with seeds and cultivation material to pre-schools, schools and after-school clubs in Reykjavík. The education material consists of instructions and background material to four different cultivation experiments that can be performed using seeds provided by NordGen. 1188 Icelandic children participated in the



Workshop in the Faroe Islands, 2024.

project during the first year.

During 2024, the project continued in Iceland (878 children participated) and expanded to the Faroe Islands (about 800 children) and Lithuania (about 1760 children). As part of the project, staff from NordGen participated in several well attended workshops for children on cultivation and food that were held in April 2024 at The Nordic House Faroe Islands. In September the same year, NordGen staff participated in two harvest festivals for children to inform about the project and the origin of food.

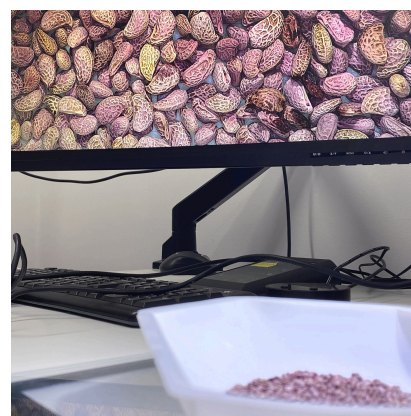
Crop wild relatives

Crop wild relatives (CWR) are wild plant species that are closely related to crops. They are of great importance since traits in these wild species can be transferred to crops by traditional plant breeding approaches. In many cases, wild species have traits that are not present in modern crops, for example pest and disease resistance, tolerance to drought, waterlogging or heat stress. Such traits are very important when adapting crops to future climate conditions and diseases and are therefore central for climate change adaptation and future food security.

The Nordic network on CWR was initiated in 2015 with the long-term aim to promote a well-functioning, climate- and environmentally friendly Nordic agriculture by strengthening CWR conservation and facilitating use of CWR. The third phase of the project was initiated in 2020 with funding from NKJ (The Nordic Joint Committee for Agricultural and Food Research). Funding was granted from the Nordic Committee of Senior Officials for the Environment and Climate in December, which made it possible to expand the Nordic work on CWR during 2021-2024.

During 2024, several project activities were carried out with the goal to strengthen *in situ* and *ex situ* conservation of CWR and facilitate sustainable use. For example, seeds collected in Denmark, Finland, Iceland, Norway and Sweden were processed for long-term *ex situ* conservation at NordGen. To better understand the impact of climate change on Nordic CWR, climate modelling was used to evaluate future geographic distributions under different climate scenarios. The distribution of genetic diversity was studied in selected CWR across the Nordic region using molecular markers.

In addition, several approaches were used to communicate about



Seeds of European dewberry (Rubus caesius) studied in NordGen's seed laboratory.

CWR and project outputs. The outdoor exhibitions continued in Denmark, Norway and Sweden and plant portraits and short films were also published on the [Nordic CWR webpage](#). During the year, inventory reports from [Denmark \(Mols, Stråsø, Husby and Katstrup\)](#), [Norway \(Færder National Park\)](#) and [Åland \(Nåtö Nature Reserve\)](#) and an inventory on [Nordic wild food plants](#) were published and made publicly available, and two manuscripts on CWR were submitted to scientific magazines. About 230 persons participated in the [CWR lunch webinar series](#) (six episodes) that took place during October to December 2024 to raise awareness of the project and its various activities and outputs.

NordFrost

In case of extreme events, entire animal populations can be wiped out, since farm animal and fish genetic resources are most often small and locally adapted populations. The native breeds show large adaptation potential and may become crucial for increased resilience of Nordic agriculture. Cryoconservation of farm animal genetic resources is a crucial tool for the success in management and conservation of genetic diversity in small native farm animal populations for the future, because it offers an additional layer of security against extreme events and genetic bottlenecks.

The network project titled "Nordic animal gene banks – added value through Nordic cooperation" (NordFrost), aimed to strengthen the collaboration and competence for *ex situ* conservation of animal genetic resources (AnGR) in the Nordic region. This project was launched as a case study following the *Horizon2020* funded IMAGE project (2016-2020) where it was concluded that there is a broad variation in the current state of practices and the distribution of responsibilities related to cryoconservation activities between the Nordic countries. The national strategies on conserving AnGR emphasise *ex situ* conservation in varying degrees. However, collection of samples, metadata, back-up storage of material or common strategies and action plans for *ex situ* conservation on a regional level does not exist. This makes conservation of AnGR an exposed area that threatens the resilience of Nordic food security. By developing new collaborative models, strengthening Nordic infrastructure, and enhancing the development of Nordic strategies for *ex situ* conservation in the region, this network aimed to contribute to increased sustainability for populations and future Nordic food security.



Workshop in cryo conservation workshop, Ås, 2023.

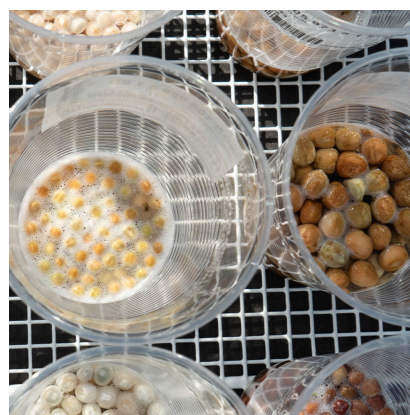
Within the NordFrost project, stakeholders worked together to identify and compare both old and new practices for cryoconservation, and to evaluate the current situation of live- and cryoconservation efforts in the Nordics. Important collaboration networks were formed between the Nordic stakeholders and gene banking scientists and agencies from other European countries and the U.S., which strengthened knowledge-sharing of best practices, and NordGen's ability to provide guidelines that will help increase the resilience of Nordic agriculture.

The project report for the NordFrost project, "**The NordFrost Project Report – Farm Animal Gene Banks in the Nordic Region: Added Value Through Nordic Cooperation**", was published on September 17th. The report lists details about the project background, the project activities and their important outcomes.

Mapping of Nordic protein crops

The project "Next generation genebanking – Unlocking the potential of plant genetic resources in the sequencing era" was granted by Novo Nordisk Foundation and started in 2024. In this collaborative project, NordGen and Aarhus University will map the Nordic seed collection of protein crops. The project will lead to a substantial lift for the genebank collection since researchers and plant breeders will get access to brand new information about NordGen's seeds – information which is vital for developing future plant-based protein sources.

The project focuses on 4500 protein crop accessions from the Nordic seed collection, such as peas, beans, lentils, and clover, that will be genotyped and phenotyped. Further, a number of so called core collection will be established. Core collections are a smaller number of seed samples that can represent a large part of the genetic diversity for each species. The project partners will create an entirely new genebank infrastructure enabling researchers to easier and faster find the genes that code for certain traits in the plant. The project, which will run from 2024-2026, also involves sharing all the gathered information under open access.



Seed samples of peas from the Nordic seed collection.

NaNo horse

Genomic Characterization as a Tool Towards Sustainable Breeding of the native Nordic Horse Breeds" (NaNo horse) aims to fill in knowledge gaps by characterizing the standing genetic diversity and relatedness within breeds, and unique variation between the breeds. This information can be utilized by breed associations to make well informed conservation and breeding plans.

The aim of the project is to characterize genomic diversity and inbreeding, within and between Nordic native horse breeds. There are broad knowledge gaps regarding our native breeds, and the true status of their genetic diversity and relatedness. This is an essential first step in describing standing genetic variation within breeds to be preserved, and unique variation between breeds. It can further provide knowledge about genomic regions with unique characteristics and diversity. This information can be utilized by breed associations to make well informed conservation and breeding plans.

The project began in 2022, and 2024 was the final year of the project. During 2024, the project advanced according to the research plan: A Master student from the University of Copenhagen finished her Master thesis on Faroese horse with data from the project. The project group had a physical meeting at Skåbu in Norway in collaboration with another horse project. The project also had an online webinar for horse owners and breeders on October 25th with over 300 people registered to participate. The DNA sequence analyses continued, and the project group were working on 3 manuscripts with results from the project. These manuscripts will be finalised and published in 2025.



Gotland Russ in southern Sweden.

Nordic oat collaboration

In 2022, 764 different accessions (seed samples) of oats from NordGen were sown in the field, among other things to study the plants' cultivation traits. During the year, a project was developed to genotype all the accessions (i.e. genetic characteristics of the plant individual investigated through DNA analyses). NordGen, Oatly, Lantmännen and ScanOats share equally the costs of the DNA analyzes which are being conducted by bioinformaticians at



ScanOats. Genotype data was analyzed in 2024 by ScanOats and a publication will be written under 2025 describing the NordGen oat collection in 2025. One result from the bioinformatics analysis is the creation of an oatCORE collection of NordGen Oat (oatCORE150). The oatCORE150 is used in the PPP RobOat project.

NordGen and Oatly have also carried out characterization based on phenotype (physical characteristics such as straw height, grain color, panicle shape and tendency for shattering). The effort required many hours of work in the field, a job that demonstrated the genetic diversity among the 800 oat varieties. The new data will result in much more knowledge about the collection and provide information on the genetic relationship between all the samples. Because of this, it will be easier for researchers and plant breeders to be able to choose exactly the varieties they have a use for in the future. A better described genebank collection thus becomes more useful for those actors who are interested in developing new oat varieties that are more nutritious, more profitable or better adapted to a changing climate.

Securing and developing Ukraine's genebank

Only a few weeks after Russia's invasion of Ukraine, it was clear that there was an imminent risk of damage to the national genebank's seed collection located in Charkiv. Along with other European institutions and support from the Novo Nordisk Foundation, NordGen coordinated emergency support to genebank already in the spring of 2022. After the initial phase, a major project coordinated by the United Nation's Food and Agriculture Organization (FAO) helped the Ukrainian genebank to duplicate and move about the seed collection, from Kharkiv to the west of Ukraine.

In the end of 2023, NordGen welcomed a group of Ukrainian genebank colleagues to the headoffice in Alnarp, Sweden, to attend training sessions in data management systems and seed laboratory work. This visit is part of a long-term plan for securing and developing Ukraine's genebank and its invaluable seed collection. In Alnarp, the Ukrainians, for example, received intensive training in GRIN Global, the data system NordGen and many other genebanks are using to store information about their seed collections. Another part of the longterm plan is to send a second backup of the seeds to Svalbard Global Seed Vault. In April



NordGen's Executive Director, Lise Lykke Steffensen, with the Ukrainian guests.

2024, NordGen hosted a meeting that included international experts and representatives from the Ukrainian genebank. The main goal of this meeting was to develop a strategy for resource mobilization and development of the Ukrainian genebank system in a short and longterm perspective.

PRO-GRACE

Europe has more than 2 million plant genetic accessions conserved *ex situ* in 410 institutes and associated countries. Even more diversity is found *in situ* in European farmlands and wild habitats, where it contributes significantly to agricultural resilience and climate mitigation. However, the European PGR system is far from perfect. Information on genebank accessions is, at best, fragmentary, while for *in situ* accessions it is almost non-existent. Many genebanks and other collections lack appropriate resources, capacities, infrastructure and quality controls and *in situ*/on-farm activities have received short-term and fragmentary support.

As a result of these and other challenges, many genebanks are currently unable to provide to their customers (scientists, breeders, farmers) the services needed in terms of access to the breadth of PGR diversity and associated information and all European countries lack integrated *in situ*/on-farm activities.

The PRO-GRACE (Promoting a Plant Genetic Resource Community for Europe) project aims to fill these gaps by laying the foundations for a European Research Infrastructure dedicated to the conservation, management and study of European plant genetic resources. The project began in 2023 and in addition to NordGen, the project includes 31 (mainly European) project partners.



Nordic flax cultivation

Flax is a crop with many uses that is suitable for cultivation in the Nordic Region. But today, the cultivation in the Nordic countries is limited, especially for fiber production. In 2023, a collaborative project on Nordic flax began that was initiated by NordGen's working group for industrial crops. The project "Evaluation and characterization of NordGen's Nordic flax accessions to increase knowledge and facilitate use" is led by NordGen and includes the following project partners: Skånelin, the project "1 KVM LIN" and



In May 2024, the 436 flax accessions were sown by hand.

Science Park Borås. The aim of the project is to evaluate and characterize NordGen's 27 active core accessions of Nordic flax (and three additional flax accessions obtained by the project partner Skånelin), determine the accession type (fiber or oil), and in cooperation with stakeholders, find the best accessions for fiber production with potential to be used by the fiber-flax growers in Norden.

Of these 30 accessions, 15 accessions were assessed as suitable for fiber production. During 2024, this selection was cultivated on a larger scale, 10 m² per variety, to assess the fiber quality to determine which varieties are best for use in fiber production. In 2024, NordGen also initiated another flax project in which a total of 436 different seed samples were cultivated to document morphological characteristics (plant height, flower color, flower size, seed size, etc) and determine whether they belong to the type for oil or fiber production. NordGen's entire flax collection of 362 seed samples was included in this cultivation. An additional 74 seed samples of Nordic origin, repatriated from genebanks in Poland, the Netherlands, and the Czech Republic, were also included. The traits of the repatriated seed samples will be compared with those of the flax varieties in NordGen's collection that share the same names. If the characteristics differ, the samples will be included in the Nordic seed collection.

However, the entire collection (436 seed samples) will be genotyped under another project to trace the historical development of flax varieties in the Nordic region, identify rare or unique genetic traits, and guide future breeding programs to enhance the resilience and productivity of flax in a changing climate.

Nordic horse project "Hästnäring i Norden"

The role of Nordic horses has been pivotal and ever evolving, influenced by various social challenges. These challenges have significantly impacted the horse industry, particularly the use of native breeds. Despite collaboration among the Nordic countries within the horse sector, there has been a notable gap in integrated data regarding the state of the sector across Nordics. The report generated by this project is, to our best knowledge, the first compilation of data from all the Nordic countries on the horse sector and aims to outline the existing gaps in the genetic resource's viewpoint.



NordGen led the information gathering for the "Breeding and genetic resources" segment with the aim of mapping the horse sector from the genetic resources standpoint. This initiative focused on collection critical data such as the total horse populations, breed demographics, intended uses of various breeds, and identifying key stakeholders. As a result, we published a comprehensive review "Equines in the Nordics" on June 28, 2024, providing valuable insight into the status of Nordic native horse breed conservation and sustainable development.

Quality assessment of gene-banked rooster semen

"Quality assessment of gene-banked rooster semen" or shorter "Rooster semen project " is an ongoing pilot project that started in 2024, and will end in 2025, and is a collaborative project between NordGen, NIBIO and the Norwegian University of Life Sciences (NMBU). The project aims to identify ways to improve the fertility success of frozen semen collected by roosters.

At present, the main method for conserving chickens in through live gene banking, which leaves this species particularly vulnerable to external threats such as disease. Previous projects have aimed to start cryoconservation for the species as well, collected and froze semen from the Norwegian gene bank for chickens. Unfortunately, the fertilisation rate after thawing was poor. In this pilot project, the remaining frozen semen from these roosters will be tested to unveil possible reasons for the poor fertility rate after thawing.





PLANT-BASED PROTEIN

The impact of climate change is becoming increasingly clear for every year. As a result, the demand for plant-based protein food is on the rise, not least domestically produced.

The Nordic countries have a long cultivation tradition of grain legumes such as fava beans and peas. Given the increased interest, the future of Nordic cultivation of grain legumes should be bright. An enlarged domestic production would also contribute to a positive direction when it comes to Nordic food security being a climate-smart alternative to imported soybeans. In addition, grain legumes such as peas have the capacity of nitrogen fixation in the fields, a property with many benefits.

NordGen's collection includes fava beans, common beans, soybeans, lentils and more than 2.000 accessions of peas – an asset that can be of importance for the future Nordic plant breeding. Below you can read more about some of our work with grain legumes.

Key Activities

Focus on protein crops

As mentioned in the previous chapter "Projects", a comprehensive project focusing on NordGen's entire collection of protein crops such as peas, beans, lentils and clover, will be active during 2024 to 2026. Below are examples of other collaborative projects that were active during 2024.

Nordic bean collection characterized

Another European project that NordGen is part of is called

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Given the increased interest, the future of Nordic cultivation of grain legumes should be bright.



Harvest of dried pea pods, 2024.

ExploDiv and is organized through The European Cooperative Programme for Plant Genetic Resources (ECPGR). Institutions from twelve European countries are partners in the project which, among other things, aims to identify and secure genetic resources within grain legumes to sustain adaptive capacity for resilience to climate change. During 2023, 30 accessions from the Nordic bean collection were cultivated in NordGen's garden to gain more knowledge on morphological traits. In 2024 the next step was to multiply 12 selected accessions which will be evaluated at different geographical sites in 2025.



Near infrared analyzes of peas

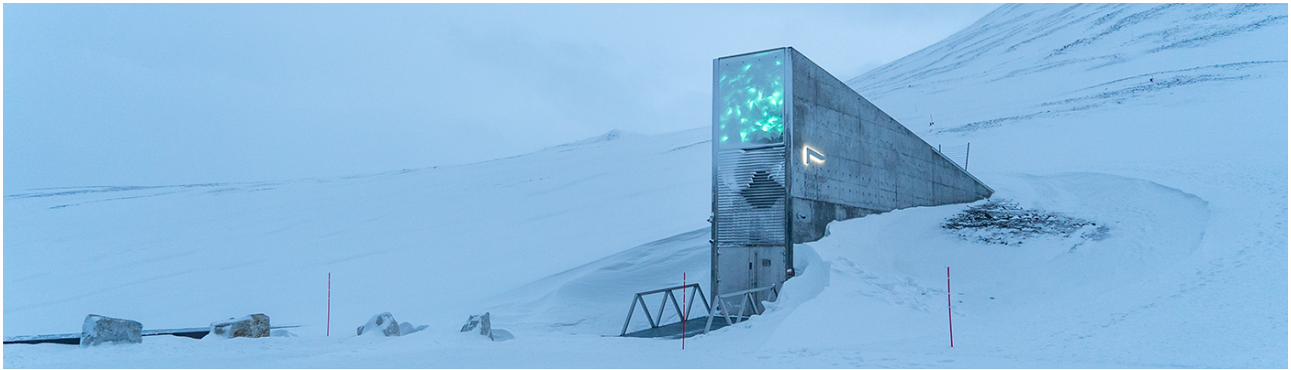
In a collaboration between NordGen, Swedish University of Agricultural Sciences (SLU) and Foss analytics, a significant part of the Nordic pea collection was analyzed in 2023 using NIR (Near infrared) technology. This effort leads to more information about the pea collection, not least when it comes to the seed samples content of fat, protein, water as well as standard color. The cooperation continued in 2024 and today the entire pea collection has been analyzed.



Peas about to be analyzed using NIR.

European evaluation of grain legumes

NordGen is an active partner in the ECPGR project EVA legumes which began its operations in 2024. It is a European network activity focusing on evaluation of different grain legumes in diverse environments throughout Europe. The crops included beans, chickpea, fava bean, lentil, lupine, pea and orphan legumes. NordGen will be involved in field trials on lentil, lupine and beans taking place in 2025 and 2026.



SVALBARD GLOBAL SEED VAULT

Svalbard Global Seed Vault is a backup facility for the world's crop diversity. By putting seed duplicates for long-term and safe storage in Svalbard, genebanks reduce the risk of losing invaluable genetic material if anything should happen to their original collections. NordGen is responsible for operating the Svalbard Global Seed Vault in cooperation with the Norwegian Ministry of Agriculture and Food and the international organization Global Crop Diversity Trust. NordGen's role in the Seed Vault partnership is to communicate with genebanks, handle seed deposits and update the [Seed Portal](#) – a publicly accessible database gathering information about the seeds stored in the Seed Vault.

Seed Vault openings: 3 (February, May and October)	Depositing institutions in total (31/12 2024): 123	Number of seed samples in the Vault (31/12 2023): 1,331,458
New seed samples duplicates: 64,331	New institutions signing the deposit agreement: 21	Number of depositing institutions during 2024: 54



Seed boxes and NordGen staff during the October deposit, 2024.

Key activities

New depositors

21 genebanks deposited seeds for the first time in 2024.¹ Eighteen of these were supported by the **BOLD-project**, funded by the Government of Norway and led by the Crop Trust.

More than 64,000 safety duplicates

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. In total, 210 seed boxes were taken into the Seed Vault by NordGen's staff in 2024.

100-year seed experiment

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 during the October deposit.

Nanofilm securing information

By the end of 2024, all boxes deposited between 2008 and 2021 has been equipped with nanofilm labels displaying data on conserved seed samples. Film stripes/labels to 470 boxes deposited in 2022 and 2023 have been printed and attaching them to the boxes will be done during 2024.

¹New Depositors in 2024:

1. Kazakh Scientific Research Institute of Agriculture and Plant Growing, **Kazakhstan**
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, **Armenia**
13. Laboratory of Genetics, Biotechnology and Seed Sciences, **Benin**
14. Institut National des Recherches Agricoles du Benin, **Benin**
15. Malaysian Agricultural Research and Development Institute, **Malaysia**
16. Instituto de Agroecología y Seguridad Alimentaria, Facultad de Ciencias Agrarias, **Bolivia**
17. Bangladesh Rural Advancement Committee, **Bangladesh**
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**



Left photos: detail from the Palestinian seed box and other boxes being scanned for the deposit in October, 2024.

The Seed Vault was established in 2008 and is owned by Norway. NordGen is responsible for managing the Seed Vault in partnership with the Norwegian Ministry of Agriculture and Food and the international organization Crop Trust. The iconic building, safeguards security copies of seeds stored in genebanks and thereby contributes to securing the world's food supply.

The location of the Seed Vault was chosen due to Svalbard being a remote, cold and safe place, yet easily accessible for shipping and handling. In addition, the Nordic Genebank (now NordGen) stored a backup of the Nordic seed collection here already from 1984, something that inspired to the establishment of the Svalbard Global Seed Vault. The seed chambers of the Seed Vault are carved out from the solid rock of the Plateau mountain. They offer a frozen environment where artificial cooling keeps the temperature at a constant -18°C and according to FAO's genebank standards. The ownership of the seeds stored in the Seed Vault remains with the depositing genebank, and only the institution that deposited the seeds are allowed to withdraw them.



Boxes being delivered for the October deposit, 2024.



PUBLIC-PRIVATE PARTNERSHIP FOR PRE-BREEDING

Together we are stronger. That's the very essence of the Nordic Public-Private Partnership (PPP) for pre-breeding. Through the partnership, plant breeding companies in the Nordic region can cooperate in a non-competitive way on pre-breeding projects and cooperate on research with the Nordic public institutions. The Nordic Public-Private Partnership for pre-breeding is a collaboration aiming to strengthen plant pre-breeding in the Nordic countries and through its work promoting sustainable use of genetic resources in the Nordic region with its unique climate, temperature, and daylight. The Nordic Public-Private Partnership (PPP) for pre-breeding is funded by the Nordic countries and plant breeding entities, and the secretariat is placed at NordGen.

2024 was an eventful year within the Nordic Public-Private Partnership for pre-breeding, as it marked the first year for the program period 2024-2026 and new projects started their activities. In this chapter you can read more about the current projects.

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Together we are stronger. That's the very essence of the Nordic Public-Private Partnership (PPP) for pre-breeding.

The Nordic Public-Private Partnership (PPP) for pre-breeding is a cooperation intended to strengthen plant breeding in the Nordic countries and through its work promote sustainable exploitation of genetic resources in the Nordic region with its unique climate, temperature, and daylight. The PPP is funded by the Nordic countries and plant breeding entities. The PPP Secretariat at NordGen is responsible for the administration of the Nordic PPP. The PPP Secretariat facilitates project management in cooperation with the PPP Steering Committee.

Key Activities

PPP-report

During the project period 2021 to 2023, three projects were active; "CResWheat – Pre-breeding for Nordic Climate-Resilient Spring Wheat", "6P3 – The Nordic PPP Plant Phenotyping Project – Phase 3" and SustainPotato. The project "NORDFRUIT Apple – Pre-breeding for Future Challenges in Nordic Apples" was also active during 2021. Read more about the project activities in the [PPP-report 2021-2023](#) tha was published in 2024.

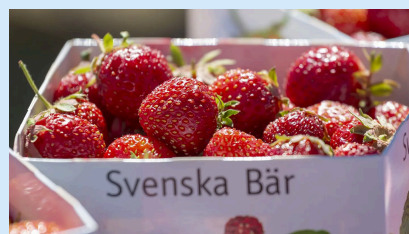
New projects granted

For the project period 2024 to 2026, four PPP projects were granted a total funding of 34,7 million SEK. The costs are shared equally between the public and the private sector. Read more about these projects below.

BERRIES – Development of germplasm for berry crops

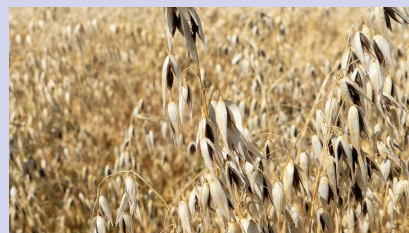
This new project has the main aim to develop the germplasm of strawberry and raspberry available for Nordic and Baltic breeding. In strawberry the aim is to enrich the gene pool for breeding through introduction of novel genes from the origin species of modern strawberry. In raspberry the project will explore and exploit the diversity in national raspberry cultivar collections in the Nordic-Baltic countries.

Partners: Njøs Fruit and Berry Centre AS (NO) | Graminor AS (NO) | Natural Resources Institute Finland, Luke (FI) | Estonian University of Life Sciences (EE) | Institute of Horticulture (LV) | The Programme for Diversity of Cultivated Plants / SLU (SE) | University of Copenhagen (DK) | The Norwegian Institute of Bioeconomy Research, NIBIO (NO)



RobOat – Robustness of Oats for the Nordic Region

RobOat is also a new project with the main aim to develop the resistance of future oats against biotic (especially crown rust and semi-loose smut) and abiotic (drought and waterlogging) stress factors. The partners will study the less explored oat genetic resources from NordGen and other collections by combining diverse phenotyping, genotyping and genomic methodologies.



Partners: Agrologica (DK) | Boreal Plant Breeding Ltd (FI) | Graminor AS (NO) | Lantmännen (SE) | Agricultural University of Iceland (IS) | Natural Resources Institute Finland, Luke (FI) | Lund University (SE) | Norwegian University of Life Sciences, NMBU (NO) | NordGen (the Nordic countries) | Nordic Seed A/S (DK) | Oatly (SE) | Swedish University of Agricultural Sciences, SLU (SE)

3) CResWheat – Pre-breeding for Nordic climate-resilient spring wheat II

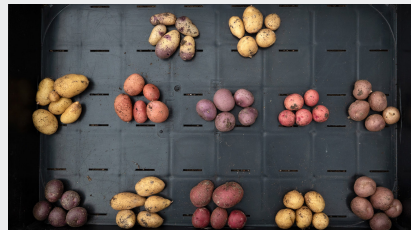
This project, a continuation from the previous project period, has the main objective to support the breeding of climate-resilient spring wheat by identifying genetic resources for disease resistance, drought tolerance and important adaptive traits for the Nordic region, as well as conducting genetic studies and providing breeders with germplasm and markers.



Partners: Swedish University of Agricultural Sciences, SLU (SE) | NordGen (the Nordic countries) | Nordic Seed A/S (DK) | Boreal Plant Breeding Ltd (FI) | Sejet Planteformerding I/S (DK) | Natural Resources Institute Finland, Luke (FI) | Lantmännen (SE) | Norwegian University of Life Sciences, NMBU (NO) | Aarhus University (DK) | Graminor AS (NO) | Centre of Estonian Rural Research and Knowledge, METK (EE)

4) SustainPotato – PPP Collaboration to Advance Nordic Potato Variety Development With Enhanced Resistance to Diseases by Pre-breeding Phase II

In the second phase of the SustainPotato project, the focus remains steadfast on advancing the development and utilization of genetic resources, alongside the deployment of cutting-edge molecular and phenomic tools. The primary objective remains clear: enhance disease resistance in potato breeding across the Nordic region, with a particular emphasis on combatting the formidable late blight disease.



Partners: Graminor AS (NO) | Danespo (DK) | Swedish University of Agricultural Sciences, SLU (SE) | NIBIO (NO) | NordGen (the Nordic countries) | Centre of Estonian Rural Research and Knowledge, METK (EE)

FINANCIAL STATEMENT

The Financial Statement for the year ending 31 December 2024 was prepared in accordance with Swedish National Financial Reporting Standards and audited by the Swedish National Audit Office.

(TSEK)	Budget 2024	Result 2024
Income		
Nordic Council of Ministers ordinary budget	36.076	36.076
National contributions	7.574	7.432
Other income	300	825
Financial income	0	0
Project funds, Nordic Council of Ministers	3.909	6.313
Other external project funding	14.101	15.341
Total income	61.960	65.987
Costs		
Staff costs	29.807	27.658
Goods and services	15.947	18.073
Contribution to external projects	112	110
Financial costs	100	63
Other costs	24.176	13.401
Total costs	70.142	59.195
Result year	-8.182	6.792

BOARD

The list below shows those who were active on the board 31/12/2024.

BOARD MEMBERS		ALTERNATES	
Finland			
Tove Jern		Kati Lassi	
Ministry of Agriculture and Forestry		Ministry of Agriculture and Forestry	
Sweden			
Mette Kjøbek Petersen, Chair		Ulrika Tjälldén	
Ministry for Rural Affairs and Infrastructure		Ministry of Climate and Enterprise	
Denmark			
Kristine Riskær		Kristine Bech Klindt	
Danish Agricultural and Fisheries Agency		Danish Agricultural and Fisheries Agency	
Iceland			
Hrannar Smari Hilmarsson – Vice Chair		Ólöf Ósk Guðmundsdóttir	
Agricultural University of Iceland		Agricultural University of Iceland	
Norway			
Geir Dalholt		Svanhild Isabell Batta Torheim	
Ministry of Agriculture and Food		Ministry of Agriculture and Food	
The Faroe Islands			
Tróndur Gilli Leivsson		Oyvindur av Skarði	
The Agricultural Agency		Ministry of Foreign Affairs, Industry and Trade	
OBSERVERS			
Greenland		The Environmental Sector	
Birgitte Jacobsen		Katileena Lohtander-Buckbee	
Ministry of Fisheries, Hunting and Agriculture		The Finnish Environment Institute (Syke), FI	
NordGen Staff Representative			
Ulrika Carlson-Nilsson			

NordGen Annual Review 2024

NordGen Publication Series: 2025:04

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Other photos: NordGen if not otherwise stated.

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NordGen

The Nordic Genetic Resource Centre (NordGen) is the Nordic countries' gene bank and knowledge center for genetic resources. NordGen is an organisation under the Nordic Council of Minister and works with the mission of conserving and facilitating the sustainable use of genetic resources linked to food, agriculture and forestry.

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