

2025

TOOLBOX FOR POTATO PLANT MATERIAL DEPOSITION IN AND DISTRIBUTION FROM GENE BANKS



Interreg
Baltic Sea Region



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RESILIENT ECONOMIES AND COMMUNITIES

MainPotRe

Photo: Ainārs Gaidis



Document information:

Project: Maintenance and scaling up potato growing and consumption heritage in Northern Baltic region to build up resilient communities (MainPotRe)

Co-financed by: EU INTERREG Baltic Sea Region Programme 2021-2027

Partnership: organizations from 3 countries (Latvia, Estonia, Finland) from the Baltic Sea region

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Contributing organisations: The following organisations provided input and support at different stages of the project and the preparation of this document through data sharing, dissemination support, and expert feedback.

Latvia Permaculture association (Latvijas permakultūras biedrība), Estonia Permaculture association (Eesti Permakuultuuriühing), State Plant protection services (VAAD, Latvija), Straupe Slow food farmers' market (Straupe Slow food tirdziņš), Cesis municipality Priekuļi administration, Lemi municipality, Eura municipality, Häme University of Applied Sciences (HAMK), Plant Breeding and Acclimatization Institute – National Research Institute (IHAR-PIB), Jogeva County Cooperation chamber (Jõgevamaa Koostöökoda) and Republic of Estonia Agriculture and Food Board (Põllumajandus- ja Toiduamet), Latvia Genebank, NordGen (Sweden), IPK (Germany), ECPGR and others

Version: July 2025

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Introduction

Creating toolbox for potato plant material deposition in and distribution from genebanks – rationale

The primary objective of this activity was to establish standardized procedures for depositing and distributing materials into and from genebanks, with a focus on hobby growers and gardeners. Before the project, the main beneficiaries of genebank collections have been researchers from universities and other research and innovation institutions who access the material through bilateral Standard Material Transfer Agreement (SMTA). Although SMTA is a well-established, transparent, and commonly used form of material exchange, it is not well-suited for transferring materials to hobby growers and gardeners. Since distribution from the genebank is already required under the International Treaty on Plant Genetic Resources for Food and Agriculture¹ (Treaty), there was a clear need to develop procedures that put growers' best interests first.

In addition, a common framework for collecting materials from hobby growers was developed to ensure the collection of background information alongside the germplasm and to maintain the vigorous health of future accessions.

Throughout the development process, multiple stakeholders contributed their expertise, including representatives from project partners AREI, METK, and LUKE; national permaculture associations of Estonia and Latvia; as well as genebanks such as NordGen (Sweden), the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK, Germany), and IHAR Bonin division (Poland). Additionally, legal considerations were addressed in collaboration with the relevant authorities in Estonia, Latvia, and Finland.

Cooperation with the European Cooperative Programme for Plant Genetic Resources (ECPGR) funded project Euro-Potatoes made a significant contribution to advancing the development of national procedures. By participating in the meeting for this project, we presented the identified challenges, which sparked a discussion about how countries interpret the Treaty and the SMTA differently. As a result, approaches range from thoroughly liberal and practically uncontrolled distribution of material to assumptions that material from gene banks cannot be distributed to individual persons.

After the meeting, the ECPGR Secretary sent an explanation from FAO experts, which included information that material can not only be issued to individuals, but also be done without signing an SMTA and based solely on a notification. Of course, each country can formulate its own specific requirements to ensure phytosanitary safety.

The outcome is a common, adaptable framework for both the deposition and distribution of plant material, developed through the cooperative efforts of AREI, METK, and LUKE. These workflows are applicable across all project countries and offer a scalable foundation for similar systems throughout the EU and beyond.

By combining accessibility with plant health awareness, this toolbox provides hobby growers with improved access to genebank resources while supporting the maintenance of high-quality plant material.

Toolbox content

1. Material deposition to the genebank.

The section provides procedures for how growers or institutions can deposit plant material into the genebank. It outlines the required information, submission process, and quality standards.

2. Material acquisition from genebank.

The section explains how users, especially hobby growers, can access material from the genebank. It covers how the genebank will publish the list of available accessions each year, how to submit a request, and what restrictions or terms apply (e.g., handling fee, permitted uses).

¹ <https://www.fao.org/plant-treaty/overview/texts-treaty/en/>

Material deposition to the genebank

Introduction

Genebanks are interested in collecting the heritage varieties to ensure their preservation in safe controlled conditions. It helps to preserve old and valuable varieties for next generations of growers, even if the current grower no longer keeps their land or has nobody to pass the heirloom variety on. These old varieties are also important material for research and breeding purposes. In order to receive material from current growers alongside with background information, we have jointly developed the procedures and guidelines that make a deposition appealing and simple for the growers and give as much valuable information to the genebank as possible.

It is important to provide different contact options for growers who wish to make a deposition. Some hobby growers may not be active internet users or may prefer a more personal interaction. And in order to reach them, it is important to stay in contact with the hobby growers' communities through social media, dedicated events and personal contacts.

The first step in facilitating the deposition of interesting old varieties or landraces is the dissemination of information about why and how to do it in ways that the information reaches the growers of potentially interesting varieties.

In the two parts of the toolbox we first give an example on how to collect the material from growers and then some general recommendations about the procedures to be followed by the genebank. The recommendations are a compilation of procedures applied in the partner countries EE, FI, LV.

Guidance for contributors

🕒 *This section with information to the hobby growers may be adapted for use in brochures, websites, or event handouts to explain to hobby growers how and why to deposit heirloom varieties in the genebank.*

Why should I deposit a variety in the genebank? Which varieties are of interest?

There are many reasons for keeping an heirloom variety in the family, sometimes for many generations, it carries the cultural as well as culinary heritage. We don't commonly think about this but, it is a way to keep the biodiversity, as we don't only grow the newest varieties on the market, but also keep alive the older varieties with their unique sets of traits.

Depositing your heirloom potato variety in an *in vitro* genebank is a way to ensure its preservation for future generations. The genebank will store the variety as microplants in sterile, climate-controlled conditions, keeping it safe from disease, pests, and environmental change. This means your variety won't be lost, even if something happens to your garden or the local growing conditions.

By sharing your variety with a genebank, you contribute to the broader goal of conserving potato biodiversity. Each heirloom has traits that may be valuable for future breeding, research, or adapting to climate challenges. At the same time, you're ensuring that your heirloom variety is safely stored. Depositing your variety in the genebank can also offer the possibility for other enthusiasts to grow the same variety in their gardens in the future.

Genebanks are looking for heirloom varieties that have been grown for a set minimum number of years. This may vary from country to country e.g. in Latvia the heirloom varieties need to have a known growing history of at least 30 years while in Estonia and Finland it is 50 years. Genebanks also collect all available background information about deposited varieties (the history of the variety that you know of, the preferable growing conditions, maturity type, culinary use etc.).

Steps in the depositing procedure

If you have an heirloom variety which you would like to deposit in the genebank, there are a few simple ways for expressing your interest:

- Fill out a web form
- Contact the genebank via e-mail
- Contact the genebank via phone

After getting in touch, we will arrange the details of receiving the material.

Once the material is received, the genebank will run tests to check whether the variety is already part of the collection. If it is, the variety won't be admitted again, but the information you provide will still be valuable. Knowing that the variety is grown in different locations allows us to compare details from both sources, for example, differences in culinary use or growing conditions.

The variety can only be admitted as an heirloom variety if you know how many years it has been grown, and it has been grown for at least the minimum number of years (30 years in Latvia, 50 years in Estonia and Finland). No formal documentation is needed.

If the variety is new to the gene bank, we will initiate the process of integrating it into the collection. This includes testing for potato viruses and, if necessary, applying treatments to ensure that the variety is stored completely free from pests and diseases.

There is no cost to you for this process.

Genebank or heirloom variety maintainer perspective

Communication

It is important to disseminate information about the possibility of depositing accessions in the genebank at events and social media, whenever possible, to ensure spreading the word about the possibility for depositing material to the genebank collection.

Example of the flyer

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Safeguard your heirloom potato varieties protected from pests and diseases

Which varieties are of interest?

- ✓ Known growing history for at least 50 years
- ✓ Background knowledge is highly valuable

01 WHY should you deposit?

- Safeguard your variety: it will be kept in controlled and stable conditions.
- Your family's heritage, culinary and cultural story continues.
- Protect biodiversity: older varieties stay in use and are safely stored.
- Your heritage variety may help breeding and research for climate adaptation.

02 Which varieties are of interest?

- Heirloom potatoes grown for at least 30/50 years
- Please share background: history, source, best growing conditions, maturity, yield, culinary uses, and anything else you know.
- NB! without background information, we cannot admit it as an heirloom variety.

03 What happens next?

- Genebank checks if your variety is already in the collection. If it is, we won't duplicate it, but your information is still very valuable.
- If it's new to our collection, we'll follow the necessary plant health requirements and store the variety disease-free in our facilities.
- All costs are covered by the genebank

04 Contact us for depositing

- Express your interest via web form, e-mail or phone call.
- The genebank will arrange how to receive the material.

DEPOSIT YOUR HEIRLOOM POTATO VARIETY IN THE GENE BANK
Heritage varieties carry cultural and culinary history and support agrobiodiversity

Fill out a webform or contact the genebank:

✓ E-mail: _____
Phone number: _____

QR code or link to the webform

Informational material supported by the EU
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Acquiring background information from the depositor

Set of questions for the webform are developed, in case the depositor cannot fill in the webform, these can also be used for a paper form or a phone interview between the depositor and the genebank official. Some of the questions in the list are mandatory (marked with an asterisk), and if there is no information on the mandatory questions, the genebank will not take the variety in the admission process.

1. Name of the variety
2. How long has it been in the family?*
3. Location of growing*
4. How was the variety initially acquired? (Bought from market, bought seed potatoes, brought by family/friends, etc.). Growing history if available.
5. Morphological traits:
 1. tuber skin colour
 2. tuber flesh colour
 3. tuber shape
 4. flower colour
 5. Other characteristics
6. Agronomical traits
 1. maturity type
 2. yield level
 3. disease resistance/susceptibility
 4. Other remarks on growth
7. How do you usually use this variety of potatoes? (table potatoes, mashed potatoes, oven-baked potatoes, potato salad, etc.)
8. What kind of soil do you have? If you know the soil type please name it, otherwise please describe shortly e.g. light sandy soil
9. Other remarks, special traits and characteristics.
10. Contact details (name and contact information of the person, who is growing the variety)

Procedures in the genebank for material intake (genebank view)

This section serves as an internal reference for genebank staff. It describes the steps and criteria for handling incoming material from external contributors.

Steps in the depositing procedure

1. Testing for the uniqueness of the material based on the existing collection (if possible)
 - a. If the variety is in the collection, only store the background information received from the depositor as an alternative growing site for the variety.
 - b. If it is new to the collection, store the background information and move on with establishing the accession in the collection.
2. Testing for PSTVd, potato viruses.
3. If necessary, virus eradication, material with PSTVd not recommended to admit to genebank collection.
4. Establishing tissue culture and integration in the collection.
5. Keeping the background information on the variety linked to the accession. In case of multiple submissions, keeping the background information for all separate submissions is necessary.

Material acquisition from the genebank

Introduction

Genebanks hold a large number of old varieties, many of which are no longer commercially produced, alongside numerous accessions of landraces collected from growers. While the accessions are safely stored in the genebank and primarily used for research and breeding, they also hold great potential for hobby growers interested in cultivating a broader diversity of varieties in their gardens.

As part of the MainPotRe project, our recent efforts have focused on raising awareness on the diversity of potato varieties, highlighting the role of local breeding and seed production as cornerstones of food safety in the face of climate change and the political situation.

Making part of the collection available for hobby growers serves a dual purpose: it highlights the importance of genetic diversity and offers an opportunity for hobby growers to cultivate the varieties and landraces in their own land. Beyond simply sharing knowledge about varietal diversity through presentations and written materials, supporting hands-on cultivation experiences allows for a deeper appreciation and understanding, as well as possibilities for *in situ* conservation of old and heirloom varieties.

However, the practical aspects of distributing material to hobby growers are not straightforward as it is not material for scientific research, nor is it covered by the regulations for seed potato production. This required dedicated discussions with competent authorities in the project countries, to establish custom procedures for genebanks to distribute material to hobby growers.

In addition to aligning with national legislation and testing standards within each country, we have facilitated joint discussions to establish a shared framework. This framework aims to harmonize procedures from both the genebank and user perspectives, streamlining the process and making it as accessible and straightforward as possible for all parties involved.

Guidance for users (hobbygrowers)

🌀 *This section is a ready-to-use information module for communicating with growers about ordering plant material. It can be reused in public-facing materials.*

N.B.! The timeline and procedures below are provided as an example; each genebank may adapt the process to their own situation.

The client should first fill in a webform to request material. An example of the webform draft is available [here](#).

The webform should be easy to access on the organisation website referring to material acquisition. For example, it can be a subpage on the genebank website.

Desired content of the sub-page:

- Background information for the hobby grower on the purpose of ordering potatoes in small packages and the restrictions involved. In addition, disclaimer that not all subscribers may be able to obtain the varieties they want, due to the very limited amount of material available.
- A document, updated annually, of the varieties that can be ordered in a given year. A short description of each variety, with pictures.
- Clear information on the ordering procedure.
 1. Completion of a form which does not guarantee receiving the varieties requested, but allows the hobby grower to register her/his interest. The form will be open for completion for a limited period from mid-February to early March.

Agreeing to following terms and conditions is set as a part of the webform:

The tubers ordered are intended for cultivation, use, propagation and storage for personal use only. It is forbidden to sell or transfer the tubers ordered or the harvest obtained from their cultivation as propagating material. The recipient of the commissioned tubers is prohibited from claiming intellectual property or other rights that prevent the genetic resource from being made available to other interested parties.

2. According to the time of receipt of the forms, invoices will be issued for those varieties that are still available.
 3. Once the invoice is paid, the hobby grower can receive their order.
- Link to the form to order selected varieties.
 - E-mail address (and phone number) in case of questions that are not explained in the provided materials.

Shipping/Delivery

Parcel terminals located indoors are used for deliveries. Other means of delivery by mutual agreement.

Useful background information and details for ordering - tool for communication with growers

🌀 *The content in the following section is intended as a reusable communication tool for genebanks and other relevant institutions. It can be adapted for use on websites, webform landing pages, informational brochures, printed flyers, or social media posts targeted at hobby growers.*

The texts provides clear, user-friendly guidance on ordering plant material from the genebank and can serve as a ready-made basis for public outreach and customer support materials.

Why should I order tubers from the genebank?

Many crops, including potato, are difficult or impossible to preserve as seeds. Potatoes, as we know well, are mostly propagated using tubers. This method has both positive and negative aspects. Tubers facilitate the growth of new plants by providing the young plant with the necessary nutrients and moisture to get off to a strong start. However, this approach has its problems as tubers can also carry viral and bacterial diseases from one season to the next. These diseases can reduce both the yield and quality of the potatoes. To prevent this, it is important to use certified, disease-free seed potatoes that meet strict health and quality standards, as required by national and EU regulations.

While certified seed potatoes of commercial varieties are produced in larger quantities and readily available from seed producers or even garden centres, many older varieties and landraces with specific and desirable traits such as a specific taste, tuber colour or shape that haven't been or no longer are cultivated commercially. These varieties might not be suitable for large-scale farming, but they can still suit well for home gardeners looking for something different.

By growing these old varieties and landraces, hobby growers can help preserve agricultural biodiversity, keep traditional knowledge alive, and explore new and interesting flavours in their kitchen. To support this we are making a selection of the genebank collection available for the public to order.

What and how can I order?

A selection of varieties and landraces that are not commercially available can be ordered from the genebank starting from 2026 - [see an example here](#). At first, this will include older or regionally important varieties, with the possibility of expanding the selection based on interest and feedback in future years.

The orders can be placed via an online form from February to March and the orders will be processed and shipped in April.

To ensure fair access, each person may order one package of 5 tubers per variety, with a limit of 3 varieties at a time.

Orders will be processed on a first-come, first-served basis, so unfortunately, we can't guarantee everyone will receive the varieties they request, as the tuber lots are currently produced in limited quantities.

Once your order is confirmed, you'll receive an invoice for a small processing fee. After payment is received, we'll ship the tubers directly to you via indoor parcel lockers or a courier service (at an additional charge).

Where do the tubers come from? Which restrictions apply?

All accessions made available to the public are tested for plant pathogens in accordance with local requirements.

The process starts with microplants grown in a greenhouse protected by insect-proof netting. The plants are constantly monitored to ensure they remain pest- and disease-free throughout the growing season. After the plants have matured and produced tubers, they are harvested, the tubers are counted, and they are carefully stored in a potato warehouse until they are packaged for distribution in April.

Due to the need for rigorous testing and limited space for controlled growth, quantities are small. That's why we can only offer **five tubers per variety per person**.

Please note that it is strictly prohibited to sell or transfer the tubers ordered or the harvest obtained from their cultivation as propagating material. You are also prohibited from claiming intellectual property or other rights that prevent the genetic resource from being made available to other interested parties. The tubers ordered are intended for cultivation, use, propagation, and storage for personal use only.

We hope to diversify your gardening experience, offer some interesting tastes for your potato dishes, and keep the heritage alive for future generations!

Example of the flyer:

Old varieties and landraces can diversify your garden and add new flavours to your plate

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Small amounts of healthy tubers of old potato varieties are now AVAILABLE FROM THE GENE BANK

What kind of varieties can I request?

✓ Historical bred varieties which are no longer commercially produced

✓ Old heritage varieties collected in the genebank

REQUEST POTATO VARIETIES FROM THE GENE BANK

Grow something special, taste the difference, and help keep potato heritage alive.

Fill out a webform or contact the genebank:

✓ E-mail:
Phone number:

QR code
or link to
the
webform

Informational material supported
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Region Program 2021-2027

01

WHY should I request tubers from the genebank?

- Start healthy: tubers are greenhouse-grown to reduce exposure to pathogens.
- Discover diversity: you can request varieties and landraces that are not sold commercially.
- Preserve heritage: help maintain agricultural biodiversity and traditional knowledge by growing heritage varieties in your garden.

02

What and how can I order?

- Pre-selected varieties are available for the year
- Online form for requests is open,; shipments are delivered in
- One pack of tubers per variety and up to varieties per person are available.
- First-come, first-served due to minimal quantities.

03

Where do the tubers come from?

- Growth cycle starts with healthy microplants being planted in insect-protected greenhouses, monitored continuously for pests and diseases until harvest.
- Harvested in greenhouse, counted, and stored in cool storage until spring.

04

Use and restrictions

- For personal cultivation, use, propagation, and storage only.
- Do not sell or transfer tubers or your harvest as propagating material.



'Kalev'

Parents 'Pepo' x 'Edzell Blue'

Breeder(s) J. Aamisepp

Year of registration 1934

Maturity Medium-late

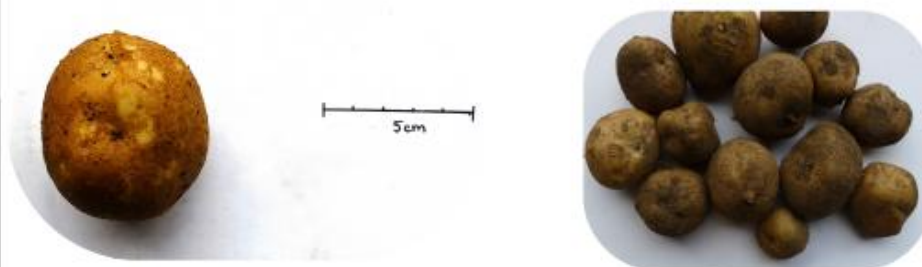
Culinary characteristics Mealy table potato.

Disease susceptibility Susceptible to potato nematodes.

Morphology Plant height medium, growth habit semi-upright to upright. Flowers abundantly, inflorescence is large. Flower colour purple.

Tubers round, deep eyes, tuber skin is yellow, tuber flesh yellowish white

Other comments First official registered Estonian variety.



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Institutional procedures for genebanks or heirloom variety maintainers

Genebanks and/or heirloom variety maintainers create and follow internal procedures that are agreed upon within institutions and, if necessary, verified by competent authorities.

These internal procedures should describe the following aspects: selection criteria for genotypes to be distributed; accession testing procedures (which pathogens are tested, how often, etc.); procedure for documenting distributed material; microplant propagation procedures; procedures for growing minitubers and/or microtubers; sorting and storage procedures for minitubers and/or microtubers; procedure for publishing information about available accessions on the website; procedure for receiving, processing, and fulfilling material orders; and handling fee policy (subject to change as needed). Procedures for implementing exceptions should be described, if allowed by the genebank. For example, issuing material as *in vitro* microplants if the grower has the necessary skills; the possibility to order material of unprotected varieties that are of interest to the grower; and other similar cases.

Other relevant procedures may be added as necessary.

Future developments for the toolbox

Hobby growers can provide valuable insights by completing a short survey on their experience growing the acquired varieties. The survey should include questions on the growing expertise, encountered problems, and culinary use cases. These surveys will provide important input for developing the information materials and for adding to the information collected in the genebank on the required growth conditions, disease resistance/susceptibility, and overall field performance.