

General

What is UPOV?

The International Union for the Protection of New Varieties of Plants (UPOV) is an intergovernmental organization based in Geneva, Switzerland. UPOV was established in 1961 by the International Convention for the Protection of New Varieties of Plants (the "UPOV Convention").

The mission of UPOV is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society.

The UPOV Convention provides the basis for members to encourage plant breeding by granting breeders of new plant varieties an intellectual property right: the breeder's right.

What does UPOV do?

UPOV's mission is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society. The main objectives of UPOV are, in accordance with the UPOV Convention, to:

- provide and develop the legal, administrative and technical basis for international cooperation in plant variety protection;
- assist States and organizations in the development of legislation and the implementation of an effective plant variety protection system; and
- enhance public awareness and understanding of the UPOV system of plant variety protection.

What is a plant variety?

The term "species" is a familiar unit of botanical classification within the plant kingdom. However, it is clear that within a species there can be a wide range of different types of plant. Farmers and growers need plants with particular characteristics and that are adapted to their environment and their cultivation practices. A plant variety represents a more precisely defined group of plants, selected from within a species, with a common set of characteristics. To see an illustrative example of a plant variety, please go to <https://www.upov.int/overview/en/variety.html>.

A detailed explanation of the definition of "variety" is provided in document [UPOV/EXN/VAR "Explanatory Notes on the Definition of Variety under the 1991 Act of the UPOV Convention"](#)

What are the benefits of new varieties of plants for society?

Feeding the World

New, improved varieties of plants are an important and sustainable means of achieving food security in the context of population growth and climate change. New varieties that are adapted to the environment in which they are grown increase the choice of healthy, tasty and nutritious food while generating a viable income for farmers.

Improving lives in rural and urban areas and providing economic development

Innovation in agriculture and horticulture is important for economic development. Production of diverse, high quality varieties of fruit, vegetables, ornamentals and agricultural crops provides increased income for farmers and employment for millions of people around the world. New varieties can be the key to accessing global markets and improving international trade for developing countries. At the same time, new varieties can support the development of urban agriculture and the growing of ornamental plants, shrubs and trees that contribute to improving the lives of people in the expanding urban environment.

Respecting the natural environment

Increasing productivity whilst respecting the natural environment is a key challenge in the context of population growth and climate change. Breeding plant varieties with improved yield, more efficient use of nutrients, resistance to plant pests and diseases, salt and drought tolerance and better adaptation to climatic stress can sustainably increase productivity and product quality in agriculture, horticulture and forestry, whilst minimizing the pressure on the natural environment.

Why is plant variety protection necessary?

Successful breeding requires great skill and knowledge. In addition, large-scale breeding calls for significant investment in land, specialized equipment (for example, greenhouses, growth chambers and laboratories), and skilled, scientific manpower.

It takes a long time to develop a successful plant variety (10 to 15 years in the case of many plant species). Yet not all new plant varieties are successful and, even where the varieties show significant improvements, changes in market requirements may eliminate the possibility of a return on investment. This makes it necessary to balance the benefits with the return of the original high investment. Generally, however, plant breeding results in the availability of varieties with increased output and improved quality for the benefit of the society.

Sustained and long-term breeding efforts are only worthwhile if there is a chance to be rewarded for the investment made. To recover the costs of this research and development, the breeder may seek protection to obtain exclusive rights for the new variety.

At the same time, a new variety, once released, can often be easily reproduced by others. The original breeder is thus deprived of the fair opportunity to benefit from his or her investment. It is, therefore, critical to provide an effective system of plant variety protection, which encourages the development of new varieties of plants thereby benefiting the breeder and society at large.

- [Seminar on Plant Variety Protection and Technology Transfer: the Benefits of Public-Private Partnership](#)
- [UPOV Report on the Impact of Plant Variety Protection](#)

In addition to making plant variety protection available, other measures to encourage plant breeding activities include increased public funding for plant breeding, facilitating access to genetic resources and encouraging public-private partnerships.

What are the benefits of plant variety protection and UPOV membership?

The [UPOV Report on the Impact of Plant Variety Protection](#) demonstrated that in order to enjoy the full benefits which plant variety protection is able to generate, both implementation of the UPOV Convention and membership of UPOV are important. The introduction of the UPOV system of plant variety protection and UPOV membership were found to be associated with:

- (a) increased breeding activities,
- (b) greater availability of improved varieties,
- (c) increased number of new varieties,
- (d) diversification of types of breeders (e.g. private breeders, researchers),
- (e) increased number of foreign new varieties,
- (f) encouraging the development of a new industry competitiveness on foreign markets, and
- (g) improved access to foreign plant varieties and enhanced domestic breeding programs.

In order to become a UPOV member the advice of the UPOV Council in respect of the conformity of the law of a future member with the provisions of the UPOV Convention is required. This procedure leads, in itself, to a high degree of harmony in those laws, thus facilitating cooperation between members in the implementation of the system.

How does plant variety protection work?

The UPOV Convention provides the basis for members (see <https://www.upov.int/members/en/>) to encourage plant breeding by granting breeders of new plant varieties an intellectual property right: the breeder's right.

The breeder's right means that the authorization of the breeder is required to propagate the variety for commercial purposes. The UPOV Convention specifies the acts that require the breeder's authorization in respect of the propagating material of a protected variety and, under certain conditions, in respect of the harvested material. UPOV members may also decide to extend protection to products made directly from harvested material, under certain conditions.

In order to obtain protection, the breeder needs to file individual applications with the authorities of UPOV members entrusted with the task of granting breeders' rights (see https://www.upov.int/members/en/pvp_offices.html). However, UPOV has developed UPOV PRISMA, an online tool which helps applicants to apply for breeders' rights with all participating PVP Offices, via the UPOV website (see <https://www.upov.int/upovprisma/en/index.html>).

Is it true that UPOV only promotes commercially bred plant varieties geared to industrialized farmers?

The aim of the UPOV system is encourage breeding of new plant varieties for all types of farmers. The “[Seminar on Plant Variety Protection and Technology Transfer: the Benefits of Public-Private Partnership](#)” and the “[Symposium on the Benefits of Plant Variety Protection for Farmers and Growers](#)” demonstrated, for example, the way in which plant breeders' rights have been used by the public sector to transfer new varieties to both commercial and resource-poor farmers.

Does the UPOV system of plant variety protection only benefit large multinational corporations?

No. There are no restrictions on who can be considered to be a breeder under the UPOV system: a breeder might be an individual, a farmer, a farmers' cooperative, a researcher, a public institute, a small or large company. Breeders can be based locally, nationally, regionally or internationally.

The UPOV system was created to benefit society through the development of new plant varieties by supporting plant breeders. See “[What are the benefits of plant variety protection and UPOV membership?](#)”.

The UPOV website provides information on the diversity of plant breeders that use the UPOV system to support their plant breeding for the benefit of society, including:

- [UPOV Report on the Impact of Plant Variety Protection](#)
- [Australia](#)
- [European Union](#)
- [Japan](#)
- [Kenya](#)
- [Mexico](#)
- [Viet Nam](#)

Additional information is available on how the UPOV system supports plant breeding by the public sector:

- [UPOV Seminar on Plant Variety Protection and Technology Transfer: the Benefits of Public-Private Partnership](#)
- [Brazil](#)
- Canada:
 - https://www.upov.int/meetings/en/doc_details.jsp?meeting_id=64550&doc_id=552252
 - https://multimedia.wipo.int/upov/en/canada_cherry_short.mp4

The [Symposium on the Benefits of Plant Variety Protection for Farmers and Growers](#) demonstrated the role of PVP in Enabling Farmers and Growers to Become Breeders

Does the UPOV system make farmers dependent on high levels of inputs?

No, the UPOV system does not make farmers choose any particular varieties or farming method.

A study in Viet Nam, "[The socio-economic benefits of UPOV membership in Viet Nam; An ex post assessment on plant breeding and agricultural productivity after 10 years¹](#)", noted that, in the 10 years following UPOV membership, arable farm yields increased while inputs decreased by 1.2% per annum. The author stated that this "marks an astonishing technological change following Viet Nam's UPOV membership".

The UPOV system encourages the development of new varieties that are adapted to the needs of farmers. If plant breeders develop varieties that do not meet the needs of farmers, farmers will not grow their varieties and the plant breeders will not receive an income.

New varieties of plants with features such as improved yield, resistance to plant pests and diseases, salt and drought tolerance, or better adaptation to climatic stress are a key element in increasing productivity and product quality in agriculture, horticulture and forestry, whilst minimizing the pressure on the natural environment. Due to the continuous evolution of new pests and diseases as well as changes in climatic conditions and users' needs, there is a continuous demand by farmers/growers of new plant varieties and development by breeders of such new plant varieties ([Why do farmers and growers need new plant varieties?](#)).

¹(Corresponding author: Steffen Noleppa) by HFFA Research GmbH

Does the UPOV Convention regulate varieties that are not protected by plant breeders' rights?

The UPOV system does not regulate varieties that are not covered or no longer covered by plant variety protection. Therefore many plant varieties can be replanted by a farmer without any authorization of the breeder.

UPOV does not regulate any other system of intellectual property rights governing the protection of plants/plant varieties. It is necessary to consult the legislation in each UPOV Contracting Party in order to know the situation and the answer in that UPOV member.

Does UPOV membership result in the release of genetically modified varieties?

Membership of UPOV does not affect the ability of each country to regulate the development and release of genetically modified varieties, as it considers appropriate. Granting a plant breeder's right does not affect any obligations in a country concerning the release of genetically modified varieties. The UPOV Convention requires that "The breeder's right is independent of any measure to regulate the production, certification and marketing of material of varieties or the importing or exporting of such material."

Who can protect a plant variety?

Only the breeder of a new plant variety can protect that new plant variety. It is not permitted for someone other than the breeder to obtain protection of a variety.

There are no restrictions on who can be considered to be a breeder under the UPOV system: a breeder might be an individual, a farmer, a researcher, a public institute, a private company etc.

- see document UPOV/EXN/BRD “Explanatory Notes on the Definition of Breeder under the 1991 Act of the UPOV Convention”
- Seminar on Plant Variety Protection and Technology Transfer: the Benefits of Public-Private Partnership

What are the requirements for protecting a new plant variety?

Under the UPOV Convention, the breeder’s right is only granted where the variety is (i) new, (ii) distinct, (iii) uniform, (iv) stable and has a suitable denomination (see <https://www.upov.int/overview/en/conditions.html>).

Why does UPOV require varieties to be uniform and stable; doesn’t that lead to a loss of diversity?

...Why does UPOV require varieties to be uniform and stable?

A variety which is the object of a breeder’s right needs to be both sufficiently uniform and stable in order to define the object of the right granted to the holder.

The notion of uniformity ensures that the variety can be defined as far as is it necessary for the purpose of protection. This is indicated by the notion of sufficient uniformity, i.e., the criterion for uniformity does not seek absolute uniformity. The UPOV Convention links the uniformity requirement for a variety to the particular features of its propagation. This means that the level of uniformity required for truly self-pollinated varieties, mainly self-pollinated varieties, inbred lines of hybrid varieties, vegetatively propagated varieties, cross-pollinated varieties, mainly cross-pollinated varieties, synthetic varieties and hybrid varieties will, in general, be different. Furthermore, it relates only to the characteristics which are relevant for the protection of the variety.

As with the uniformity requirement, the criterion for stability has been developed to establish the identity of the variety as the subject matter of protection by ensuring that the relevant characteristics of the variety remain unchanged after repeated propagation or, in the case of a particular cycle of propagation, at the end of each such cycle.

...doesn’t that lead to a loss of diversity?

On the contrary, the UPOV system encourages the development of new varieties of plants, therefore adding to diversity. The “breeder’s exemption” in the UPOV Convention enables plant diversity to be available for further breeding activities because acts done for the purpose of breeding other varieties are not subject to any restriction by the breeder. This reflects the fact

that access to protected varieties contributes to sustain greatest progress in plant breeding and, thereby, to maximize the use of genetic resources for the benefit of society.

Moreover, the UPOV system does not govern the use of non-protected varieties nor the implementation of policies and legislation related to the use of non-protected varieties.

Does the UPOV system force farmers to grow protected varieties?

No, under the UPOV system, farmers have no obligation to grow protected varieties. The UPOV system encourages the development of new varieties, which provides farmers with new choices.

Does the UPOV system restrict access to the heritage/heirloom varieties?

No, the UPOV system does not regulate access to heritage or heirloom varieties (see also [“Does the UPOV Convention regulate varieties that are not protected by plant breeders’ rights?”](#)).

Only the breeder of a new plant variety can obtain plant variety protection under the UPOV system.

Does the UPOV system prevent farmers from using traditional varieties?

No, the UPOV system does not prevent farmers from using traditional varieties. Farmers can choose to grow protected or non-protected varieties. The UPOV system encourages the development of new varieties, which provides farmers with new choices.

Only the breeder of a new plant variety can obtain plant variety protection under the UPOV system.

(see also [“Does the UPOV Convention regulate varieties that are not protected by plant breeders’ rights?”](#).)

Can breeders use a protected variety in their breeding programs?

Under the “breeder’s exemption” in the UPOV Convention, the authorization of the breeder for the use of protected varieties for breeding purposes is not required.

The relevant provisions of the 1978 Act and of the 1991 Act of the UPOV Convention are reproduced and explained as follows:

1978 ACT

Article 5: Rights Protected; Scope of Protection

“(3) Authorisation by the breeder shall not be required either for the utilisation of the variety as an initial source of variation for the purpose of creating other varieties or for the marketing of such varieties. Such authorisation shall be required, however, when the repeated use of the variety is necessary for the commercial production of another variety.”

1991 ACT

Article 15: Exceptions to the Breeder’s Right

“(1) [Compulsory exceptions] The breeder’s right shall not extend to [...]

“(iii) acts done for the purpose of breeding other varieties, and, except where the provisions of Article 14(5) apply, acts referred to in Article 14(1) to (4) in respect of such other varieties.”

Thus, with regard to the use of a protected variety for breeding “other” varieties, the authorization of the breeder of the protected variety is not required in either the 1978 Act (“Authorisation by the breeder shall not be required ... for the utilisation of the variety as an initial source of variation for the purpose of creating other varieties...”) or the 1991 Act (“The breeder’s right shall not extend to ... acts done for the purpose of breeding other varieties”).

In addition, acts done with the “other” varieties (e.g. marketing), do not require the authorization of the breeder of the protected variety except for the circumstances specified in the 1978 Act and the 1991 Act. Article 5(3) of the 1978 Act (see above) specifies that the “authorisation shall be required ... when the repeated use of the variety is necessary for the commercial production of another variety”. The 1991 Act specifies that the authorization of the breeder is required, where the provisions of Article 14(5) (essentially derived and certain other varieties) apply, in respect of the acts for material covered under Article 14(1) to (4) (see <https://www.upov.int/overview/en/exceptions.html>).

Is it possible to obtain protection of a variety on the basis of its DNA-profile?

For a variety to be protected, it needs to be clearly distinguishable from all existing varieties on the basis of characteristics that are physically expressed, e.g. plant height, time of flowering, fruit color, disease resistance etc. The DNA-profile is not the basis for obtaining the protection of a variety, although this information may be used as supporting information.

A more detailed explanation is provided in the FAQ [Does UPOV allow molecular techniques \(DNA profiles\) in the examination of Distinctness, Uniformity and Stability \(“DUS”\)?](#)

See also: [What are the requirements for protecting a new plant variety?](#)

Who can attend UPOV meetings?

In addition to UPOV members, observer States, intergovernmental organizations and international nongovernmental organizations may attend the sessions of the Council and, if applicable, of the Administrative and Legal Committee (CAJ), Technical Committee (TC) and Technical Working Parties (TWPs). The Consultative Committee normally holds closed sessions, restricted to the members of the Union. However, observers may be invited to present their views in relevant agenda items. The “Rules governing the granting of observer status to States, intergovernmental organizations and international non-governmental organizations in UPOV bodies” (document UPOV/INF/19/1) can be consulted at https://www.upov.int/information_documents/en/.

United Nations Sustainable Development Goals (SDGs)

How does the UPOV system contribute to the United Nations Sustainable Development Goals (SDGs)?

The vision of the 2030 Agenda for Sustainable Development (see <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>) includes a world where “food is sufficient, safe, affordable and nutritious”, there is “sustained and inclusive economic growth, social development, environmental protection and the eradication of poverty and hunger” and one in “which development and the application of technology are climate-sensitive, respect biodiversity and are resilient”. The mission of UPOV is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society. The benefits that the UPOV system provides to society will be an important component in realizing the vision of the 2030 Agenda for Sustainable Development.

UPOV's mission is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society. In particular, new varieties of plants are an important means of responding to the challenges of a growing and increasingly urbanized population, climate change, parallel demands for food and energy production and evolving human needs.

The tremendous progress in agricultural productivity in various parts of the world is largely based on improved varieties, together with improved farming practices, and future food security depend on them. There is also a need to further increase food production in the years leading up to 2030. World population is anticipated to grow until 2050, and urbanization will continue. Therefore, the need for increased productivity in sustainable agricultural production will continue for the foreseeable future. New varieties of plants with features such as improved yield, resistance to plant pests and diseases, salt and drought tolerance, or better adaptation to climatic stress are a key element in increasing productivity and product quality in agriculture, horticulture and forestry, whilst minimizing the pressure on the natural environment. Due to the continuous evolution of new pests and diseases as well as changes in climatic conditions and users' needs, there is a continuous demand by farmers/growers of new plant varieties and development by breeders of such new plant varieties ([Why do farmers and growers need new plant varieties?](#)).

Diversity of breeders and breeding is needed to develop new varieties that are able to respond to such a wide range of challenges. The UPOV system of plant variety protection provides an effective mechanism for breeders in both the public and private sectors, and facilitates public-private partnerships. It is a system that is equally relevant for individual breeders, SMEs and larger breeding institutes/enterprises. Plant variety protection supports long-term investment in breeding and provides a framework for investment in the delivery of seed and other propagating material of varieties suited to farmers' needs.

The UPOV system encourages the development of new varieties of plants, therefore adding to diversity. The "breeder's exemption" in the UPOV Convention enables plant diversity to be available for further breeding activities because acts done for the purpose of breeding other varieties are not subject to any restriction by the breeder. This reflects the fact that access to protected varieties contributes to sustain greatest progress in plant breeding and, thereby, to maximize the use of genetic resources for the benefit of society ([Why does UPOV require varieties to be uniform and stable; doesn't that lead to a loss of diversity?](#)).

The [UPOV Report on the Impact of Plant Variety Protection](#) (Impact Study) notes that membership of UPOV provide important technical assistance and facilitate opportunities for cooperation, which enables PVP to be extended to the widest range of plant genera and species in an efficient way thereby enabling the benefits to be maximized.

The UPOV system has particular relevance in relation to the following United Nations Sustainable Development Goals (SDGs):

- Goal 1 End poverty in all its forms everywhere (Targets 1.1, 1.4, 1.5, 1.a, 1.b)
- Goal 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture (Targets 2.1, 2.2, 2.3, 2.4, 2.5, 2.a)
- Goal 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (Target 9.5)
- Goal 12 Ensure sustainable consumption and production patterns (Targets 12.2, 12.3, 12.4, 12.a)
- Goal 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (Target 15.3)
- Goal 17 Strengthen the means of implementation and revitalize the global partnership for sustainable development: Systemic issues: Multi-stakeholder partnerships (Target 17.17)

How does the UPOV system support sustainable development?

The vision of the 2030 Agenda for Sustainable Development (see <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>) includes a world where “food is sufficient, safe, affordable and nutritious”, there is “sustained and inclusive economic growth, social development, environmental protection and the eradication of poverty and hunger” and one in “which development and the application of technology are climate-sensitive, respect biodiversity and are resilient”.

World population is growing and urbanization increasing, which places greater demands on the quantity and quality of agricultural production. At the same time, conservation of biodiversity depends on sustainable agriculture and a halt or reversal to the expansion of agricultural land, while there are parallel demands on agricultural land for food and energy production. This means that there is a need to produce more from existing agricultural land, in a sustainable way.

The tremendous progress in agricultural productivity in various parts of the world is largely based on improved varieties, combined with improved farming practices. Breeding plant varieties with improved yield, more efficient use of nutrients, resistance to plant pests and diseases, salt and drought tolerance and better adaptation to climate change can sustainably increase productivity and product quality in agriculture, horticulture and forestry, whilst minimizing the pressure on the natural environment. At the same time, new varieties that are adapted to the environment in which they are grown increase the choice of healthy, tasty and nutritious food while generating a viable income for farmers.

The UPOV system of plant variety protection supports long-term investment in breeding and provides a framework for investment in the delivery of seed and other propagating material of varieties suited to farmers' needs. UPOV was created in 1961 for the development of agriculture and, since that time, has proven to be an effective system for supporting various types of breeders: individuals, farmers, SMEs and larger breeding institutes/enterprises, in the private and public sectors.

From the outset, the UPOV system was conceived to deliver greatest progress in plant breeding and, therefore, to sustain greatest advances in agriculture for the benefit of farmers and society as a whole. This concept is enshrined in the "breeder's exemption", a key feature of the UPOV system since its creation. This exemption enables protected plant varieties to be available for further breeding by all types of breeders, thus recognizing that access to genetic resources is a prerequisite for any type of breeding.

Relationship with other treaties and measures concerning seed

Complementarity between the UPOV Convention, the Convention on Biological Diversity (CBD) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

Aims and objectives

Biological diversity or 'biodiversity' is the term used to describe the variety of all living organisms and includes diversity within species, between species and of ecosystems. Biodiversity underpins all human activity, notably including agriculture and, therefore, food security.

The Convention on Biological Diversity (CBD) has three objectives: the conservation of biodiversity, the sustainable use of the components of biodiversity and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. A supplementary agreement to the CBD, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization elaborates on the Convention's provisions on access to genetic resources, traditional knowledge and benefit-sharing in order to contribute to the conservation and sustainable use of biodiversity.

The objectives of the International Treaty on Plant Genetic Resources for Food and Agriculture are the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security. The International Treaty relates to plant genetic resources for food and agriculture.

The Treaty aims at: recognizing the enormous contributions of farmers to diversity of crops that feed the world; establishing a global system to provide farmers, plant breeders and scientists with access to plant genetic materials; ensuring that recipients share benefits they derive from the use of these genetic materials.

UPOV's mission is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society.

Synergies between biodiversity, sustainable agriculture and plant breeding

Conservation of biodiversity depends on sustainable agriculture and a halt or reversal to the expansion of agricultural land, while there are parallel demands on agricultural land for food and energy production. This means that there is a need to produce more from existing agricultural land, in a sustainable way. Conversely, sustainable agriculture is dependent on the conservation and sustainable use of biodiversity, in particular by ensuring healthy soils and thriving populations of pollinators to achieve fertile crops, among other things.

By encouraging the development of new varieties of plants, the UPOV system encourages the sustainable use of biodiversity while creating new genetic diversity. New plant varieties with improved yield, more efficient use of nutrients, resistance to plant pests and diseases, salt and drought tolerance and better adaptation to climatic stress, according to the needs and preferences of farmers and consumers, can sustainably increase productivity and product quality in agriculture, horticulture and forestry. These attributes can reduce the pressure on the natural environment and biodiversity by reducing the need for inputs while reducing the area of land needed for agriculture. Plant breeding sustainably uses biological diversity and relies on the conservation of biodiversity to develop new varieties that deliver substantial benefits for farmers and society as a whole. The critical importance of biodiversity to agriculture is recognized in the CBD and the Nagoya Protocol acknowledges the importance of genetic resources for food and agriculture and their special role for food security. The recognition of the importance of crop and genetic diversity for sustainable agriculture and food security is central to the objectives of the ITPGRFA.

Benefits arising from the utilization of genetic resources

By encouraging plant breeding, the UPOV system incentivizes the generation of benefits arising out of the utilization of genetic resources. In addition, the “breeder’s exemption” in the UPOV Convention enables plant diversity in the form of protected plant varieties to be available for further breeding activities because acts done using such varieties for the purpose of breeding other varieties are not subject to any restriction by the breeder. This reflects the fact that access to protected varieties contributes to sustaining greatest progress in plant breeding and, thereby, to maximize the use of genetic resources for the benefit of society.

The CBD, Nagoya Protocol and ITPGRFA establish the requirements and mechanisms for the sharing of benefits arising out of the utilization of genetic resources. In relation to the breeder's exemption, a recipient of material from the Multilateral System of the ITPGRFA who commercializes a product that is available without restriction to others for further research and breeding is not obliged but it is encouraged to contribute to the benefit sharing fund of the ITPGRFA.

Legislation in Contracting Parties

International cooperation, as well as coherence in the relevant legislative, administrative and policy measures concerning the CBD, ITPGRFA and the UPOV Convention, in the Contracting Parties concerned, is beneficial for achieving the desired outcomes of those treaties, notably in relation to sustainable agriculture and food security in the context of climate change and land degradation as well as the conservation of biodiversity, access to genetic resources and the sharing of benefits from their utilization.

What is the relationship between plant breeders' rights and measures regulating commerce, e.g. seed certification, official registers of varieties admitted to trade (e.g. National List, Official Catalogue) etc.?

It is not the role of the UPOV system to regulate the marketplace. The UPOV Convention requires that the breeder's right shall be independent of any measure taken by a Contracting Party to regulate within its territory the production, certification and marketing of material of varieties or the importing or exporting of such material. In any case, such measures shall not affect the application of the provisions of the UPOV Convention. This clarification should not be taken to mean that UPOV believes that there should be a particular type or level of market regulation, but rather as a recognition that such regulation should be dealt with by an appropriate, dedicated and independent mechanism.

For breeders

Where do I apply for protection of a variety?

In order to obtain protection, the breeder needs to file individual applications with the authorities of UPOV members entrusted with the task of granting breeders' rights (see https://www.upov.int/members/en/pvp_offices.html).

UPOV has developed UPOV PRISMA, an online tool which helps applicants to apply for breeders' rights with all participating PVP Offices, via the UPOV website (see <https://www.upov.int/upovprisma/en/index.html>).

Can I obtain protection for more than one country from a single application?

In order to obtain protection the breeder needs to file an application with the authority of each UPOV member where protection is sought. The European Union operates a plant breeders' rights system which covers the territory of its 27 member States and until December 31, 2020, the United Kingdom. The African Intellectual Property Organization operates a plant breeders' rights system which covers the territory of its 17 member States. Contact details of the authorities responsible for the granting of breeders' rights are provided at https://www.upov.int/members/en/pvp_offices.html.

Who is responsible for enforcing plant breeders' rights?

While the UPOV Convention requires members of the Union to provide for appropriate legal remedies for the effective enforcement of breeders' rights, it is a matter for breeders to enforce their rights.

Can I protect an existing plant or variety that I discover?

Only the breeder* of a new plant variety can protect that new plant variety. The 1991 Act of the UPOV Convention provides, under its Article 21(1)(iii), that “ [e]ach Contracting Party shall declare a breeder's right granted by it null and void when it is established [...] (iii) that the breeder's right has been granted to a person who is not entitled to it, unless it is transferred to the person who is so entitled. ”

*The term “breeder” is defined in Article 1(iv) of the 1991 Act of the UPOV Convention as:

- the person who bred, or discovered and developed, a variety,
- the person who is the employer of the aforementioned person or who has commissioned the latter's work, where the laws of the relevant Contracting Party so provide, or
- the successor in title of the first or second aforementioned person, as the case may be.

The term “person” embraces both physical and legal persons, and refers to one or more persons. Under the UPOV Convention, there is no restriction on who can become a breeder. A breeder might be, for example, an amateur gardener, a farmer, a scientist, a plant breeding institute or an enterprise specialized in plant breeding.

With regard to “discovered and developed”, a discovery might be the initial step in the process of breeding a new variety. However, the term “discovered and developed” means that a mere discovery, or find, would not entitle the person to obtain a breeder’s right. Development of plant material into a variety is necessary for a breeder to be entitled to obtain a breeder’s right. A person would not be entitled to protection of an existing variety that was discovered and propagated unchanged by that person.

The Convention on Biological Diversity and the International Treaty on Plant Genetic Resources for Food and Agriculture address the issue of access to genetic resources and benefit sharing.

- [see document UPOV/EXN/BRD “Explanatory Notes on the Definition of Breeder under the 1991 Act of the UPOV Convention”](#)

Does the UPOV Convention allow a variety to be refused protection because it is genetically modified?

No. Under the UPOV Convention, no further requirements can be requested for protection than those stated in Article 5. Furthermore, Article 18 of the [1991 Act](#) of the UPOV Convention states that “ [the] breeder’s right shall be independent of any measure taken by a Contracting Party to regulate within its territory the production, certification and marketing of material of varieties or the importing or exporting of such materials [...]. ” In that respect, it is also important to note that the grant of protection does not grant the right to produce or market a plant variety.

The UPOV Convention makes no restriction with regard to the methods or techniques by which a new variety is “bred”.

Can I use plant variety protection to protect the following:

- a trait (e.g. disease resistance, flower color)
- a chemical or other substance (e.g. oil, DNA)
- a plant breeding technology (e.g. tissue culture)?

No. The definition that a variety means a “plant grouping” clarifies that a trait, a chemical or other substance and a plant breeding technology do not correspond to the definition of a variety.

Can I protect a hybrid variety under the UPOV system?

Yes. The definition of variety in the 1991 Act of the UPOV Convention, Article 1 (vi) states that “variety” means a plant grouping within a single botanical taxon of the lowest known rank, which grouping, irrespective of whether the conditions for the grant of a breeder’s right are fully

met, can be “defined by the expression of the characteristics resulting from a given genotype or combination of genotypes [...]”. The notion of “combination of genotypes” covers, for example, synthetic varieties and hybrids.

- [see document UPOV/EXN/VAR “Explanatory Notes on the Definition of Variety under the 1991 Act of the UPOV Convention”](#)

Does UPOV allow molecular techniques (DNA profiles) in the examination of Distinctness, Uniformity and Stability (“DUS”)?

It is important to note that, in some cases, varieties may have a different DNA profile but be phenotypically identical, whilst, in other cases, varieties which have a large phenotypic difference may have the same DNA profile for a particular set of molecular markers (e.g. some mutations).

In relation to the use of molecular markers that are not related to phenotypic differences, the concern is that it might be possible to use a limitless number of markers to find differences between varieties at the genetic level that are not reflected in phenotypic characteristics.

On the above basis, UPOV has agreed the following uses of molecular markers in relation to DUS examination:

- (a) Molecular markers can be used as a method of examining DUS characteristics that satisfy the criteria for characteristics set out in the General Introduction if there is a reliable link between the marker and the characteristic.
- (b) A combination of phenotypic differences and molecular distances can be used to improve the selection of varieties to be compared in the growing trial if the molecular distances are sufficiently related to phenotypic differences and the method does not create an increased risk of not selecting a variety in the variety collection which should be compared to candidate varieties in the DUS growing trial.

The situation in UPOV is explained in documents [TGP/15](#) “Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)” and [UPOV/INF/18](#) “Possible use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”.

For farmers

Why do farmers and growers need new plant varieties?

New varieties of plants with features such as improved yield, resistance to plant pests and diseases, salt and drought tolerance, or better adaptation to climatic stress are a key element in increasing productivity and product quality in agriculture, horticulture and forestry, whilst minimizing the pressure on the natural environment. Due to the continuous evolution of new pests and diseases as well as changes in climatic conditions and users' needs, there is a continuous demand by farmers/growers of new plant varieties and development by breeders of such new plant varieties.

The tremendous progress in agricultural productivity in various parts of the world is largely based on improved varieties, together with improved farming practices, and future food security depend on them.

- [Symposium on the Benefits of Plant Variety Protection for Farmers and Growers](#)

Does the UPOV system mean that farmers need the breeder's authorization to sell their harvested crop?

Farmers do not need the breeder's authorization to sell harvested crop of a protected variety if they have planted the crop using seed that was provided with the breeder's authorization, or if they have planted seed from the harvested crop within the exceptions to the plant breeders' rights provided in the legislation of the country concerned (see [Explanatory Notes on Exceptions to the Breeder's Right under the 1991 Act of the UPOV Convention](#)).

Can a farmer sell seed of a protected variety without the authorization of the breeder?

The authorization of the breeder is required for the selling of seed of a protected variety by any person.

Under the [1978 Act](#) of the UPOV Convention (see Article 5), the prior authorization of the breeder is required for "the offering for sale" and "the marketing" of the reproductive or vegetative propagating material, as such, of the variety.

Under the [1991 Act](#) of the UPOV Convention (see Article 14(1)) the "offering for sale" and "selling or other marketing" of the propagating material of the protected variety requires the authorization of the breeder.

Can a farmer replant seed of a protected variety without the authorization of the breeder?

Commercial farmers

It is necessary to consult the legislation in each UPOV member to know the answer to this question.

Under the [1978 Act](#) of the UPOV Convention (see Article 5), the prior authorization of the breeder is required for the production for purposes of commercial marketing of the reproductive or vegetative propagating material, as such, of the variety. However, no specific mention is made of replanting seed of a protected variety by farmers. Therefore, it is necessary to consult the legislation in each UPOV member.

Under the [1991 Act](#) of the UPOV Convention (see Article 15(2)), there is an optional exception to the breeder's rights according to which UPOV members can decide to allow farmers to replant seed on their own farms without the authorization of the breeder, under certain circumstances. The wording of this optional exception is as follows:

“Notwithstanding Article 14, each Contracting Party may, within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, restrict the breeder's right in relation to any variety in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety or a variety covered by Article 14(5)(a)(i) or Article 14(5)(a)(ii). ”

It is a matter for each UPOV member to decide if, and how, to incorporate this option in its legislation.

Subsistence farmers

Since the 1991 Act and 1978 Act give no definition of the words “commercial” and “subsistence farming”, it is necessary to consult the legislation in each UPOV member to know the answer to this question specific for that UPOV member.

Under the 1978 Act of the UPOV Convention (see Article 5), the prior authorization of the breeder is required for the production for purposes of commercial marketing of the reproductive or vegetative propagating material, as such, of the variety. The 1978 Act of the UPOV Convention is silent on the question of subsistence farmers, and therefore it totally depends on the national legislation.

Under the 1991 Act of the UPOV Convention (see Article 15(1)(i)), a compulsory exception sets out that the breeder's right does not extend to “acts done privately and for non-commercial

purposes”. With subsistence farming, it is observed that the farmer produces barely enough food for their own consumption and that of their dependents. Thus, the propagation of a protected variety by a farmer exclusively for the production of a food crop to be consumed by that farmer and the dependents of the farmer, may be considered to fall within the meaning of acts done privately and for non-commercial purposes.

What is the effect of plant variety protection on varieties that are not protected (e.g. traditional varieties, landraces etc.)?

The UPOV Convention only offers protection to new varieties of plants. UPOV does not regulate varieties that are not covered by plant variety protection. Therefore, plant variety protection does not restrict the ability of farmers to grow and sell propagating material of non-protected varieties.

How do I know if a variety is protected?

It is necessary to consult the official publication concerning protected varieties for the UPOV member concerned.

The [UPOV Plant Variety Database \(PLUTO\)](https://www.upov.int/members/en/pvp_offices.html) is a compilation of data supplied by many of the competent authorities of the UPOV members. However, the information concerning plant breeders’ rights provided in PLUTO does not constitute the official publication of the authorities concerned. To consult the official publication, or to obtain details on the status and completeness of the information in PLUTO, please contact the relevant authority, contact details for which are provided at https://www.upov.int/members/en/pvp_offices.html.

All contributors to PLUTO are responsible for the correctness and completeness of the data they supply. Users are particularly requested to note that it is not obligatory for members of the Union to supply data for PLUTO and, for those members of the Union who supply data, it is not obligatory to supply data for all items.

Is it possible for subsistence farmers to exchange propagating material of protected varieties against other vital goods within the local community?

Since the 1991 Act and 1978 Act do not specifically address or define subsistence farmers it is necessary to consult the legislation of each UPOV Contracting Party for the answer to this question specific to that UPOV member.

Within the scope of the breeder's right exceptions provided under the UPOV Conventions, UPOV Contracting Parties have the flexibility to consider, where the legitimate interests of the breeders are not significantly affected, in the occasional case of propagating material of protected varieties, allowing subsistence farmers to exchange this against other vital goods within the local community.

Under the UPOV system, breeders decide the conditions and limitations under which they authorize the exploitation of their protected varieties. Can farmers, for instance, be allowed to exchange seeds of protected varieties freely within the local community?

Article 14(1)(a) of UPOV 1991 and article 5(1) of UPOV 1978 define the acts in respect of the propagating material for which the breeder authorization shall be required; Article 14(1)(b) and respectively Article 5(2) state that the breeder may make his authorization subject to conditions and limitations.

Therefore any breeder may decide on the conditions and limitations under which he authorizes the exploitation of his/her protected variety. He may, for instance, allow the farmer to exchange seeds of protected varieties freely within the local community.