



Common Fund
for Commodities



Food and Agriculture
Organisation

Training Workshop

Technical Manual

*Guidelines for groundnut seed production,
storage and distribution
for traditional farming systems*



Groundnut
Germplasm
Project



International Crops
Research Institute
for the Semi-Arid
Tropics



Centre de Coopération
Internationale
en Recherche Agronomique
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S e s s i o n



Seed policy and legislation

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Introduction

Genetic resources group together species, varieties or races of plants, animals and microorganisms. Breeders were first concerned about researching, identifying, cataloguing, characterizing, collecting and conserving these resources simply because this was the source of their "raw material".

The breeder's work consists of "combining the genes" in response to an agricultural need, using the most pertinent reservoir of diversity as related to well defined objectives. In this perspective, the breeder does not own the genes he combines. Profits can only be derived from original gene combinations that improve the production or utilization performance or introduce new traits into the species being developed. Because of this premise, genetic resources have circulated freely within the scientific community throughout the world. Breeders as well as many governments have contributed financially to the maintenance of international collections - the contents of which are made available to everyone, free of charge.

This situation has been completely overturned because of two fundamental and related reasons. On the one hand, globalization of trade puts all producing countries into the fierce competition that governs world markets. On the other hand, the development of new techniques in biotechnology that permits identification, isolation, cloning, and transfer of basic genetic information. This has raised questions about the right to own genes, genetic constructions, and as a consequence living organisms, including plants, animals and micro-organisms.

The status of different types of genetic resources is far from being clear-cut for the plants that are of interest. Animated debate continues to take place at all levels, we will however try to clarify the major trends.

Different types of plant genetic resources

The term "genetic resources" is very general. It should be precisely stated that this includes the range of species covered as well as the different types of genetic resources. Thus within the limits of "plant genetic resources for food and agriculture" the following species can be taken into consideration:

- The dozen or so cereal and oil-protein species that provide the essential protein, lipid and energy requirements for a large portion of humanity, as well as
- Local species (important and possibly decisive to regional food supply)
- Fruits and vegetables that provide necessary vitamins and are essential to food security as defined by the World Summit on Food Security
- Fodder crops essential for animal nutrition, and finally
- Cash crops that earn foreign exchange and contribute to national development

From a technical point of view, the international debate classically distinguishes three types of plant genetic resources¹:

Firstly, resources that relate to cultivated or exploited species that currently form our food and agricultural base and are most often subject to genetic improvement.

1. These categories include only genetic resources from living entities; commercial clones, genetic constructions etc. are deliberately excluded although these also constitute veritable genetic resources.

Varieties arising from modern selection that have been commercialized can be divided into five categories:

- 1) classic varieties protected by PBR²
- 2) transgenic varieties protected by patent(s) and by PBR
- 3) transgenic varieties protected uniquely by patents
- 4) varieties commercialized without protection including varieties that were protected in the past but have now become public property
- 5) ancient varieties that have become obsolete and are neither commercialized nor cultivated.

To these, "modern" genetic resources have added the following varieties:

- 6) traditional varieties and cultivars originating from on-farm selection (depending on the species and geographic location these may have practically disappeared or to the contrary, represent almost the entire cultivated area)
- 7) more or less wild species related to those described above that breeders have depended on as a source of interesting characteristics. With the development of advanced embryo rescue techniques and the use of bridging species to introduce genes from unrelated species, this circle of related species has been considerably widened over the last few years.

The UPOV Convention

Until the first UPOV³ Convention entered into force in August 1968, seven years after its adoption in Paris, many countries did not have legal systems that really protected the work of breeders and allowed them to derive legitimate benefits.

The first document proposing the creation of UPOV was adopted in 1961, it was subsequently revised several times (1972, 1978 and 1991). The current version, written in 1991 came into force on the 24/04/1998. The activities, role and characteristics of this organization, essential to the protection accorded, based on the most recent document, are outlined below.

"The objective of the UPOV Convention is to promote recognition of the value of new plant varieties to breeders by signatory states and thereby accord breeders exclusive property rights based on uniform and clearly defined principles." In order to be protected a variety must be:

- 1) distinctly different from all known existing varieties
- 2) sufficiently homogenous
- 3) stable
- 4) new in the sense that it has never been commercialized before certain fixed dates, related to the submission of the demand for protection
- 5) it must possess a name

Because of concerns about adherence to these conditions a PBR is delivered to the breeder for a fixed minimum duration of 20 years for annual species and 25 years for tree crop species. These breeder's rights permits the following activities with previous authorization from the owner. This corresponds to the commercialization of the variety accomplished by reproduction or multiplication of the material:

2. Plant Breeder's Rights.

3. UPOV: Union For the Protection of New Plant Varieties, whose headquarters are in Geneva, Switzerland.

- 1) production or reproduction of the material
- 2) packaging after reproduction or multiplication
- 3) offer for sale
- 4) sale or any other form of marketing
- 5) export
- 6) import
- 7) any of the activities mentioned in points 1i) to 6) above.

These activities are equally subject to prior authorization from the breeder with respect to the harvested product, including the whole plant or plant parts, if these were obtained by unauthorized reproduction or multiplication of the protected variety.

Moreover, the Convention anticipates that each state can use their own initiative to optionally extend these rights to direct derivatives of the protected variety.

These rights are accorded to the protected variety and its derivatives, to those that cannot be clearly distinguished from the protected variety and to varieties that require repeated use of the protected variety for their reproduction (as is the case of hybrid varieties).

However, there may be three exceptions to the rule. This possibility is left up to the state's initiative. The breeder's rights, described above do not include the following:

- 1) private use with non-commercial objectives
- 2) experimental use
- 3) use of the protected variety for the creation of new varieties as well as the use of such varieties⁴.

In addition:

- each country could grant exemptions to the breeder's rights described above and authorize farmers to multiply or reproduce their harvested product in their own fields⁵. This should be within reasonable limits that respect and safeguard the legitimate rights of the breeder⁶.

The two preceding points form the basis of the *sui generis* system, which is adapted to plant varieties included under the UPOV Convention. Its specificity is emphasized when compared to the patenting system. Thus, any protected variety:

- must be freely accessible as a genetic resource that can be included by breeders in varietal improvement programs (patent dependent or perfection programs)
- can be multiplied by farmers for replanting their own fields even though the resulting agricultural product is sold, this would not be possible with patents.

It is too often said that the UPOV Convention supports appropriating genetic resources and freely supplying them to farmers. To the contrary, the Convention allows complete accessibility to new varieties as a source of genetic variation and permits individual farmers to have a greater freedom of choice.

4. This exception to the breeder's rights, designated "breeder's privilege" has often been voluntarily (?) ignored or misinterpreted by those who have criticized the UPOV system. They now find many worthy qualities in this system in light of the patentability of transgenic varieties.

5. Dispensation better known as the "farmer's privileges" not to be confused with "breeder's rights" which will be mentioned for the first time in FAO's "International Undertaking on Genetic Resources" (see below).

6. This is already the case for Germany, Sweden, the United Kingdom and Holland, and should soon be operational in France.

On the 29th of March 2001, 47 countries took part in the UPOV Convention, the joining of major countries such as China and Brazil marked 1999. Each of these countries gives individuals or corporate citizens from other signatory states, rights identical to those accorded to its own nationals. This reciprocal system permits access to extremely developed genetic resources. Breeders from member countries therefore have free and easy access to modern varieties. It must be noted that the term 'breeder' includes the multinational company as well as the passionate backyard gardener since the costs and logistics are small and extremely simple. This is not generally the case for patent applications.

International Undertaking on genetic resources

All kinds of genetic resources, particularly those of plants covered under the UPOV system were freely exchanged by researchers and professionals from countries all over the world until the early 80's. The only concern was that quarantine procedures should be followed to prevent the spread of parasites, diseases or viruses.

This situation was somewhat "institutionalized" internationally through the "International Undertaking on Plant Genetic Resources" adopted in Rome in 1983. This was accompanied by the creation of the FAO Commission on Genetic Resources for Food and Agriculture (Resolution 9/83).

This Undertaking was completed by the following two resolutions at the 25th Session of the FAO Conference (Rome, November 1989):

- Resolution 4/9 titled "Joint Interpretation of the International Undertaking" which specifically sets out the following points with the "objective of establishing baselines for a generally equitable system that is consequently sound and durable":
 - "The breeders rights, as recognized by UPOV (Paris Convention, 2nd December 1961, revised 1972 and 1978) are compatible with the International Undertaking."
 - "The countries subscribing to the International Undertaking recognize the enormous contribution that farmers from all regions have made to the conservation and development of plant genetic resources, which justifies the concept of farmers' rights."
- Resolution 5/89 titled "The Rights of Farmers" because of certain concerns about symmetry with "breeder's rights". The concept of farmer's rights emerges from "their past, present and future contributions to the conservation, improvement and availability of plant genetic resources." These specify that rights "are accorded to the international community since it is entrusted with present and future generations of farmers, it must assure that all profits return to them and help them to continue their activities. The achievement of the overall objectives forms the basis of the International Undertaking."

However the preceding positions were greatly modified by Resolution 3/91 ratified during the 26th Session of the FAO Conference (Rome, November 1991): "Recognizing that the idea of humanity's common heritage, as applied in the International Undertaking on Plant Genetic Resources, is subordinate to the principle of the sovereign rights of nations over their plant genetic resources." It declared that "Nations have sovereign rights over their plant genetic resources" and reaffirmed that "Farmer's rights will become a reality thanks to internationally funded programs for the conservation and use of plant genetic resources."

Through these different resolutions, quite contradictory to the starting principle it can be observed that with respect to genetic resources, there has been a progressive shift away from the concept

of "mankind's common heritage" towards that of "the sovereignty of nations." At the same time the difficulty of giving a real context to "farmer's rights" is encountered. No provisions were made for setting up and monitoring the application of these rights by signatory states. The International Undertaking is also not restrictive. Its content most often rests as a "recommendation" and its internal discrepancies are of little consequence. These will be brought to light with the adoption of the CBD.

The Convention on Biological Diversity (CBD)

The Convention on Biological Diversity was adopted in June 1992 in Rio de Janeiro. It entered into force on the 29th of December 1993 and includes more than 170 signatories (including France and its European partners, the United States is notably absent). Initially the principal objectives were "the conservation of biological diversity" and "the sustainable use of these resources." However, under pressure from special interest groups and "experts⁷" who overestimated the value of the natural biological diversity of tropical forests (so called "green gold"), the document that was actually adopted, introduced the objective of sharing the benefits that result from the use of genetic resources. It is radically different from the basic principles of the FAO document of 1983.

This has had severe repercussions on the circulation of genetic resources. Thus, measures that grant the distribution privileges of genetic resources to the state and those that concern mechanisms for profit sharing are combined under article 15 of the CBD, under the title of access to genetic resources.

This time a very restrictive International Convention - endowed with a monitoring department, the Conference of members - was imposed on all signatory governments. Thus from 1993 the circulation of genetic resources entered into the arena of international law, although many of the issues concerning ownership and utilization have yet to be clarified. Up until then genetic resources had been freely exchanged at the international level in a practically informal judicial framework. This sudden reversal of the situation has raised many fundamental questions and ongoing international discussions are still far from having all the answers.

Ongoing debate on the sovereignty of nations over plant genetic resources

Modern botanists and geneticists have inventoried, collected, classified, evaluated and safeguarded plant genetic diversity. Breeders the world over therefore have access to a considerable amount of information on the organization and potential of a large number of the species exploited by man.

Objective and range of state sovereignty

The principle of state sovereignty lies at the heart of the CBD since the following are conferred on the state:

7. Their stance is supported by the recent agreement between Merks laboratories and INBio, Costa Rica, deemed by certain as a disastrous "publicity stunt sp."

- The right to regulate access to the country's resources and to determine the use and distribution of any benefits resulting from the use of these resources
- An obligation to conserve and use these resources sustainably and facilitate access to them.

The relationship between the development of distinguishing characteristics and state sovereignty

Several signatory countries have judged it prudent to accompany their ratification of the CBD by a proviso clause mentioning the respect of intellectual property rights since the CBD explicitly mentions these rights as related to technology and not to genetic material. In contrast, varieties resulting from traditional farming practices and the wild parents of cultivated species (categories vi and vii) are covered by clauses in the CBD.

Between these two situations, the status of unprotected varieties in the public domain that are still being exploited and that of obsolescent varieties (categories iv and v) have not been clearly established. Since Rio de Janeiro, the genetic resources contained in traditional, ancient, local cultivars have only been available to breeders, following unilateral regulations set in place by governments. In contrast, genetic material from high-performance varieties arising from modern selection are not protected by the CBD, however these are protected under the UPOV system.

Sovereignty and ex situ collections

The clauses of any international convention can only be legally applied from the date that it entered into force, in this case the 29th of December 1993. In this context, collections of genetic resources that were assembled before this date are not covered by the CBD and remain the property of their owner who was in possession of these resources on this date.

Sharing the benefits from the use of genetic resources for food and agriculture

This is one of the most difficult issues currently being debated and it poses three major problems: evaluation of resources and the benefits generated from their use, identification of the parties who should benefit from these profits, and the specific role of farmers in this debate.