

Intellectual Property Rights for Agriculture in International Trade and Investment Agreements: A Plant Breeding Perspective

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Intellectual property rights (IPRs) have become a topic on the international trade agenda since the negotiation and adoption of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) as part of the overall package of agreements leading to the creation of the World Trade Organization (WTO). TRIPS places obligations on all WTO members to offer specified minimum standards of intellectual property (IP) protection in a wide range of sectors. But the agreement also leaves developing countries a certain amount of flexibility in how they fulfill their obligations. This flexibility allows countries to tailor their IPR regimes to their own specific circumstances.

The agricultural sector, and in particular plant breeding, is one area where this flexibility is quite broad. However, in the case of plant breeding, there are pres-

ures for developing countries to go farther than required by TRIPS, notably in bilateral trade negotiations and discussions in the framework of the World Intellectual Property Organization (WIPO). Such strengthened IPRs need to be justified on the basis of careful assessment of the national breeding and farming sectors and a process of consultation among the main stakeholders.

This note argues that policymakers need to pay close attention to the role that IPRs can play in agricultural development by providing incentives for both domestic and foreign investments. The note explains the special nature of plant breeding that has given rise to unique forms of IPRs and reviews how this special nature is reflected in article 27(3)b of the TRIPS Agreement. The note also reviews how developing countries are choosing to meet their obligations. It highlights the concern that both bilateral and multilateral trade negotiations may exert pressure on countries to adopt IPR regimes that are more rigid than those required to support national agricultural development.

This brief is based on a study on the impact of IPRs in the breeding industry in developing countries undertaken in 2004 for the World Bank (Louwaars et al., 2005).

PLANT BREEDING: A SPECIAL CASE

Plant breeding has traditionally presented challenges for patent protection due to a number of technical and legal factors that include difficulties in defining, as well as verifying, whether the breeding of a new plant variety constitutes a new invention, as well as the fact that plants can self-reproduce. Nevertheless, there have been arguments for establishing some mechanism to reward the creativity inherent in new crop varieties almost from the beginning of modern plant breeding. During the last century, a specific type of IPR for new plant varieties, known as plant breeder's rights, has been developed.





A system of plant variety protection (PVP) based on such rights can be seen as a modified patent. To qualify for protection, a variety must be “new” (in the market) and must also be shown to be distinct, uniform, and stable (the DUS criteria). The right holder then has exclusive rights to commercialize the variety, but there are two important differences from patent protection. The “farmers’ privilege” (which is distinct from “farmers’ rights”) allows farmers to save, reuse, and possibly exchange or sell their own harvested seed. The “breeder’s exemption” means that other breeding companies and organizations are generally free to use a protected variety for further breeding efforts. These differences from patent systems are considered necessary to avoid undue risks to seed supply, which is critical to agricultural output, food security, and rural livelihoods. PVP is thus rooted in agriculture and has been able to balance the rights of the inventor and those of farmers while recognizing the importance of breeding and seeds for agricultural output and rural livelihood.

Early PVP systems were eventually harmonized through the Convention for the Protection of New Varieties of Plants (Paris, 1961), which also established the Union for the Protection of New Varieties of Plants (UPOV). UPOV provides technical guidelines for standardized application procedures, and specifies the scope and coverage of protection. The UPOV system was revised in 1972, 1978, and 1991, gradually strengthening breeders’ rights by adding crop species, restricting farm-saving of seed, and extending the scope of protection. These adjustments were made in reaction to evolving circumstances in seed markets in industrialized countries.

In the past two decades, biotechnology has transformed the science of plant breeding. Aside from the well-known

ability to create transgenic varieties by transferring segments of DNA from one organism to another, there is an equally important contribution from a wide range of tools and processes that considerably improve the precision and speed of plant breeding. The genes and techniques used in developing transgenic crops, as well as the diagnostic tools and processes of marker-assisted breeding that produce conventional plant varieties, are all candidates for patent protection. Keeping pace with these rapid developments remains a challenge for patent systems, resulting in many areas of uncertainty and dispute. IPRs for biotechnology will present a complex set of issues for policymakers, researchers, and the commercial sector for many years to come.

TRIPS ARTICLE 27(3)B

Article 27(3)b of the TRIPS Agreement requires all WTO members to provide some effective form of IP protection for plant varieties, as well as patent protection for all other inventions, including those in plant biotechnology. Under TRIPS, countries thus have flexibility in whether they offer patents or PVP (or both) for plant varieties. Furthermore, there are no specific requirements on the scope or strength of PVP protection.

Although not specifically mentioned in the TRIPS Agreement, UPOV is the main existing system for protecting plant varieties, and it is seen by many as the most straightforward choice to comply with the TRIPS Agreement. Countries that now wish to join UPOV need to comply with the rules and standards of the latest convention (of 1991), which provides broader protection for the breeder than the previous (1978) convention.

Table I. Countries That Have Acceded to the Different UPOV Conventions

Convention	UPOV members
1961/72	Belgium,* Spain
1978	Argentina, Bolivia, Brazil, Canada, Chile, China,* Colombia, Ecuador, France, Ireland, Italy, Kenya, Mexico, New Zealand, Nicaragua, Norway, Panama, Paraguay, Portugal, Slovakia, South Africa, Switzerland, Trinidad and Tobago, Ukraine, Uruguay
1991	Albania, Australia, Austria, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Denmark,* Estonia, Finland, Germany, Hungary, Israel, Japan, Jordan, Korea, Rep. of, Kyrgyz Republic, Latvia, Lithuania, Netherlands,* Poland, Moldova, Romania, Russian Federation, Singapore, Slovenia, Sweden, Tunisia, United Kingdom, United States*, Uzbekistan

* = with reservations

Source: UPOV, October 2006



However, several developing countries have designed protection systems based on the 1978 version because they consider its greater flexibility more appropriate for their agricultural conditions. Even though they are then not eligible to join UPOV, they need this flexibility to sustain the dynamic farmers' seed systems that provide more than 80 percent of the seed used by farmers in most countries.

Although the decision to join UPOV may be problematic for many developing countries, the use of the UPOV guidelines for testing new varieties against DUS criteria offers clear advantages. The further adoption of such a harmonized approach opens the door to acceptance of test reports from other countries and to regional collaboration on testing. This can lower costs for PVP agencies and applicants, shorten the approval process, and facilitate seed trade.

However, the harmonization of criteria for granting protection does not have to go hand in hand with uniform scope or coverage of protection. Countries can base their PVP system on UPOV testing guidelines but maintain a broader farmers' privilege. Similarly, countries can choose to offer stronger protection for more commercialized crops and relatively little for subsistence crops, maintaining the option to adjust the system as the seed sector develops.

OTHER DEVELOPMENTS AFFECTING IPRS

Several types of negotiations could reduce the flexibility provided by TRIPS. At a multilateral level, negotiations are continuing under the auspices of WIPO on a substantive patent law treaty. If the resulting agreement includes a requirement that plants or plant varieties should also be patentable, then this would effectively eliminate the choice that countries have under TRIPS to choose PVP instead of patent protection.

As negotiations in the WTO Doha Round have been making slow progress on further trade liberalization, many developing countries have been interested in securing improved market access to the European Union (EU) or the United States by means of bilateral or regional trade agreements. Other initiatives include bilateral agreements on investment or development cooperation. These agreements may contain provisions about IPRs, including a commitment by the developing country to either join UPOV by adhering to the 1991 Act or even to offer patents for plant varieties. As such provisions may go beyond the minimum requirements under TRIPS, they are sometimes termed TRIPS-plus. For example, under a development cooperation agreement negotiated in 1999 with the EU, Bangladesh will endeavor to join UPOV by adhering to the 1991 Act, and under a bilateral trade agreement with the United States, Chile will provide patent protection for plant varieties.

Table 2. Comparison of Major IP Systems for Plant Varieties

Criteria	UPOV 1978	UPOV 1991	Utility patents (United States)
Requirements	Novelty (in trade) Distinctness Uniformity Stability	Novelty (in trade) Distinctness Uniformity Stability	Novelty (in invention) Utility Non-obviousness Industrial application
Seed saving	Allowed for private and noncommercial use	For use on own holding only (but for listed crops only)	Not allowed without consent of patent holder
Seed exchange	Allowed for noncommercial use	Not allowed without consent of right holder	Not allowed without consent of patent holder
Breeder's exemption	Use in breeding allowed	Use in breeding allowed (but sharing rights in case of essentially derived varieties (EDVs))	Not allowed without consent of patent holder

Source: Adapted from Helfer (2002), Krattiger (2004), and van Wijk et al. (2003).

The development of a competitive and viable plant breeding sector can benefit from an appropriately designed IPR system. While not essential for the initial development of a commercial seed sector, a properly balanced combination of PVP, trademarks, and patents can contribute to a fair and competitive business environment that stimulates innovation and provides transparency for farmers. These are the considerations upon which policy choices in the seed sector should be based, and care should be taken that trade considerations do not dictate development pathways for national seed systems. IPR systems that are overly ambitious relative to local needs and capacities are likely to lead to missed opportunities in seed sector development, to create implementation problems that undermine the credibility of the system, and to divert resources and attention from more important priorities.

GIVING DUE ATTENTION TO IPRS

IPRs are a tool that can support agricultural development. To do so, IPRs need to be tailored to the circumstances of the country. Developing countries, with their diversity of farmers and seed systems, present special challenges for designing a supportive IPR system. The goal should be to provide incentives for seed sector development while not creating unnecessary or unrealistic limitations on the practices and livelihoods of smallholder farmers. Meeting this goal requires a careful balancing of rights and obligations, which may imply adapting, as opposed to simply adopting, the standard models available.

Policymakers responsible for implementing TRIPS need to be aware of the complexity of the national seed systems through which IPRs will be implemented. Policymakers charged with negotiating trade agreements need to realize that the role of IPRs is to stimulate innovation in their countries, and that trade considerations must be bal-

anced against the need to ensure an equitable, transparent, and flexible IPR system that encourages local innovation. They should have the opportunity to consult widely when considering possible commitments to go further than the minimum requirements of TRIPS. The flexibilities under TRIPS allow developing countries to tailor their IPR systems to fit their needs and to make necessary adjustments as their economies grow. Admittedly, negotiating international agreements has become a daunting task, given the range of issues put on the table at once. Governments need to find ways to ensure appropriate consultation, for example, between different ministries. IPRs are typically under the jurisdiction of an economic ministry, but in the case of plant breeding, the ministry of agriculture will be an equally important partner for consultation. But it is also important that consultation and debate involve other stakeholders, perhaps first and foremost farmers, who should be the principal beneficiaries of the development of a commercial seed sector. A wider debate on such decisions should improve understanding and commitment in what is often seen to be a controversial field.

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