

PLANT GENETIC RESOURCES CONSERVATION AND SUSTAINABLE USE

What should Europe urgently do?

Plant genetic resources: A vital asset under threat

Plant genetic resources are the foundation of our food and bioeconomy. They are the building blocks for selecting or breeding crops that are more nutritious, productive and resilient to pests, diseases and environmental changes.

This vital asset is under threat due to multiple factors, including climate change and shifts in land-management practices and agricultural land use prompted by changing production systems as well as by regulation and marketing obstacles. The loss of these precious resources jeopardizes the long-term productivity, resilience and sustainability of agriculture and food systems.

Despite Europe being rich in plant genetic resources, their conservation and sustainable use face additional challenges. Many European genebanks and collections don't have appropriate resources, capacities, infrastructure and quality control to ensure the long-term conservation of the material they safeguard. The situation of plant genetic resources on farm and in nature is even worse, due to the above-mentioned changes in climate and land management practices, and the replacement of traditional varieties and landraces with new uniform varieties.

The situation is also problematic for European plant genetic resources users. Increased political awareness of their value and legal uncertainty about their exchange has prompted countries and institutes to restrict access to these resources.

Plant genetic resources are the diversity of traditional and modern crop species and varieties as well as crop wild relatives and other wild plant species that sustain agriculture and food systems, and the genetic material contained in them.

Plant genetic resources occur on farms, in gardens and in nature (*in situ*), and are conserved in facilities called genebanks (*ex situ*). They are essential tools in the hands of farmers, land and landscape managers, breeders and researchers.

As a result, scientists and plant breeders find it increasingly difficult to access the resources they need to address the mounting challenges posed by climate change, declining food security, and the need to decrease the environmental impact of agriculture.

Without immediate remedial action, Europe will continue to experience severe loss of plant genetic resources, impeding the development of sustainable agri-food systems as well as crop improvement.

Time for a step-change in political will and action

Europe has instruments and assets to ensure the sustainable conservation and use of its genetic resources.

European countries and the EU are formally committed to conserving plant genetic resources and their diversity through several global fora, such as the UN Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and the UN Sustainable Development Goals.

Recently, the EU made a strong commitment with the European Green Deal. Both its Farm to Fork Strategy and Biodiversity Strategy underscore the need to preserve genetic resources.



Europe has long and diversified experience in terms of coordinated activities for the preservation of plant genetic resources relying on formal and informal cooperative networks that operate at national and regional levels, including the European Cooperative Programme on Plant Genetic Resources (ECPGR). Better coordination among the various stakeholder activities as well as targeted investments are needed to ensure effective genetic resources management, and reduce wasting funds on ineffective operations and duplication of work.

Despite these assets, national and regional efforts, and European and global commitments, it must be noted that the effective implementation of all planned and needed activities in Europe is lagging far behind.

Genetic resources appear in different policies and strategies, but there is a lack of a coherent legislative and policy framework. Weak political will at the European level and important disparity of political support between European countries, in particular unequal capacities of national programmes and stakeholders, need to be urgently overcome.

The Plant Genetic Resources Strategy for Europe

The *Plant Genetic Resources Strategy for Europe** – developed over three years in consultation with a wide range of experts and stakeholders – provides a road map to addressing the need for urgent action and enabling the transition to a fully functional and efficient European system for conserving and using its plant genetic resources.

The Strategy emphasizes **ambitious objectives by 2030** defined through coordinated and realistic actions to conserve and sustainably use plant genetic resources.

These actions are based on the experience of decades of cooperation among many European stakeholders, and include:

- A significant expansion of *in situ* conservation of crop wild relatives, wild food plants, and on-farm varieties, through more systematic survey, inventory, and active conservation and management.
- A significant increase in quality, efficiency, efficacy and coverage of the European Genebank Integrated System AEGIS, where unique accessions of the European Collection are maintained in certified institutions, with agreed quality standards, and available under terms and conditions set out in the ITPGRFA.
- An extensive support to the increased use of genetic diversity through various key levers: facilitating access to and increasing knowledge on the crop diversity conserved; supporting the use of pre-breeding and participatory breeding for crop wild relatives and landraces; actively promoting more diversified agricultural systems.
- A substantial qualitative and quantitative progress in the European plant genetic resources information system EURISCO, through: supporting national data managers for collection and upload of plant genetic resources passport data; providing publicly available harmonized phenotypic datasets; ensuring interoperability with other European and global information systems.
- The establishment of a European system to monitor all the activities above and regularly report on progress made on plant genetic resources conservation and use.

The objectives identified in the Plant Genetic Resources Strategy for Europe and their associated actions call for stronger political will and commitment of both European countries and the European Union including a thorough revision of the plant genetic resources legal framework. This political action can be translated into four key areas of intervention.

*The *Plant Genetic Resources Strategy for Europe* is linked to the overarching *Genetic Resources Strategy for Europe*, a product of the EU-funded GenRes Bridge project. From 2019 to 2021, GenRes Bridge brought together 17 partners and a wide range of stakeholders to draw up a strategic vision to secure agricultural and forest genetic resources and enable Europe to meet its commitments under the European Green Deal, as well as under global policy frameworks and legislative instruments.

In line with the overarching *Genetic Resources Strategy for Europe*, three complementary domain-specific strategies for plant, animal and forest genetic resources were produced respectively by ECPGR (the European Cooperative Programme for Plant Genetic Resources), ERFP (the European Regional Focal Point for Animal Genetic Resources) and EUFORGEN (the European Forest Genetic Resources Programme). The *Genetic Resources Strategy*, together with the three domain-specific strategies, were presented in November 2021 to members of the European Commission and the European Parliament with the aim to provide the foundations for a EU strategy on genetic resources.

Key areas of intervention

These areas of intervention require a **step-change in political commitment**. Without urgent action in these areas, it would be impossible to realize the conservation and sustainable use of plant genetic resources in Europe and reap their benefits.



1. Establishing a coherent European policy framework

Plant and other genetic resources for food and agriculture are covered in several policy areas, and the conservation and sustainable use of genetic resources are linked to numerous strategies and policies, which are dealt with by various Directorates of the European Commission.

What is still missing is a coherent and appropriate policy framework to coordinate and facilitate the conservation and use of genetic resources at the European level. This was emphasized by the Council Conclusions on the Farm to Fork Strategy: “The Council of the European Union calls on the Commission to take concrete actions for ensuring the protection, restoration and sustainable use of plant and animal genetic resources, and invites the Commission to present a EU strategy for genetic resources for aquaculture, forests and agriculture that is based on the work of the Commission on Genetic Resources for Food and Agriculture of the FAO.”

This framework should be linked with existing policies, laws and structures such as the EU Common Agricultural Policy (CAP), the network of Natura 2000, the EU seed legislation, research and research infrastructure, as well as development policies.



2. Establishing a long-term European infrastructure for conservation, documentation and sustainable use

There is an urgent need for establishing an efficient infrastructure for plant genetic resources conservation, documentation and sustainable use, enabling the fulfilment of the European ambition to carry out high-quality research and strengthen global outreach.

This infrastructure should include a decentralized/virtual European genebank, routine screening facilities, and a European network to manage and monitor priority *in situ* populations. A European plant genetic resources documentation and information infrastructure and a human capacity-building scheme should also be developed.





3. Establishing a European Coordination and Information Centre on Genetic Resources

Given the current scattered and dispersed landscape of activities for agricultural conservation and use in Europe, a new European Coordination and Information Centre for conservation and sustainable use of agricultural genetic resources should be established to improve the coordination of activities for the conservation and sustainable use of genetic resources for food and agriculture. This centre will, *inter alia*, host the ECPGR Secretariat and support the European Commission, European governments and their national programmes in implementing and monitoring the Plant Genetic Resources Strategy. It will also improve institutional channels between the EU, the European networks, the Food and Agriculture Organization of the UN and other international partners.



4. Securing a sustained financial basis for collaborative European and national programmes

Currently, several funding instruments and payment structures in Europe are in place related to the CAP, the Rural Development Programme and research programmes. However, funding is scattered and insufficient for important elements related to the conservation and sustainable use of plant genetic resources.

Adequate and permanent funding is essential to finance efficient, effective and lasting activities and associated infrastructures for the conservation and sustainable use of genetic resources. This could be achieved by co-funding of national programmes by the EU, introduced for European collaborative measures.

Conclusion

Europe has all the assets to develop and implement a new and effective strategy for the conservation and sustainable use of plant genetic resources.

Firm European and national political commitments in the four key areas of intervention described above are urgently needed to allow Europe to capitalize on its assets and fully achieve the objectives of the new Strategy.

By doing so, Europe will preserve the capacity to develop and adapt sustainable agri-food systems in a context of climate change and to fulfil its bioeconomy potential.



Wild alliums. Credit: Bioversity International/A.Lane

The Plant Genetic Resources Strategy for Europe is available at: <https://ecpgr.cgiar.org/pgrstrategy21>



The European Cooperative Programme for Plant Genetic Resources (ECPGR) is a collaborative programme among most European countries aimed at ensuring the long-term conservation and facilitating the increased utilization of plant genetic resources in Europe.

www.ecpgr.cgiar.org

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