MAINTENANCE AND SCALING UP POTATO GROWING AND CONSUMPTION HERITAGE IN NORTHERN BALTIC REGION TO BUILD UP RESILIENT COMMUNITIES

2025

ACTION PLAN TO INCREASE THE AVAILABILITY OF SMALL QUANTITIES OF SEED POTATOES FOR LOCAL AND HERITAGE/ VARIETIES (LATVIA, ESTONIA, FINLAND)

Interreg Baltic Sea Region

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RESILIENT ECONOMIES AND COMMUNITIES
MainPotRe

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Contents

Summary

This document provides an **Action plan – policy recommendations and practical measures to increase the availability of small quantities of healthy seed potatoes of heritage and local varieties in Latvia, Estonia, and Finland**. It is intended for use by national authorities, sectoral agencies, and other organizations responsible (or involved in) for seed legislation, food security, and agricultural policy.

Problem:

- Small growers (end users) require limited quantities of disease-free seed potato.
- Heritage and local varieties are crucial for food security, resilience, biodiversity, and cultural heritage.
- Current legislation and seed certification systems are designed for large-scale commercial production and do not adequately support small-lot distribution of local commercial and heritage varieties.

Implementation of this Action plan will:

- Increase the practical availability of seed potato for heritage and local varieties.
- Strengthen food security and resilience against supply chain disruptions.
- Support cultural heritage and regional identity.
- Provide tools for policy makers, directly usable in legislative and regulatory processes.

Specific recommendations for collecting, maintenance, identification, propagation, and distribution of heritage or conservation varieties were developed, and a pathway of expected activities in each project country, as well as in cooperation between countries, is included.

The document is supplemented with a short glossary, some case studies in project countries, and a description of several activities that have been tested for “Pathway of collecting, maintenance, identification, propagation and distribution of conservation varieties in project countries”.

1. Background and rationale

Importance of local contemporary and heritage potato varieties

Importance of heritage potato varieties

Potato has historically been a key staple food in Latvia, Estonia, and Finland, providing food security in times of crisis. Locally adapted and heritage varieties are especially valuable because:

- They are well-suited to Northern Baltic growing conditions (short season, long day length).
- They contribute to resilient and self-sufficient food systems, reducing dependence on imports.
- They carry cultural and culinary heritage, strengthening regional identity.
- They support biodiversity and adaptation to climate change.

Potato is globally recognized as a strategic crop for food security: it produces nutritious food efficiently, on limited land, with a relatively low carbon and water footprint.

Potato cultivation is essential not only on the large-scale agricultural fields of commercial farms but also in smaller settings such as allotments, home gardens, and hobby plots. Large-scale primarily supplies tubers for markets, mass consumption, and processing, focusing mainly on commercial varieties.

In contrast, small-scale growers (amateur growers, hobby growers, allotmenters, urban gardeners, school gardeners, etc.) produce potatoes mainly for personal or local consumption. They often maintain a greater diversity of varieties, including not only commercial ones but also local, heritage, or conservation, and even older varieties, contributing to dynamic conservation of the local genetic resources. However, access to the healthy planting material of these varieties is quite limited, and growers often face constraints in their choice of local and heritage varieties. Moreover, small-scale growers often lack sufficient knowledge about the importance of seed health and the role of phytosanitary control.

While farmers who grow potatoes on a larger scale use certified seed potatoes at least periodically (e.g., once every few years), access to healthy seed for small-scale growers remains limited in some of the project countries. Certified seed material for commercial varieties is typically sold in large sacks, which are impractical for small-scale growers. Furthermore, the production and sale of certified, healthy seed for heritage and local varieties are either uncommon, or legislation makes this production unprofitable.

However, the level of access to healthy seed tubers varies across project countries. For example, in Finland, certified seeds with smaller quantities from certain varieties are available in the market. Strengthening the availability of healthy seed material for small-scale growers would not only enhance potato production but also contribute to building social cohesion. Knowledge-sharing about potato cultivation, tuber quality, cultural and historical significance, and other aspects could help strengthen community ties through public organizations and local municipalities.

The EU Commission Directive 2008/62/EC outlines regulations for marketing of seed potatoes for conservation varieties within EU countries, including the project countries, though the implementation of these directives differs by nation. Meanwhile, the EU Commission Directive 2002/56/EC governs the marketing of seed potatoes for commercial varieties (including local commercial) and allows for specific derogations from its scope when seeds are prepared for final users. Authorities and legislators have the opportunity to refine these regulations, making it easier to provide small-scale growers with healthy seed material for both commercial and heritage varieties.

Local research organizations and gene banks play a critical role in this effort by disseminating knowledge about the importance of healthy seed usage and preparing disease-free seed material for distribution. Additionally, local municipalities and NGOs can encourage the public to grow potatoes using only healthy seed while maintaining the diversity of potato varieties and supporting broader agrobiodiversity.

Moreover, small-scale potato growing, which is relatively dispersed and well-represented in project countries, plays a key role in ensuring food security during crises, such as pandemics or political situations that disrupt supply chains.

Current challenges in seed potato availability for small-scale growers

Despite their importance, the availability and use of heritage and local varieties face several barriers:

1. Seed availability
    - Small growers and households need only small amounts of seed potato, but current systems favour large-scale certified seed production.
    - The availability of small quantities of healthy planting material for local and heritage varieties is very limited.
2. Legal and regulatory restrictions
    - EU seed marketing directives (2002/56/EC; 2008/62/EC) and national laws are geared towards commercial-scale production. Allowed derogations are not included in national regulations.
    - Heritage varieties registration as conservation varieties face complex and costly registration procedures.
    - National rules restrict marketing to the domestic market only, preventing cross-border cooperation.
3. Knowledge gaps and loss of traditions

- The younger generation is losing knowledge about potato growing.
- Awareness of the nutritional value and culinary uses of potatoes is declining.
- Without targeted promotion, local and heritage varieties risk becoming invisible in food culture.

4. Phytosanitary and safety risks
    - Informal seed exchange without phytosanitary control poses a risk of spreading diseases and endangering certified seed production fields.
5. Uneven country situation
    - Latvia has no heritage varieties registered in the EU conservation list.
    - Estonia has some registered varieties but lacks clear pathways for distribution.
    - Finland has PDO recognition of certain varieties (e.g. Lapin Puikula). No heritage varieties registered in the EU conservation leading to difficulties in providing certified small seed lots for regionally important local and heritage varieties.

Improving legislation, and creating simplified procedures for small-lot seed supply are essential to:

- Increase the availability of local and heritage varieties seed potatoes to small-scale growers (end-users)
- Safeguard plant health while supporting food security.
- Ensure that cultural and culinary traditions linked to potato heritage remain a living part of society.

The marketing of seed potatoes within the European Union is governed by a common legal framework, yet its implementation varies across Member States. **Commission Directive 2008/62/EC** sets out specific provisions for the registration and marketing of **conservation varieties**, aiming to support the preservation of plant genetic resources, including in the countries involved in this project. In parallel, **Commission Directive 2002/56/EC** regulates the marketing of commercial seed potatoes**,** including local commercial varieties. Notably, it provides the option for national derogations when seed potatoes are intended for final users, allowing flexibility in areas such as packaging, labelling, and sealing. However, the extent to which these derogations are applied differs between countries, leading to varying levels of accessibility for small-scale growers and heritage variety maintainers.

Latvia

Local regulations, including Cabinet of Ministers (CM) Regulations No. 1247 (27.10.2009), based on EU Commission Directive 2008/62/EC, govern the recognition and distribution of conservation varieties, including potatoes. However, to date, no potato variety has been registered as a conservation variety in Latvia. This means that unregistered heritage varieties, even when grown on a small scale, fall outside the scope of local legislation.

The health status of the seed material used for these varieties remains untested, increasing the risk of spreading harmful plant diseases (e.g., those caused by viruses or bacteria) and quarantine pests. The marketing of potatoes as seed material is further restricted by the aforementioned regulations and CM Regulations No. 12 (05.01.20216., 05.06.2020), which cover potato seed production and marketing and which derives, among others, from the Council Directive 2002/56/EC (13 June 2002) on the marketing of seed potatoes.

Currently, Latvia lacks a legal or safe pathway to obtain healthy seed material of heritage or conservation varieties. This is primarily due to the absence of registered varieties, even for small-scale cultivation. The registration process for conservation varieties is complex, requires a fee, and involves a detailed reporting process on seed production, which discourages potential seed producers.
The use of untested potato tubers, often obtained through informal exchanges with neighbours or purchased as food, poses a significant threat to commercial potato production by potentially introducing serious diseases.

While small-scale potato growers can purchase certified healthy seed potatoes of commercial varieties, these seeds are typically sold in large packaging (25–1000 kg), which often is impractical for their needs.
According to current legislation on potato seed production and seed potato marketing (CM Regulations No. 12 (05.01.20216., edited 05.06.2020), point 62.2), a seed lot is deemed non-homogeneous if packaging sizes differ. As a result, seed producers cannot pack the same seed lot into both large and small bags and in many cases, larger packaging is preferred. Providing small-size packaging requires producers to develop new seed lots, incurring additional effort and costs. Adjusting these regulations to allow for diverse packaging sizes would significantly improve the availability of healthy seed material for small-scale growers. **The Council Directive 2002/56/EC of 13 June 2002 on the marketing of seed potatoes, which is currently in force, provides for the possibility of national derogations from the requirements of the regulation in cases where seeds are prepared for final users. These derogations may apply to packaging, sealing, and labelling, however, no such derogations are included in the national regulations.**
Several gardeners and farmers continue to grow old potato varieties inherited from their parents and grandparents. These heritage varieties are often well-adapted to local growing conditions and are prized for their excellent culinary quality, which has satisfied growers for decades. The Latvia Permaculture Association, through the Heirloom Crop Project, collects information on heritage varieties, including potatoes. A variety is considered heritage if it has been grown by a family or farmer for more than 30 years. However, when seed propagation occurs solely within home gardens or farms, seed health issues can arise.
Heritage varieties can be submitted to the Gene Bank, which can ensure the production of healthy seed stock material upon creating disease free *in vitro* culture. Currently, about 29 heritage varieties collected from farms are maintained in the Gene Bank (15 accessions are both - *in vitro* and field collection, 12 - only in field collection and 2 - only *in vitro*), though many samples still remain in family gardens. Collecting, investigating, and preserving these heritage potato varieties is essential to ensure their survival.
Growing not only local commercial varieties but also heritage potato varieties using healthy seed material would benefit small-scale growers. The quality requirements for heritage varieties registered as conservation varieties under current regulations are consistent with certified seed standards, except for tuber size requirements. Cultivating diverse potato varieties enhances biodiversity, preserves old heritage varieties, and safeguards cultural heritage, including traditional cooking methods.
Latvia has a rich history of potato cultivation, storage methods, and the role of potatoes in daily life. Organized education and training events could help foster pride in this heritage among local communities and municipalities.
According to the results of the survey[1], conducted within this project, small-scale potato growers often lack knowledge about phytosanitary issues and the importance of healthy seed material. Awareness and recognition of local and heritage potato varieties are also insufficient. Latvia's breeders, genetic resource maintainers, and seed producers possess significant expertise, which could be leveraged to provide education and training programs for current and future growers.
Surveys and collected data show that several old or heritage potato varieties are still cultivated by gardeners. Some new samples have been collected during the project implementation and, following legislative improvements, could be registered and distributed as tested, healthy seed material for small-scale growers.
At present, the distribution of conservation variety seed material is restricted to Latvia's territory (CM Regulations No. 1247 (27.10.2009), point 2). Discussions during the project revealed that the same genotype has been identified in multiple countries under different names (e.g., Early Rose). Addressing these overlaps through collaboration could enhance the recognition and conservation of these varieties.

Estonia

There are national-level regulations that govern the production of seed potatoes – "Seed potato categories and requirements for potato production and marketing", RTL 2006, 40, 701, Nr 58. Legislation "Plant propagation and plant variety protection Act" (RTI 2005, 70, 540, 08.12.2005) set the requirements for registering conservation varieties. The latter are defined as varieties for maintaining genetic diversity. Such varieties have adjusted to the local (Estonian in this case) conditions and are in danger of disappearing, which would cause a

[1]https://www.arei.lv/sites/arei/files/files/projects/Revised%20marketing%20strategy%20for%20local%20varieties_MainPotRe%20deliverable%201.3%20_v14.pdf

significant loss in genetic diversity. To be included in the varieties list the future conservation variety must be distinct from other varieties, uniform and stable. There are two types of conservation varieties, registered heritage varieties and former commercial varieties. Heritage varieties need to go through experiments to be registered as conservation varieties. However, former commercial varieties do not need further tests to assess the yield potential, uniformity and stability in case the necessary documentation is still available. The only criterion before registering is that the variety should be off the registered variety list for at least two years before the registration as a conservation variety.
The process in principle is not overly complicated and four conservation varieties have been registered: 'Väike Verev', 'Endla', 'Jõgeva Kollane', and 'Ando'. As mentioned earlier, the first two are heritage varieties, and the latter two are historically bred commercial varieties. All of them are highly praised for their culinary characteristics. The conservation variety status allows for slightly more lenient seed quality criteria compared to modern commercial varieties. As these varieties are all well known and loved for their taste, the demand is relatively high and there is a need for healthy seed potatoes for these varieties, both from hobby (small-scale) growers and smaller commercial producers as well. From the survey[1] conducted among small-scale growers, it was evident that the needs are not uniform among this group. There was no clear favourite size for the seed potato packages, highlighting the need for different package sizes for other needs.
Currently, the initial seed potatoes for all Estonian varieties, commercial and conservation alike, are produced by the Seed Centre in the Estonian Centre of Rural Research and Knowledge (METK). Some private seed growers cultivate the lower seed categories, but the number of seed producers is not high. Most of the seed growers prefer popular commercial varieties, which are easier to manage with machinery and thus more profitable.

Finland

The Finnish Seed Potato Centre Ltd (SPK) is established to ensure the production of healthy seed potatoes and to improve the national food security level in Finland. SPK significantly contributes to Finland's food security by ensuring a stable supply of high-quality seed potatoes and preserving essential genetic diversity for future agricultural needs. Following Finland's accession to the EU in 1995, the protective zone of seed production was transformed into a High Grade Region, a high-quality seed potato production region. Specific requirements apply to the High Grade Region with regard to potato marketing and cultivation. The Commission Decision 2004/3/EC authorising, in respect of the marketing of seed potatoes in all or part of the territory of certain Member States, more stringent measures against certain diseases than are provided for in Annexes I and II to Council Directive 2002/56/EC, has been amended by Commission Implementing Decision 2014/105/EU as regards the applicable Union grades. Based on this, Finland issued the Act on a high-quality seed potato production region (744/2016) and, based on the Act, the Ministry of Agriculture and Forestry Decree on the marketing of seed potatoes and potato production in the high-quality seed potato production region (13/16).
The purpose of the legislation on the High Grade Region is to safeguard the operating conditions of the high-quality seed potato production region and the production of seed potatoes for the needs of the whole country, and to promote potato production. Operators must comply with best practices in potato cultivation, ensuring hygiene in cultivation and production, the cleaning of means of transport, and the safe handling and disposal of potato waste at the production site. Today, the High Grade Region comprises the municipalities of Tyrnävä and Liminka in Finland. There are also two seed potato companies other than SPKin Tyrnävä: HZPC Kantaperuna Ltd., and Finpom Ltd. HZPC Kantaperuna Ltd. is the Finnish branch of HZPC, which is a global leader in seed potato trading, breeding, and concept development. HZPC Kantaperuna Ltd. produces seed potatoes from about twenty varieties representing mainly those listed by HZPC, but also a locally bred variety 'Hankkijan Timo', which is special for early potato production. Finpom Ltd.was established in 2007, and it is a subsidiary of German Europlant Pflanzenzucht GmbH. It produces seeds from Europlant potato varieties including first open field generations to certified seed including over twenty different potato varieties for different purposes. In addition to Finnish markets and its own production chain, the company produces pre-basic seed classes for multiplication for Europlant Group and certified seed for export.
In 2023, cv. 'Annabelle' was the most commercially cultivated ware potato variety in Finland by a total area of 1,215 ha. In accordance with that there is also the highest volume of certified seed production in cv. 'Annabelle' in Finland, and its healthy seed tubers are sold in small quantity packages for improving the access of small-scale farmers. However, the availability of certified seeds in small packages is limited to only a narrow number of cultivars in Finland. There is a national strategy for seed potato production in Finland:

https://www.spk.fi/files/dokumentit/siemenperuna-alan_strategia_2019-2023.pdf and a new strategy is in preparation.

***Heritage potato collections in Finland*:**

The joined collection of genetic resources (including potato landraces and old varieties) of each Nordic country, including Finland is located in Alnarp, Sweden at the facilities of NordGen (The Nordic Genetic Resources Centre) https://www.nordgen.org/en/. The 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. NordGen is responsible for the long-term conservation of the Nordic potato collection, which includes 95 different varieties of potatoes including the Faroe Islands. Of those 95 potatoes, 17 genotypes have their origin in Finland (Sipilä and Rokka, 2022). The back-up collection of all Nordic potatoes was relocated into the EU High Grade Region to SPK in 2021. https://www.nordgen.org/en/backup-of-the-nordic-potato-collection-moves-to-finland/.

The heritage potatoes maintained by NordGen have only a very limited access. For hobby growers and home gardeners, NordGen offers a limited selection of potato varieties through their web shop, which is open from March 1st to May 31st each year. This provides an opportunity to cultivate heritage and underutilized Nordic potato varieties, contributing to biodiversity and the preservation of the living cultivation history. Potatoes delivered from NordGen are virus-free and produced in accordance with EU health regulations. Before the order can be made, the user needs to sign and submit an agreement (SMTA), how the material may be used. SPK, however, produces certified seeds from certain free (old and underutilized) varieties, which are also in the NordGen's potato collection. Those are 'Blue Congo', 'Puikula', and 'Rosamunda'. Also certified tuber seeds from cv. 'Pito' were in the multiplication process, but not yet for sale in 2023-2024. In addition, hobby growers and gardeners maintain and share between tuber materials of unknown origin, with no registered/known name, having no access to the certified seed production chain.

The requirements for potato seed quality, production and marketing have been declared in regulation "Seed law" (600/2019, https://www.finlex.fi/fi/lainsaadanto/saadoskokoelma/2019/600). In Finland, certified seed potatoes from commercial cultivars are easy to find. They are sold in most garden stores, hardware stores, and garden centers throughout the country. The potatoes usually arrive in stores during March and April. Seed potatoes are sold in plastic mesh bags. There are needs of potatoes for small and larger fields, so seed potatoes are also packaged in bags of several sizes. The packages are generally 1 kg, 2.5 kg, 5 kg, and 10 kg. The Finnish Seed Potato Centre Ltd. (SPK) represents the Finnish varieties of Boreal Plant Breeding Ltd, and of Dutch breeding companies Meijer Potato, Semagri, and ZAP in Finland. The sales of those varieties are mainly restricted to Finnish customers. However, SPK also produces seeds from certain free (old, not protected by Plant Variety Right) varieties, and those seeds can be delivered to other countries. Those varieties include 'Blue Congo', 'Nicola', 'Puikula' ('Mandel'), 'Rosamunda' and 'Siikli' ('Sieglinde').

2. Action plan – desired activities for improvement and implementation framework

Recommendations for changes in national and EU level legislation.

Legislative adjustments (**Suggestions for changes in national legislation):**
Several recommendations are identified for improvement of legislation for marketing and distribution of seed potatoes of heritage/conservation, and local varieties for end users (small-scale growers) in all project states and even in EU regulations which are base for local state legislations:

The requirements for seed potato quality of conservation varieties differs between legislations of project countries, allowing standard or certified seed quality level, which is not the same so demands for seed material quality appears stronger or simplifier. Concerning seed health status, this has to be similar in all countries and has to contain requirements of certified seed potatoes, which are sufficiency strict to avoid distribution of quarantine diseases and the significant viral diseases.

Create a simplified, legislation-based seed certification system for small-scale producers of local and heritage potato varieties, requiring quality standards for certified seed potatoes (not standard seed) to supply end users.

Requirements for certified seed packing and labelling vary between countries, particularly for small-scale end-users and growers. Finland allows different pack sizes of the same seed lot on the market; Estonia permits opening of labelled containers under authority supervision; Latvia requires seed lots to be packed in uniform sizes, with only labelled packs allowed for sale. Aligning these requirements across states is necessary for effective distribution (incl. cross-border) of seed potatoes to end users.

Consider supplementing the regulation to allow operators to certify seed material in containers or similar bulk packaging and then to sell the material to the end-users (non-commercial growers) by weight according to the buyer's needs, while ensuring that the buyer receives a statement confirming the quality and origin of the seed material.

For the registration of conservation varieties in national variety lists, the necessary information differs according to the legislation of the project countries. Legislation in Finland requires only a variety description. In Estonia, only varieties excluded from the national variety list are exempt from repeating the previously conducted DUS test. The VCU test is not mandatory, even if potential heritage varieties must be tested for DUS or undergo registration trials. Latvian legislation requires DUS or DUS-like test for registration of conservation varieties. The expert's opinion is that for heritage varieties, expected to be registered in the variety list as conservation varieties, a description of variety characteristics and/or informal evaluation should be sufficient, avoiding expensive DUS tests. For old commercial varieties that have been excluded from the national variety list, the previously executed DUS test would be acceptable.

Exclude full DUS tests when sufficient documentation or informal evaluation is available.

According to EU **Commission Directive 2008/62/EC** legislation in all project countries for production and distribution of conservation varieties sets only region of origin for seed potato production and

marketing, which means relevant country or region. To improve distribution and availability of small amount of certified seed potatoes of conservation varieties, this restriction should be repealed.
EU-level recommendation:

Cancel restrictions on seed potato marketing of conservation varieties only in the region of origin.

According to EU **Commission Directive 2008/62/EC** the legislation in project countries defines the quantity of conservation varieties seed during the year, and interpretation of this requirement differs between countries. With aim to improve distribution and availability of certified seed potatoes of conservation varieties, promoting cross-border cooperation, those restrictions are disruptive.
EU-level recommendation:

Cancel the restriction on the conservation varieties seed production quantity during the year.

The synonyms of variety name in national variety lists are allowed according existing legislation of project countries. But in case, if during transnational cooperation the genetic identification would be performed and the same genotype has been identified in several countries with different in each country names, the synonyms used in other countries could be included in all national lists where identified conservation variety was listed.

The same potato genotypes as conservation varieties could be registered in several countries with different (local) names. It will be essential to provide synonyms of variety names that have been used in other countries (in case genetic identification is performed).

Latvia

Several improvements in national legislation will promote the availability of small seed amounts of local commercial, and conservation potato varieties in Latvia.

The registration process described in CM Regulations No. 1247 (27.10.2009) for conservation varieties is quite complex, requires a fee (state tax), and involves a detailed reporting process on seed production, which discourages potential seed producers. The application process requires DUS test or equivalent technical description based on UPOV or CPVO, or descriptors for Genetic Resources maintenance, evaluation of the plant genetic resources significance from Latvia Genetic Resources center. The heritage or potential conservation variety should not has breeder rights, it is not new cultivar, even not included in the national plant variety list, and not produced certified seed production for two years. Currently no potato varieties registered as conservation variety in Latvia. Decision body is the Plant Protection Service (Latvian Food authority).

- Simplify application for registration and reporting of seed production of conservation variety, taking the Finnish experience as a model (Finland https://www.ruokavirasto.fi/kasvit/Lajikkeet-ja-alkuperaiskasvit/alkuperaiskasvit).
- Cancel fee for registration of conservation variety.

According to EU Commission Directive 2008/62/EC, the region of origin defined by local legislation has been identified only within the territory of Latvia. If the variety is popular in Latvia and also in other countries, and even if it is registered as a conservation variety somewhere else, this should not cause problems for cooperating across borders in producing and selling its seeds — it doesn't have to stay restricted only to the original region where it came from

Cancel the restriction on seed production and marketing of conservation varieties only in the territory of Latvia.

According to regulations seed producer every year have to report plans for area and quantity of conservation varieties seed material up to 25th March, if changes appear producer needs to correct report, report of previous year seed material, report of amount of sold seed. Eu directive-based regulations restrict amount permitted for seed production - for each conservation variety no more than 430 000 kg potato seeds, according CM Regulations No. 1247 (27.10.2009).

Cancel restriction on seed quantity of conservation varieties allowed to market during the year.

Situation is unclear, as it is allowed to include synonyms of variety name in national variety list, but the identity, that old variety in one country is the same as in other is not proved. For this purpose-detection with molecular methods is essential. After detection of varieties identity, it would be desirable to include in national variety list synonyms of conservation varieties used in other countries.

Provide synonyms of variety names in other countries, in case, when the same genotype is collected/preserved in the genetic resources of several countries.

According to current legislation on potato seed production and seed potato marketing (CM Regulations No. 12 (05.01.20216., edited 05.06.2020), point 62.2), a seed lot is deemed non-homogeneous if packaging sizes differ. As a result, seed producers cannot pack the same seed lot into both large and small bags and in many cases, larger packaging is preferred. Providing small-size packaging requires producers to develop new seed lots, incurring additional effort and costs. Adjusting these regulations to allow for diverse packaging sizes would significantly improve the availability of healthy seed material for small-scale growers. **The Council Directive 2002/56/EC of 13 June 2002 on the marketing of seed potatoes, which is currently in force, provides for the possibility of national derogations from the requirements of the regulation in cases where seeds are prepared for final users. These derogations may apply to packaging, sealing, and labelling, however, no such derogations are included in the national regulations.**

Allow packaging the same seed lot in different-sized bags according to seed demand.

Estonia

Some improvements of existing legislation would be necessary to improve availability of small seed amounts of local, commercial, and conservation potato varieties in Estonia.
The regulation "Plant protection and plant variety protection act" (RTI 2005, 70, 540) allows opportunity of existing two types of conservation varieties, registered heritage varieties and former commercial varieties. Heritage varieties need to go through registration tests to be registered as conservation varieties. To be included in the varieties list the future conservation variety must be distinct from other varieties, uniform and stable. Even registration tests shall not be conducted for a

variety intended for the conservation of genetic resources if the conformity of the variety can be established on the basis of the submitted variety description and other data. However, former commercial varieties do not need further tests to assess the distinctness, uniformity and stability in case the necessary documentation is still available. The only criterion before registering is that the variety should be off the registered variety list for at least two years before the registration as a conservation variety. The difference established by law will facilitate availability of seed for wider range of varieties promoting diversity.

The legislation should clearly define not only the conservation varieties but additionally also heritage varieties.

The legislation defines production and seed distribution only in the region of origin, which means in Estonia. However, the project's collected information reveals that some heritage varieties have been grown in several countries, albeit under different names. There would be an opportunity to distribute seed material of a wider variety than that of the region of origin. The restrictions on the production and distribution of amounts for conservation varieties seed material would prevent the distribution of seed in wider regions and larger amounts, including the potential export of seed material.

Cancel the restriction on seed production and marketing of conservation varieties only in the territory of Estonia.

In existing regulation “Seed potato categories and requirements for potato production and marketing”, RTL 2006, 40, 701, Nr 58. requires line of measures necessary for seed production of conservation varieties, like minimum distance between seed potato field and a neighbouring potato production field, sampling and testing of seed potatoes and labelling of seed lot for marketing. Some of those requirements should be made easier, less complicated, for this detailed reviewing is necessary.

Conservation variety registration and seed certification requirements should be reviewed to foster the registration of more conservation varieties while maintaining the necessary minimal documentation and plant health requirements.

Finland

Increasing the availability of small seed amounts for local and heritage potato varieties in Finland requires policy recommendations that address regulatory, economic, and practical barriers. Here are some key recommendations:
The availability of small amount certified potato seed of commercial varieties currently exists, but availability of legal healthy seed material for heritage or conservation material is limited. Some opportunity to obtain healthy seed material is offer from NorGen, but it is very limited amount. Seed Company SPK has produced seed material of several old varieties, but varieties have not been registered as conservation varieties, so the specific requirements and derogations have not been

- Create a simplified, but legislation-based seed certification system for small-scale seed producers of local and heritage potato varieties.
- Cancel the restriction on seed production and marketing of conservation varieties only in Finland.

applied for this seed material, making seed production laborious and more expensive. SPK also produces seeds from certain free (old, not protected by Plant Variety Right) varieties, and those seeds can be delivered to other countries. The simplified registration process and allowance to distribute seed material in wider region (not only region of origin) will make easier propagation and distribution of old, heritage varieties, which have been grown in several regions as local, heritage varieties.

Currently hobby growers and gardeners still maintain and share in between tuber materials of unknown origin and with no registered/known name having no access to certified seed production chain. The risk of spreading quarantine and dangerous diseases and pests remains high. The creating of legal framework including requirements for health status of seed potatoes will improve the situation.

Develop a legal framework for exchange: Allow small-scale farmers and gardeners to legally exchange and sell limited amounts of uncertified seed while still maintaining disease control measures.

In Finland no one conservation variety has been registered in national variety list, even if the special category would be created in national variety list, the registration, production and seed distribution would be promoted.

Registration flexibility: Implement a special category (conservation variety) for heritage potatoes in national variety lists with lower requirements.

Table 1

Implementation of activities for the improvement of regulations on the availability of healthy seed for heritage and local varieties.

Nr.	Activity	Country	Performers, responsible	Expected period of performance	Expected impact
1	Develop and submit to the local authority recommendations for the improvement of national legislation	Latvia Estonia Finland	AREI METK LUKE Finnish Food Authority	2025	Reduced bureaucracy, easier registration, reporting, and distribution of seed material for local and conservation varieties

Summary of the policy recommendations.

As legislative requirements differ between countries at the moment, the proposed recommendations were different as well. Regardless of that, there were uniform recommendations measured for each country, mostly for simplified registration, reporting, listing synonyms of variety names in neighbouring countries, and applying certified seed quality requirements.

Supporting measures of Action plan

Educational measures

- Integration of potato heritage into school curricula and vocational training (gardening, nutrition, culinary heritage).
- Field days and demonstration plots to show the benefits of using healthy seed material.
- Knowledge transfer from research institutes and genebanks to growers, municipalities, NGOs.
- Training materials for small-scale growers on how to access, multiply, and maintain heritage varieties safely.

Promotional activities

- Awareness campaigns on the nutritional and cultural value of potatoes.
- Support for municipalities (e.g. Cēsis as "potato capital") to use heritage varieties in community gardening, local branding, and tourism.
- Promotion of heritage-based products (PDO or specialty labelling) to strengthen demand.
- Encouragement of short supply chains (direct marketing, farmers' markets, and seed fairs).

Education and knowledge transfer

The main ideas for this section are derived from the revised marketing strategies for local varieties (Guidelines for marketing of small quantities of potato seed material for local and heritage varieties)[1]. The education on the availability of local and heritage/conservation potato varieties and a legal way for production and distribution of seed material is essential for the implementation of improvements for legislation, development of cross-border cooperation, and even in explaining the legal way for providing and preparing healthy seed material for end users in all project countries. Additionally, knowledge transfer will train seed producers and small-scale potato growers, promoting production and distribution of local and heritage/conservation varieties.

While country addresses education and knowledge transfer based on its institutional context and societal needs, several shared themes emerge. These include raising public awareness, educating growers on seed health, promoting the culinary and cultural significance of heritage varieties, and engaging with diverse target groups such as schools, municipalities, NGOs, and chefs. The inclusion of local (both commercial and heritage potatoes) in public procurement, partnerships for seed potato multiplication, and the use of multi-channel communication strategies are among the most promising transnational practices. These ideas can be adapted and applied flexibly across borders to support biodiversity, food security, and cultural identity.

Latvia

As the qualified expert in potato varieties, seed potato production, phytosanitary issues, and knowledge transfer, AREI will take the lead in organizing and delivering knowledge transfer initiatives. Specific experts, including representatives from State Plant Protection Services (VAAD), local municipalities, cooks, plant pathologists, and economists, will provide support.

Key activities:

1. **Organization and participation in seminars and field days:**
   Target audiences: potato growers, technical school students, and other interested individuals.
   Main topics:
   - Introduction to local potato varieties, their characteristics, and growing requirements, as well as quality traits.
   - Seed health and quality, emphasizing the importance of certified seed material.
   - National food security and seed sovereignty.
   - Promotion of local heritage and regional identity.
2. **Engagement with local municipalities, NGOs, schools, and public events:**
   AREI will participate in public events to provide information, encourage activities, and involve relevant authorities.
   Main topics:
   - Emphasizing local heritage, regional identity, biodiversity, and healthy lifestyles.
   - Information about local, conservation, and heritage potato varieties, including their adaptability to local growing conditions and opportunities for individuals to grow these varieties themselves.
   - Availability of healthy seed material and the importance of addressing phytosanitary issues.
   - Encouraging the participation of school children, enterprise employees, social groups, and friends or colleagues in growing potato varieties using innovative methods such as garden beds, boxes, and sacks.
   - Highlighting culinary heritage with potatoes, including cooking methods and recipes.
3. **Information dissemination to a broader audience**:
   AREI will aim to reach a wide range of society through multiple channels.
   Key actions:
   - Producing booklets, posters, and leaflets with information on local and heritage varieties, their characteristics, growing requirements, seed potato availability, and culinary uses.
   - Promoting relevant topics in the press, media, and social networks, including event advertisements, campaign announcements, and success stories.
   - Collaborating with influencers to expand outreach and engagement.

Estonia

There is a need for more active awareness-raising on the importance of several topics related to both seed potato (as guarantee of healthy seed potatoes) and potato consumption in general. This could be carried **out in cooperation with METK, the Ministry of Rural Affairs and Agriculture and the Food and Agriculture Board in a joint effort** as it needs extra resources and, in some cases, the active involvement of public authorities.

The key topics to address would be:

1. **Importance of healthy seed material for the small-scale** growers - this could be done via several channels, such as a booklet on awareness of healthy seed potato and its importance, which could be distributed at events, presentations at potato growers' info-days, advisory service training days or fairs.
2. **Eating and cultivating local potato varieties** - this applies both to old, heritage as well as commercial, modern varieties, emphasising the importance of eating locally produced food but noticing the varieties that are specifically bred for local conditions and taste preferences. Part of this activity could also focus on consumer awareness about different varieties and their culinary uses. Help from acknowledged cooks or foodies would be beneficial. Last but not least, the importance of local breeding programs, seed potatoes production and potato cultivation strongly contribute to food security at turbulent times - this is something to be presented at different events to a wider public. Presentations at different school levels, vocational colleges, or community events would be especially beneficial.

   In addition to the awareness raising, there are problems with potato public image. If an average consumer goes to supermarkets, it is very common to see potatoes that are improperly displayed to light and are thus green and inedible or, particularly in the lower price range, do not look appetizing due to numerous other quality issues. This creates an image for potatoes as a potentially unhealthy and more time-consuming side dish than pasta or rice. This would need a joint effort with public authorities and the bigger shops to improve the storage conditions of potatoes and increase the quality offered in shops, which in turn could help to make the potato a more appealing choice for the consumer.
3. **Raising awareness about heritage varieties** - the general public would need to hear more about heritage varieties, their importance, and the culinary and cultural heritage that comes with them. Best channels for this could be social media posts, articles in media, presentations at different events and TV programs, to reach a wider audience.

Finland

Education and training: Provide training programs for farmers on sustainable seed potato multiplication techniques for heritage potatoes.

Consumer awareness campaigns: Promote the culinary and cultural value of heritage potato varieties through marketing campaigns and food festivals.

Public Procurement: Encourage public institutions (for example, schools, research centres) to source potatoes from heritage varieties, increasing demand and promoting seed potato production.

Public-private partnerships (PPPs): Partner with NGOs, universities, and agricultural extension services to promote knowledge-sharing and facilitate seed potato availability.

Table 2

Implementation of activities for providing education and knowledge transfer

No	Activity	Country	Performers, responsible	Expected period of performance	Expected impact
1	Organising events	Latvia	AREI and invited experts	2 times per year	Educated and informed potential potato growers and consumers, easier choice of varieties
		Estonia	METK Jõgeva cooperation chamber	at least 1 time per year	Event mainly dedicated to professional potato growers, part of the Seed Festival each year is dedicated to potato
		Finland	LUKE, Pyhäjärvi Institute, Elonkierto, Tyrnävä municipality	once a year	Educated and informed small scale growers on importance of certified seed potato, diversity of potatoes, potato heritage
2	Participation in events, marketing campaigns, food festivals	Latvia	NGO, local society, AREI	Once a year	Elevated awareness in the importance on local potato varieties and their impact on safety and sovereignty
	Participation at 'Maamess' - a big agricultural fair and other similar events, cooperation with national rural network to participate at events	Estonia	METK Jõgeva cooperation chamber	Once a year	
	Participation in agricultural and garden fairs and related smaller events	Finland	LUKE, Pyhäjärvi Institute, NGOs, Tyrnävä municipality	once a year	
3	Distribution of information - social media posts, articles in media, presentations on different events and TV programs	Latvia	AREI	Upon necessity throughout the year	Accessible information for a broad audience
		Estonia	METK		
		Finland	LUKE		

4	Training courses	Finland	PPP – NGO, LUKE, Universities of Applied Sciences		Trained farmers on heritage potato seed multiplication techniques; cryopreservation methods for specialists
		Latvia	AREI, Latvia universities		Educated farmers and potential farmers (students) on multiplication techniques, heritage varieties, diversity, strengthening cooperation between AREI and Universities (LBTU, LU, etc.)
		Estonia	METK in cooperation with Estonian universities		Educated farmers and students, strengthening cooperation between METK and Estonian universities (University of Tartu and University of Life Sciences)

Promotion activities

The promotion activities have been developed based on "Guidelines for marketing of small quantities of potato seed material for local and heritage varieties,"[1] developed in Activity 1.3. The implementation is divided according to each country's situation regarding trade and the partner's area of competence. AREI (Latvia) and METK (Estonia), besides the research, gene bank duties, and breeding, also carry out potato seed potato production, while LUKE is not involved in seed potato production and distribution. However, the capacity of institutes in the performance of specific tasks is essential.

Seed potato production of local and conservation varieties

Distribute information on the availability of local and conservation variety seed potato:

- Seed potato producers' websites
- Social media platforms
- Communities and NGO channels
- Traditional media and other platforms

Collect interest and demand for local and conservation varieties:

Offer and accept applications via the AREI, METK and LUKE homepage and phone (possibly social media).

Introduce flexible packaging for small-scale growers based on survey results (e.g., 5 kg, 10 kg, 15 kg).

Enhance seed potato labelling:

Include an informative label alongside the seed potato certificate with details on agronomic traits, cooking qualities, and nutritional value.

Broaden and improve sales channels:

- Direct sales at the packing point
- Direct sales at local markets and fairs
- Community-based distribution
- Online stores

Table 3

Implementation of promotion activities

	Activity	Country	Performers/ responsible	Expected period of performance	Expected impact
1	Information on variety availability and demand collection	Latvia	AREI-seed production unit	Every spring	Provided information and collected demand for local and conservation varieties
		Estonia	METK seed production unit	During events, focused activities in the beginning of the year	Information about available varieties at METK; promotion via events and social media from winter to early spring
		Finland	Luke, Finnish Food Authority, seed producers		Promoting the conservation varieties registration process
2	Improve packaging and labelling	Latvia	AREI seed production unit	Spring 2026	Convenient package sizes for buyers; improved variety information; more informed potato growers
		Estonia	METK seed production unit	already ongoing	Different-sized packages available for different customers, special packages at events (e.g. smaller packages offered at Seed Festival for hobby growers)

3	Expand sales channels	Latvia	AREI seed production unit	Spring 2026	Broader and more diverse seed potato distribution according to buyers' needs
		Estonia	METK seed production unit	2026, Development of online shop in progress, the deadline for completion is not known yet	

3. Recommendations for collecting, maintaining, identifying, propagating, and distributing conservation varieties

Small-scale growers continue to preserve old, inherited potato varieties classified as heritage or conservation types in Latvia, Estonia, and Finland. To facilitate effective conservation and utilization, it is crucial to systematically collect data, document characteristics, and conduct genetic identification, particularly for widely maintained genotypes. This process enables the recognition of genetically identical varieties listed under different names (synonyms) across countries. Incorporating such synonyms into national conservation variety registers will enhance transparency and interoperability. Until now, the synonym names of some varieties, if known and usually used, are given in the EU Common Catalogue database. This, in turn, lays the basis for a cross-border trade in certified, healthy seed potatoes derived from conservation varieties. The collaboration established during the project between national genebanks and seed potato producers forms the basis for a joint framework to support the maintenance of both officially registered and yet-to-be-registered heritage varieties.

Several support measures will be essential to implement cooperation between institutions of different countries for the maintenance and distribution of heritage varieties.

- Seed potatoes Bank and research organisation funding: Support national, regional seed potato banks (AREI, METK, NordGen) to preserve and distribute higher seed potato amounts of local varieties. Support a national organization responsible for maintaining heritage potato duplicates for seed material distribution. Support research organization (AREI, METK, Luke) for collecting of materials, pretreatments, cloning and delivery when appropriate. Support for eradication of diseases from unique materials (Luke - Finland in case the invented potato is considered with a value of long-term preservation at the genebank or for needs of research purposes or plant breeding), technology development in molecular analyses for identification of potato materials transnationally.
- Grants and subsidies: Provide financial incentives for farmers and small-scale breeders to cultivate and distribute seed potatoes of heritage potato varieties (with simplified certification requirements).
- **Develop On-Farm conservation programs:** Fund research projects and pilot farms to cultivate and test the viability of heritage potato varieties in different regions.

The detailed outline (Table 4.) on how to collect, maintain, identify, and propagate registered heritage or conservation varieties is developed. The parts of pathway were practically tested, creating a path of collaboration between project countries (Ap.5).

Table 4

Pathway for the collection, maintenance, identification, propagation, and distribution of conservation varieties in project countries

Nr.	Activity	Implementing organizations	Description of the activity	Comments
1.	Collection of information on varieties	**Latvia** Permaculture Association, Seed savers in the frame of the project Heirloom crop (NGO)	A place where variety has been grown Information about the person maintaining the variety Information on variety ○ Name and synonyms ○ Key traits and strengths ○ Growing history ○ Most common uses	Only varieties that meet the following criteria: Have been grown in a garden or field for more than 30 years They are propagated vegetatively through tubers Have a story of the growing history of at least 30 years, originating from family, friends, or neighbours
		Latvia AREI, potato Gene bank	The information provided with the variety sample should include: Location: where the variety sample was grown Contact details and information about the person maintaining the variety Variety details: ○ History of acquisition and growing history (if available) ○ Morphological traits (if available): tuber skin colour, flesh colour, tuber shape, flower colour etc. ○ Agronomical traits (if possible): maturity,	Old, local, heritage, amateur, and newly bred varieties

			yield levels, disease resistance etc. ○ Notable features: special traits and characteristics.	
		Estonia METK	A place where variety has been grown Information about the person maintaining the variety Information on variety ○ Name and synonyms ○ Key traits and strengths ○ Growing history ○ Most common uses	Only varieties: grown for more than 50 years in the garden, field. Are propagated vegetatively through tubers At least 50 years old historical story from family, friends, neighbours
		Finland Luke, National Plant Genetic Resources Programme, hobby growers' communities	A place where variety has been grown Information about the person maintaining the variety Information on variety ○ Name and synonyms ○ Key traits and strengths ○ Growing history ○ Most common uses	Only varieties: Grown for more than 50 years in the gardens or fields (and not listed in the EU Common Catalogue) They are propagated vegetatively through tubers At least with 50 years old historical information about growing history originating from family, friends, neighbours
2.	Collection of potato tuber samples	**Latvia** AREI, potato Gene bank	Collect material from the donor (e.g., grower, farm, or other source) Prepare samples for maintenance in both field and *in vitro* collections Clean plant material from viral and other diseases when necessary	Collect material along with related information
		Estonia	Collect material from the donor (grower, farm etc.)	Collect material along with related information

		METK Gene bank	Clean material from potato viruses, test for other diseases	
		Finland LUKE, hobby growers communities	Collecting by hobby growers in own collection fields	Hobby growers' responsibility on information about varieties.
3.	Maintenance	**Latvia** AREI, potato GB	field collection description according Latvia Potato descriptors *in vitro* collection	
		Estonia METK	*in vitro* collection	
		Finland LUKE, NordGen, SPK, Hobby grower communities	*in vitro collections* Hobby grower communities maintaining their own collections on fields	
4.	Comparison and identification	**All countries** AREI, METK, LUKE (Research)	exchange of samples identification using molecular methods (if available)	Identification of identical and distinct varieties
5.	Propagation and distribution	**Latvia**, AREI, **Estonia**, METK, **Finland**, LUKE, small scale growers in all countries	Apply for the registration of conservation varieties Act as the official maintainer of conservation varieties Prepare and supply healthy seed potato material, primarily based on pre-orders	As per demand
		State authorities (VAAD, Finnish Food Authority, Estonia AFB etc.)	Registration process Phytosanitary control	As per demand
		Local municipalities, NGOS	Promotion and awareness-raising for potato and local growing potato varieties	
		Small scale farmers (local society)	Propagation of seed tubers for themselves and others Distribution of seed and food tubers	

Appendices

Appendix 1

Glossary

Small-scale growers	Gardeners, hobby growers, small farmers, growers for self-consumption, allotment and local heritage growers, school gardens, urban gardeners etc.
Local variety[*2]	Bred in a specific country or region, developed to meet local agricultural conditions, consumer preferences, and traditional farming practices. These varieties are not intended for large-scale global commercialization but instead support regional seed markets, small to medium-scale growers, and conservation efforts. Can be classified into two categories
1. LOCAL COMMERCIAL POTATO VARIETIES	Developed by small-scale or national breeding programs, protected under Plant Variety Protection, and actively produced as certified seed potatoes.
2. LOCAL, HERITAGE AND CONSERVATION POTATO VARIETIES:	
Local, heritage varieties	Older landraces, historically bred varieties that are maintained in private collections or gene banks. While they hold significant cultural and genetic value, they cannot be multiplied and sold as certified seed.
Conservation varieties	Heritage varieties or historically bred varieties or older commercial varieties that have been officially registered under conservation variety regulations, allowing for limited seed production and certification to ensure continued availability for growers.
AFB	Republic of Estonia Agriculture and Food Board
AREI	Institute of Agricultural Resources and Economics, Latvia
CM	Cabinet of Ministers
EC, EU	European Commission, European Union
Finpom	Finnish seed potato company, daughter company of German Europlant Pflanzenzucht GmbH.
GB	Gene bank
HZPC Kantaperuna	Finnish branch of Dutch breeding company HZPCm
LBTU	Latvia University of Life Science and Technologies
LU	University of Latvia
LUKE	Natural Resources Institute of Finland
METK	Centre of Estonian Rural Research and Knowledge
NGO	Public Private Partnership

[2] Working definition to distinguish them from other, non-local varieties in the context of MainPotRe project

NordGen	Nordic Genetic Resource Center
SMTA	The Standard Material Transfer Agreement
SPK	The Finnish Seed Potato Centre, Ltd
VAAD	Plant Protection Service in Latvia
ZAP	Dutch potato seed company

Appendix 2

Current status and conservation of heritage potato varieties in Latvia

Heritage or old potato varieties are still grown and maintained in home gardens across Latvia. Unfortunately, seed potato material is often at risk of being lost due to the passing of older generations, as their descendants may not recognize the significance of preserving traditional field crops. Some older potato growers have offered heritage varieties to the AREI genebank. In such cases, samples have been collected and included in the national potato collection for evaluation. In 2008, an advertisement was published in the popular journal Praktiskais Latvietis, inviting readers to submit seed potato material of the historically widespread variety 'Early Rose' (which has several known synonyms in Latvian). As a result, 11 samples were submitted from eight locations across Latvia. This material has been preserved in the AREI field collection in Priekuļi.

More samples of unidentified potato varieties grown for several generations in Latvia were collected during the MainPotRe project implementation.

The Latvian Permaculture Association and particularly Seed Savers movement operating under the umbrella of the association is implementing the project "Heirloom Plants," which collects information about heritage crops, including potatoes, although it does not collect physical seed potato tubers (https://mantots.permakultura.lv/en). During the course of the project, the association recorded two stories about heirloom potato varieties and submitted the videos to the project's lead partner, AREI - https://www.youtube.com/watch?v=aWycvB6O8kc

and https://www.youtube.com/watch?v=BbhcJF542RU&t=12s. These videos can serve as educational material, demonstrating how to create and share a story about one's own heirloom variety.

The most comprehensive collection of old and heritage potato varieties in Latvia has been preserved at AREI, Priekuļi, both in the field and *in vitro* collections. The documentation and characterization of these varieties began in the 1990s, building on earlier breeder-maintained variety collections.

Appendix 3

Heirloom potato cultivars in Finland

Farmed in the Lemi area (61N 027E) in South Karelia region for nearly 150 years, the landrace potato ‘Lemin Punanen’ has, according to local oral tradition, been brought into the pockets of Lemian soldiers after the end of the Russo-Turkish War in 1878. Today most growers, who still maintain ‘Lemin Punanen’ are hobby farmers, and five potato farmers are known to sell its yield in local markets. ‘Lemin Punanen’ is cultivated as a local specialty and small farming areas are economically quite profitable, as there has been a buyer base so far. The cultivation and use of this landrace potato, which has a distinct appearance from modern varieties, requires different skills than modern potato varieties. Farmers know the specific needs of cultivating ‘Lemin Punanen’ and have described how accurate it is concerning the growth conditions: It prefers warm sand-based soil. ‘Lemin Punanen’ also needs moist soil, but in a field that is too wet, the tubers often get rotten, subsequently declining their storing age. This specific potato needs a moderate level of fertilization and does not tolerate compost soil. Before planting, tubers must be well sprouted for more than one month, and a long growing season is required. The characteristic flavour that pleases the human mouth appears after about one month postharvest, when lifted to the stock. ‘Lemin Punanen’ has an unusually strong root system and long and plentiful stolons. Farmers treat seed potato tubers differently compared to the cultivated modern varieties. ‘Lemin Punanen’ seed tubers are often preselected by hand, starting immediately after harvest, when they are medium-sized and, as the farmers say, when “typical-looking round” and healthy tubers are recovered. During the storing period, the farmers go through seed potato tubers in storage, removing those that are in poor condition (unhealthy) and the ones that look irregular ("vague"). During sprouting and planting, those in poor condition and those without visible sprouts are removed. Disease control is based on the precise selection of seed potato tubers of small size for cultivation. A local museum in Lemi organizes the potato dinner for ‘Lemin Punanen’ and some other potatoes yearly.

‘Vaaniin Herkku’ is one of the oldest potato landraces in Finland known for its growing history. This specific potato arrived in the region of Satakunta (61N 22E), a coastal region on the west side of Finland, in the middle of the 18th century from German territory and it was later given its local name. ‘Vaaniin Herkku’ is still being cultivated on a small scale for home needs. It has deep-eyed, round, and violet-skinned tubers that have been widely known in the region of Satakunta and also earlier in the Southwestern part of Finland. It has proven to be very suitable for home-grown stock during a long cultivation experience: it is a good variety for making mashed potatoes and its flavour is even known to improve during the storage until the following summer. The municipality of Eura had yearly grown ‘Vaaniin Herkku’ for demonstration and maintenance purposes. Tubers had been delivered as special business gifts. One professional farmer is known to cultivate ‘Vaaniin Herkku’ in the Municipality of Eura.

Appendix 4

The enthusiast's collection of old varieties in Estonia

Tiia Morfin's work.

Tiia Morfin is well known in Estonia as an enthusiast of old varieties. Her collection includes different peas, beans, tomatoes, cucumbers, pumpkins and many different herbs as well as around 40 varieties of potatoes.

She has a large garden in South-Estonia where she is maintaining her collection, but also hosts groups who want to learn more about the old varieties and how to grow them. She advocates for the old varieties as they are adapted to local growing conditions and unlike modern varieties, also survive and yield even if the conditions are not ideal. Tiia also shares her experiences in different thematic events, e.g. the Seed potatoes Festival organised in Jõgeva this year:

https://www.youtube.com/watch?v=9mFM9pHVlW8

She also highlights the need to keep the old varieties for their specific tastes and smells for cooking specific dishes.

Many of the potato varieties she maintains are collected from old farmers and gardeners from all over Estonia. It is possible to see all the varieties in autumn harvest time at her farm where she organises a potato exhibition. It's also possible to buy a few tubers if anyone is interested in growing the varieties in their own garden.

Even though she has one of the largest individual collections in Estonia, she doesn't consider herself to be a potato grower, as the quantities of each variety are very small. However, she maintains all the varieties she has collected, some in larger quantities and some in bigger. On her webpage she also has information on all the varieties https://www.vanaemaaed.ee/seemned/kartulid.

Appendix 5

First activities in developing recommendations for collecting, maintenance, identification, propagation and distribution of conservation varieties

Preliminary steps have already been taken in all three project countries (Latvia, Estonia, and Finland) to create the foundation for practical efforts in the collection, maintenance, identification, propagation, and distribution of potato conservation varieties.

AREI (Latvia), METK (Estonia), and LUKE (Finland) carried out an inventory of their collections. Each institution compiled preliminary lists of potential conservation varieties by grouping genotypes with identical or highly similar phenotypic characteristics and/or names. Genotypes considered to represent the same variety were merged into a single accession group.

In parallel, additional genotypes were obtained from citizens during the course of the project. These samples were evaluated phenotypically and incorporated into the respective national collections for preservation.

To ensure accurate variety identification, previously collected genotypes were sent to LUKE for genetic analyses using SSR markers. The reference data used for comparison were provided by NordGen, which maintains the Nordic potato collection. This step supported a harmonised approach to identifying duplicates and unique varieties across the whole region

LATVIA: 33 accessions have been provided to LUKE for genotyping (12 possible Early Rose variants), 2 variants of "*Grāpīši*" and Zeeuwse Blauwe for reference, 3 phenotypically identical accessions with different names; 13 phenotypically distinct samples of unknown origin 2 of them, a hypothesis regarding their possible origin was proposed. The most notable findings highlighting a shared history of variety distribution with Estonia are detailed below in the Estonia case study. However, the most surprising discovery was that only two of the "Early Rose" variants maintained in Latvia are genetically identical to the reference sample from NordGen. The remaining samples form a distinct genetic cluster that differs significantly from the "true-to-type" Early Rose. This raises an important question: what is the origin of this genotype that has spread widely across Latvia and been cultivated for so long? Further research may offer new insights into the historical development and spread of potatoes in Latvia. It was also surprising to discover that the genotypes previously believed to have originated from *Zeeuwse Blauwe* turned out to be different after all.

ESTONIA: The Estonian potato materials for the genetic analyses included several unknown heritage potatoes collected from local citizens or preserved at Estonian genebank with origin unknown. Many Estonian heritage potatoes were genetically identical with Latvian materials, but with different names. Such examples of potatoes with diverse nomenclature were 'Punane Saarlane' from Estonia and 'Vale' from Latvia, which were genetically identical. Other such duplicates were the Estonian 'Endla', which is a conservation variety in Estonia, and the Latvian 'Talsu Nierites'. Those two heritage potatoes were also genetically identical. There were many other such examples, which explains the common history in the tradition of potato cultivation and material transfers between Estonia and Latvia. Only a very few Estonian and Latvian potatoes were identical with the Finnish heritage potatoes, which may be due to the closed border during the Soviet Union period causing a very little level of potato exchange. Additionally, risks from transferring plant diseases earlier limited delivery of potatoes to Finland.

FINLAND: The genetically analysed potato materials with the Finnish origin were collected from Project's target groups (Kupittaa Allotment Park, Häme University of Applied Sciences - HAMK, Municipality of Eura, and Municipality of Lemi), and from Kuralan Kylämäki Open Air Museum. Also previously unidentified potatoes and old varieties were delivered by local hobby growers, farmers, and private citizens to Luke for genetical analyses. All the heritage potatoes were analysed using SSR marker technology, but selected clones, which were putative Early Rose clones, and two 'Lemin

Punanen' clones with morphologically distinct characters were also analysed with GBS (Genotyping-by-Sequencing) technology. The both methods applied provided parallel results.

The genetic analyses revealed several duplicate accessions, which may be considered for removal from active collections. At the same time, unique genotypes were identified that have no corresponding matches in the NordGen database. These findings require further investigation and may represent regionally important heritage varieties not yet documented at the Nordic level.

The potato collection of NordGen was used as a reference material, since the whole Nordic potato collection is earlier thoroughly genotyped for needs of long-term preservation. Many heritage potatoes with local Finnish names were identified as clones of the NordGen's potato collection, so they were already safely preserved in the genebank. The locally named heritage potatoes 'Hätäläinen' and 'Ruusunperuna' were synonyms for Early Rose variety. Similarly, 'Pitkulainen Jutkula', 'Alinan Peruna', 'Vuokatin Musta', and 'Jutkula' were identical with 'Tysk blå' potato, which is already in the NordGen's collection. Still, unique, previously unknown potatoes were discovered, such as 'Röt prökis', which was genetically clustered with an Estonian heritage potato 'Sangaste Beloona (Varajane Valge)', but not genetically completely identical.

Although the distribution mechanisms for conservation varieties were not specifically tested during the project, various dissemination approaches described in "Guidelines for marketing of small quantities of potato seed material for local and heritage varieties"[1] were piloted. These included participation in farmers' markets, public exhibitions, and hosting tasting events to promote awareness and engagement. Both information sharing and seed sales methods were explored in practice. Overall, the activities demonstrated that the framework developed in Guidelines provides a solid foundation for the future awareness rising and distribution of local and heritage potato varieties.

To raise public awareness of the benefits of using certified seed potatoes, even for small-scale cultivation, informational flyers were developed and distributed in all project countries.

Appendix 6

Comparison of Conservation variety regulations: EU directive vs Latvia, Estonia, and Finland

Aspect	EU Directive 2008/62/EC	Latvia	Estonia	Finland
Recognition procedure	Variety must be locally adapted and threatened by genetic erosion; historical data allowed; DUS/VCU trials not mandatory.	Requires recognition by expert commission (Gen.res. center); DUS-like assessment applied; historical info less explicitly accepted. If historical and officially approved descriptions exist, official uniformity testing is still required	Allows historical descriptions; DUS trials can be waived; variety must be locally adapted and at risk.	Historical evidence and descriptions accepted. Simplified DUS test or applicant's variety description and information from gene resource centers accepted. In a case of historical description or applicant's description, varietal identity and purity of the maintenance lot is verified.
Certification requirements	Certified or standard seed permitted; quality standards may be adapted; official supervision required.	Requires full certification, some flexibility for potatoes (e.g. no size grading).	Uses standard or certified seed categories; official certification and inspection required.	Approved (not certified) or standard seed; Field inspection is compulsory to avoid invasion of wild oats (*Avena fatua*). Quality standards for the lowest seed category (excluding varietal purity - lower standards), no official analysis required. Risk based official control for

				quality and maintenance of variety.
Marketing area restrictions	Only in the region of origin, defined by the Member State.	Restricted to Latvia; no subnational regions defined (Latvia as a whole = region of origin).	Restricted to Estonia; the entire country is treated as the region of origin.	Restricted to Finland; Finland (as a whole) is the defined region of origin.
Annual quantity limits	Max 0.3–0.5% per variety (or seed for 100 ha); total per species not to exceed 10% national seed use.	Caps specified in Annex 3 and 3.1; follows EU percentages and area-based limits.	Implements 0.3–0.5% per variety; total capped at 10% of national seed usage; per-species limits enforced.	Implements EU limits, max amounts fixed for a period of three years; for vegetables, caps are based on fixed sowing areas.
Packaging and labeling	Must include official/supplier label showing conservation status, region of origin, and standard info.	Producers are permitted to create their own labels, they meet official requirements (as defined in Annex 9). The label must include key data such as species, variety, category, and lot number.	Supplier or official labels allowed; must include all EU-required information; sealed under supervision.	Supplier's label required with all standard info, including category and region; Risk based control for packaging
Administrative burden	Should be lighter than for commercial varieties; allows derogations from testing and seed laws.	High: recognition process and seed marketing closely follow standard seed law; annual reports required.	Moderate: simpler recognition, but annual area reports and seed quantity oversight required.	Low–moderate: simplified recognition, annual notifications, uses existing inspection framework. Free of charge except for field inspections. Laboratory analysis and printed labels available on

				request, subject to charge. Annual producer reporting required.

Sweden's case:

Summary of national approach to conservation varieties (from information provided by Ms. M. Heinonen)

Sweden has adopted a very streamlined and low-burden approach to the registration and marketing of conservation varieties, in alignment with EU Directive 2008/62/EC. Applications for recognition are submitted to the Swedish Board of Agriculture using the CPVO technical questionnaire (TQ 023 for potatoes), and a one-time fixed fee applies. To qualify, the variety must have been cultivated in Sweden before 1950 and must not already be listed in the official national variety catalogue.

There is no requirement for seed certification, and the only expectation is that the variety's identity is maintained. **Producers are not subject to formal labelling or sealing requirements, which substantially reduces the cost and complexity of marketing**. Conservation varieties may only be sold within Sweden, especially in the regions where they have historically been grown. Sweden does not set national limits on the annual quantities marketed, relying instead on the EU assumption that these varieties will be distributed on a small scale to support agrobiodiversity.

The administrative burden for applicants is minimal, making the process accessible even for small growers or seed savers. Potatoes can be recognized as conservation varieties, although the national origin requirement means that varieties originating from other countries, such as the Finnish 'Lemin Punanen', would not be eligible under Swedish rules.