



Intellectual Property Rights in India's Agricultural Research and Development

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Inventions, literary and artistic works, designs, symbols, names, and pictures used in commerce are all protected by intellectual property rights (IPR). In the field of agriculture, intellectual property rights (IPR) have emerged as a vital tool for stimulating innovation, encouraging investment, and guaranteeing the fair distribution of advantages resulting from genetic resources and technical developments. The function of IPR is both revolutionary and controversial for a country like India, where agriculture is the backbone of the economy and employs a sizable section of the people. In the past, agricultural research and its results were seen as public assets that were open to everyone in India. Open access to enhanced plant types created by public institutions served as the foundation for the Green Revolution. However, India was required to provide a framework for the protection of intellectual property, especially in the agricultural sector, with the establishment of the World Trade Organization (WTO) and the signing of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). A paradigm shift has resulted from this. To negotiate the difficult interface between international IPR rules and its own socioeconomic realities, India has created a distinctive and strong sui generis (of its own sort) system. Developing a framework that encourages private sector research and development (R&D) while also safeguarding the long-standing rights and customs of its sizable farming community and conserving its unique biodiversity has proven to be the main problem. It examines the different types of intellectual property that apply to agriculture, digs into the important laws that serve as the system's foundation, examines the complex effects of IPR on different stakeholders, and talks about the ongoing difficulties and prospects for IPR in this crucial industry.

Indian Agriculture's Intellectual Property Rights Types

India's agricultural industry benefits from a number of IPR types, each of which provides a distinct kind of protection.

The 2001 Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act

The most important law pertaining to intellectual property rights in Indian agriculture is this one. Rather than following the strict UPOV (International Union for the Protection of New Varieties of Plants) paradigm, India developed a special approach that strikes a balance between the traditional rights of farmers and the rights of commercial plant breeders.

- **Plant Breeders' Rights (PBRs):** Breeders who have created a novel plant variety are granted PBRs under the Act. A variety must meet the DUS criteria—Novel, Distinct, Uniform, and Stable—in order to qualify for protection. The protected variety can only be produced, sold, marketed, distributed, imported, or exported by the breeder. Field crops are protected for 15 years, while trees and vines are protected for 18 years. The most renowned and distinctive aspect of Indian law is the rights of farmers. The Act specifically

acknowledges farmers as conservationists and breeders in addition to cultivators. Farmers are afforded the following important rights:

The freedom to store, utilize, plant, replant, trade, distribute, or sell their agricultural products, including the seeds of a variety covered by the Act. However, branded seed of a protected variety cannot be sold by farmers.

The National Gene Fund's recognition and awards for registering traditional varieties. Benefit sharing entitles communities and farmers who have contributed to a variety's development to a portion of the profits from its commercialization. The right to compensation in the event that a registered variety does not live up to the breeder's expectations. If someone uses a protected variety without realizing it, they are immune from infringement procedures.

Patents

Patents are governed under the Indian Patent Act, 1970 (as revised in 2002 and 2005). Its provisions are very explicit when it comes to farmers. The Act's Section 3(j), which excludes "plants and animals in whole or any part thereof other than micro-organisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals," is especially significant. This implies that traditional breeding techniques, seeds, and plant varieties cannot be patented in India. But the Act does permit: Microorganisms can be patented. Biotechnological procedures, like the development of a genetically modified plant, can be patented as long as they are new, entail innovative steps, and have industrial applications.

- Patents for agricultural machinery and agrochemicals (such as insecticides and herbicides).

In India, well-known instances of agricultural GIs include:

- Darjeeling Tea: renowned for its distinct muscatel taste. Basmati rice is well-known for its large grains and unique scent. Alphonso Mango: Known for its flavor and consistency. The Nagpur Orange is renowned for its juicy, sweet pulp.

Additional Pertinent IPRs

- Trademarks: Used to identify and brand machinery and agricultural items (such as seeds and fertilizers) from various businesses. A trademark contributes to brand recognition and consumer trust. Copyrights safeguard artistic and literary creations. This includes research publications, books, articles, databases on genetic resources, and software for precision agriculture or farm management.

- Trade Secrets: Businesses might use trade secrets to safeguard private R&D information, formulae (like those for a new herbicide), or client lists. There isn't a formal legislation for this; common law and contracts are used to enforce protection.

India's Legal and Policy Framework

India's domestic laws that were passed or modified in response to its responsibilities under the WTO's TRIPS Agreement serve as the cornerstone of the country's IPR framework for agriculture.

- The TRIPS Agreement: Article 27.3(b) of TRIPS required member nations to safeguard plant varieties using patents, an efficient sui generis system, or any combination of these. The PPV&FR Act, 2001 is the outcome of India's decision to go the sui generis route.

The 2001 Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act: This is the foundation of IPR in Indian agriculture, as was previously said. It created the Protection of Plant kinds and Farmers' Rights Authority to oversee variety registration, safeguard farmers' and breeders' rights, and encourage the creation of new kinds. Additionally, it created a National Gene Fund to encourage conservation and thank farmers for their contributions.

In order to satisfy India's obligations under the Convention on Biological Diversity (CBD), the Biological Diversity Act, 2002 was passed. It seeks to protect biological variety, guarantee its sustainable use, and facilitate the just and equal distribution of advantages resulting from the utilization of biological resources and related traditional knowledge. To counter biopiracy, this Act collaborates with the PPV&FR Act and the Patent Act. The National IPR Policy (2016) was introduced to establish a strong and all-encompassing IPR ecosystem in India. It asks for greater awareness of IPR among all stakeholders and

highlights the significance of the PPV&FR Act and the GI Act in safeguarding India's interests in agriculture.

IPR's Effect on Stakeholders and Agricultural R&D

Indian agriculture has been significantly and inconsistently impacted by the establishment of a formal IPR regime.

Encouraging Investment and Innovation

Promoting R&D is one of IPR's main goals. The private sector has increased its investment in agricultural research due to the prospect of exclusive rights and the potential for financial recovery. This is clear from: The growth of private seed enterprises in India. Research in high-value fields including biotechnology and hybrid technology has increased.

- The introduction of new and improved crop varieties with characteristics including drought tolerance, pest resistance, and increased yield.

The Effect on Farmers

The most contentious part of IPR in agriculture is how it affects farmers. Benefits: Access to Better Seeds: A greater variety of certified, high-quality seeds are now available to farmers, which may boost their output and earnings.

Reward and Recognition: The PPV&FR Act offers farmers a way to be acknowledged as breeders and conservators, along with provisions for National Gene Fund incentives.

Legal Protection: The Act gives farmers clear legal rights and a way to pursue compensation, empowering them and shielding them from exploitation.

Adverse Effects and Difficulties: Increased Seed Costs: Small and marginal farmers may find it difficult to afford the higher cost of patented or protected seeds.

Dependency: Farmers' autonomy may be diminished by their increasing reliance on a small number of powerful multinational companies that control the seed market.

Risk of Litigation: Farmers may be sued notwithstanding legal safeguards. Even though the business ultimately withdrew the cases, the 2019 case of PepsiCo suing many Gujarati farmers for growing its registered potato variety (FC5) brought attention to the power disparity and the possibility of intimidation.

Effect on Research in the Public Sector

Agricultural innovation in India has historically been driven by public research organizations such as the Indian Council of Agricultural Research (ICAR). They have had to change because of the IPR system. In order to recognize, safeguard, and market their inventions, numerous organizations have recently set up IP Management Cells. Although this can provide funding for public research, there are worries that it might divert attention from "public good" research that helps farmers with limited resources to more profitable R&D.

Difficulties and Debates

Even with a well-meaning legislative framework, there are still a number of issues and disputes.

- Biopiracy and Traditional Knowledge: Traditional knowledge on the usage of plants and other biological resources is abundant in India. The anti-fungal qualities of neem and the therapeutic qualities of turmeric are two examples of the numerous cases in which foreign organizations have attempted to patent this information. Despite India's successful challenge and revocation of these patents, the threat persists.
- Genetically Modified (GM) Crops: IPR is very controversial when it comes to GM crops. Opponents voice worries about seed sovereignty, the environmental effects of genetically modified crops, and the monopolistic activities of big biotech businesses, while supporters contend that robust IPR is essential to spurring biotechnology research.
- Awareness and Enforcement: Farmers, local administrations, and even the judges are largely unaware of IPR rules. This makes it more difficult for the laws to be implemented and enforced effectively. It's possible that farmers are unaware of their rights, how to register their kinds, or how to get compensation.

● **Balancing Rights:** Maintaining a delicate balance between breeders' commercial interests and farmers' socioeconomic needs and rights continues to be a vital concern. Finding the ideal equilibrium requires constant legislative and judicial improvement.

IPR's Prospects in Indian Agriculture

Innovation and technology, and hence IPR, are crucial to the future of Indian agriculture. A multifaceted strategy is needed to move forward. **Strengthening Implementation:** The emphasis needs to move from drafting laws to making them more effective. This entails streamlining registration and litigation processes, boosting the authority of regulatory organizations like the NBA and PPV&FR Authority, and making sure that the law's advantages are seen at the local level.

- **Raising Awareness:** To inform farmers, researchers, and legislators of their rights and responsibilities under the various IPR laws, extensive awareness efforts are required.
- **Public-Private Partnerships (PPPs):** Promoting partnerships between private businesses and public research institutes can capitalize on their respective advantages. While the private sector can provide funding and experience for technological development and commercialization, public institutions can concentrate on fundamental research and the requirements of small farmers.
- **Adopting New Technologies:** New IPR issues will arise when agriculture shifts to precision farming, genomics, and data analytics. In light of these technological advancements, India's legal system must continue to be flexible and dynamic.

Conclusion

India has developed a distinctive and forward-thinking intellectual property rights system for agriculture, which has received praise from throughout the world for its efforts to safeguard farmers' rights. It is evidence of the country's dedication to striking a balance between its responsibilities abroad and the well-being of its citizens. But the voyage is far from finished. In order to ensure that the IPR system promotes an environment of innovation that is inclusive and equitable and ultimately contributes to the sustainable development of Indian agriculture and the nation's food security, it will be imperative that these laws be implemented effectively and that all stakeholders engage in ongoing communication.

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