

Author: Michèle PERRIN-TAILLAT

[Harmony with Nature Expert](#)

declhumanat@gmail.com

Harmony with Nature projects:

[Rights of Plants Cultivated in Harmony with Nature](#)

[Rights of Mother Earth](#)

Title:

Naming plants
*Implications for change and implementation
of international legislation*

Michèle PERRIN-TAILLAT

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Michèle PERRIN-TAILLAT 03 April 2021

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Abstract:

Beside various verbal denominations that make sense in their particular context, it has become more and more common to resort to digital representations of plants (DSI) that can create difficulties at the negotiating table when it has become necessary to implement much needed reforms.

Plant law has direct implications on human health and well-being, in particular as regards access to healthy and sufficient food throughout the world. It bears upon the United Nations three pillars: human rights, peace and security, and development.

How can we achieve an inclusive discourse that both makes sure that plants are considered with respect **and** guarantees that all human beings have a say on matters that concern them? Such is the question we must ask if we want to avoid seeing a privileged minority deprive others of their right of speech and action.

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Introduction

Plant terminology in legislative texts regulating the commercialisation, use and protection of plants is not unbiased. Words matter. They both influence and reflect the adopted approach, and they have an impact on the action taken in the real world. One may ask the question whether plant terminology is adequate to truly protect plant diversity, whether we look at it from the angle of cultivated plant diversity and food systems, or from the angle of "wild" species.

1. Plants and us

Plants are crucial to all animals, including us humans. No animal would survive without them, as they are at the origin of all food chains. They feed us, cure us, protect us.

They give us pleasure, big and small, through taste, smell, vision. Their presence soothes us, and makes us feel good.

They are our friends, our partners, on our plates, in our meadows, in our parks and gardens, in our homes, in the countryside, in the forest, down in the valley and up on the hills, in our dreams and our landscapes.

We love plants, we name them, and we often enjoy them even without knowing their names... even without being aware of their presence.

Research in botany and research in agriculture have seen the necessity for developing complex taxonomies of both wild and cultivated plants.

The aim is to order the vast array of plants that exist as a result of natural selection in the wild, of traditional selection by peasants over millenia, or of the increasingly sharp technological and biotechnological procedures used to study plants and develop new ones.

Taxonomies aim at classifying plants according to precisely defined criteria, and they have evolved according to the advancement of research.

Yet such accurate terminology makes but a fleeting apparition in plant law, at best in the annexes.

The terms found in preambles and articles of legislative texts are completely different.

2. Cultivated plants in legal texts

2.1. DUS criteria and PVP Certificate (Plant Variety Protection Certificate)

Plant terminology in international legislation does not pay due respect to scientific accuracy, neither does it represent our vital need for plants, our emotional response to them, or the respect due to them.

Terms have been developed in the context of trade and industrialisation of cultivated plants.

The aim is to stimulate innovation and protect the rights of those who invent, produce and commercialise new varieties that have to be clearly identified and be reproduced unchanged to be marketable.

A new variety must be:

- distinct from existing varieties,

- uniform,
- and stable (*i.e.* reproduced unchanged)

These three criteria, known as the DUS criteria, must be fulfilled to obtain a PVP Certificate. They have the merit of guaranteeing quality seeds, but are a barrier to cultivated diversity if applied too strictly.

2. 2. Patents

The concept of patent has developed to protect the rights of authors and artists, and the rights of inventors of objects or technical processes. Such entities do not belong to the biological realm, and the extension of patents to biological beings such as plants is not without problem.

The question is whether the patent applies to

1. the new plant variety only
2. the process that led to the creation of the new variety
3. the genetic sequence that has been identified as relevant for the creation of the new variety.

If the third option is chosen, all existing plants that carry the identified genetic sequence are under threat of coming under patent protection, including plants that have been in existence for millennia as a result of peasant selection and wild plants selected by nature without the help of humans.

2.3. The Legislation

1. UPOV Protection:

- UPOV Treaty (1961) : PVP Certificate (Plant Variety Protection Certificate) and DUS criteria;
- UPOV Convention (1991) : patents on life (Article 14).

2. WTO TRIPS Agreement¹ (1995) : State Parties must recognise intellectual property rights on plant varieties

- through patents,
- through *sui generis* systems, or
- by following UPOV protection rules (which is the case for the majority of the State Parties).

3. Twelve European directives on the marketing of seeds and other reproductive material (1966-2002) - conforming to UPOV legislation.

4. European Patent Law:

- European Patent Convention, 1977;
- Directive 98/44/EC of 6 July 1998 on the legal protection of biotechnological inventions;
- European Regulation 1257/2012 of 17 December 2012 (towards unitary patent protection).

¹ Agreement on Trade-Related Aspects of Intellectual Property Rights within the World Trade Organisation

Whereas plants in nature vary according to their environment and display some degree of diversity, cultivated plant legislation addresses "unnatural" plants that carry very little diversity, if any at all.

Plants are essentially considered for a limited range of properties and as objects that give rise to property rights. Their scientific denominations are only accessory, they are not the focus of the relevant legal instruments.

Plants have not only been selected according to criteria such as drought resistance and resistance to various pests, but also primarily to increase yield and adapt to an increasingly mechanised food chain (from machinery on the field to automation and efficiency of food processing in food factories).

European legislation focuses on PRM ("Plant Reproductive Material"²). For PRM of a particular variety to be sold or exchanged in the European Union, the variety has to fulfill DUS and for some species other criteria, assessing in particular their cultivated value, in order to qualify for registration in the European and national catalogues.

Cultivated plant legislation has so far been giving little consideration for "plants within the environment". It has not been focusing on plants that display a greater degree of phenotypic or genotypic variability, such as wild plants or plants developed by farmers that evolve as populations consisting of individuals that are slightly different from one another. Thanks to their greater genetic diversity, wild and older cultivated varieties ("heirloom varieties") have the potential to adapt to a range of biotic and abiotic stresses in the field (*in situ*).

Wild varieties have indeed been vastly destroyed by conventional agriculture for the very reason that modern commercial varieties that fulfill DUS criteria can only develop their potential if cultivated in conjunction with using large amounts of herbicides as well as pesticides and fertilisers.

Many older cultivated varieties ("heirloom varieties") have also become extinct for various reasons, one of which being that they do not fulfill DUS criteria which means that their PRM cannot be sold to professional users. They can only be sold to end users (amateur gardeners), and in small amounts, if at all.

As professional farmers and commercial vegetable growers are excluded, consumers are unlikely to find non-DUS varieties on their plate.

2.4. European attempts to restore cultivated biodiversity

There has been growing concern worldwide about the disappearance of older cultivated varieties (around 75% worldwide as underlined by the FAO³, and probably more today), and the European Union has been giving more attention to some older cultivated varieties. The new term *Conservation variety* has emerged in Directive 2008/62/EC (providing for certain derogations for acceptance of agricultural landraces and varieties which are naturally adapted to the local and regional conditions and threatened by genetic erosion and for marketing of seed and seed potatoes of those landraces and varieties) and in Directive 2009/145/EC (providing for certain derogations, for acceptance of vegetable landraces and varieties which have been traditionally grown in particular localities and regions and are threatened by genetic erosion and of vegetable varieties

² "*plant reproductive material* means plants and all parts of plants, including seeds, at any stage of growth that are capable of, and intended for, producing entire plants"

³ FAO, 1999b quoted in FAO, 2004. FAO: Food and Agriculture Organization of the United Nations

with no intrinsic value for commercial crop production but developed for growing under particular conditions and for marketing of seed of those landraces and varieties)

The phrase "varieties with no intrinsic value for commercial crop production" is indeed surprising: it is vague, judgemental, and contemptuous of those varieties.

It must be noted that the 2008 and 2009 directives are limited in scope: "*landraces and varieties which are naturally adapted to the local and regional conditions and threatened by genetic erosion*" excludes the adaptation of such varieties outside their region(s) of origin as well as varieties that are not threatened by genetic erosion. Besides

- to be accepted as a conservation variety, a landrace or variety must present an interest for the conservation of plant genetic resources;
- some degree of distinctness, stability and uniformity are required (Article 2(2));
- the complexity for registration of a conservation variety deters many small actors.

The 2008 and 2009 directives have a limited impact on cultivated plant conservation and have been criticised for opening only very restricted opportunities for small actors. They can only operate within what is referred to as "niche markets".

At the citizen and consumer end, people have become aware of the undesirable side-effects of conventional agriculture:

- food, air, water and soil contamination;
- biodiversity loss;
- human health problems;
- greenhouse gas emissions.

The package industrial seed-herbicide-pesticide-chemical fertilisers has revealed itself as a bad solution to feed humanity, and alternatives have to be found.

Organic agriculture should offer an alternative, but there is a shortage of plant varieties suitable to be grown under organic conditions.

The EU new Organic Regulation has been raising hopes to remedy the errors of the past and present (Regulation 2018/848 - entry into force initially planned for January 2021, postponed to January 2022).

The EU new Organic Regulation has introduced new terms :

- *organic varieties* and
- *organic heterogeneous material*.

The definitions of these terms in the Regulation is open to diverse interpretations.

It had been understood by many that "heirloom varieties" would come under the *organic heterogeneous material* category, but the latest Delegated Act by the European Commission seems to indicate that they are not sufficiently heterogeneous to come under this category. As they seem to be too heterogeneous to come under the *organic variety* category, they are likely to be dangling outside European legislation - again. It has been put forward by some that "heirloom varieties" were

covered by the 2008 and 2009 directives mentioned above - but we have seen that this is far from being the case.

Terms such as "heirloom varieties", "traditional varieties", "old varieties", "peasants' seeds", etc are not part of EU terminology. EU legislation is therefore blind to the reality of plants commonly referred too under these labels. EU terminology addresses plant innovation, not existing plants. This is a weak argument to let old varieties down, and it is more than time to give these old friends of humankind some attention and some legal reality.

There will be a seven year trial period for the Organic Regulation from 1 January 2022, so what time brings remains to be seen.

2.5. Other points of view

The term *organic heterogeneous material* sounds barbaric and unfit for older varieties, and many farmers, amateur gardeners, and even scientists have expressed this view.

How could, how dare, someone put such an inconsiderate label on plants that display so many qualities to their eyes and senses, and are proving so intelligent according to more recent academic studies⁴? And "heirloom varieties" manage quite well without chemicals!

It looks like the point of view of the EU legislator and that of people who tend to plants with love and care are irreconcilable.

The point of view of indigenous peoples, their wholistic understanding of Earth and Nature, also seems irreconcilable with the atomistic vision of *genetic resources*.

3. What about protecting biodiversity and human rights?

3.1. Reviewing the situation: conflict of interest and language conflicts

Life on Earth has been hard done by with DUS varieties and their paraphernalia of chemicals.

The term *genetic erosion* refers to the massive extinction of life we are currently witnessing. It is omnipresent in international and European reports and legislation. Its no less omnipresent companion is *genetic resources*. Together they reduce living beings to mere objects (*material*) and only consider them for their genes, which atomises them as collections of units rather than whole individuals who are representatives of a particular species and who are part of greater units such as ecosystems within which they can adapt and evolve. As a consequence it is difficult to consider a plant as a plant, as a complex being that can exist, survive, live well, reproduce, and even develop into a better adapted plant, under various biotic and abiotic *in situ* conditions, within a complex network of relationships.

Since the 1960s, the development of genetics has been, and quite rightly so, very warmly welcome. As a consequence, plants have become *genetic resources*. In parallel, commercialisation and property right legal instruments concerning plants have restricted farmers' access to plants. The combination of these two aspects has been explosive.

Genetic resources in legal texts reflect an atomistic vision of life

⁴ Hallé, F., 1999; Mancuso, S. and Viola, A., 2013

- mainly concerned with market interest,
- blind to the dynamic ecosystem reality of life,
- blind to Human Rights and Nature Rights,
- blind to the notion of well-being.

Atomistic visions are interesting, but they become destructive when they supplant any other form of conceptualisation and pay lip service to financial interest.

More worryingly, *genetic resources* is the flagship term in both the CBD (Convention on Biological Diversity) and the Plant Treaty⁵.

Meetings of State Parties have become a fierce bargaining ground to define benefits from *genetic resources* (many would just call life), and decide how to share those benefits between biotech industry (supported by developed countries) and farmers / indigenous people (supported by less developed countries).

Should we then be surprised at the twin failure to protect both biodiversity and Farmers' Rights?

3.2. DSI: what is it? Is it a threat to plant and Human Rights?

- The term *DSI (Digital Sequence Information)* on genetic resources has increasingly become centre-stage in benefit sharing negotiations (CBD and Plant Treaty) as various genetic sequencing techniques have become cheaper, filling up huge data bases with genomic information.
- Digital genetic sequences that present a particular interest can be identified in these data bases and the desired characteristic can then be introduced into a particular living organism to create a new one.
- It then becomes possible to assert industrial property rights (patent) on such sequences, on their digital form, on the newly created variety, and on the ensuing food chain... and even on all the plants that carry the patented genetic sequence.

Patents on life are a threat to freedom of choice for cultivated plants, with the consequence of a foreseeable acceleration of genetic erosion (otherwise called disappearance or impoverishment of life diversity).

- the atomistic and commercial approach is being consistently and persistently adopted: DSI is at the heart of negotiations on benefit sharing under the Plant Treaty and the CBD, notwithstanding the fact that
 - even the scientific community disagrees on what the term should actually cover
 - DSI language can only be understood by experts in biotechnologies.

Unlike a digital book, DSI cannot be expressed in human language: it is expressed in genetic and digital codes.

There is *de facto* an imbalance of power between the stakeholders.

⁵ *International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)*, also referred to as *The Plant Treaty*, *The Seed Treaty*, *The International Treaty*, *The PGR Treaty*.

Farmers and indigenous people, in order to be on an equal footing with industrial, commercial biotech experts, should acquire an equal level of expertise in DSI language.

Why should they?

Should not industrial, commercial biotech experts also acquire the expertise of farmers and indigenous people?

Then negotiations could take place on an equal footing.

DSI language is a substantial barrier to fair and equal negotiations and to the implementation of adequate legal instruments to prevent biodiversity loss of both wild and cultivated plants (and other forms of life). One group of negotiators imposes its language and terminology upon the other.

3.3. Towards more balanced views

The United Nations *Declaration on the Rights of Peasants and Other People Working in Rural Areas* (A/RES/73/165) was adopted by the Human Rights Council on 28 September 2018 in Geneva, and later that year on 17 December by the General Assembly in New York with 119 votes in favour, 7 against, 49 abstentions⁶. Only Portugal and Luxembourg of all EU countries voted in favour.

Let us quote a short excerpt of this remarkable declaration:

Preamble, 17th paragraph:

Convinced that peasants and other people working in rural areas should be supported in their efforts to promote and undertake sustainable practices of agricultural production that support and are in harmony with nature, also referred to as Mother Earth in a number of countries and regions, including by respecting the biological and natural ability of ecosystems to adapt and regenerate through natural processes and cycles,

The UNDROP gives a voice to farmers and indigenous peoples, recognising their capability to develop and support life in harmony with Nature, in other words to support and develop (wild and cultivated) biodiversity, to reverse genetic erosion.

Article 19 of the Declaration is more specifically concerned with seeds:

1. Peasants and other people working in rural areas have the right to seeds, in accordance with article 28 of the present Declaration, including:

- (a) The right to the protection of traditional knowledge relevant to plant genetic resources for food and agriculture;
- (b) The right to equitably participate in sharing the benefits arising from the utilization of plant genetic resources for food and agriculture;
- (c) The right to participate in the making of decisions on matters relating to the conservation and sustainable use of plant genetic resources for food and agriculture;

⁶ https://www.un.org/en/ga/third/73/docs/voting_sheets/L.30.pdf

- (d) The right to save, use, exchange and sell their farm-saved seed or propagating material.
2. Peasants and other people working in rural areas have the right to maintain, control, protect and develop their own seeds and traditional knowledge.
 3. States shall take measures to respect, protect and fulfil the right to seeds of peasants and other people working in rural areas.
 4. States shall ensure that seeds of sufficient quality and quantity are available to peasants at the most suitable time for planting and at an affordable price.
 5. States shall recognize the rights of peasants to rely either on their own seeds or on other locally available seeds of their choice and to decide on the crops and species that they wish to grow.
 6. States shall take appropriate measures to support peasant seed systems and promote the use of peasant seeds and agrobiodiversity.
 7. States shall take appropriate measures to ensure that agricultural research and development integrates the needs of peasants and other people working in rural areas and to ensure their active participation in the definition of priorities and the undertaking of research and development, taking into account their experience, and increase investment in research and the development of orphan crops and seeds that respond to the needs of peasants and other people working in rural areas.
 8. States shall ensure that seed policies, plant variety protection and other intellectual property laws, certification schemes and seed marketing laws respect and take into account the rights, needs and realities of peasants and other people working in rural areas.

The Declaration clearly recognizes the proactive role of peasants to freely preserve and develop cultivated biodiversity and the duty of States to support their actions and initiatives.

The language used is accessible to all, and civil society contributes to the dissemination of the Declaration in non-official UN languages.

The *Geneva Academy*⁷, amongst others, has been very active in promoting the Declaration, and is still very active in promoting its implementation by States and encouraging the appropriation of the Declaration by the people concerned. Their latest publication, a *Practical Manual to the Right to Seeds in Europe*⁸, is a valuable tool for much needed reforms.

Conclusion

- It has become vital to agree on a common language that respects both plants and humans, who have always been friends and partners for millenia.

⁷ <https://www.geneva-academy.ch>

⁸ Golay C. and Batur F., 2021

- Ecosystem and participative research, that has been ignored by the Green Revolution, must be encouraged.
- The right terms must be used in order to overcome the barriers to an ecosystem approach.
- The UN Declaration on the Rights of Peasants (UNDROP, 2018), a new instrument for Human Rights, marks a turning point in favour of such an approach.
- What about putting Human and Nature Rights *above* Trade and Industrial Rights rather than under them as it is the case now?
- What about putting health and well-being of humans and ecosystems, rather than trade and profit, at the heart of our legislation?
- What about seeing human beings within ecosystems, rather than above them?
- What about seeing human beings as part of Nature, rather than beings who have an unlimited right of life and death over other beings?
- What about promoting a duty to care rather than a right to destroy?

Plants can no longer be seen only as genetic resources, atomised bits of life exploited for trade and profit.

They are beings of their own right, who contribute to a balanced way of living for many other beings, including us, humans.

Let's call them plants, let's call them by their names, let's enjoy their presence and protect their diversity before it is too late, before we are left with nothing but tears to cry for their absence.

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- text : <https://www.cbd.int/doc/legal/cbd-en.pdf>
- portal : <https://www.cbd.int>

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