

Programme

‘Collection, conservation and use of plant genetic resources for food and agriculture 2021–2027’

1. Introduction

The programme ‘Collection, conservation and use of plant genetic resources for food and agriculture 2021–2027’ (hereinafter the Programme) describes the results of the previous programme ‘Collection and conservation of plant genetic resources for food and agriculture in 2014–2020’ (hereinafter the 2014–2020 Programme), the situation of genetic resources of Estonian agricultural crops and the problems to be solved, sets out the objectives of the Programme and the activities necessary to achieve them.

The preparation of the Programme is based on the need to ensure the conservation and use of plant genetic resources for food and agriculture of Estonian origin, continuing the activities of the 2014–2020 Programme and paying more attention to the use of genetic resources and the conservation of crop wild relatives.

The Programme fulfils the Republic of Estonia's obligations under international agreements. These agreements include the Convention on Biological Diversity (CBD), The Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture (GPA 2) adopted by The Commission on Plant Genetic Resources for Food and Agriculture (CGRFA) of The Food and Agriculture Organization of the United Nations (FAO) and International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

The Programme contributes to the achievement of the objectives of the ‘Agriculture and Fisheries Strategy 2030’, being directly related to the direction ‘High-quality agricultural inputs’ and indirectly to the integrating directions ‘Agri-environment’, ‘Plant health, animal health and welfare’, ‘Production, valorisation and marketing of agricultural products’ and ‘Development of rural and coastal areas’. The Programme activities aim to achieve the following objective: the range of varieties of arable and horticultural crops and plant propagating material is varied, of high quality and adapted to local conditions.

The links with international, European and Estonian national policies and legislation are further described in **Annex 1** to the Programme.

The Programme is the basis for the further development of the programme ‘Plant breeding programme 2020–2030’, approved by Order No. 175 of the Minister of Rural Affairs of 10 December 2019, which is related to ensuring the sustainable development of Estonian plant breeding and the maintenance breeding of existing varieties, healthy and safe food, sustainable use of natural and environmental resources, maintenance of biodiversity, and mitigation of and adaptation to climate change.

The Programme will pave the way for the collection, conservation and use of local genetic resources of agricultural crops for biodiversity maintenance, climate change mitigation and adaptation, ensuring food security and preservation of cultural heritage.

The Programme is implemented by research and development institutions involved in the conservation of plant genetic resources of Estonian agricultural crops:

1. **Estonian Crop Research Institute** (hereinafter ECRI) – collection and preservation of the genetic resource of cereals and legumes, forage crops and turfgrasses, vegetables and oil crops in the *ex situ* gene bank, *in vitro* preservation of potatoes and horticultural crops. Participation in international cooperation on plant genetic resources and coordination of intra-European cooperation;
2. **Estonian University of Life Sciences Institute of Agricultural and Environmental Sciences Polli Horticultural Research Centre** (hereinafter Polli) – collection and conservation of the genetic resource of fruits and berries in field collections.
3. **The University of Tartu Botanical Gardens** (hereinafter Botanical Garden) – collection and preservation of the genetic resource of medicinal, aromatic and ornamental plants in field collections.

The Programme was prepared by the Ministry of Rural Affairs, involving the following organisations: Estonian Rural Museums Foundation, Estonian Open Air Museum, Estonian National Museum, NGO Estonian Seed Association, NGO Maadjas, the Ministry of the Environment, the University of Tartu, Tallinn University of Technology, Estonian University of Life Sciences, Agricultural Board and Estonian Crop Research Institute.

2. Terms

1. ‘Agricultural crops’ means cultivated plants used for food and feed, as well as ornamentals, medicinal and aromatic plants.
2. ‘Plant Genetic Resources for food and agriculture (PGR)’ means plants used or potentially used for food and feed. The plant genetic resources include varieties of agricultural and horticultural crops and a medicinal and aromatic plants, breeding material, traditional cultivars/landraces, species and forms.
3. ‘Accession’ means a unit of material that is being conserved in the collections of genetic resources.
4. Obsolete variety, heirloom variety, indigenous variety, traditional variety, landrace – variety, whose origin is unknown. These are food plants adapted to the local climate, whose value lies in origin, enhancement of cultural heritage and biodiversity.
5. ‘Crop wild relatives’ (*CWR*) means wild species closely related to cultivated plants that have potential value for agricultural production and food use.
6. ‘*Ex situ* conservation’ means conservation of plant genetic resources outside their natural habitat, e.g., in a gene bank of collection garden.
7. ‘*In vitro* conservation’ means conservation of a genetic resource in a laboratory, e.g., as meristem plants.
8. ‘*In situ* conservation’ means conservation of viable populations of species, ecosystems and natural habitats in their natural habitats.

3. Description of the state of conservation of genetic resources

The collection and conservation of the plant genetic resources for food and agriculture of Estonia was initiated in 1994 within the framework of international cooperation projects. Since 2002, activities have been coordinated and funded by relevant programmes and development plans. The situational description is based on an analysis of the results of the 2014–2020 programme and a SWOT analysis carried out during the development of the new programme.

In the 2014–2020 Programme, four indicators were selected to meet the objectives. These were the number of accessions of the level of viability and characteristics defined by international standards

and reflected in electronic databases, the number of accessions evaluated and described during the year, the number of participations in international cooperation, and the number of publications and presentations. The indicators had an annual target level set, which was mostly met or exceeded. By the end of the period, all the objectives set in the 2014–2020 Programme had been met.

When completing the programme, existing collections were inventoried, conserved and updated, and the collections are in good condition. As at the end of 2020, the *ex situ* gene bank included 2785 accessions of cereals and legumes, forage crops and turfgrasses, vegetables and technical and oil crops for long-term conservation, 685 potato and horticultural accessions in the *in vitro* gene bank, 992 fruit and berry species accessions in the field collections, and 444 accessions of medicinal plants, herbs and ornamental plants in the Botanical garden.

Conservation of the genetic resource of cultivated plants is carried out in accordance with the Genebank Standards for Plant Genetic Resources developed by Bioversity International. Compliance with internationally recognised conservation methods allows for the assessment of the characteristics of the accessions according to common criteria and ensures the maintenance of the accessions. In accordance with international standards and methodologies, the biological and economic characteristics of the accessions of Estonian-origin were evaluated and documented, phenological observations were made, data on winter hardiness, plant disease resistance, yield and biochemical composition of fruits were collected, and molecular analyses were conducted. The *in vitro* collection of ECRI was transferred from the department in Saku to modern conditions in Jõgeva in 2020. During the programme period, the characteristics and properties of 500 accessions were described in accordance with the guidelines of Bioversity International and the European Cooperative Programme for Plant Genetic Resources (ECPGR).

Tallinn University of Technology (hereinafter TalTech) contributed to the implementation of the 2014–2020 Programme by performing molecular analyses. A total of 290 doubled haploid wheat lines created and genotyped in the TalTech laboratory and phenotyped in the ECRI field trials, obtained by crossing cultivated wheat with the wild relative species *Triticum militinae*, were handed over to the gene bank for conservation. The accessions are characterised by 221 microsatellite markers and 6 functional markers. The lines to be conserved are the initial material for further introduction of the beneficial properties of *Triticum militinae*, in particular disease resistance, into the cultivated wheat genome.

One of the major projects of the Polli was the renewal of the apple collection of Estonian varieties and cultivars. Endangered Estonian varieties have safety duplicates for the maintenance of varieties. Information about the accessions can be found on the webpage of genetic resources of fruit and berry cultivars at sordivaramu.emu.ee.

At Botanical Garden, guidelines for the description of clematis, rose and lily varieties were compiled, on the basis of which 135 varieties of clematis, 48 roses and 26 lilies were described. In 2018, the assessment of the disease resistance of rose varieties growing in the rose garden of the Botanical Garden started. During the 2014–2020 Programme period, 21 expeditions were organised to collect varieties and find backup accessions. Breeding of ornamental plants continues in many private gardens, where the evaluation and characterisation of new cultivars is carried out. During the programme period, information of 106 new bred varieties was provided.

The Nordic-Baltic data management system SESTO was used to manage the data of Estonian accessions and order them. In 2020, a new data management system, GENBIS, was introduced. Shared online databases facilitate access to data stored on accessions and cooperation on conserving nationally and internationally. The inclusion of the data of conservation units into international

databases increases the use of the material and the value of the accessions. During the 2014–2020 Programme, 655 accessions were distributed by the ECRI gene bank on the basis of a Standard Material Transfer Agreement (in total to 16 countries).

Within the framework of the 2014–2020 Programme, international cooperation was developed, several projects were carried out, reports were submitted and questionnaires answered. A total of 16 thematic working groups and Steering Committee of the ECPGR, working groups on the conservation of genetic resources in the Nordic and Baltic countries, and the European Union genetic resources projects Farmer's Pride (creation of the *in situ* and *on farm* European network) and GenRes Bridge (development of a Genetic Resources Strategy for Europe) were attended. One of the successes of the programme period was the shipment of 131 safety duplicate accessions of ECRI genebank to the Svalbard Global Seed Vault.

With the increase in intensive farming, local varieties have lost competitiveness, become small in number and in many cases extinct or in danger of extinction. In order to maintain varietal diversity, their cultivation must be promoted and supported. The promotion of local varieties of cultivated plants and their crop wild relatives *in situ* and *on farm* (i.e., in the field) is a commitment arising from the International Treaty on Plant Genetic Resources for Food and Agriculture. Within the framework of the Estonian Rural Development Plan (ERDP) 2014–2020, the cultivation of local varieties of plants was supported with a total of EUR 300,000 in 2014–2020. The list of supported varieties included 5 field crops, as well as 43 fruit and 12 berry species.

In order to identify priority species of Estonian crop wild relatives, a study was commissioned in 2019 from the Applied Research Programme of the Ministry of Rural Affairs. As a result of the study, a list was completed of 144 wild related species, 88 of which are on the list of prioritised varieties for Estonia. The list of priority species is the basis for drawing up an action plan for the conservation of crop wild relatives.

On the basis of the Plant Propagation and Plant Variety Rights Act, varieties intended for conservation of genetic resources, which have adapted to the circumstances prevailing in Estonia and are at risk of loss over time due to human activity or environmental change, which will result in the loss of genetic diversity, shall be included into the variety list. The Agricultural Board considered the opinion of the evaluation committee of the 2014–2020 Programme on the acceptance of the variety as a conservation variety. Following the approval of this committee, 6 varieties were accepted as conservation varieties in 2014–2020: field bean ‘Helbi’, common vetch ‘Rae kohalik’, potato ‘Ando’, winter rye ‘Tulvi’, garden pea ‘Vanaema hernes’ and tomato ‘Hiiumaa roheline’.

Articles on the conservation of the genetic resource of agricultural crops were published in scientific and popular science publications in Estonia and abroad, and presentations were given at conferences and seminars, research days and presentations of collections were organised, on 238 occasions in total. In order to increase the visibility of genetic resources and disseminate information, the programme's website genres.ee was created.

Challenges of conservation and use

In Estonia, the situation regarding the conservation of plant genetic resources for food and agriculture is generally good. During the development of the Programme, the strengths and weaknesses of the field, as well as the challenges and threats, were mapped. As a result of the analysis, the following key issues to be addressed were identified.

1. The release of genetic resources to the general user is restricted.
2. Lack of awareness of old varieties.
3. Lack of plans for the conservation of agricultural crops.
4. The conservation of crop wild relatives has received little attention.
5. Inadequate description of and research on the accessions.
6. There is no information about plant diseases on the material included to the collection.
7. There is no quarantine system for testing the species in the collection that may have dangerous plant diseases.

4. Programme objectives, indicators and activities to achieve the objectives

The aim of the Programme is to collect, conserve, characterise, evaluate, use and disseminate information on the plant genetic resources for food and agriculture of Estonian origin or well-adapted to Estonia as an important component of biodiversity and cultural value. The Programme will create the prerequisites to ensure the conservation and sustainable development of biodiversity in accordance with national and international development documents, treaties and conventions.

Programme sub-objectives and indicators

The broader objective of the programme is divided into six sub-objectives that the programme's activities aim to implement.

1. Mapping and collecting plant genetic resources for food and agriculture of Estonian origin.
2. Maintenance of the collected genetic resource and documentation of data.
3. Evaluation and characterisation of the genetic resources.
4. Providing access and using the genetic resources.
5. Dissemination of information about genetic resources.
6. Participation in national and international cooperation.

Year	Base 2020	2021	2022	2023	2024	2025	2026	2027
Indicator 1: number of accessions in the collection as at the end of the reporting year.								
Target level	5374	5413	5461	5509	5542	5581	5620	5658
Indicator 2: number of accessions with safety duplicates as at the end of the reporting year.								
Target level	1132	1156	1184	1218	1255	1285	1324	1354
Indicator 3: number of accessions evaluated and characterized during the reporting year.								
Target level	475	578	584	584	590	591	592	592
Indicator 4: number of accessions delivered during the reporting year.								
Target level	88	93	104	117	125	139	146	161
Indicator 5: number of publications, presentations, public events and media appearances made during the reporting year.								
Target level	43	46	48	50	50	50	49	50
Indicator 6: number of contributions to international projects, consortia, cooperation networks, working groups and completions of reporting during the reporting year.								
Target level	20	21	21	21	21	21	21	21

Programme activities to achieve the objectives

The main activities for the conservation of genetic resources remain the same as in previous periods. These include collecting the plant genetic resources for food and agriculture, inclusion into collections and managing the collections, documenting the data and making genetic resources available for research and development, training and plant breeding purposes. The Programme will give more prominence to the introduction and expansion of the use of plant genetic resources. In order to allow the exchange and transfer of small quantities of propagating material of old varieties, it is planned to initiate an amendment to the Plant Propagation and Plant Variety Rights Act. This amendment to the law seeks to make it possible to also enter old fruit and berry varieties in the variety list as a conservation variety. A new course of action will be the conservation and research on crop wild relatives, which is an important topic in the Convention on Biological Diversity and the UN Global Biodiversity Framework. In 2019, as a result of a study of the Applied Research Programme commissioned by the Ministry of Rural Affairs, a list of 88 species of crop wild relatives that are a priority for Estonia was completed. Further activities include mapping and analysis of species, replenishment of *ex situ* collections, and planning for conservation.

The European Union Common Agricultural Policy (CAP) measures are designed with a view of expanding the use of genetic resources and raising awareness of diversity. In order to increase the use of plant genetic resources, the cultivation of old local varieties is supported. As far as possible, funding will be directed to displaying, showcasing and using plant genetic resources at exhibitions (e.g., information days on genetic resources for hobby gardeners and community gardens, museum programmes).

Activity 1: mapping and collecting genetic resources

- Organising expeditions to map the habitats of the plant genetic resources for food and agriculture and crop wild relatives, collect information and supplement *ex situ* collections.
- Inventory of private collections of fruit species and ornamental plants.

Activity 2: Conservation and management of *ex situ* collections of genetic resources

- Entering into collections, conservation and systematic regeneration of the collection of genetic resources in *ex situ* collections.
- Conservation of safety duplicate accessions in other collections.
- Supplementing the quality guidelines for conservation and the instructions for the characterisation and evaluation of accessions.
- Creating a quarantine system for species carrying dangerous plant diseases.
- Performing virus checks as part of the monitoring of the Agriculture and Food Board.

Activity 3: conservation of crop wild relatives

- Preparation of an action plan for the conservation of crop wild relatives – mapping of habitats on the basis of the list of priority species (88 species), supplementing *ex situ* collections.
- Conservation planning in cooperation with the Ministry of the Environment.

Activity 4: documentation and recording of genetic resource data in databases

- Documentation of genetic resources data, management and supplementation of the databases GENBIS, EURISCO, Genesys.
- Creating a database for planning the genetic resource collection.

Activity 5: phenotypic and genotypic characterisation of genetic resources

- The research of the economic and biological characteristics of the genetic resources, as well as genetic characterisation.
- Assessment of winter and disease resistance of ornamental plants, fruit and berry species.

Activity 6: making genetic resources in collections available for research and development, training and plant breeding purposes

- Exchange of accessions in accordance with international treaties (ITPGRFA, Nagoya Protocol) and rules of procedure.

Activity 7: expanding the use of genetic resources

- Registration of conservation varieties for their cultivation and marketing.
- In order to allow for the exchange of small quantities of propagating material of unregistered old varieties and entering fruit and berry species as a conservation variety in the variety list, the legislative intent to draft an amendment to the Plant Propagation and Plant Variety Rights Act will be initiated in 2021.
- Providing accessions from collections to hobby gardeners on the basis of a contract.
- Supporting the cultivation of local varieties from the measures of the Estonian Rural Development Plan and CAP.

Activity 8: awareness raising activities

- Preparation of an annual communication plan.
- Promotion of the use of genetic resources. Organisation of information activities – presentation days, information days, exhibitions, publications, media coverage.

Action 9: management of the Programme website genres.ee

- Updating the genres.ee website and information on it. Setting up a system for communicating the genetic resources.

Activity 10: cooperation between institutions conserving, introducing and investigating genetic resources

- Organisation of cooperation between the institutions implementing the Programme in order to coordinate the Programme activities.
- Cooperation with research institutions to investigate the characteristics of genetic resources.
- Participation in the work of the Programme council.

Activity 11: participation in international cooperation

- International reporting, participation in projects.
- Participation in CGRFA, ITPGRFA, ECPGR, Nordic and Baltic genetic resources cooperation networks and representing Estonia.

5. Cost estimate of programme

Estimated annual cost of the Programme by organisations in 2021–2027.

Organisation	EUR/year
ECRI	227,000
Polli	111,000
Botanical Garden	63,600
TOTAL	401,600

6. Programme management structure

1. The Programme implementation is coordinated by the Ministry of Rural Affairs.
2. The Ministry of Rural Affairs will sign contracts/orders with the implementers of the Programme for the planned activities and controls implementation of the Programme.
3. The institutions participating in the implementation of the Programme shall submit an annual report to the Ministry of Rural Affairs by 15 January of the year following the reporting year.
4. The Programme implementation is evaluated by the Plant Breeding and Genetic Resource Council, the composition and rules of procedure of which are approved by a directive of the Minister of Rural Affairs. The Council will carry out an evaluation in 2025 to assess the implementation of the Programme and prepare for the new period.
5. The Council reviews the Programme once a year and submits proposals to the Minister for Rural Affairs to supplement, amend and extend the Programme.

Political and legal framework of the programme

1. International level

Convention on Biological Diversity (CBD)

Estonia signed the CBD at the global Conference on Environment and Development in Rio de Janeiro on 12 June 1992. With the ratification of the convention in 1994, Estonia undertook to maintain biodiversity on its territory and protect and sustainably use the plant genetic resources. The convention has three overarching objectives: the conservation of biodiversity, its sustainable use, and fair and equitable sharing of the benefits arising from the utilization of genetic resources. The programme considers that the collection, conservation and sustainable use of plant genetic resources for food and agriculture contributes to the fulfilment of the CBD.

One of the objectives of the Post-2020 Global Biodiversity Framework under development is to preserve and sustainably use species diversity, including plant diversity.

Within the framework of the Convention on Biological Diversity, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization was adopted in 2010, to which Estonia became a party in 2019. The Nagoya Protocol is designed primarily to protect genetic resources in countries with high biodiversity. According to the Nagoya Protocol, each country has the right to impose a restriction on access to its country's natural resources, and if such a restriction is imposed, the use can only take place under terms mutually agreed upon with the owner/provider of the genetic resource.

United Nations Organisation for Food and Agriculture Commission on Genetic Resources for Food and Agriculture (CGRFA) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

The CGRFA coordinates international activities for the conservation and utilisation of genetic resources. For this, the CGRFA develops and approves global action plans and monitors their implementation. The Second Global Plan of Action for the conservation and sustainable use of plant genetic resources confirms countries' commitment to ensuring the conservation and sustainable use of plant genetic resources and its importance for food security.

The ITPGRFA, which Estonia joined in 2004, provides an international framework for the conservation and sustainable use of agricultural plants. A central component of the treaty, in addition to farmers' rights, is a multilateral system of access and benefit-sharing from the use of genetic resources. Like many other countries, Estonia has decided that genetic resources of agricultural crops not listed in Annex I to the ITPGRFA will also be subject to the terms of the Standard Material Transfer Agreement (SMTA) for the purposes set out in the ITPGRFA.

UN Sustainable Development Goals

The Programme contributes mainly to the achievement of three sustainable development goals. Goal 2 – end hunger, achieve food security and improved nutrition and promote sustainable agriculture. Target 2.5 is related to genetic resources of agricultural crops, which states that the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related

wild species must be maintained by 2020, including through soundly managed and diversified seed and plant banks at the national, regional and international levels. More indirectly, the Programme's activities are also linked to target 2.4, which states that by 2030, sustainable food production systems must be ensured and resilient agricultural practices implemented that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

Goal 13 – Take urgent action to combat climate change and its impacts. Estonia is implementing a development plan for the adaptation to environmental change, which is discussed in more detail in the policy section at the Estonian level.

Goal 15 – Protect, restore and promote sustainable use of terrestrial ecosystems; sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss. Target 15.6 relates to genetic resources of agricultural crops, which states to promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed.

2. European level

The European Green Deal

The European Green Deal aims to achieve a resource-efficient and competitive Europe. It also aims to protect and conserve the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts. Through climate change mitigation, the pressure on the natural environment is relieved. It is important to preserve the local species community, which helps to support the sustainability of the ecosystem and its services. Among the risks associated with climate change, one of the most important is the spreading of new plant pests, which can cause great damage to local plants and the environment. Adaptation and mitigation to climate change play a crucial role in preserving and enhancing biodiversity.

EU Biodiversity Strategy for 2030 and Farm to Fork

The flagship objective of the Biodiversity Strategy of the European Union for 2030 is to halt and, as far as possible, put biodiversity on the path to recovery and reverse the degradation of ecosystem services by 2030, enhancing the European Union's contribution to preventing global biodiversity loss.

The Farm to Fork Strategy is at the heart of the European Green Deal aiming to make food systems fair, healthy and environmentally-friendly. The strategy aims to promote healthy diets and review the sustainability of the entire food chain, reduce dependence on pesticides and antimicrobials, reduce over-fertilisation, promote organic farming, improve animal welfare and reverse biodiversity loss. The use of chemical pesticides in agriculture leads to a loss of biodiversity and can damage non-target plant species. Therefore, the provisions on integrated pest management will be strengthened and the wider use of safe alternative ways of protecting crops from plant pests and diseases will be promoted.

European Cooperative Programme for Plant Genetic Resources (ECPGR)

Estonia has been a member of the ECPGR, which coordinates the conservation and use of plant genetic resources in Europe since 1998. Estonian researchers and breeders participate in the work of 16 crop-specific and thematic working groups. The ECPGR directs the harmonisation of conservation methodologies and strategies and funds joint projects, e.g., for the evaluation of accessions. Activities related to the European Search Catalogue for Plant Genetic Resources EURISCO and A European Genebank Integrated System AEGIS are substantial.

3. Estonian level

The Programme is linked to several sectoral development plans, such as the Estonian National Strategy on Sustainable Development ‘Sustainable Estonia 21’ and Estonian Research and Development, Innovation and Entrepreneurship Strategy 2021–2035 (‘Estonia 2035’), Agriculture and Fisheries Strategy 2030 (AFS 2030) and Estonian Environmental Strategy 2030.

‘Sustainable Estonia 21’ and Estonian Research and Development, Innovation and Entrepreneurship Strategy 2021–2035

The sustainable development strategy sets the overall objective of ecological balance as increasing the self-regeneration of nature, including the conservation of biodiversity and natural areas. The main function of environmental protection is not only the protection of resources and the natural environment, but also their harmonious and balanced management in the interests of Estonian society. The aim is to conceptualise nature as a value and a society-centred development resource in the context of the overall promotion of Estonia. ‘Estonia 2035’ agenda is aimed at overcoming the challenges faced by the society and increasing the well-being and cohesion of society, be it tackling climate change, health problems or fighting poverty. ‘Estonia 2035’ strategy plan will shape the research and innovation and entrepreneurship policies that take into account Estonia’s assumptions, conditions and needs, and contribute to Estonia’s sustainability and the well-being of its citizens by developing a knowledge-intensive society and accelerating productivity growth.

Estonian Environmental Strategy 2030

The Estonian Environmental Strategy 2030 is an environmental development strategy guided by the principles of the Estonian National Strategy on Sustainable Development ‘Sustainable Estonia 21’. Conservation and development of biodiversity is essential for achieving all development goals. The conservation, research, collection, characterisation, evaluation and documentation of the genetic resources of agricultural crops are essential in view of the objectives of the Rome Declaration on World Food Security and the World Food Summit Plan of Action as well as sustainable agricultural development for present and future generations. The genetic resource of agricultural crops is the starting material for improving the genetic nature of crops, whether through farmers' varietal selection, classical plant breeding or molecular biological methods, and is essential for adapting to unexpected environmental changes and future human needs. Issues concerning the genetic resource of agricultural crops relate to agriculture, the environment, cultural values and trade.

Development Plan for Climate Change Adaptation until 2030

The transition to a resource-efficient economy is directly linked to the mitigation of climate change and the adaptation to the effects of climate change. Adapting to the impacts of climate change involves mitigating the risks caused by climate change and a framework for action to increase the readiness of

the society as well as of the ecosystems and their resistance to climate change. In order to reduce the impacts of climate change, it is necessary, firstly, to reduce greenhouse gas emissions and, secondly, to implement measures for adaptation to cope with the unavoidable consequences of climate change.

The implementation of the Development Plan for Climate Change Adaption must be based on approach based on the ecosystem – sustainable economic activities ensure the integrity, productivity and viability of ecosystems and the preservation and use of the services.

Estonia belongs to a climate zone where predicted climate change may bring certain opportunities for the agricultural sector (e.g., longer growing season), but at the same time, changing weather conditions may cause substantial fluctuation in the yield of agricultural crops and the quality of the yield (e.g., extreme weather conditions can disrupt functioning food production systems).

In agriculture, climate change mainly affects the selection of crops and varieties, their yield, the efficiency and productivity of livestock farming and the spread of plant pests and infectious animal diseases. The conditions for the cultivation of traditional crops, such as overwintering of winter cereals, may deteriorate. Plant nutrients are washed away from soil in winter, which may be transferred to groundwater or water bodies. Due to the earlier spring, early sowing of crops and therefore also late harvesting has been possible. Late harvesting may sometimes be difficult due to excessive moisture.

It is important to conserve the plant genetic resources for food and agriculture, as well as to use them in research and plant breeding, and in fields and gardens for food production.

Agriculture and Fisheries Strategy 2030 (AFS 2030) and the European Union's Common Agricultural Policy (CAP)

The goal of AFS 2030 is to contribute to the development and growth of competitiveness of Estonian agriculture, fisheries, aquaculture and food industry, food security, balanced development of rural and coastal areas, as well as good health of plants and animals, improvement of soil condition, food safety, and the preservation of a clean environment and biodiversity. The conservation and sustainable use of plant genetic resources is important for plant breeding as well as for agricultural science and production in general in order to ensure the development of plant breeding, agricultural science and production and to maintain biodiversity.

Biodiversity in crop production is related to plant breeding. In addition to wild plant species, it is also important to conserve the genetic diversity of cultivated plant varieties. This is important from both a biological and an economic point of view, because heterogeneous populations with diverse characteristics bear qualities that could also be successfully used in the breeding of cultivated varieties and in the production of niche market material. Genetic resources enable to develop environmentally friendly business in rural areas and to make the diet more diverse and healthy.

The collection, research, conservation and use of plant genetic resources contributes to the conservation of biodiversity, mitigation and adaptation to climate changes, and food security.

One of the specific objectives of the CAP is to contribute to the protection of biodiversity, promote ecosystem services and preserve habitats and landscapes. Therefore, it is planned to support the cultivation of local plant varieties within the CAP. The purpose of the support is to ensure the conservation and cultivation of local plant varieties important for cultural heritage and genetic diversity.