



---

## **The Evolving Application of Intellectual Property Rights in Agricultural Innovations amid Globalization**

*Biswarup Mukherjee<sup>1</sup>*  
*Debabrata Pal<sup>2</sup>*

### **ABSTRACT**

*This research paper examines the importance of Intellectual Property Rights (IPR) in Agricultural Innovation, focusing on their role in protecting products and services within the sector. It explores various forms of IPR, including patents, plant breeders' rights, trademarks, geographical indications, and trade secrets. The Indian Patent Act of 1970, along with its amendments, has facilitated the patenting of agricultural tools, machinery, and processes related to agricultural chemicals. The study analyzes the effects of globalization on agricultural innovations and the overall concept of agricultural advancement. It highlights how IPR can act as a catalyst for innovation while addressing the challenges posed by intellectual property regulations. The paper also outlines the IPR framework concerning plant varieties, emphasizing its relevance in promoting agricultural development. Ultimately, the research identifies emerging trends in IPR and agricultural innovation, offering insights into how these developments are shaping the future of the agriculture sector. By understanding the interplay between IPR and agricultural innovation, stakeholders can better navigate the complexities of intellectual property in a globalized market.*

**KEYWORDS:** Agricultural Innovation, IPR, Globalization, Plant Varieties

**CITATION:** Biswarup Mukherjee & Debabrata Pal, "The Evolving Application of Intellectual Property Rights in Agricultural Innovations amid Globalization", *JSS Journal for Legal Studies and Research*, Vol. 10 (2) (2024), pp. 69-84, available at <https://www.jsslawcollege.in/jsslc-online-journal/>

---

<sup>1</sup> Student Of 4<sup>th</sup> Year B.A. LLB (H) At DEPARTMENT OF LAW, UNIVERSITY OF NORTH BENGAL

E-Mail: [Biswarupjee@Gmail.Com](mailto:Biswarupjee@Gmail.Com)

<sup>2</sup> Student Of 4<sup>th</sup> Year B.A. LLB (H) At DEPARTMENT OF LAW, UNIVERSITY OF NORTH BENGAL

E-Mail: [Slayingsince2001.Deb@Gmail.Com](mailto:Slayingsince2001.Deb@Gmail.Com)

## 1. INTRODUCTION

At the very beginning we need to understand the definition of Agriculture . The term “Agriculture” is a known term. We all have a clear idea about agricultural. It encompasses crop and livestock production, aquaculture and forestry for food and non food products. Agriculture was a key factor in the rise of human civilization. Agricultural Innovation is defined as the process whereby individuals or organizations bring existing or new products, processes, and forms of organization into social and economic use to increase effectiveness, competitiveness, resilience to shocks, or environmental sustainability, thereby contributing to food and nutritional security, economic development, and sustainable natural resource management (Tropical Agriculture Platform, 2016)<sup>3</sup>. According to the World Trade Organisation, intellectual property rights are those rights that are given to persons over the creation of their minds. Intellectual property rights are important rights in both the domestic and international spheres<sup>4</sup>. Intellectual Property Rights (IPR) in agriculture protect the goods and services produced within the sector, primarily focusing on patents, plant breeder’s rights, trademarks, geographical indications, and trade secrets. The Indian Patent Act of 1970, along with its subsequent amendments, allowed for patents on agricultural tools, machinery, and processes for developing agricultural chemicals. Prior to 2005, only method inventions related to substances created through chemical processes were patentable. In 2001, the Government of India introduced the Protection of Plant Varieties and Farmers’ Rights (PPV&FR) Act, which became the world’s first IPR legislation specifically aimed at plant varieties. This Act recognizes and safeguards the rights of both breeders and farmers, ensuring the preservation of traditional landraces. The PPV&FR Authority was established in 2005 to implement these provisions. The PPV&FR Act grants farmers the right to save, use, sow, re-sow, exchange, share, or sell their produce, including seeds from protected varieties, as long as they do not engage in branding or packaging for

---

<sup>3</sup> Sciencedirect, <https://www.sciencedirect.com/topics/food-science/agricultural-innovation>, last visited 14<sup>th</sup> October, 2024

<sup>4</sup> Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.iplayers.in/leading-international-instruments-related-to-intellectual-property-rights/>



commercial purposes.<sup>5</sup> Conversely, breeders are given exclusive rights over the commercial production, sale, marketing, distribution, and export of their protected varieties. Additionally, plant breeders and researchers are permitted to use registered varieties for experimentation and research, or as an initial source of genetic material for developing new varieties. However, this is allowed only if the protected variety is not repeatedly used as a parent for commercial seed production, which requires prior authorization from the original breeder or farmer.

## **2. IMPACT OF GLOBALIZATION ON AGRICULTURE:-**

Globalisation is usually demonstrated to indicate the integration of the economy of the nation with the world economy, which is a multifaceted aspect. Globalisation is the final product of the collection of multiple strategies that are directed at transforming the world towards greater interdependence and integration. It comprises the creation of networks and pursuits transforming social, economic and geographical barriers. Globalisation tries to construct links in such a manner that the events in India can be determined by events happening distances away.<sup>6</sup> Globalization can upgrade agribusiness jobs enormously as a development motor in nations with low pay by growing horticulture quicker than homegrown utilization. Globalization builds farming's capability to improve food security through multipliers to the non-tradable, gigantic, work-serious rustic area.<sup>7</sup> Globalization has significantly accelerated agricultural development, with growth rates rising from 3% a decade ago to around 4-6% today<sup>8</sup>. This increase marks a substantial shift in production focus; initially centered on staple foods, the trend is now leaning toward high-value crops. As countries' incomes grow, agricultural production is expanding into niche markets, such

---

<sup>5</sup> IPR, Innovation & Agriculture- Federation of Seed Industry of India, <https://fsii.in/ipr-innovation-agriculture/#:~:text=IPR%20in%20agriculture%20are%20used,geographical%20indications%20and%20trade%20secrets>, last visited 13<sup>th</sup> October, 2024

<sup>6</sup> Byjus, <https://byjus.com/question-answer/describe-the-impact-of-globalisation-on-agriculture/>, last visited 12<sup>th</sup> October, 2024

<sup>7</sup> Impact of Globalization on Agriculture, <https://www.geeksforgeeks.org/impact-of-globalization-on-agriculture/>, last visited 13<sup>th</sup> October, 2024

<sup>8</sup> Impact of Globalization on Agriculture, <https://www.geeksforgeeks.org/impact-of-globalization-on-agriculture/>, last visited 13<sup>th</sup> October, 2024

as premium tea and coffee, contributing to the sector's robust growth. As demand for agricultural products rises, domestic interest in both crops and livestock is expected to increase sharply. In low-income nations, approximately half of this growth will likely occur in high-value crops and livestock for local consumption and export. This shift may lead to a reduced emphasis on cereal production. With a focus on high-value and cash crops, the rate of return on investment (ROI) is expected to improve, resulting in lower transaction costs, particularly in value-added enterprises. However, these developments often rely on capital-intensive methods, complicating marketing efforts and providing a relative advantage to wealthier countries. Low-income nations may find their benefits limited within the supply chain.

Cereals remain crucial for food security in the global economy, and declining delivery costs are facilitating imports in developing countries. Two factors are likely to contribute to this trend: specialization in high-value crops and the effects of globalization, which may reduce land allocated for cereals if further expansion or intensified production becomes unfeasible. As a result, lower-income countries may benefit from decreased cereal prices, even while facing declines in prices for other agricultural goods.

Additionally, globalization has impacted agriculture through the rise of biofuels, with significant land now dedicated to biofuel crop production. This shift poses a risk to food security, as substantial amounts of staple crops like wheat and rice are harvested, while unregulated biofuel cultivation leaves insufficient resources for the impoverished. Looking ahead, countries that do not invest in technology, research, and infrastructure while neglecting to reduce transaction costs are likely to see continued declines in agricultural product prices without effectively addressing production costs. In contrast, nations that enhance production efficiency through improved infrastructure and research could experience agricultural growth rates that double, resulting in substantial benefits for rural economies, increased business opportunities, reduced poverty, and enhanced food security.

### **3. KEY TYPES OF IPR IN AGRICULTURAL INNOVATIONS:-**

Some key aspects of Intellectual Property Rights in Agricultural Innovation are as follows:

- *Patents-*



Patents offer legal protection for new inventions, motivating researchers and companies to invest in the creation of innovative agricultural technologies, including genetically modified organisms (GMOs), pest-resistant crops, and cutting-edge farming methods.

- **Trademarks –**

Trademarks play a significant role in agricultural innovation by establishing brand recognition and helping consumers easily identify and trust specific products. They enable market differentiation, allowing companies to stand out with their innovative offerings. By assuring consumers of product quality and origin, trademarks foster trust and encourage the adoption of new technologies. Strong trademark protections incentivize investment in research and development, as companies are more likely to invest if they can secure their brand identity.

- **Copyright –**

Copyright and agricultural innovation are interconnected through various intellectual property protections. While copyright mainly covers artistic works, other laws like plant breeders' rights incentivize the development of new crops. Additionally, copyright safeguards software used in precision agriculture and promotes knowledge sharing through protected research publications. Balancing these protections with open access is crucial for fostering innovation, especially in developing regions. Ultimately, effective management of these rights supports agricultural advancements while ensuring fair access to information.

- **Trademarks –**

Trademarks significantly impact agricultural innovation by creating brand recognition and enhancing marketability, which builds consumer trust. They protect unique product names and logos tied to innovations, incentivizing further research and development. By differentiating products, trademarks help farmers command higher prices and access niche markets. They also assure consumers of quality and origin, driving demand for specialty goods. Moreover, strong trademark protections can attract investment in agricultural advancements and facilitate collaboration and licensing agreements among innovators and producers. Overall, trademarks foster

---

an environment that encourages agricultural innovation by safeguarding intellectual property and improving market opportunities.

#### **4. IPR AS A CATALYST FOR AGRICULTURAL INNOVATIONS:-**

IPR remains a popular tool that determines the course of innovation advancement within the agricultural industry, affecting the generation and distribution of new technologies. This has been evidenced by the significant rise in patented agricultural inventions, which has risen by 239% in the last decade and can be seen as evidence of the technologically dynamic shift currently occurring in this sector. Such innovations as gene manipulation, from cloning to digital and robotic technologies, are essential in developing the sector and making it more efficient.<sup>9</sup>

Since the introduction of TRIPS in 1994, there has been a notable shift in the agricultural sector towards intellectual property rights (IPR), leading to enhanced protection for plant varieties and a more harmonized IPR framework. This transition has encouraged more proactive practices in agricultural research and development, particularly in developing countries striving to improve their agricultural productivity. Currently, there is a clear trend toward privatizing funding for agricultural R&D, especially in biotechnology, where robust IP systems are essential for attracting investment and fostering innovation. Leaders in the agricultural sector are now investing approximately EUR 1 for every EUR 14 in sales revenue, contributing around \$69 billion annually to R&D—about 7% of total global spending in this area<sup>10</sup>. This investment not only supports innovation but also helps the food industry minimize waste and reduce environmental impact, ultimately leading to cost savings.

The implementation of IPR has also facilitated the adoption of advanced agricultural innovations, such as hybrid seeds, significantly boosting productivity and sustainability worldwide. For instance, the Ogura hybrid seed technology exemplifies how IP rights can enable collaboration and development, benefiting both inventors and farmers alike. While

---

<sup>9</sup> WIPO, [https://www.wipo.int/pressroom/en/articles/2024/article\\_0004.html](https://www.wipo.int/pressroom/en/articles/2024/article_0004.html) (last visited October 12, 2024)

<sup>10</sup> Abhinav Singh, The Impact of Intellectual Property Rights in the Agricultural Sector, Legal Vidhiya, last visited 13<sup>th</sup> October, 2024, <https://legalvidhiya.com/the-impact-of-intellectual-property-rights-on-innovation-in-the-agricultural-sector/>



IPR has positively influenced agricultural innovation, it is crucial to strike a balance to ensure that the benefits of these innovations reach smallholder farmers and consumers, particularly in developing regions. The ongoing debate over the implications of IP protection in agriculture highlights the need for a careful approach to maximize the advantages of IPR while avoiding potential drawbacks.

### **5. CHALLENGES POSED BY IPR IN AGRICULTURE:-**

Intellectual Property Rights in Agriculture presents several challenges. They are as follows:

- ***Access to Resources-***

IPR, particularly patents, can significantly restrict farmers' access to seeds and other agricultural inputs. When companies patent genetically modified seeds, farmers are often required to purchase new seeds each season rather than saving and replanting them. This can lead to a reliance on a few major corporations for seed supply, reducing genetic diversity and making crops more vulnerable to pests and climate change.

- ***Cost of Compliance-***

The legal landscape surrounding IPR is complex and can be prohibitively expensive for smallholder farmers and agricultural innovators in developing countries. The costs associated with obtaining patents, legal fees, and compliance can divert resources away from farming activities, making it difficult for these stakeholders to compete or innovate effectively.

- ***Monopoly Power-***

Large agribusiness firms that hold numerous patents can establish monopolies over specific crops or technologies. This concentration of power can lead to inflated prices for seeds and related products, reducing profitability for farmers. As a result, small farmers may struggle to afford the inputs necessary for modern agriculture, further entrenching poverty and inequality.

- ***Impact on Traditional Practices-***

IPR can severely hinder traditional agricultural practices, such as seed saving and farmer-led breeding. Many farmers have relied on these practices for generations to

maintain crop resilience and adapt to local conditions. Patents can criminalize the use of traditional seeds and methods, leading to a loss of cultural practices and agricultural knowledge.

- **Legal Complexity-**

The intricacies of IPR laws can be daunting for farmers, researchers, and local communities. Many lack the resources to navigate these regulations effectively. This complexity can inhibit collaboration among farmers, scientists, and NGOs, stifling innovation and the sharing of beneficial agricultural practices.

- **Biopiracy-**

Biopiracy refers to the appropriation of biological resources and traditional knowledge from indigenous communities without fair compensation. Corporations may patent plant varieties or agricultural practices developed by these communities, profiting from them while the original knowledge holders receive no benefits. This raises ethical concerns and threatens the cultural heritage of indigenous peoples.

## 6. INTERNATIONAL FRAMEWORKS AND AGREEMENT:-

It was with the Paris Convention for the Protection of Industrial Properties, 1883, which is commonly known as the Paris Convention, that the principles of intellectual property rights began to take shape. It was followed by the Convention for the Protection of Literary and Artistic Works, 1886 which is infamously known as the Berne Convention. Both the above-mentioned conventions were negotiated and also re-negotiated as well as amended throughout the years, and eventually, they were finally incorporated and advanced in Trade-Related Aspects of Intellectual Property Rights (TRIPS) through the Uruguay Round of Negotiations from 1986 to 1994, which came into effect from the 1st of January 1995. Let's understand each convention in detail<sup>11</sup>.

- **Berne Convention, 1886-**

In the nineteenth century, rising concerns about intellectual property rights arose due to increased instances of literary piracy, where individuals claimed others' ideas as their own. This led to a growing interest among states in international cooperation on

---

<sup>11</sup> Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.ipleaders.in/leading-international-instruments-related-to-intellectual-property-rights/>





copyright issues, initially manifesting through bilateral agreements. By 1886, most countries had copyright laws that were still relatively new, primarily offering protections through monopolies for specific publications. The Berne Convention, established in 1886, was ratified by eight countries: Belgium, France, Germany, Italy, Spain, Switzerland, Tunisia, and the United Kingdom. India joined the Convention in April 1928. Similar to the Paris Convention, the Berne Convention is grounded in the principle of national treatment, mandating that member nations uphold certain basic rights for authors. This marked the beginning of multilateral collaboration on intellectual property. The Convention outlines fundamental principles, stipulating minimum protection standards and allowing for specific exceptions that developing nations can implement.

- ***Rome Convention, 1961-***

The Rome Convention was the first international treaty to recognize neighboring rights, specifically the rights of performers, broadcasting organizations, and phonogram producers. While it took a minimalist approach to these protections, it nonetheless established a framework for safeguarding these rights. This limited perspective changed with the adoption of the World Intellectual Property Organization (WIPO) Performance and Phonogram Treaty in 1996, which significantly expanded protections.

- ***Paris Convention, 1883-***

The Paris Convention covers all forms of industrial property, such as patents, trademarks, industrial designs, utility models, geographical indications, service marks, trade names, and the prevention of unfair competition. The Paris Convention was created with two goals, which are-

First, to prevent the unforeseen loss of patent protection eligibility by publishing 81 patent applications and taking part in international exhibitions before submitting national patent applications; and

Second, to some extent, harmonise the various patent laws of the various countries.<sup>12</sup>

- ***The Geneva Convention, 1971-***

---

<sup>12</sup> Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.ipleaders.in/leading-international-instruments-related-to-intellectual-property-rights/>

The Geneva Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms, commonly known as the Phonograms Convention, was established in 1971. This convention mandates that Contracting States protect producers of phonograms from unauthorized copies made by others. It also prohibits the importation of such copies if they are intended for public distribution.

- ***The Madrid Agreement, 1891-***

The Madrid Agreement for the International Registration of Marks was established in 1891, along with its 1989 Protocol, and adopted in Madrid, Spain. Initially supported by 55 members, it has since grown to include 114 members. This agreement facilitates the international registration of trademarks, allowing protection across multiple nations through a single application. It outlines the procedures for requesting the seizure of goods that carry false or misleading indications of origin and prohibits any deceptive advertising related to the sale or display of goods. However, the agreement does not create a governing body, union, or budget to oversee its implementation.

- ***The Hague Agreement, 1925-***

The Hague Agreement Concerning the International Registration of Industrial Designs, established in 1925, enables applicants to register an industrial design through a single application submitted to the International Bureau of the World Intellectual Property Organization. This streamlines the process for design owners, allowing them to protect their designs in multiple countries or regions with minimal formalities. Additionally, the Hague Agreement simplifies the management of industrial design registrations by allowing for the recording of subsequent changes and the renewal of registrations through a single procedural step.

- ***WIPO-***

The World Intellectual Property Organization is an agency of the United Nations that specialises in the promotion and protection of intellectual property rights throughout the world. It was established in 1967, with its headquarters in Geneva, Switzerland. It carries or mandates poster innovation economic development and creativity by providing a framework for the protection of intellectual property globally. The primary mission of the World Intellectual Property Organisation is to encourage the use and protection of intellectual property with the aim of creating a balanced and effective international intellectual property system which facilitates innovation investment as well as technology advancement. It is one of the largest specialised agencies within the United Nations system, and its membership is open to any UN member state. It administers various International treaties and agreements which are related to intellectual property. It provides a platform on an international level for the filing of patterns, making it easy for investors as well as companies to see protection of patterns in multiple countries with just a single application. Its Madrid system simplifies the registration and management of trademarks across multiple jurisdictions. It also supports the protection of copyright and other related rights. Furthermore, it offers



various services relating to intellectual property information and capacity building, including various training programs. The World Intellectual Property Organisation conducts research and analysis on intellectual property trends and policies across the world and publishes its report along with various valuable insights worldwide.<sup>13</sup>

- **TRIPS-**

International intellectual property laws developed in the 20<sup>th</sup> century. Numerous changes were also made to the Paris and Berne Conventions. International organisational structures developed together with the signing of intellectual property treaties. International bureaux were established as a result of the Paris and Berne Conventions, and they united to become the United International Bureaux for the Protection of Intellectual Property in 1893. A new organisation, the World Intellectual Property Organisation, replaced it in 1967. The international intellectual property community, which was governed by the United International Bureaux for the Protection of Intellectual Property and later the World Intellectual Property Organisation, was governed by a set of guiding principles, the most significant of which was the concept of national treatment. It was not, however, a world where technical regulations were standardised. States maintained a great deal of sovereign flexibility in establishing intellectual property rules.<sup>14</sup>

Intellectual property was added as a negotiating topic at the Ministerial Meeting in Punta del Este in September 1986, the meeting that launched the Uruguay Round of trade negotiations. With the signing of the Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations on April 15, 1994, the Uruguay Round came to an end in Marrakech. The Final Act was ratified by more than 100 nations. It included a number of accords, notably the Trade-related aspects of the Intellectual Property Rights Agreement and the Agreement Establishing the World Trade Organisation. There was no way for a state to avoid the TRIPS Agreement if they wanted to join or stay in the multilateral trade system.<sup>15</sup>

The TRIPS Agreement is a comprehensive and in-depth agreement with 73 Articles broken down into 7 Parts. General regulations and fundamental principles are included in Part I. The TRIPS Agreement, which defines “intellectual property” as “all categories of intellectual property that are the subject of Sections 1 to 7 of Part II” of the Agreement, requires member countries to implement domestic legislation to give effect

---

<sup>13</sup> Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.ipleaders.in/leading-international-instruments-related-to-intellectual-property-rights/>

<sup>14</sup> Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.ipleaders.in/leading-international-instruments-related-to-intellectual-property-rights/>

<sup>15</sup> Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.ipleaders.in/leading-international-instruments-related-to-intellectual-property-rights/>

to its provisions. Additionally, the TRIPS Agreement mandates that Members honour their commitments to uphold their obligations related to intellectual property rights under existing agreements.<sup>16</sup>

The Paris Convention for the Protection of Industrial Property, the Berne Convention for the Protection of Literary and Artistic Works, the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations, and the Treaty on Intellectual Property in Respect of Integrated Circuits are among the treaties that must be complied with. Both national treatment and most-favorable-nation treatment were stipulated as fundamental concepts in the TRIPS Agreement. The TRIPS Agreement's Part II sets rules for the accessibility, scope, and application of intellectual property rights.<sup>17</sup>

## **7. INTELLECTUAL PROPERTY RIGHTS ON PLANT VARIETIES :-**

**Plant Variety Rights** are an internationally recognized form of **Intellectual Property (IP)** used to protect unique plant varieties. The application of plant variety rights is similar in principle to the **IP Protection** offered via copyright on books and patents on a wide range of innovative products, including biological material.<sup>18</sup>

Plant Variety Rights (PVR) are an essential aspect of intellectual property that safeguard unique plant varieties, ensuring that breeders can protect their innovations and investments. These rights function similarly to copyright protections for literary works and patents for technological inventions, providing a legal framework that encourages the development of new biological material. Breeding new plant varieties is a complex and resource-intensive process. It typically involves significant investments of time, skill, labor, and financial resources, often spanning 10 to 15 years for many species. During this period, breeders conduct extensive research, trial and error, and meticulous selection to develop a variety that exhibits desirable traits such as improved yield, disease resistance, or enhanced flavor.

Once a new variety is released to the market, it can be easily reproduced by others, which poses a risk to the original breeder. Without adequate protection, these breeders may find it difficult to recoup their investments, as unauthorized reproduction can lead to market saturation and reduced profitability. This risk can discourage breeders from undertaking the lengthy and costly process of developing new varieties, ultimately stifling innovation in plant breeding. To promote sustained breeding efforts, a robust system of Plant Variety Protection is crucial. By granting breeders exclusive rights to their new varieties for a specified period, PVR incentivizes the development of innovative plants that can contribute to agricultural diversity and food security. These protections not only reward breeders for

---

<sup>16</sup> Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.ipleaders.in/leading-international-instruments-related-to-intellectual-property-rights/>

<sup>17</sup> Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.ipleaders.in/leading-international-instruments-related-to-intellectual-property-rights/>

<sup>18</sup> Kashisworld, <https://www.kashisworld.com/blog/intellectual-property-rights-on-plant-varieties/>, last visited 13<sup>th</sup> October, 2024



their contributions but also encourage them to invest in research and development, which can lead to breakthroughs that benefit society at large.

Moreover, an effective PVR system helps ensure that new varieties can address pressing global challenges, such as climate change, food scarcity, and the need for sustainable agricultural practices. By supporting the creation of resilient and high-quality plant varieties, Plant Variety Rights play a vital role in promoting agricultural innovation and enhancing the overall well-being of communities worldwide.

The International Union for the Protection of New Varieties of Plants, known as ‘UPOV,’ is an intergovernmental organization with legal personality and headquarters in Geneva, Switzerland. UPOV was established by the International Convention for the Protection of New Varieties of Plants (‘the UPOV Convention’), which was adopted in Paris in 1961. At that point, there was recognition of the Intellectual Property Rights (IPRs) of plant breeders in their varieties internationally. The UPOV Convention was revised in Geneva in 1972, 1978, and 1991.<sup>19</sup>

If a person is granted rights over a plant variety, the grantee will take precedence over any other person who was entitled to make an application for the right in the variety. Such a person is not, however, prevented from applying for a revocation of rights or to seek administrative review of the authority’s actions concerning the grant of right or to request the authority to make a declaration that the variety over which the rights were granted was essentially derived from another plant variety. Where it has been determined that another person was entitled in law or equity to an assignment of the right to make an application for the right, that person may be entitled to an assignment of the plant breeder’s rights.<sup>20</sup>

## **8. EMERGING TRENDS IN IPR AND AGRICULTURAL INNOVATIONS:-**

It is clear that IP as such does not feed the world. However, it does provide the invisible infrastructure that enables innovation and progress in plant breeding. Only a few decades ago, plant breeding was an empirical science based on trial and error. Today’s plant innovations are developed using sophisticated science and technology, including cell biology, genome and proteome research, gene mapping, marker-assisted breeding and hybridization. Developing new crop varieties is a lengthy and costly process, with plant science companies investing approximately 15 percent of their annual turnover in seed-related research and development activities. The development of beneficial traits is expensive, time consuming and risky: even for non-genetically modified traits it can take 8-10 years and many millions of euros to bring them to market. Since the resulting seed products can be easily reproduced by farmers and “copied” by competitors, some form of

<sup>19</sup> Kashisworld, <https://www.kashishworld.com/blog/intellectual-property-rights-on-plant-varieties/>, last visited 13<sup>th</sup> October, 2024

<sup>20</sup> Kashisworld, <https://www.kashishworld.com/blog/intellectual-property-rights-on-plant-varieties/>, last visited 13<sup>th</sup> October, 2024

enforceable commercial protection is required – otherwise there would be no incentive to make such investments. The need to protect the IP rights of plant breeders was recognized by legislators as early as the 19<sup>th</sup> century. Until 25 years ago, plant-related innovations were almost exclusively protected by plant variety protection (PVP). The PVP right protects the specific variety as characterized by its essential, often phenotypical, characteristics. Only varieties with properties resembling all of those characteristics are protected. PVP can be seen as a type of “copyright” for plant varieties in that it prevents the unauthorized copying (propagation) of a protected variety for commercial purposes. PVP laws contain a statutory breeders’ exemption that allows for the use of a protected variety for breeding other varieties, and also enables competitors to “extract” and use individual characteristics or genes. While PVP protection is necessary and well adapted to protect certain achievements in plant breeding, it is neither suitable, nor intended, to protect specific genes or traits or improved methods of breeding.<sup>21</sup>

Emerging trends in intellectual property rights (IPR) and agricultural innovation are shaping the future of food security and sustainable practices. Here are some key trends:

- ***Biotechnology and Genetic Engineering-***

The rise of genetically modified organisms (GMOs) has led to increased focus on patenting biotechnological innovations. New traits developed through genetic engineering, such as drought resistance or enhanced nutritional content, are becoming valuable assets that require robust IP protection.

- ***Plant Variety Protection (PVP)-***

As the demand for new plant varieties grows, so does the emphasis on PVP systems. Many countries are updating their PVP frameworks to align with international standards, facilitating access for breeders and encouraging innovation.

- ***Open Access and Sharing Platforms-***

There is a growing movement towards open access models in agricultural research. Initiatives that promote the sharing of genetic resources and data are emerging, fostering collaboration while balancing the need for protection and commercialization.

- ***Digital Agriculture-***

Innovations in precision agriculture, data analytics, and AI are transforming farming practices. Intellectual property issues related to software and algorithms are becoming increasingly important, as companies seek to protect their technological advancements.

---

<sup>21</sup> WIPO, [https://www.wipo.int/wipo\\_magazine/en/2013/02/article\\_0007.html](https://www.wipo.int/wipo_magazine/en/2013/02/article_0007.html), last visited 14 October, 2024



- ***Traditional Knowledge and Biodiversity-***

There is heightened awareness of the role of indigenous knowledge and biodiversity in agriculture. Efforts to protect traditional agricultural practices and ensure fair benefit-sharing from the use of genetic resources are gaining traction.

- ***Sustainability and Climate Resilience-***

IP frameworks are evolving to support sustainable practices. Innovations that enhance climate resilience, such as crops that require fewer resources or can thrive in adverse conditions, are receiving attention in terms of IP protection.

- ***Collaborative Approaches-***

Partnerships between public research institutions, private companies, and farmers are becoming common. These collaborations often involve shared IP arrangements to promote innovation while ensuring equitable access to new technologies.

- ***Regulatory Changes-***

Governments are revising their IP laws to better accommodate new agricultural technologies and practices. This includes adapting to international agreements and addressing emerging challenges related to digital agriculture and biotechnology.

- ***Consumer Awareness and Ethical Considerations-***

Increasing consumer interest in food sourcing and production practices is influencing IP strategies. Companies are focusing on transparency and ethical considerations in their innovations, impacting how they approach IP protection.

- ***Emerging Markets-***

As agricultural innovation expands into developing regions, there is a focus on creating IP frameworks that balance protection with access. This ensures that smallholder farmers can benefit from new technologies while encouraging local innovation.

## **9. CONCLUSION:-**

Navigating the realm of Intellectual Property Rights (IPR) in agricultural innovation is a complex endeavor, yet it offers valuable insights into the relationship between fostering innovation and ensuring access to those advancements. By promoting research and development, IPR has been pivotal in introducing new technologies that boost productivity and sustainability. However, discussions highlight an urgent need for policies that both protect intellectual property and ensure equitable access to these innovations, particularly

for stakeholders in least developed nations. Reflecting on the discourse, it's clear that while IPR serves as a crucial instrument for innovation, its implementation requires careful consideration to ensure that the benefits of new technologies reach the most deserving communities. While IPR undeniably promotes agricultural advancement, it is vital to address the challenges related to access and sustainability. Future advancements in IPR policies should focus on optimizing agri-food technologies to enhance food security and environmental health. Striking this balance is essential for maximizing the potential of agricultural innovations to meet the growing demands of a dynamic global landscape.

#### ❖ REFERENCES

1. Kashisworld, <https://www.kashishworld.com/blog/intellectual-property-rights-on-plant-varieties/>, last visited 13<sup>th</sup> October, 2024
2. WIPO, [https://www.wipo.int/wipo\\_magazine/en/2013/02/article\\_0007.html](https://www.wipo.int/wipo_magazine/en/2013/02/article_0007.html), last visited 14 October, 2024
3. Shriya Singh, Treaties for Intellectual Property Rights (IPR) Protection, Ipleaders, last visited 14<sup>th</sup> October, 2024, <https://blog.ipleaders.in/leading-international-instruments-related-to-intellectual-property-rights/>
4. Abhinav Singh, The Impact of Intellectual Property Rights in the Agricultural Sector, Legal Vidhiya, last visited 13<sup>th</sup> October, 2024, <https://legalvidhiya.com/the-impact-of-intellectual-property-rights-on-innovation-in-the-agricultural-sector/>
5. WIPO, [https://www.wipo.int/pressroom/en/articles/2024/article\\_0004.html](https://www.wipo.int/pressroom/en/articles/2024/article_0004.html) (last visited October 12, 2024)
6. Impact of Globalization on Agriculture, <https://www.geeksforgeeks.org/impact-of-globalization-on-agriculture/>, last visited 13<sup>th</sup> October, 2024
7. Sciencedirect, <https://www.sciencedirect.com/topics/food-science/agricultural-innovation>, last visited 14<sup>th</sup> October, 2024
8. IPR, Innovation & Agriculture- Federation of Seed Industry of India, <https://fsii.in/ipr-innovation-agriculture/#:~:text=IPR%20in%20agriculture%20are%20used,geographical%20indications%20and%20trade%20secrets>, last visited 13<sup>th</sup> October, 2024