

# PGR SECTION OF THE CTPS: ROLE, OBJECTIVES AND VALUES

## Conservation challenges for plant genetic resources

Many cultivated plants are the result of a long process of human domestication. They have been selected for their agronomic, nutritional, gustatory, pharmacological, technological, aesthetic qualities, their adaptation to environments or their conformity to tradition and myths. Cultivated plants therefore meet human needs: food, medical, craft and industrial, cultural, religious, recreational or ornamental.

For a given plant (wheat, pear, rose, etc.), its genetic resources consist of the diversity of the cultivated species or groups of cultivated species as well as crop wild relatives, some of which can be used for breeding.

The huge diversity of genetic combinations have been created or appeared over time, in a wide variety of environments (soils, climates, diseases, etc.) and that have been conserved. They provide a pool from which genetic material can be drawn that can contribute to a wide range of potential solutions, in response to current and future challenges in agriculture, the agri-food sector and to societal demands.

Knowledge development, management and conservation of plant genetic resources (PGR) are essential to maintain a broad genetic base, necessary condition for enhanced resilience of production systems in the future, enabled through innovation in plant material made available to farmers.

Over the past several decades, there have been strong climatic changes, noticeable on the national territory. Climatic hazards more frequent and more severe. The world's various agricultural and food production systems are subject to increasing uncertainty about weather conditions. Both wild and domestic biodiversity are affected.

In addition, the diversity of needs resulting from the variability of highly contrasting lifestyles, consumption ways and production techniques, and the uncertainty about how they may evolve, raise important questions for producers and processors regarding economic strategy. Just as PGRs appear to be an element of resilience to global change, they also represent a major component of innovation in production, processing, distribution, food and agro-ecological engineering, serving a rapidly changing society. This evolution has different aspects, tending towards the search for new tastes and uses on the one hand and the quest for heritage values, identity and relationships to territories and terroirs on the other.

Consequently, regardless of their intrinsic innovation potential and their potential contribution to build the resilience of the world's agriculture, PGRs are also a demonstration of the past and history. They result from the place, context and time of their development and from the history of species domestication, a common heritage of human societies. Therefore, they form a legacy that represents the expression of a tradition, or even a local or national culture. Therefore, when they disappear from the market or are threatened by changes in their ecosystem, the sustainability of their conservation is essential to avoid any irreversible biodiversity loss.

At international level, the challenges are exacerbated by the combined effects of growing demographics and climatic trends with dire consequences such as rising ocean levels, increasing erosion and urbanisation of agricultural land. Feeding the population in 2050 appears to be a real challenge and the United Nations has recognised the importance of PGRs to address it. Actually, the biological diversity of PGRs presents a pool of mobilisable solutions whose availability to the greatest number without restriction of access is essential.

The status of PGRs has evolved from a common heritage of humanity to an asset subject to national sovereignty. Nations are thus free to define the conditions of access and benefit-sharing associated with the use of these resources. However, should States be sovereign over their plant genetic resources, they are interdependent for their food security. This has led FAO, the Food and Agriculture Organisation of the United Nations, to establish so-called "facilitated" access to PGRs through the Multilateral System of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA<sup>1</sup>) (in contrast to the bilateral approach of the Convention on Biological Diversity and the Nagoya Protocol). The resources thus preserved with facilitated access enable the

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<sup>1</sup> <http://www.fao.org/plant-treaty/en/>

international community to meet current and future challenges. The ITPGRFA also establishes a multilateral mechanism for sharing the benefits arising from the use of PGRs that have been integrated into the Multilateral System. In order to face these challenges and to act efficiently, France has committed itself to the ITPGRFA.

Historically, France has had a policy of collecting, domesticating, acclimatising and selecting plants of botanical, agricultural, horticultural, landscape, forestry or industrial interest. It is rich in genetic resources for all species cultivated both in metropolitan France and in the French Overseas regions. France also manages international collections. But this richness and diversity are insufficiently known, sometimes scattered and in some cases threatened by erosion.

A wide diversity of conservation and management methods are practised on the national territory. The aim is to support the existing system and innovate to improve its effectiveness and sustainability as well as the synergies between territorial stakeholders, practices and organisations.

This is the role assigned to the "Cross-section on the conservation of plant genetic resources of cultivated species and their wild relatives" of the Permanent Technical Committee for Selection (CTPS) set up by decree of the Ministry in charge of agriculture on 24 November 2015<sup>2</sup>.

## Inventory of plant genetic resources in France

### *Rising awareness of the situation*

As early as 1983, France, convinced of the need to conserve the genetic resources of domestic species from different kingdoms (animal, microbial, plant, forest) as a potential reservoir to meet future needs, created the Bureau of Genetic Resources (BRG). It elaborated and led the national policy for the conservation of genetic resources and was a member of the French delegations within international bodies. In 1999, the National Charter for the Management of Genetic Resources set out the framework for a general philosophy and decentralised organisation of the French system for the conservation of GR and PGRs. The recognition of the multiplicity of stakeholders and that of a distributed, non-centralised system (e. g. absence of a national "gene bank") are specific characteristics of the French system.

Following the Grenelle Environment Forum (2007), the BRG merged with the French institute for biodiversity (IFB) to create the French Foundation for Biodiversity Research (FRB). The FRB has taken over the scientific component of the BRG's missions and integrated it into its activities to federate biodiversity research. Its tasks of coordinating the stakeholders involved in the conservation of genetic resources, the promotion of the national collection and the technical support of collection curators have been entrusted since 2015 to the National Coordination by the Ministry in charge of Agriculture (see "National Coordination" paragraph).

### *A diversity of stakeholders*

The conservation of PGRs in France relies on multiple and diverse stakeholders.

#### **1. Public research institutes and public/private cooperation networks**

They manage collections in *ex situ* conservation (outside their natural environment). These collections are maintained either by some twenty biological or genetic resource centres in metropolitan France or overseas territories in relation to various stakeholders ranging from researchers to farmers and breeders, or by cooperation networks bringing together public and private partners. These networks, coordinated by the "BRG", have established, in particular, open access collections. Seven of which have been added to the ITPGRFA multilateral system (eggplant, oats, wheat, forage and turf species, maize, potatoes and triticale). Private stakeholders (breeders, seed producers) use these collections and their own collections to sustain their breeding programme aimed at offering varieties that are tolerant to climatic hazards, disease resistant and meet the needs of farmers, industrialists or consumers.

<sup>2</sup>

<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031553184&dateTexte=&categorieLien=id>

The existence of a French national research apparatus committed to development covering Metropolitan France and French Overseas regions has led national research organisations to develop tropical PGR collections. Most often built in partnership with Southern countries and international organisations, these collections give France a specific responsibility in the conservation of genetic resources that can be mobilised through research to meet the challenges of agriculture in Southern countries.

In addition to conservation activities, there are also research activities on PGRs. Linking conservation to research enables a better understanding of the history, nature, dynamics and function of the diversity of PGRs for better conservation and better use of them.

## 2. Local or regional structures with different legal status

At a local level, structures such as Regional Centres for Genetic Resources (Botanical conservatories, Regional nature reserves or local communities have also organised themselves about the conservation of PGRs. These structures preserve their collections both *in situ* (in the environment where their distinctive characteristics have been developed) and *ex situ*. They notably develop actions to revive traditional know-how, support farmers and integrate old local varieties into economic sectors. Farmers, associations and individuals have also developed strong expertise in the management of PGRs, mainly "on farm" (fields, gardens, conservatories). They seek to develop varieties adapted to their territories, produced in short supply chains by local stakeholders using traditional knowledge.

## 3. Associations at the national level that federate territorial activities

At a national level, amateurs and seed/seedling producers have often structured themselves to create collections, coordinate, animate and certify local initiatives with the aim of preserving and raising awareness about plant heritage and biodiversity as tools for economic and cultural development for the benefit of land use planning.

### ***An inventory to be completed and updated***

In 2015, France's<sup>3</sup> report on the implementation of the Second Global Plan of Action for Plant Genetic Resources for Agriculture and Food provides an overview of the situation, which includes more than 120 main stakeholders. However, it is likely that their number is to be evaluated between several hundred and a thousand. There were also over 120,000 plant genetic resources inventoried, preserved *ex situ*, or maintained *in situ* and "on farm" in France. This non-exhaustive inventory must be completed and updated in the coming years, particularly for ornamental and wild related species.

## **National Coordination**

### ***Scope***

The National Coordination of PGRs covers all cultivated plant species and their wild relatives, except for forest trees, conserved in Metropolitan France and French Overseas regions.

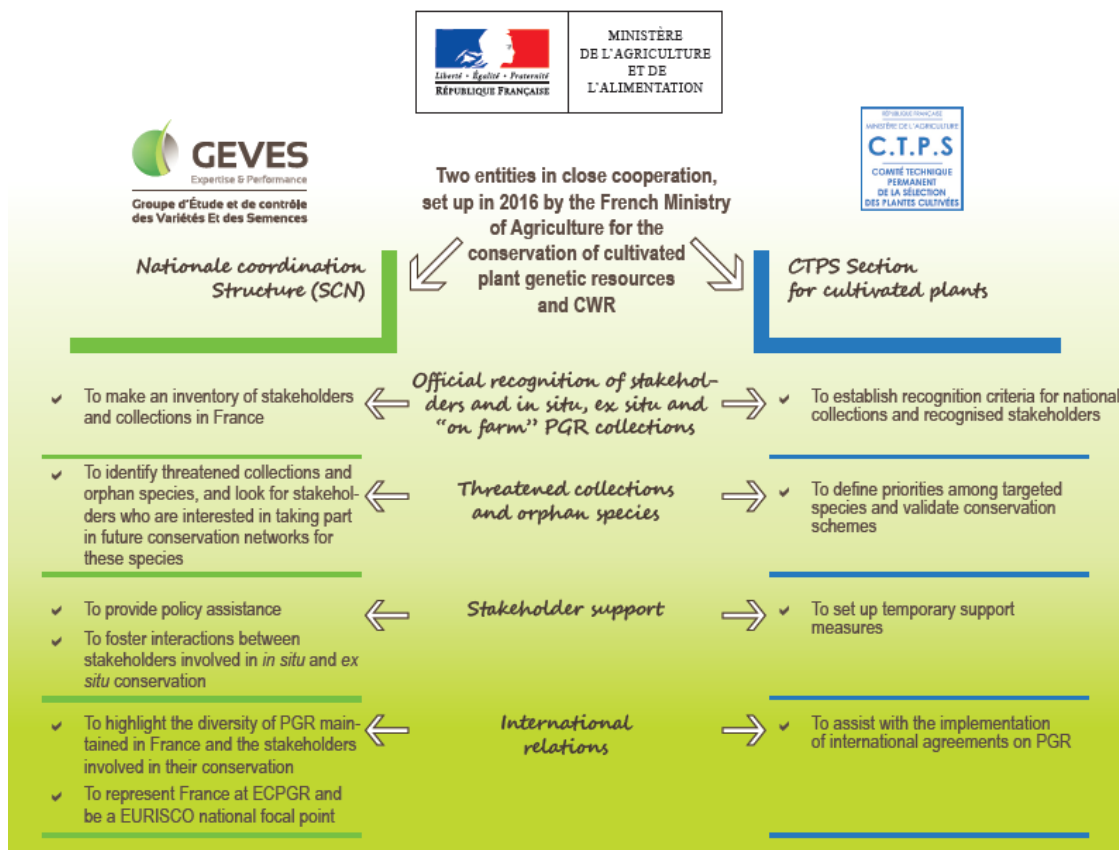
It is set up within GEVES<sup>4</sup> ensuring technical coordination and backed up by a specific Section called "PGR" newly created within the CTPS. This Section provides advice and support to the Ministry of Agriculture on all matters related to the conservation of PGRs (decree of 27 May 2016<sup>5</sup>). These two structures link together their missions (see insert) to achieve the objectives set by the National Coordination on PGRs conservation issues in France, in their historical, sociological and cultural contexts.

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<sup>3</sup> <https://www.geves.fr/wp-content/uploads/Version-finale-du-Rapport-de-mise-en-oeuvre.pdf>

<sup>4</sup> <http://www.geves.fr>

<sup>5</sup> <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000032628535&categorieLien=id>



### A first at European level: the French specificity

This new Section brings together a diversity of stakeholders (public and private) involved in *ex situ* conservation and *in situ* management of PGRs as well as in their characterisation and valuation. It brings together 42 members, including representatives of 5 ministries<sup>6</sup>, public and private bodies<sup>7</sup> and 26 members appointed for their expertise in the management and conservation of PGRs (breeders, seed producers, conservation networks, farmers, associations, conservatories, stakeholders in the development process). Such a body, bringing together stakeholders' representative of the different components of conservation, is a first at European level.

## Section Values

### Solidarity

Through its recommendations, the Section aims to help those who conserve and sustain the cultural, tangible and intangible heritage of plant genetic resources to facilitate access to them for as many people as possible. At international level, access to French resources has been facilitated by the French national collection in the multilateral system of the ITPGRFA, in accordance with the commitments made by France upon ratification of this Treaty. This reflects the awareness of a common destiny of agriculture throughout the world. In this way the Section affirms solidarity as its first value at both national and international levels.

### Recognition of diversity / co - construction

The way the Section was composed illustrates the diversity of stakeholders (public, private, associative) who contribute to conservation in France and shows sustainable use of PGRs. It also reflects the variety of ways in

<sup>6</sup> Agriculture, Research, Environment, Culture, Overseas

<sup>7</sup> CIRAD, CNRS, FRB, GEVES, INRA, IRD, MNHN

which these resources are conserved, managed, represented and used. The Section recognizes that this diversity of stakeholders, perspectives and actions is essential to contribute to the national ambition to preserve and enhance PGRs in a changing ecological, cultural and economic environment. In its work, the Section relies on cooperation among its members. It promotes partnership between the different stakeholders and encourages the search for synergies between the various professions and practices related to plant genetic resources.

The complexity of the challenges that agriculture is facing, the absence of single solutions but on the contrary the plurality, the multi-modality of the responses to be imagined and implemented, the rapid evolution of science and technology, the contribution to reflection on public policies, the development of environmental citizenship require, a sustained practice of debate and the research as much as possible of the compromise between the members of the Section. It allows, through the different points of view and origins of the stakeholders, to enrich collective understanding, to bring complementary expertise while co-constructing elements of solution in an uncertain and changing world.

### ***Trust/transparency/communication***

The importance of the issue, the uncertainties of the world and the diversity of everyone's motivations can contribute to weakening the most needed cooperation between stakeholders. Trust is therefore an essential element for the success of National Coordination. Therefore, within the Section, the work is conducted in complete transparency for each of its members. In addition, the Section's activities are regularly communicated, explained and promoted to the relevant audiences as well as to the public at large.

## **Human and financial resources**

### ***A contribution of expertise in kind***

Members of the PGR Section of the CTPS participate on a voluntary basis in quarterly meetings and in the various working groups. It is therefore an important investment on their part. The work of this Section can also rely on the varietal expertise of the other Sections of the CTPS.

### ***Financial support from the French government***

The National Coordination Structure (SCN) set up within GEVES and its actions on orphan species<sup>8</sup> are financed by a specific grant from the Ministry of Agriculture. In addition, financial support for investments in plant genetic resource collections, managed through regular calls for applications, has also been set up by the same Ministry.

### ***A search for funding diversification***

The French Interprofessional Organisation for Seeds and Plants (GNIS) is a recognised agricultural interprofessional group of operators in the seed sector (breeders, producers, farmer-multipliers, distributors and users, including gardening professions), which has been making an annual voluntary financial contribution of €175,000 since 2018 to help finance actions in France to preserve plant genetic resources for agriculture and food.

In order to raise additional funds from private operators or the general public to support managers of plant genetic resources collections and the collections they hold, a reflection on the implementation of a dedicated Fund is carried out by the PGR Section of the CTPS.

## **The activities of the PGR Section of the CTPS**

### ***State support structure***

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<sup>8</sup> Lentil, bean, grass pea, onion

The Section deals with all matters relating to the conservation of plant genetic resources, as indicated in the Decree of 27 May 2016, including matters relating to:

- Funding actions related to the conservation of plant genetic resources;
- Clarification of the criteria for recognition as "collection curator of plant genetic resources for agriculture and food" and for the identification of heritage plant genetic resources;
- Implementation of international agreements, including European agreements on plant genetic resources;
- Management of heritage genetic resources;
- Implementation of European Union regulations and directives concerning plant genetic resources.

### ***Expertise area***

The Section issues opinions to the Minister in charge of agriculture on:

- (i) Recognition as a "collection curator of plant genetic resources for agriculture and food" requested by those responsible for the conservation of these plant genetic resources, by
  - Suggesting the rules for evaluating the recognition criteria, and if necessary, their evolution,
  - Examining the applications.
- (ii) The list of plant genetic resources included in the national collection, by
  - Suggesting the rules for entry into the national collection, and if necessary, their evolution,
  - Analysing PGR deposits to the national collection,
  - Examining actions to structure the national collection.

### ***Think-tank for the conservation of PGRs in France***

The Section:

- (i) Supports orphan species or endangered collections by
  - Suggesting recommendations on conservation schemes developed by the national coordination structure to preserve the most threatened plant genetic resources,
  - Transferring information on threatened collections and/or orphan species,
- (ii) Supporting the community of national stakeholders in the conservation of PGRs by suggesting collaborative approaches to be developed, such as workshops or training, for the conservation of PGRs,
- (iii) Suggesting communication actions to be implemented (media communication, events, training, etc.),
- (iv) Identifying and suggesting IT tools to be developed, especially for the management of the national collection and associated data (database, blockchain, etc.).

To implement these activities, the Section relies on its members, who in turn can rely on their networks and the National Coordination Structure. In addition to its plenary working sessions, the Section may mobilise its members in working groups dedicated to specific themes. It can also bring in external expertise on specific points.

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