

An Effective *sui generis* System for Protection of Plant Varieties According to TRIPs [1]

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Abstract: The TRIPs agreement is one of the three pillars of the World Trade Organisation (WTO) defining a minimum standard for the protection of intellectual property rights in the member countries. Pursuant to Article 27(3)b of the TRIPs agreement the member countries are obliged to provide for the protection of plant varieties either by patents or by an effective *sui generis* system. This article describes the minimum requirements of a *sui generis* system for the protection of plant varieties according to TRIPs and proposes that the International Convention for the Protection of New Varieties of Plants (UPOV Convention) can serve as a basis for a *sui generis* right. The article concludes with a summary of the criticism of a UPOV Convention based *sui generis* proprietary right.

Keywords: Conventions · Patents · Plant patenting · Plant variety protection · TRIPs

1. The TRIPs Agreement as Part of the World Trade Organisation

The General Agreement on Tariffs and Trade (GATT) has been in existence since 1948. The eighth round of GATT negotiations (Uruguay Round), started in 1986 in Punta del Este (Uruguay), led in 1994 to the foundation of the WTO (World Trade Organisation). The WTO forms the umbrella organisation for the three areas GATT, GATS (General Agreement on Trade and Services) and TRIPs (Trade Related Aspects of Intellectual Property Rights).

The WTO agreements are long and complex, since they cover a wide range of activities. Common to all, however, are the two basic principles of most-favoured-nation treatment and national treatment, as well as the dispute settlement procedure. The binding decisions of the Dispute Settlement Board make it possible to impose trade sanctions against member countries which do not incorporate the TRIPs rules into their na-

tional laws. This was one of the reasons why the intellectual property rights were included in the WTO negotiations and did not remain within the exclusive jurisdiction of the WIPO (World Intellectual Property Organisation).

The TRIPs agreement contains minimum requirements for the protection of intellectual property rights in the member countries. It contains provisions that cover the whole range of intellectual property rights: copyright, trademarks, designs, patents, trade secrets, topographies, and geographical indications of origin [2].

2. TRIPs Provisions Relating to Plant Protection

While part II (chapters 1–7) of the TRIPs agreement contains specific material provisions concerning copyright and related proprietary rights, trademarks, geographical indications of origin, industrial designs, patents, topographies and trade secrets, and refers to international agreements in the respective fields, there is no mention of the existing plant variety protection or the International Union for the Protection of New Varieties of Plants (UPOV). The only reference to the protection of plant varieties is in Article 27(3)b. This different weighting of plant variety protection compared with the

principal classes of intellectual property rights leads to the following questions:

- What provisions should be present for an effective protection system to exist [3]?
- Does the protection of plant varieties according to one of the conventions of UPOV represent an effective *sui generis* system according to TRIPs?

The only article of the TRIPs agreement to contain provisions concerning the protection of plants is Article 27(3)b, which reads as follows:

Members may also exclude from patentability:

- a)
- b) *plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this sub-paragraph shall be reviewed four years after the date of entry into force of the WTO Agreement.*

This article enables member countries to choose from the following options:

- The member countries may exclude plants, including plant varieties, from patent protection, but must introduce

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a *sui generis* system for protecting plant varieties.

- The member countries may protect plants, including plant varieties, with patents and apply the rules of the patent system to plants. The introduction of a *sui generis* system would therefore be unnecessary.
- The member countries may exclude plants from patentability, but provide patent protection for plant varieties.
- The member countries may provide a combination of protection for plants / plant varieties with patents and a *sui generis* system.

Hereinafter, the option of the effective *sui generis* system for the protection of plant varieties is described, and the minimum requirements of such a protection system are defined first of all.

3. Elements of an Effective *sui generis* System

The definition of the minimum provisions of an effective *sui generis* system for the protection of plant varieties should start with the purpose of the proprietary right. The aim of a proprietary right for plant varieties is to protect the breeder from industrial competition [4]. Since according to TRIPs 27(3)b there is the option to protect plant varieties with patents, and since the provisions in part II, chapter 5 of the TRIPs agreement for patents constitute an effective proprietary right, it can be concluded that a *sui generis* system that fulfils the requirements of part II, chapter 5 represents an effective proprietary right according to TRIPs [2].

A patent system according to TRIPs consists of the following five elements:

1. national treatment, most-favoured-nation treatment
2. definition of the subject matter to be protected
3. requirements for patentability
4. scope of rights
5. enforcement of rights

These five elements represent the minimum requirements of a patent system, and comparable elements also characterise an effective *sui generis* system for the protection of plant varieties:

3.1. National Treatment, Most-Favoured Nation Treatment

National treatment applies to the same extent as in patent law. The same rights must be granted to parties of other member countries as to nationals. The most-favoured nation clause, which

means that the advantages granted to parties of a member state must be extended to parties of all other member countries, must also apply to plant breeder's rights.

3.2. Definition of the Subject Matter to be Protected

In the TRIPs agreement, there is neither a definition of the term plant variety, nor is there a more detailed record of the species or genera, from which plant varieties to be protected must originate. The absence of a choice of species or genera to which the plant varieties to be protected must belong suggests that plant varieties from all species and genera are to be protected.

3.3. Requirements for Protection

The requirements for patentability according to TRIPs are novelty, inventive step (non-obviousness) and industrial applicability.

A novelty requirement must also exist in a law for protecting plant varieties. In contrast to inventions, which can be disclosed in writing, plant varieties are only disclosed by the plants themselves. Novelty should only be lost if plant material becomes freely available. Free availability commences with marketing of the plant varieties by the breeder (commercial novelty).

To fulfil the inventive step requirement is a great problem. With conventional breeding of a new plant variety (crossing and selecting), the inventive activity lies in the choice of starting varieties. This method does not differ in principle from the methods used for a long time by farmers. The ability to distinguish novel plant varieties from the existing varieties can serve as a criterion of inventive step. In the case of an unknown wild variety, a human effort to fulfil the distinguishing criterion must be proved.

The industrial applicability of plant varieties from the field of agriculture or horticulture needs no further discussion.

3.4. Guaranteed Rights

Plant breeders must be granted the same exclusivity rights as a patentee, *i.e.* consent is required from the breeder for cultivation and propagation, selling, offering for sale, importing and storing for one of the above purposes of the protected property.

As an exception of the breeder's rights, rules should be provided which allow the farmers to retain part of the harvested grain as seed material for next year (farmer's privilege). A further exception is the free availability of the pro-

TECTED varieties as a basis for further breeding (breeder's privilege). The breeder's privilege can be compared with the research exception in patenting.

3.5. Enforcement of Rights

An efficient enforcement of rights is essential for proprietary rights to function. The enforcement standard laid down in part III of the TRIPs agreement must be present in a national law for protecting plant varieties.

The described elements of a *sui generis* system represent an interpretation of the wide TRIPs provisions. To summarise, a *sui generis* system for the protection of plant varieties must fulfil the following minimum conditions [5]:

- It must relate to intellectual property rights
- It must contain the principles of national treatment and most-favoured nation treatment
- Varieties from all plant genera and species are to be protected
- It must provide an effective enforcement of rights

The International Association of Plant Breeders for the Protection of Plant Varieties ASSINSEL regards a law for the protection of plant varieties based on the UPOV convention of 1991 as the best solution for a *sui generis* system according to the TRIPs agreement. It guarantees the breeder sufficient protection, without imposing too great restrictions on the general public and competition.

4. UPOV (L'Union internationale pour la protection des obtentions végétales) {International Union for the Protection of New Varieties of Plants}

4.1. Introduction

After the second World War, the Western European plant breeders began to apply pressure on their governments to introduce effective protection for plant breeding. The demands by the plant breeders for a strong, harmonised proprietary right was based on the contribution made by the breeders towards technical progress and the great financial outlay in producing new varieties. Therefore, in 1956, the French government initiated a diplomatic conference on the theme of protection of plant breeding, which ended after four years of talks with the adoption of the UPOV Convention on December 2, 1961 in Paris. The UPOV Convention was to offer a guarantee of harmonised and functioning (effective) protec-

tion in the member countries [6]. The Convention was revised in 1972 in respect of two provisions of contractual law (Articles 22 and 26 of the 1961 Convention) and in 1978 in respect of provisions of substantive law. The substantially most important revision of the Convention was concluded in 1991.

4.2. The Material Provisions of the UPOV Convention of 1991

The most important material provisions of the Convention are clarified in this section.

4.2.1. Conditions of Protection (Article 5)

A variety must fulfil the following conditions in order that it may be protected: it must be new, distinct, uniform and stable.

4.2.2. Novelty (Article 6)

The concept of novelty of the UPOV Convention differs basically from the concept of novelty of patent law. According to the UPOV Convention, only commercial transactions containing the propagating material or harvested material of the variety for purposes of exploitation of the variety are prejudicial to novelty.

4.2.3. Distinctness (Article 7)

According to the UPOV guideline for carrying out an examination of distinctness, uniformity and stability, two varieties are to be deemed as distinguishable if the difference:

- is established at least at one examination site,
- the difference is clear,
- the difference is uniform.

The difference can be determined by qualitative and also quantitative features. To determine the difference, it is primarily morphological and physiological features that are examined. Nowadays, these are supplemented by biochemical (isoenzyme analysis) features [7].

4.2.4. Uniformity (Article 8)

The variety shall be deemed to be uniform if the variations in a variety are so small that its description and distinction are guaranteed. When judging uniformity, the particular features of generative and vegetative propagation of a variety must be taken into consideration.

4.2.5. Stability (Article 9)

According to Article 9, a variety shall be deemed to be stable if its relevant characteristics remain unchanged after repeated propagation or, in the case of a

particular cycle of propagation, at the end of each such cycle.

4.2.6. Breeder's Rights (Article 14)

The exclusivity rights of the breeder in respect of propagation material include the production or reproduction, the conditioning for the purpose of reproduction, offering for sale, selling, exporting, importing and stocking for any of the above-mentioned purposes (Article 14.1).

The most important change in the UPOV Convention of 1991 may be found in paragraph 5 of Article 14: *Essentially derived and certain other varieties (dependence on plant breeder's rights)*.

The introduction of this paragraph was forced by the usage of biotechnology in plant breeding. The resulting problems may be illustrated as follows: Breeder A obtained variety X through conventional selection techniques. Breeder B modifies variety X by genetic introduction of a patent-protected herbicide-resistance gene. Since the newly obtained variety Y (an essentially derived variety) is clearly distinguishable, it may be protected. Owing to its new features, the new variety Y can displace variety X from the market, even though most of the properties originate from variety X. Usage of the patent-protected gene and of the method require the consent of the patentee, whereas the starting variety X is freely available according to the plant variety convention (breeder's exemption).

The solution consisted in making the use of the essentially derived variety dependent on the consent of the breeder of the original variety. The definition of the essentially derived variety refers more to the genotype than to the phenotype of the variety and differs from the distinctness according to Art. 7 of the UPOV Convention, which is based on the differences in the expressed characteristics.

In practice, no clear procedure for establishing a derived variety has emerged as yet. In the corn sector, discussions are most advanced. An attempt has been made to finalise multi-firm treaties in which threshold values for similarity are defined. Then, an essentially derived variety would exist if certain threshold values determined by a certain set of molecular markers were exceeded.

4.2.7. Exception to the Breeder's Right (Article 15)

The two most important exceptions to the breeder's right are the breeder's privilege (Article 15(1)iii) and the farmer's privilege (Article 15(2)).

The breeder's privilege comprises the free availability of protected varieties in order to create new varieties. The breeder's privilege can be compared with the research exception in patenting.

The farmer's privilege allows the farmer to retain part of the harvested grain for use as seed material on his own premises. The farmer's privilege was transposed into national law in different ways [8].

The European Union introduced a chargeable farmer's privilege in its regulation on plant variety protection (EU Regulation No. 2100/94 on Community plant variety protection of July 27, 1994, modified on 25.10.95). The Regulation is characterised by the following points:

- The privilege applies only to about 20 plant species.
- Small farmers do not pay any fee (defined according to plant species!).
- Non-small farmers pay a fee 'which must be significantly lower than the amount demanded in the same area for producing propagation material from the same variety under licence'.
- It is the responsibility of the owner of protection for the variety to monitor the regulations.

In Switzerland, in the course of revising the law for the protection of plant varieties, discussions took place about an EU regulation adapted to the Swiss conditions or a deletion of the farmer's privilege.

The UPOV Convention of 1991 fulfils the minimum requirements of a *sui generis* proprietary right with the exception of national treatment, which would have to be extended to all WTO countries, and may therefore serve as a basis for a national law for the protection of plant varieties conforming to TRIPs.

5. Criticism of the *sui generis* Proprietary Right

Criticism of a UPOV protection system for plants must be seen as part of an essential discussion on the incorporation of living material into the intellectual property rights and the adverse attitude of many development aid organisations and non-governmental organisations towards the WTO. The WTO is regarded as an instrument of the rich industrialised countries, which forces the rules of the Western economic system onto developing countries without any regard for the special economic, social and technological conditions in these countries. The absence of any legal organisation in these

countries leads to great problems when implementing the TRIPs agreement, especially in the area of protecting plant varieties and pharmaceutical products, and to unforeseeable negative effects on the national markets. With this in mind, the hard attitude of the USA is criticised, in not hesitating to take action against allegedly defaulting countries of the Third World, as it did in the 'mail box' case of India. On April 30, 1999, the Office of US Trade Representatives (USTR) published a list with seven new cases of WTO dispute settlements. The hard attitude of the USA reinforces the impression in the development aid organisations that the West is determined to enforce the provisions of TRIPs without regard for the situation of the poorest countries to the benefit of the Western industries. Legal writers from countries in the Third World have joined in this criticism [9]. Two main points are mentioned:

- TRIPs is deemed to be concerned with the relevant proprietary interests of industrialised nations. The primary aim of TRIPs is to prevent the uncontrolled flow of technology. This can be achieved by implementing an agreement in few developing countries whose industries can use the technology without having an adverse effect on the least developed countries.
- TRIPs leaves little room for play when taking into account the different stages of development.

This short summary of the general criticism of the WTO by representatives of interests of the Third World shows that an agreement with over 130 member countries of quite different stages of technological development causes insurmountable conflicts during national implementation. However, these conflicts are not specific to the developing countries.

Given this background, I will now give details of the most frequent criticisms of a UPOV proprietary right for plants. The most vigorous criticism is expressed by representatives of the non-governmental organisations (NGO) [10]. These groups engage themselves for maintenance of biodiversity and for sustainable development. With strong plant variety protection, they see a first step towards patenting higher living organisms and the possibility of a monopoly of the seed companies over the genetic resources of the South. These groups would like to make use of the review of Article 27(3)b planned for 1999 in order to obtain a revision of the text in favour of developing countries.

One of the main points of criticism of the UPOV is its criteria of the conditions for protection of plant varieties: that they must be distinct, uniform and stable (DUS). The three criteria are jointly responsible for the destruction of diversity of species of food and agricultural crops. The conditions for protection reduce the interest of farmers in variable types of land races, since they cannot protect them and they disappear. This trend is reinforced by global marketing and large-scale planting of genetically uniform high-output varieties. The DUS criteria induce plant breeders to work only with 'elite' germ plasm to breed new varieties, which reduces the genetic diversity of the varieties [11]. This criticism is expressed in platitudes, without being supported by scientific studies. In opposition to this criticism, ASSINSEL cites a study which examined the development of genetic diversity of wheat varieties cultivated by US farmers from 1900 to 1996. On the basis of two parameters, coefficient of parentage and geographic diversity, the study concluded that the use of scientific breeding methods has led to an increase in genetic diversity of wheat varieties over the century [4].

The positive aspects of plant variety protection are not negated by some critics. They envisage an important role with the optimum usage of varieties, the creation of an incentive for investments into new variety breeding and the development of sustainable agriculture [12]. Newly introduced high-yield varieties which depend on minimum fertiliser usage allow more sustainable usage of the soil and thus fulfil the requirements of bio-agriculture. The following negative points oppose these undisputedly positive consequences of a functioning proprietary right:

- Large-scale planting of one variety leads to increased occurrence of disease, irrespective of whether this is a new variety or a native variety.
- The disappearance of native varieties removes the option of cultivating important gene repertoires.

The breeders of modern varieties point out that the genetic resources of native varieties of the Third World are of only minor importance to commercial breeding. To incorporate native varieties into modern breeding programmes requires a large amount of time and effort to establish their suitability for further development. For this reason, seed companies have no interest in securing rights to genetic resources of the Third World [13]. This clear statement is understanda-

ble, since the leading seed companies have been building up seed gene banks for years. Today they can draw on this gene pool and the commercial varieties in order to breed new varieties without being dependent on native varieties.

In the opponents' opinion, the principles established in UPOV lead to control by the seed companies over agriculture. The influence of breeder organisations such as ASSINSEL in developing UPOV Conventions is obvious and promises no good for the agriculture of developing countries. The past has shown that the reforms of the UPOV Convention have brought us substantially nearer to patent law and it is only the rights of commercial breeders that are protected to an ever increasing extent, while the original breeders which cultivate the starting material for modern varieties have no rights at all. The Convention of 1991 is mentioned as an example of farmer's privilege: Farmers are only permitted to produce seed material for their own enterprise, but they are forbidden to exchange this seed with other farmers for propagation purposes. This exchange between farmers is current practice in many developing countries – in India, over 80% of farmers plant their self-produced seed material – and a ban would have disadvantageous consequences for the structure of agriculture. This criticism is based on the fact that a restriction of farmer's privilege leads to an increase in production costs for the farmers and a loss in competitiveness. Whether the restricted farmer's privilege will end in an increased demise of farmers is difficult to predict. The demise of farmers observed today is a result of the worldwide trend towards urbanisation of society and a restricted farmer's privilege will have only a minimum effect on this development.

The influence of plant variety protection and of modern plant breeding on the diversity of species of beneficial plants and the structure of agriculture in developing countries have been the subject of very controversial discussion, and it is impossible to determine the contribution of a single factor in such a complex problem. However, the severity of attacks on plant variety proprietary rights according to the UPOV Convention of 1991 suggests that a solution to the conflict is difficult to foresee.

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- [1] This is a short version of the post-graduate thesis prepared at the 98/99 postgraduate program in Intellectual Property at the ETH (Swiss Institute of Technology) Zürich. Referee: Walter Smolders, Novartis Seeds AG, CH-4002 Basel; co-referee: André Heitz, The International Union for the Protection of New Varieties of Plants (UPOV), CH-1211 Geneva.
- [2] T. Cottier, 'The prospects in International Trade law and Policy: The GATT Connection', *Aussenwirtschaft* 1992, 47, 79.
- [3] W. Lesser, 'Elements of an effective *sui generis* system for the protection of plant varieties', Lecture held at the UPOV-WIPO-WTO Joint Symposium: 'The Protection of plant varieties under the Article 27(3)b of the TRIPs Agreement', Geneva, February 15, 1999.
- [4] International Association of Plant Breeders for the Protection of Plant Varieties (ASSINSEL). Fostering Plant Innovation: ASSINSEL Position Paper on Review of TRIPs 27(3)b, 1999.
- [5] D. Leskien, M. Flitner, 'Intellectual property rights and plant genetic resources: Options for a *sui generis* system', *Issues in genetic resources* 1997, 6.
- [6] N. Byrne, 'Commentary on the substantive law of the 1991 UPOV Convention for the protection of plant varieties', Center for Commercial Law Studies, University of London, 1995.
- [7] UPOV Document, General Introduction to the Guidelines for the Conduct of Tests for Distinctness, Homogeneity and Stability of New Varieties of Plants, 1979.
- [8] A. Heitz, 'A review of the legal provisions concerning farmer's privilege', UPOV Document, 1996.
- [9] M.A. Pacon, 'Was bringt TRIPs den Entwicklungsländern?', *GRUR Int.* 1995, 11, 875.
- [10] Grain (Genetic Resources Action International), 'Ten reasons not to join UPOV', *Global Trade and Biodiversity in Conflict* 1998, 2.
- [11] R. Tripp, W. van der Heide, 'The erosion of crop genetic diversity: Challenges, strategies and uncertainties', *Natural Resource Perspectives* 1996, 7.
- [12] R. Tarasofsky, 'TRIPs and Biodiversity: Towards the 1999 Review', *Bridges between Trade and Sustainable Development* 1998, 2, 3.
- [13] International Association of Plant Breeders for the Protection of Plant Varieties (ASSINSEL), ASSINSEL Position on access to plant genetic resources for food and agriculture and the equitable sharing of benefits arising from their use, 1998.

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The Doctrine of Exhaustion in the Swiss Patent Law

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Abstract: The doctrine of exhaustion belongs, alongside the protection of computer programs, the patentability of genetically altered species and the cross-border injunctions, to the most discussed themes of the past few years in the area of intellectual property rights. The latest Swiss Federal Supreme Court decision in the case *Kodak SA vs. Jumbo-Markt AG* was the first decision at the highest level of jurisdiction in Switzerland on the doctrine of exhaustion in patent law. The following article focuses on one of the crucial elements, the historical interpretation element, in discussing the *Kodak* case. The article concludes with an overview of the political impact of the Swiss Supreme Court decision regarding, *inter alia*, the new Swiss law on medicines.

Keywords: Exhaustion · Intellectual property · Parallel imports · Patents

1. Parallel Importation and Exhaustion

This article is based on a discourse entitled *Uniformity or Differentiation with respect to Exhaustion in Intellectual*

Property Law [1]. The aim of the discourse is to promote better understanding of the decisive factors in the Swiss Federal Supreme Court Decision (FCD), dated December 7, 1999, *Kodak SA vs. Jumbo-Markt AG*. A discussion of all the aspects of exhaustion in intellectual property rights, however, would be beyond the scope of the present article. The focus here will therefore be on one of the crucial elements of the *Kodak* case, the element of historical interpretation, which already played a major role in the FCD *Nintendo Co. Ltd. vs. Waldmeier SA*

(1998) concerning copyright law. Economic, political-economic and international legal considerations (Paris Convention, TRIPs/GATT *etc.*) or those regarding uniformity as well as comparisons with international legal practice have been omitted here for reasons of space. A complete review of the topic under discussion can be found in the aforementioned discourse.

Certainly, the discussion about national and international exhaustion in intellectual property rights will not come to an end with the latest FCD on this sub-

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