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NEW VARIETIES OF PLANTS

**WIPO-UPOV SYMPOSIUM ON THE CO -EXISTENCE OF PATENTS
AND PLANT BREEDERS' RIGHTS IN THE PROMOTION OF
BIOTECHNOLOGICAL DEVELOPMENTS**

organized by
the World Intellectual Property Organization (WIPO)

and
the International Union for the Protection of
New Varieties of Plants (UPOV)

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LEGAL AND TECHNOLOGICAL DEVELOPMENTS LEADING TO
THIS SYMPOSIUM: UPOV'S PERSPECTIVE

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I. INTRODUCTION

1. Plant breeding has always benefited from technological developments. One of the most important recent developments in biotechnology is genetic modification which is a major factor leading to this Symposium. Genetic modification might, in simple terms, be explained as the process by which genes are introduced into organisms in a different way to that found in nature. It is increasingly becoming an important new tool for breeders in their quest to improve plant varieties.

2. As it was mentioned during the opening, plant biotechnology seeks to respond to the challenges posed by pests and diseases, limited resources (land, fertilizer, water, chemicals), the need to improve productivity and quality, and meeting more sophisticated consumer preferences. One way to identify the importance of modern biotechnology in plant breeding is to see the increase in the global area planted with transgenic crops. In 1996, this area was 1.7 million hectares reaching 39.9 million hectares in 1999, corresponding to a twenty-fold increase between 1996 and 1999.¹

3. It is important to clarify from the beginning that protection of the intellectual property assets associated with biotechnology developments is not related to the required approval mechanisms to commercialize products resulting from those intellectual property assets. Protection and commercialization procedures are separated and independent from each other. In this regard, a parallel could be drawn with protection and commercialization of pharmaceutical products. The necessary assessments and controls on environmental effects before releasing genetically modified organisms belong to the applicable biosafety rules that have been or are in the process of being adopted at the national level. Biosafety concerns fall outside the scope of this Symposium.

4. The common objective of plant breeders' rights and patents is to provide an incentive for the development of innovative and useful products or processes. The patent system covers inventions in all fields of technology, whereas the system of plant variety protection, based on the International Convention for the Protection of New Varieties of Plants (UPOV Convention)², has been specifically developed to cover plant varieties.

¹ Zarrilli, Simonetta, International Trade in Genetically Modified Organisms and Multilateral Negotiations" United Nations Conference for Trade and Development, July 5, 2000, p.5.

² As of October 24, 2002, there were 51 members of the Union. Their dates of joining UPOV and the Acts of the Convention by which they are bound are given in Table 1 in Annex I. Table 2 in Annex II lists the States or organizations which have initiated with the Council of UPOV the procedure for becoming members of the Union (18) and other States who have been in contact with the Office of the Union with a view to developing legislation in line with the UPOV Convention (39).

An indication of the progressive development of plant variety protection in terms of the number of titles of protection is provided by Fig. 1 in Annex III.

Table 3 below gives an outline comparison between protection of an invention by patent and protection of a variety by plant variety protection.

	Patent Protection	Breeder's right based on the UPOV Convention
I. Object of protection	invention	plant variety
II. Requirements for protection		
1. documentary examination	required	required
2. field examination	not required	required
3. plant material for testing	deposit of material may be required only in certain cases	required
4. conditions for protection	(a) novelty (b) industrial applicability (c) unobviousness (inventive step) (d) an enabling disclosure	(a) commercial novelty (b) distinctness (c) uniformity (d) stability (e) an appropriate denomination
III. Scope of Protection		
1. determination of scope of protection	determined by the claims of the patent	fixed by the national legislation in accordance with the UPOV Convention
2. use of a protected variety for breeding further varieties	may require the authorization of the patentee	does not require authorization of the right holder (breeder's exemption)
3. use of propagating material of the protected variety grown by a farmer for subsequent planting on the same farm	may require the authority of the patentee	often does not require authorization of the right holder
IV. Variety Denomination	not required	required
V. Term of Protection	20 years from date of application	18 years for trees and vines, 15 years for other species, from date of grant (increased respectively to 25 years and 20 years in the 1991 Act)

5. In some circumstances, the subject matter of protection covered by patents and plant breeders' rights might be the same, namely a plant variety. However, this is a situation which has existed for many years. The 1991 Act of the UPOV Convention, in contrast to the 1978 Act, no longer excludes protection of new plant varieties by the grant of a special title or a patent for the same botanical genus or species and thereby recognizes that both systems may even be applied to the same variety. This may raise questions in particular cases. They are, however, not in the focus of today's Symposium.

6. The Symposium centers around the scope of protection offered under the patent system and the UPOV system. In particular, this is explored in relation to the situation where, for example, a genetic engineering development can result in a plant variety which will be protected as a plant variety, by a plant breeder's right, but will also contain an invention

protected by a patent (e.g. patented genetic element). The issues which arise from such protection are a result of differences in the scope and exceptions under the two systems. These differences and the relevant issues are explored in the following section.

II. ISSUES ARISING FROM THE GRANTING OF PROTECTION

Rights Conferred by the Protection

7. The rights provided by the UPOV system and the patent system are similar, as can be seen from the following table which compares the scope of protection in the UPOV Convention and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). This Agreement as part of the Agreement Establishing the World Trade Organization (WTO) sets international minimum standards on intellectual property protection and binds all Members of WTO (as of October 24, 2002, 144 Members)

<u>TRIPS Agreement</u> (Article 28)	<u>UPOV</u> (1991 Act – Article 14)
“1. A patent shall confer on its owner the following exclusive rights: (a) where the subject matter of a patent is a product, to prevent third parties not having the owner’s consent from the act of:	“(1) [<i>Acts in respect of the propagating material</i>] (a) Subject to Articles 15 and 16, the following acts in respect of the propagating material of the protected variety shall require the authorization of the breeder :
making, using,	(i) production or reproduction (multiplication), (ii) conditioning for the purpose of propagation,
offering for sale,	(iii) offering for sale,
selling, or	(iv) selling or other marketing,
importing ³	(v) exporting, (vi) importing,
for these purposes that product;”	(vii) stocking for any of the purposes mentioned in (i) to (vi), above.”

8. It can be seen that the rights provided by the two systems are similar. Therefore, in general, those acts requiring the authorization of the breeder would also require the authorization of the patent holder and vice versa. One issue for a protected variety containing a patented invention(s) might be that authorization is required from both the breeder and patent holder(s). However, in practice, authorization is likely to be administered by one of the parties for each variety.

³ This right, like all other rights conferred under the TRIPS Agreement in respect of the use, sale, importation or other distribution of goods, is subject to the provisions of Article 6.

ExceptionstotheRightsConferred

9. In contrast to the close correspondence between the two systems in terms of the rights conferred, there is a fundamental difference in the scope of the exceptions to the rights conferred. This is explained below:

Exceptionstothebreeder'sright

10. Article 15(1) of the 1991 Act of the UPOV Convention states that:

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

(i) acts done privately and for non-commercial purposes,

(ii) acts done for experimental purposes and

(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.”

11. The exception for the purpose of breeding other varieties, contained in Article 15(1)(iii), is a fundamental aspect of the UPOV system of plant variety protection. This exception is known as the “breeder's exemption.” It recognizes that real progress in breeding —which must be the goal of intellectual property rights in this field —relies on access to the latest improvements and new variation. Access is needed to all breeding materials in the form of modern varieties, as well as landraces and wild species, to achieve the greatest progress and is only possible if protected varieties are available for breeding.

12. The breeder's exemption optimizes variety improvement by ensuring that germplasm sources remain accessible to all the community of breeders. However, it also helps to ensure that the genetic basis for plant improvement is broadened and is actively conserved, thereby ensuring an overall approach to plant breeding which is sustainable and productive in the long term. In short, it is an essential aspect of an effective system of plant variety protection which has the aim of encouraging the development of new varieties of plants, for the benefit of society.

Exceptionstotheightsconferredbypatent

13. Article 30 of the TRIPS Agreement states that:

“Members may provide limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties.”

14. Open multilateral treaties in the field of patents do not provide for the extent to which those limited exceptions concerning the use of patented products or processes may be

permitted.⁴ It is, therefore, necessary to refer to national or regional patent legislation and to relevant jurisprudence.

15. Several laws establish that the rights conferred by the patent shall not extend to acts done for research or experimental purposes relating to the subject matter of the patented invention. Some national systems distinguish between experimental use for the purpose of obtaining additional scientific knowledge and uses aimed at obtaining marketing or other types of approval (e.g. approval for commercialization of generic drugs). Other systems consider that uses of the patent for selection and evaluation purposes may not be considered as falling within an acceptable exception.

16. National systems that provide a wide research exemption will require that the research or experiments are directed towards the generation of information and in these situations only “commercial use” would be prohibited.⁵

Issues Which May Arise from Inhibition of the Breeder’s Exemption by the Granting of a Patent

17. Two main issues may arise if a patent inhibits the breeder’s exemption. Firstly, there might be an imbalance between the UPOV system and patent system concerning the obligation to reward the right holder of the initial protected subject matter (i.e. patented invention or protected variety) as far as countries that are still bound by the 1961/72 and 1978 Acts of the UPOV Convention are concerned. This has been addressed by the provision for essentially derived varieties (EDV) in the 1991 Act of the UPOV Convention. Secondly, there is a need to consider how to maintain the ability to exercise the breeder’s exemption in the case of varieties which contain patented inventions. These issues are explained below.

Balancing the reward to the respective rightsholders (essentially derived varieties)

18. The potential imbalance between the exceptions under the patents system and the UPOV system was known at the time of the development of the 1991 Act of the Convention. In particular, it was recognized that, under the breeder’s exemption, the holder of a patent on a genetic element (Gen -elem 1) was free to insert his genetic element into a protected variety (Variety A) to develop and protect a new variety (Variety B) without any obligation to reward the owner of Variety A. However, if the owner of Variety A wished to insert Gen -elem 1 into his variety to produce a new Variety C, he would be obliged to seek the permission of the Gen -elem 1 patent holder and would, in all likelihood, only be given permission to do so if the patent holder was satisfied that he would be adequately rewarded.

19. To address this imbalance, the 1991 Act of the UPOV Convention introduced a provision for essentially derived varieties. The essence of this provision (see Article 14(5) of the 1991 Act of the UPOV Convention) is that the scope of the breeder’s rights for a variety extends to any varieties which are essentially derived from it. An essentially derived variety (“EDV”) is one which is predominantly derived from an initial variety and retains the

⁴ Article 5 *ter* of the Paris Convention for the Protection of Industrial Property of 1967 (Paris Convention) provides for limitations to the exclusive right conferred by the patent in certain cases of public interest in order to maintain the freedom of transport. These exceptions are not of direct relevance for the interface object of this document.

⁵ Recent Japanese Supreme Court decision in 1999 and German Constitutional Court decision in 2000 favor a wide research exemption.

essential characteristics of the initial variety. The 1991 Act states in its Article 14(5)(c) that “Essentially derived varieties may be obtained for example by . . . transformation by genetic engineering.” The introduction of this provision establishes a more equal balance between the patent and UPOV systems. Thus, in the example above, the patent holder of Gen -elem 1 would not be able to exploit his new Variety B without the authorization of the owner of Variety A, assuming that Variety B was considered to be essentially derived.

20. Having stated that the EDV concept establishes a more equal balance between the systems, it is important to note that there is still a significant and important difference between the EDV provision in the UPOV system and the right conferred under patent. The EDV provision does *not* prevent the breeding of new Variety B; it only requires that the authorization of the owner of Variety A is obtained to allow its exploitation. This means that the essence of the breeder’s exemption is retained, i.e. access for breeding is maintained. If the new Variety B represents a significant improvement over other varieties, it is very likely that the variety owner and patent owner will come to a mutually beneficial agreement for exploitation of the variety.

21. As explained above, the patent system may require that the permission of the Gen -elem 1 patent holder is obtained *before any breeding work can begin*. In such circumstances, it might be more difficult for agreement to be reached between the variety owner and patent holder because the value of the end variety cannot be reliably estimated.

22. The nature of the difference which exists between the two systems is not always fully understood. Thus, certain mechanisms, such as cross -compulsory licensing between patent holders and plant breeders’ rights holders, which have been introduced by some members of UPOV to address an imbalance might fail to resolve the problem unless they ensure that the patent system allows the breeding of new varieties in the same way as provided by the UPOV Convention.

23. Furthermore, with regard to the possible development of such mechanisms, it might be noted that the UPOV Convention makes it unnecessary to obtain a compulsory license for anything other than that strictly justified by public interest, as provided in Article 17(1) of the 1991 Act. Bearing in mind the breeder’s exemption in the UPOV Convention, the introduction of a mechanism for a compulsory license on the basis of important technical advance of considerable economic significance, such as that provided in the TRIPS Agreement (Article 31(l)(i)) may not be justified, because if the new variety satisfied such a test, there would be a very strong incentive for the patent holder and variety owner to find a mutually beneficial arrangement.

24. In conclusion, it is important to recognize that a basic principle of the breeder’s exemption, which allows the breeding of new varieties of plants using protected varieties, is not affected by the EDV concept and that the introduction of the EDV concept maintains the access to all varieties for breeding. However, it does provide a mechanism to ensure a suitable reward for plant breeders.

The ability to exercise the breeder’s exemption in the case of varieties containing patented inventions

25. The situation outlined relates to a situation where the starting point is a patent holder with a genetic element and a variety owner with a protected variety. However, it is clear that another situation will arise where there is a protected variety which contains a patented

invention—let us say a genetic element for the purpose of discussion. The purpose of the patentist to protect the developer of the genetic element, and the purpose of the plant breeder's right is to protect the developer of the unique combination of plant germplasm forming the variety. However, in certain circumstances, a lack of a similar provision in the patents system might, indirectly, constrain the exercise of the breeder's exemption for the protected variety.

26. The rapid progress in the development of genetic engineering raises the prospect that, in the foreseeable future, an ever increasing number of plant varieties will contain patented inventions. Furthermore, the varieties may contain several patented genetic elements. The practical consequence of this development would be that the breeder's exemption, which is an essential principle in the UPOV system of plant variety protection, would be lost or greatly weakened.

III. PROVISIONS WITHIN THE TRIPS AGREEMENT WHICH MIGHT ALLOW THE PRESERVATION OF THE BREEDER'S EXEMPTION

27. Article 7 of the TRIPS Agreement states that “The protection and enforcement of intellectual property rights should contribute to the *promotion of technological innovation* and to the *transfer and dissemination of technology*, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a *balance of rights and obligations*” (emphasis added). Furthermore, the TRIPS Agreement provides (Article 8(2)) that “Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or *adversely affect the international transfer of technology*” (emphasis added).

28. As explained above, the exceptions to the rights conferred by a patent under Article 30 of the TRIPS Agreement are not specific. This means that a State may be able to implement Article 30 in a way that protects the breeder's exemption.

[Annex I follows]

ANNEXI

International Convention for the Protection of New Varieties of Plants *
UPOV Convention (1961), as revised at Geneva (1972, 1978 and 1991)

Status as of October 23, 2002

State	Date on which State became member of the Union	Latest Act* of the Convention to which State is party and date on which State became party to that Act	
Argentina	December 25, 1994	1978 Act	December 25, 1994
Australia	March 1, 1989	1991 Act	January 20, 2000
Austria ¹	July 14, 1994	1978 Act	July 14, 1994
Belgium	December 5, 1976	1961/1972 Act	December 5, 1976
Bolivia	May 21, 1999	1978 Act	May 21, 1999
Brazil	May 23, 1999	1978 Act	May 23, 1999
Bulgaria	April 24, 1998	1991 Act	April 24, 1998
Canada	March 4, 1991	1978 Act	March 4, 1991
Chile	January 5, 1996	1978 Act	January 5, 1996
China	April 23, 1999	1978 Act	April 23, 1999
Colombia	September 13, 1996	1978 Act	September 13, 1996
Croatia	September 1, 2001	1991 Act	September 1, 2001
Czech Republic	January 1, 1993	1978 Act	January 1, 1993
Denmark ¹	October 6, 1968	1991 Act	April 24, 1998
Ecuador	August 8, 1997	1978 Act	August 8, 1997
Estonia	September 24, 2000	1991 Act	September 24, 2000
Finland ¹	April 16, 1993	1991 Act	July 20, 2001
France ¹	October 3, 1971	1978 Act	March 17, 1983
Germany ¹	August 10, 1968	1991 Act	July 25, 1998
Hungary	April 16, 1983	1978 Act	April 16, 1983
Ireland ^{1,2}	November 8, 1981	1978 Act	November 8, 1981
Israel	December 12, 1979	1991 Act	April 24, 1998
Italy ^{1,2}	July 1, 1977	1978 Act	May 28, 1986
Japan	September 3, 1982	1991 Act	December 24, 1998
Kenya	May 13, 1999	1978 Act	May 13, 1999
Kyrgyzstan	June 26, 2000	1991 Act	June 26, 2000
Latvia	August 30, 2002	1991 Act	August 30, 2002
Mexico	August 9, 1997	1978 Act	August 9, 1997
Netherlands ¹	August 10, 1968	1991 Act	April 24, 1998
New Zealand	November 8, 1981	1978 Act	November 8, 1981
Nicaragua	September 6, 2001	1978 Act	September 6, 2001
Norway	September 13, 1993	1978 Act	September 13, 1993
Panama	May 23, 1999	1978 Act	May 23, 1999
Paraguay	February 8, 1997	1978 Act	February 8, 1997
Poland ²	November 11, 1989	1978 Act	November 11, 1989
Portugal ¹	October 14, 1995	1978 Act	October 14, 1995
Republic of Korea	December 7, 2001	1991 Act	January 7, 2002
Republic of Moldova	October 28, 1998	1991 Act	October 28, 1998
Romania	March 16, 2001	1991 Act	March 16, 2001
Russian Federation	April 24, 1998	1991 Act	April 24, 1998
Slovakia ²	January 1, 1993	1978 Act	January 1, 1993
Slovenia	July 29, 1999	1991 Act	July 29, 1999
South Africa ²	November 6, 1977	1978 Act	November 8, 1981
Spain ^{1,2}	May 18, 1980	1961/1972 Act	May 18, 1980
Sweden ¹	December 17, 1971	1991 Act	April 24, 1998
Switzerland	July 10, 1977	1978 Act	November 8, 1981
Trinidad and Tobago	January 30, 1998	1978 Act	January 30, 1998
Ukraine	November 3, 1995	1978 Act	November 3, 1995
United Kingdom ¹	August 10, 1968	1991 Act	January 3, 1999
United States of America	November 8, 1981	1991 Act	February 22, 1999
Uruguay	November 13, 1994	1978 Act	November 13, 1994
(Total: 51 States)			

* "1961/1972 Act" means the International Convention for the Protection of New Varieties of Plants of December 2, 1961, as amended by the Additional Act of November 10, 1972; "1978 Act" means the Act of October 23, 1978, of the Convention; "1991 Act" means the Act of March 19, 1991, of the Convention.

¹ Member of the European Community which has introduced a (supranational) Community plant variety right system based upon the 1991 Act.

² Has already amended its law to conform to the 1991 Act.

ANNEXII

Table2

States or Organizations which have initiated with the Council of UPOV the procedure for becoming members of the Union (18)

Azerbaijan, Belarus, Costa Rica, Egypt, Georgia, Honduras, India, Kazakhstan, Lithuania, Morocco, Tajikistan, The former Yugoslav Republic of Macedonia, Tunisia, Venezuela, Yugoslavia and Zimbabwe, as well as the European Community and the African Intellectual Property Organization (Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal, Togo (16)).

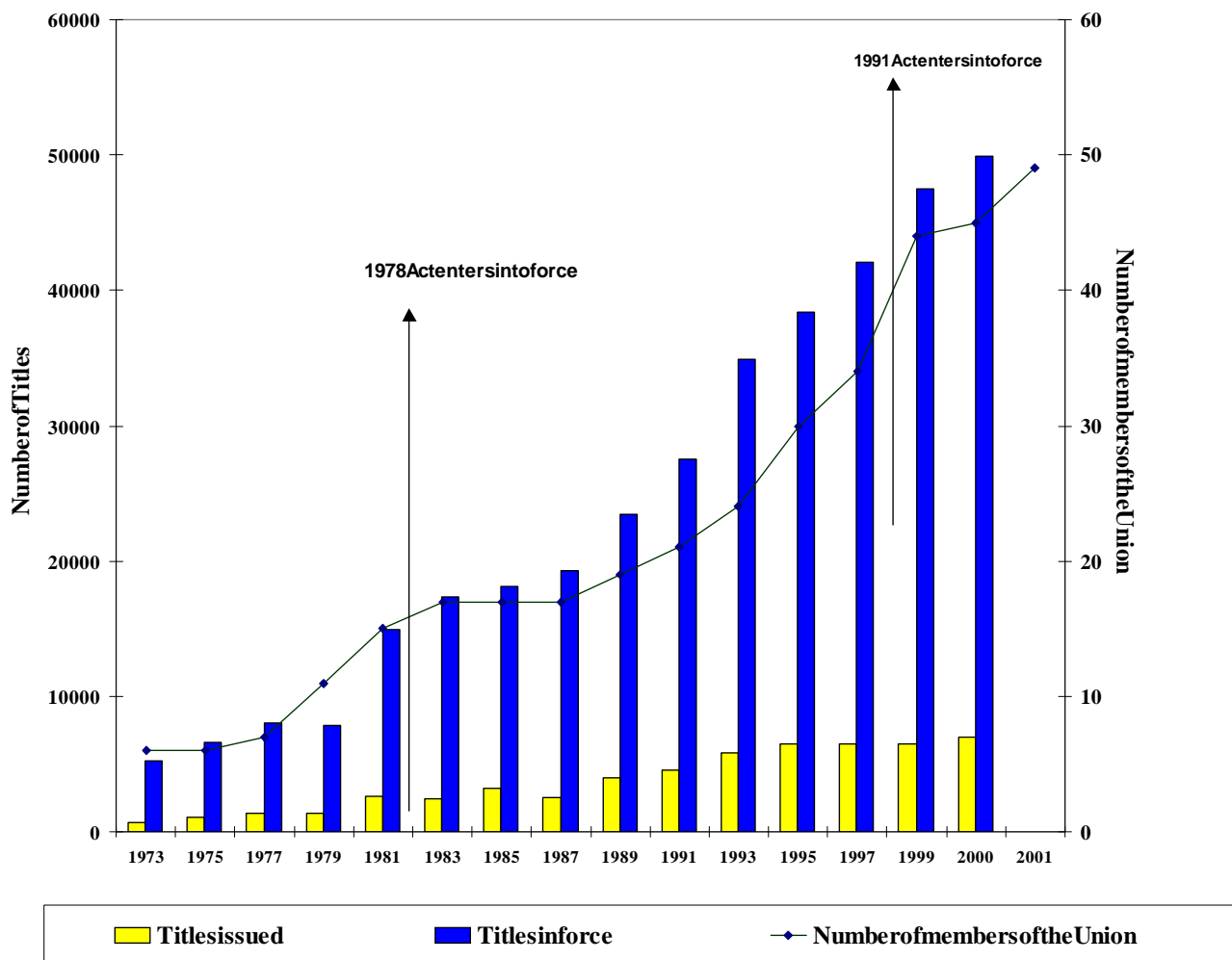
Other States who have been in contact with the Office of the Union with a view to developing legislation in line with the UPOV Convention (39)

Albania, Algeria, Armenia, Barbados, Burundi, Cuba, Cyprus, Djibouti, Dominica, Dominican Republic, El Salvador, Fiji, Ghana, Greece, Guatemala, Iceland, Indonesia, Jamaica, Kingdom of Bahrain, Madagascar, Malawi, Malaysia, Mauritius, Oman, Pakistan, Peru, Philippines, Saudi Arabia, Seychelles, Sri Lanka, Suriname, Thailand, Tonga, Turkey, Turkmenistan, United Republic of Tanzania, Uzbekistan, Viet Nam, Zambia

[Annex III follows]

ANNEXIII

Development of Plant Variety Protection



[End of Annex III and of document]