System Perspective for IPR Protection in
The Plant Kingdom*

Sudhir Kochhar†
Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110 001

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Increasing degree of human intervention and innovativeness in the plant kingdom in the course of evolution and development has led to enhanced economic relevance of the agriculture sector. Whereas the conventional agricultural practices based on the traditional knowledge of local farming and tribal communities continue to provide potential genetic resources to develop and improve plant varieties, the commercial agriculture is valued for its scientific and industrial approaches. In pursuit for development, intellectual property investments in agricultural research may have conspicuous relationship and striking balance with the utilization of genetic resources. Developing countries have been advocating for over two decades to allow the equitable benefit sharing to be treated at par with the application of IPR. Concerns for IPR and benefit sharing are addressed by the TRIPS Agreement and the CBD whereas UPOV provides standards and guidelines for the IP protection of plant varieties. India has opted for a *sui generis* plant variety protection (PVP) system and patent protection is available for other fields of agricultural technology. The PVP allows research and breeding exemption of the protected varieties. The *sui generis* system recognizes deemed prior rights of local communities and farmers on the genetic resources and provides compensation on equitable basis. The Indian patent system too recognizes the need for disclosure of the source of genetic resources used and the traditional knowledge associated with such use, if any. In a system perspective, this paper attempts to highlight points of convergence and divergence of IPR and benefit sharing related provisions, issues and concerns in relation to plant kingdom.

**Keywords**: IPR, TRIPS Agreement, CBD, UPOV, *sui generis*, PVP system, patent, PPVFR Act

Inventions or systematic arrangement of ideas, facts and data in R&D require usual investment of time, financial and other resources, and the human intellect.

Incentive to take risk of investing in an idea that might fail relies on the promise that, if successful, the investor will be rewarded by protection of the invention as his intellectual property right (IPR). Thus, IPR is safety net for the R&D based enterprises. Diverse viewpoints exist on issues related to IPR, the R&D

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†Email: skochhar2000@hotmail.com
approaches to derive benefit from IPR, and integrating the application of IPR portfolio with the development policy. Among issues related to IPR, understanding the relationship and striking the balance between IPR and the regimes covering access to genetic resources and equitable benefit sharing is paramount. Further, in R&D matters, key roles of players from diverse sectors are important and distinct. The public sector focus is invariably on developing technologies for the public good wherein the results/products are dedicated for common use; commercial gains have been hardly intended for. On the other hand, enterprise is the goal of private sector; yet this sector also sustains related R&D efforts towards understanding, assessment and development of better, efficient and affordable products. In this context, stronger IPR regimes have been advocated to play definite and crucial roles for the advancement of R&D and increasing quality of life of the consumers. IPR is important to both public and private sectors. The TRIPS Agreement has clearly recognized IPR as private rights. Taking advantage of the IPR protection of their new technologies, public sector institutions may generate financial resources and enhance their focused research efforts without causing burden on the public exchequer. Similarly, private sector, on its part, expects cooperation from public sector as a matter of governmental policy rather than market competition under the IPR regime.

**IPR on Plants and Plant Varieties**

The TRIPS Way

IPR for agriculture were seen congruently with the industrial property rights for the first time only under Uruguay round of the General Agreement on Tariff and Trade (GATT) negotiations in late 1980s that culminated with the signing of Ministerial Declaration at Marrakesh in 1994. It paved way for surge of the World Trade Organization (WTO) on 1 January 1995. Agriculture has been brought at par with other industrial trade sectors in terms of common institutional framework for conducting trade relations among members, protection of IPR, and services. A strong WTO institutional mechanism oversees stratified general provisions, standards concerning availability, scope and use of IPR, control of anti-competitive practices in contractual licences, enforcement, acquisition, maintenance, related inter partes procedures, dispute prevention and settlement procedures, and institutional and transitional arrangements for adoption and application by its Member countries.

Various formulations for IPR on plant and plant varieties as per the TRIPS Agreement may be broadly made from its Article 27.3(b), which reads, “Members may also exclude from patentability plants and animals other than microorganisms, 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 subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement”. The various interpretations from the Article could be that
WTO Members (i) must grant patents for (a) microorganisms, (b) non-biological processes for production of plants, and (c) microbiological processes for production of plants and microorganisms; (ii) must provide protection for plant varieties by grant of (a) patent, or (b) effective *sui generis* IPR, or (c) both patent and *sui generis* IPR; (iii) may exclude plants from patentable subject matter in their jurisdictions, alternately, they may provide patents for plants, and (iv) may not make any alternate/*sui generis* provision of IPR protection for plants where they choose to exclude plants from patentability. Nevertheless, whereas according to the above interpretation of Article 27.3(b) countries are not obliged to grant IPR protection to plants, it is also required of them to encourage the overall objectives of the TRIPS Agreement. Similarly, Article 27.1 requires granting patents in all fields of technology, whether products or processes, for all inventions that are novel, non-obvious (involve an inventive step) and have industrial applicability (usefulness). Such indirect interpretations in favour of plant patents open up future possibilities of witnessing dispute cases in the TRIPS Council against countries not providing IPR protection to plants.

Inventions essentially involve innovative mind/steps, and these may not be mere discoveries. The TRIPS Agreement does not define ‘invention’ and it also does not refer to the term ‘discovery’. Whereas discoveries are allowed patent grants in the USA, most other countries do not recognize discovery as an inventive step, which is an essential condition for the grant of patents. It is important here to observe that IPR protection for plants and plant varieties was in practice in some countries much earlier than the Uruguay Round of GATT negotiations or the establishment of WTO. In 1930, a legislative instrument was established in the USA for patenting varieties of asexually propagated plants whereas in 1961, an International Convention [Convention of the Union for the Protection of New Varieties of Plants; original in French ‘Union Internationale pour la Protection des Obtentions Vegetales’ (UPOV)] was held *albeit* with few countries to negotiate and provide for the protection of new varieties of plants, and triggered enactment of plant variety protection laws in countries of Europe. Further, the effective *sui generis* system of protection for plant varieties mentioned in the TRIPS Article 27.3(b) may be arguably based on the UPOV system of plant variety protection (PVP) and granting plant breeder’s right (PBR) on the protected varieties. The Convention had already 54 countries party to it as on 15 April 2004.

**The UPOV System of PVP**

A plant variety qualifies for protection when it meets three essential criteria, (i) distinctiveness, (ii) uniformity, and (iii) stability in expression of the distinct characteristics. In addition, the variety should be new in commercial sense; to file application for its protection in the country where developed or in any other UPOV member country, it should not have been offered for sale or sold over the past one or four years, re-
spectively. Also, the variety must have been designated with a distinct denomination, which would become its generic name forever. The grant of PVP entitles exclusive right to the breeder to commercialize his variety in order to *inter alia* meet the costs of research and encourage further R&D. The use of seed or other propagating material for research or breeding new varieties is exempted from the breeder’s right. Farmers are also broadly exempted from the breeder’s monopoly for non-commercial use of their produce from a protected variety, including propagating another crop from the harvested material on their own farm. Nevertheless, there has been increasing emphasis on a reasonable compensation to breeder for the use of farm saved seed in later version of UPOV (UPOV 1961/72, UPOV 1978, UPOV 1991).

The UPOV provides (i) model act to administer the protection of new varieties of plants at national level, (ii) guidelines for uniform application of examination of essential characteristics of candidate varieties across the member countries, (iii) test guidelines for varieties of different plant species; countries are encouraged to accept the guidelines *per se* or after some modifications that may suit well to their national requirements, and (iv) technical assistance to develop National Test Guidelines and for general administration of the plant variety protection Acts by countries. The most important implication of the system is that it provides a multilateral platform wherein applicants from different UPOV member countries can enjoy priority date of first filing for their PVP application for the same variety in other member countries. The PVP applications are not examined and published like the patent applications under the PCT (The Patent Cooperation Treaty, 1970) system, but there is definite cutting on overall costs in the UPOV system as well.

The CBD Approach

The technological innovations in plants and plant varieties underlie use of resources, particularly the plant genetic resources (PGR), and may involve biotechnological processes, besides the intellectual investment. Whereas IPR are claimed on the protectable subject matter developed in the course for its exclusive commercial use, concerns for prior rights of providers of PGR or technology and obligations of third parties may also be important in economic terms. The principles of equitable rights may require that the intellectual efforts made by generations of farmers for the identification, development, and utilization of PGR, which are further used for research and technology development in agriculture and forestry, need to be compensated in corollary with the grant of IPR. It is interesting that the processes of biotechnology being used in a varietal improvement programme may be already IPR protected and the user is bound to take licences for such uses; whereas the case may not be similar
with the locally adapted varieties that one requires to use as the basic stock for further improvement of work. Several of these materials may be in public domain whereby enterprises will not be under any obligation to its custodians unless there is law dealing with access to PGR and benefit sharing.

In the centres of origin and diversity of crops, several successive generations of farmers and rural people would be instrumental for discovery and development or improvement of traditional cultivars and landraces, and their value-added traditional uses. The international community had recognized such contributions and resolved to work towards the realization of farmers’ rights under the aegis of the Food and Agriculture Organization of the United Nations (FAO). The International Undertaking on Plant Genetic Resources, 1983 (IUPGR) that had been advocating free exchange of PGR for research use, being the heritage of mankind, released a revised agreed interpretation in 1991\(^7\) that such free access will be subject to the sovereign rights of nations over their PGR. Thus, in a way, the intellectual property invested by generations of farmers in the development of locally adapted plants and plant varieties was agreed to be a subject of benefit sharing, on the principles of equity, in case commercially successful varieties were developed from these materials.

The CBD (Convention on Biological Diversity, 1993) reaffirmed sovereign rights of nations over their biological resources, and also recognized the rights of communities over traditional genetic resources and the knowledge associated with their use, with the determination to work for the benefit sharing arrangements. Besides the broader goal of conservation and sustainable use of biodiversity through appropriate funding, other objectives of CBD tend to address IPR issues albeit more in terms of equitable benefit sharing from the commercial products. These include facilitated access through prior informed consent and on mutually agreed terms, and viewing access to biological resources \textit{vis-à-vis} technology in consideration of rights over the resources and/or technology. The CBD also had two outstanding issues, (i) \textit{ex situ} collections held prior to CBD, and (ii) realization of farmers’ rights. These issues were amicably resolved with the signing of the International Treaty on Plant Genetic Resources for Food and Agriculture, 2001 (ITPGRFA)\(^8\) which was enforced on 29 June 2004. A multilateral system of access and benefit sharing shall be established under the treaty.

**Research/Breeder’s Exemption**

An important concern has been that the grant of patent renders the protected material out of reach for further research and breeding/development. This is contrary to the natural law as it affects evolution; several new species and varieties of species have been evolving in nature because of no barriers, except for crossability limits among species.
Plant breeders may have to wait till the expiry of patent to use a patented plant or plant variety in breeding programmes. The patent system does not address this problem per se but the TRIPS Agreement clearly offers the option of a sui generis PVP system, which clearly provides for research and breeder’s exemption. The CBD system also provides for facilitated access to an initial variety/germplasm subject to a prior informed consent on mutually agreed terms of the provider, which may include signing of a benefit sharing agreement prior to the commercial venture in the new variety developed from its use.

The PVP system may be more helpful for enterprising because the right holder of a new variety is obliged to get licence from the breeder/owner of another variety that has to be repeatedly used in its commercial production cycle. Also, the right holder of an essentially derived variety (EDV) will be obliged to get licence from the owner of initial variety for its commercialization. In corollary, it may also be appropriate in cases of patented plants and plant varieties that the right holder encourages others to use his patented material as initial variety in the breeding programmes. The user will have to seek obligatory licence for commercialization of his new EDV derived from any such initial variety. Such rethinking may lead to more commercial gains by the patent holders for plants and plant varieties, including probable mergers and thereby business expansion as well.

**Indian Legislative Scenario**

Various legislative instruments that are in place in India to provide IPR protection for plants and plant varieties include the Patents Act, 1970, and the Protection of Plant Varieties and Farmers’ Rights Act, 2001 (PPVFR Act). Other related Acts include the Geographical Indications (Registration and Protection) Act, 1999, the Biological Diversity Act 2002, the Environmental Protection Act, 1986 (EPA) and the Seeds Act, 1966. The Patents Act, 1970, the principal Act, amended twice in 1999 and 2002, is in harmony with the TRIPS Agreement. Patent rules have been revised as well, in 2003, to give effect to the amendment provisions and have been enforced since 20 May 2003.

Plant varieties do not constitute patentable subject matter; inventions are patentable and the definition of invention includes processes and products. However, as of now, product patents are not granted for substances intended for use, or capable of being used, as food for human consumption, or as medicine or drug, and substances prepared or produced by chemical processes, including the biochemical, biotechnological or microbiological processes\(^9\). These limitations for the grant of product patent in India may have to be severed by the deadline 1 January 2005; Sec. 5 of the Act in vogue will have to be deleted. Product patent on genes still remains a grey area.
The scope of process patent in the existing patent system in India is enlarged. Patent may be granted for a new method or process of testing during the process of manufacture. This may imply grant of process patents on verification technology related to protocols for plants and plant varieties. Process patent may also be granted for curative, prophylactic, diagnostic, therapeutic or other treatment of plants to render them free from diseases and pests. Thus processes to manufacture, test and use a whole range of agrochemicals on plants and plant varieties can be patented as per the Indian law. These new provisions may benefit the inventors whose patent applications filed in India or PCT applications designating India or all PCT member countries are in the pipeline. However, the exclusion of methods of agriculture or horticulture from patentability (Sec. 3) remains another grey area; several competitive and precise methods of commercial agriculture/horticulture may qualify for patentable processes in relation to plants and plant varieties in case there is no such exclusion.

The PPVFR Act along with the Protection of Plant Varieties and Farmers’ Rights Rules, 2003, is in place but yet to be enforced. It is a *sui generis* Act, tending to provide a balance between the rights of breeders and farmers. PVP may be provided to new varieties, and also to the extant varieties (including farmers’ varieties and the varieties of common knowledge).

Whereas the new candidate varieties must meet the essential criteria of distinctiveness, uniformity, stability, novelty and a distinct denomination, it is not necessary that the extant varieties must be commercially novel. Genera or species for which PVP can be granted would be notified in the Government of India Gazette from time to time. Again, any extant variety may be protected under the Act irrespective of whether the genus/species to which it belongs is notified in the Gazette or not. A plant variety having a terminator gene sequence or the genetic use restriction technology (GURT) would not qualify for protection in India. Broadly, the Indian *sui generis* PVP Act features a combination of provisions from the UPOV 1978 and UPOV 1991 versions. It provides protection to EDV and also elaborates provisions for the protection of farmers’ rights.

The Indian *sui generis* PVP recognizes and respects the politico-historical realities of Indian agriculture. It is balanced with a set of farmers’ rights including, right to register farmer’s varieties, entitlement for benefit sharing for the use of biodiversity conserved by the farming community, right to save, use, sow, re-sow, exchange, share or sell farm produce including seed of registered variety but not the branded seed, right to claim compensation for under performance of a right protected variety from its promised level under defined production conditions, mandatory need to secure consent of farmer(s) when a
farmer variety is used to develop an EDV, protection from legal proceedings related to alleged infringement, and exclusion from paying fee in any legal proceedings in the Tribunal and Higher Courts. A national gene fund will be provided to manage benefit sharing arrangements under the Act and a Tribunal will be constituted for speedy disposal of cases related to PVP and other matters under the Act.

The Geographical Indications (Registration and Protection) Act, 1999, together with the Geographical Indications (Registration and Protection) Rules, 2003 broadly provides for the registration of geographical indications (GI) of Indian goods, including the agricultural goods (plants and plant varieties or produce), the registration of authorized users of such registered Indian GI goods, and the registration of GI of foreign goods in the territory in India where these goods are to be commercialized. The Biological Diversity Act, 2002, along with the Biological Diversity Rules, 2003, provides matters to access Indian bioresources, maintenance of people’s biodiversity registers, equitable benefit sharing, and conservation (in situ and ex situ) of biodiversity. The Environmental Protection Act, 1986, along with relevant rules provides an umbrella act that covers regulation of biotechnological research and other biosafety matters. The Seeds Act, 1966 is under process of revision to provide for regulatory matters related to testing of value for cultivation and use (VCU) of varieties before their market approval and release. The market approval of all varieties, including those protected under the PPVFR Act may be made essential under the revised act.

System Perspective

IPR protection for plant and plant varieties is important particularly where high investments and strategic research are involved. Broadly, the tangibles invented with the intellectual investments have been appropriately considered as intellectual property of inventors, but, unlike other property matters, the right over such property is not automatic; it has to be sought under the law in lieu of public disclosure of the invention and by overcoming public opposition, mostly for prior art or obviousness, if any. Such right is exclusive, but it does not entitle the holder with market monopoly for the right-protected invention; he has to abide by other regulations related to the invention, secure market approval under relevant law(s), and earn market goodwill. However, once granted, IPR entitles its holder to exclude others from commercialization of the invention without a licence. Again, IPR has a limited scope on time scale, it cannot be extended beyond the term of patent/PVP.

Patents and PVP offer slightly different type of IPR protection, the protection provided under PVP is considered weaker than a patent. The conventional plant breeding was not regarded as ‘inventive’ process, but the use of biotech-
nology for genetic modification may lead to new, non-obvious and useful results. The USA already provides the most liberal scenario, providing both patent and PVP options to protect plants and plant varieties. The European Union (EU) has also issued a Directive on the legal protection of biotechnological inventions to clarify how patent laws should be applied to biotechnological inventions. The genes used for transforming the transgenic varieties may be construed to be biotechnological inventions and considered eligible for patent by some countries. However, others may not consider gene as ‘invention’ but only ‘discovery’, which cannot be patented. Judgment would rely only on the respective national patent laws. For example, in EU and USA, patents may be granted for genes and genetically modified plants, provided it is established that an ‘invention’ has been made; that is, use for the gene is described and it has been transferred in the transgenic plant using a process of biotechnology. The mere ‘discovery’ of the function of a gene, however, cannot be patented in the countries of the EU.

Biotechnology offers opportunities for developing new crops/varieties by genetic modification, which is faster than conventional plant breeding methods. Yet, it is more expensive and involves additional costs, for example, the costs for biotechnological tools to identify, isolate, clone and transfer genes; legitimate access to a well adapted, agronomically superior crop variety that is already widely accepted by farmers, for its genetic transformation, conforming to the regulatory requirements related to environment and biosafety, and seeking regulatory approval for genetically modified crops, variety registration for IPR protection, market regulatory approval, and initial multiplication under safe conditions, to be able to enter in the market immediately after the approvals/authorization are granted. Thus, it may be important that assurance is given with IPR laws and other regulations in place to encourage biotechnology-based inventions and enterprises in plants and plant varieties in the developing countries. Fortification of the enforcement provisions will further encourage investments in the field.

The issue of patenting hereditary information of living organisms raises some fundamental questions; for example, commercialization of knowledge and genetic resources is an inherently abhorrent concept for many communities, the local communities might be at a disadvantage because of less understanding of IPR, patenting may have some possibly unwanted effects, and there is lack of alternative measures to recoup investment for product development. Equitable sharing of benefits is being recognized as an alternative although its mechanism has yet to be substantiated and established.

The issues related to PGR, traditional knowledge and folklore have been largely considered to be linked to the
laws and practices covering intellectual property use and protection, the World Intellectual Property Organization (WIPO) also recognizes some overlap between the IPR system and more informal means of protection in these areas. The WIPO platform is currently being used for intergovernmental negotiations to resolve the matter, gather opinion and develop a world order. However, some voluntary, ad hoc measures have been taken as right initiatives for providing novel means of valuing and compensating PGR and indigenous knowledge. For example, these include agreement in relation to PGR and plant IPR entered into by Merck & Company and Costa Rica's Instituto National de Biodiversidad, and benefit sharing agreement between the Tropical Botanical Garden and Research Institute (TBGRI), Kerala, India and ‘Kani’ tribal community of the local area, which was associated with the development of a commercially viable plant. The CBD encourages others to follow these examples. Thus enterprise in plant and plant varieties is bound to flourish in the developing countries only when the in-house R&D is set in order, the legislative instruments for IPR protection are in place, enforcement of IPR laws is assured, and the principles of equitable rights are respected at least as a voluntary code of conduct.

Another crucial point in the application of IPR on plant varieties is that it does not guarantee farmers’ acceptance of the right protected materials in the first place. Agriculture, particularly in the developing world, is not industrial; the socio-economic and politico-historic situations determine the course of farming practices. For example, only small and marginal farmers are involved in subsistence agriculture, who do not go for replacement of their farm saved seeds primarily for the economic considerations. They also do not have access to improved technology for cultivation on similar considerations and, therefore, merely imposing seed sales of the right protected, new varieties on them will not improve their economic situation. Rather such attempts may even affect the goodwill of enterprises, particularly, if their new varieties do not show expected level of performance under poor input and local management conditions. In this context, the national agricultural research systems (NARS) are expected to be much aware of the ground reality, such as, farmers’ aspirations, national needs for food security and agricultural development, etc. This favours public-private partnerships in the developing world in a right perspective, like for increasing farmers’ awareness, motivating them to adopt improved technologies and thereby shaping the future of agriculture. Plant IPR may become pre-requisite for such cooperative initiatives by the developing countries, NARS and the formal sector in industrialized countries.

Network approach is increasing in
the international collaborative research. In such initiatives, the network partners may need to consider and address the IPR concerns both for the background intellectual property (IP) being contributed by them and the IP that will be generated from the cooperative efforts in the network. Such concerns may include sharing of rights in patents/PVP titles and also the sharing arrangements for the licence fees/royalties on the jointly owned IPR protected matter. The International Agricultural Research Centres of the Consultative Group on International Agricultural Research (CGIAR) have been considering to use IPR and may resort to seeking plant IPR for the inventions of cooperative research and licences for the use of proprietary materials. Nevertheless, the collaborating partners, including the public and private sectors must assess and play complementary roles and responsibilities in order to ensure food and nutritional security to the ever-growing number of humans, bringing prosperity and increasing standards of living of farmers and other end-users of IPR protected technologies.

IPR on plants and plant varieties is more relevant for return-oriented investments, such as value-based plants and plant varieties in floriculture and forestry, particularly those having aesthetic or pharmaceutical values. The return to their holders is expected to be much high as compared with seed sales of new agricultural plant varieties. UPOV data on the PVP titles granted by member countries, on crop basis, indicates that out of the 10 most highly protected crop species there are 5 ornamental plant species (chrysanthemum, rose, carnation, pelargonium and lily), 4 food crops (maize, potato, rice and soybean), and 1 forage plant (perennial ryegrass). With many developing countries joining the Convention, and UPOV 1991 providing protection to varieties of all genera and species of the plant kingdom, more interesting trends may be observed in due course. Nevertheless, the major concern to the developing world would continue to be as to how to address matters related to IPR protection in plant varieties related to their food security. Positive developments may include greater efforts from the public sector research system and also more cooperation between the public and private sectors.

Recently, in the international rice genome-sequencing project (IRGSP), the Consortium responsible for sequencing the individual chromosomes or their part has resolved to keep the entire genome in public domain. More encouraging part in this endeavour is that the giant private players in the area, like Monsanto and Syngenta, had also decided to contribute their research results for public good, while retaining any IPR that may be available on the products of these results for commercial use by the companies. The sharing statement in the ‘Monsanto Pledge’ pronounces, “We will share knowledge and technology to advance science and under-
standing, improve agriculture and the environment, improve subsistence crops, and help small farmers in developing countries\textsuperscript{21}. One definite way to achieve these objectives would be to facilitate contribution of the right-protected plants and plant varieties in the breeding programmes for further improvement. In case of PVP, research/breeder’s exemption is already a reality and this must be realized to a maximum benefit for the growth of enterprises as well as that of the societies being benefited thereof.

**Conclusion**

A level playing field in trade and investment may be possible by harmonizing the national laws with various WTO and other intergovernmental agreements. Countries need to define and facilitate their national roles in world markets and also overcome deprivation and hunger within the national boundaries. The developing countries have to ensure additional care for matters concerning their overall agricultural production, commercialization of produce, enforcement of intellectual property protection in agricultural R&D, and sanitary and phytosanitary measures in the context of national agricultural trade policies and strategies\textsuperscript{23}. The expansion of economic activities beyond the national borders together with increased economic openness, interdependence, opening up markets for foreign aspirants and facilitating national industry and commerce to enter the world markets are challenges that must be met through economic and technological efficiency as well as competitiveness. The phenomenon of globalization is perpetual, but the underlying processes of liberalization and privatization would have to be time-bound\textsuperscript{24}. Hence, timely and effective enforcement of the national IPR laws and other related laws should find priority as it is likely to encourage commercialization in agriculture and thereby increase income and living standards of the farmers and growers.

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5. TRIPS Article 27.1 states that “Subject to the provisions …., patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new,
involve an inventive step and are capable of industrial application. Subject to this article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced."


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9 Sec 5 of the Indian Patents Act, 1970, amended by the amendment Act, 2002

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