

## WTO-TRIPS and Indian Agriculture: Legal Implications for Farmers' Rights, Seed Sovereignty, and Hybrid Plant Protection

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### Abstract

The globalization of intellectual property rights through WTO-TRIPS has profoundly impacted national legal systems. This paper rigorously analyses the influence of the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) on India's patent legislation, emphasizing the control of hybrid plants and its consequences for farmers' rights and seed sovereignty. This study conducts a doctrinal and content-based legal examination of the junction between international intellectual property duties and domestic agriculture legislation, focusing on the Protection of Plant Varieties and Farmers' Rights Act (PPV&FRA), 2001. This paper examines historic legal cases, including *Monsanto v. Nuziveedu*, *PepsiCo v. Farmers*, and the Bt Brinjal moratorium, to reveal how the commercialization of hybrid seeds and biotechnology patents generate legal difficulties and socio-economic challenges for smallholder farmers. India's unique legal structure provides some safeguards for traditional agricultural techniques; nonetheless, the data indicate that implementation is uneven and court interpretations fluctuate, therefore eroding farmers' seed rights. The document emphasizes the critical need for legislative clarity, institutional fortification, and policy changes to guarantee that India's adherence to TRIPS does not compromise agricultural sustainability, biodiversity, and rural livelihoods.

**Keywords:** WTO (World Trade Organization), Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement, Indian Patent Law, Hybrid Plant Varieties, Biotechnology, Seed Sovereignty.

### 1 Introduction

#### 1.1 The World Trade Organization (WTO)

The General Agreement on Tariffs and Trade (GATT) was initiated in 1946 and established in 1947 to create global universal standards for trade negotiations. The primary objectives were to foster peace through a mutually dependent global framework by eliminating superfluous trade barriers and reducing tariffs across borders. Following multiple negotiation rounds, the Uruguay Round culminated in the signing of the GATT agreement in Marrakesh, Monaco, in April 1994, a pivotal aspect being the establishment of the WTO in January 1995 in Geneva. India is a founding member of the WTO and its predecessor, the GATT. The WTO's purview encompasses not only merchandise trade but also agriculture, textiles and clothing, investments, innovation, competition policies, safeguard measures, trade in services, anti-dumping, and sanitary and phytosanitary measures, among others. The WTO seeks to assist producers of goods and services, exporters, and importers in their business operations while fostering global economic peace and stability through a multilateral framework established by consenting member countries, which currently comprises 153 members and 31 Observer governments, all of whom have ratified the WTO's regulations within their respective nations <sup>1</sup>.

#### 1.2 Trade Related Aspects of Intellectual Property Rights (TRIPS)

The TRIPS agreement is an international accord overseen by the WTO that establishes minimum standards for various forms of intellectual property (IP) regulation applicable to nationals of other WTO Members. It was negotiated at the conclusion of the Uruguay Round of the GATT in 1994. The TRIPS agreement was the inaugural introduction of

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<sup>1</sup> K Anandhi, *Protection of Plant Varieties and Farmer's Rights (PPVFR) Act: A Review*, 7 CURR. ADV. AGRIC. SCI. INT. JOURNAL) 101 (2015).

intellectual property law into the international trading system and is cited as one of the most comprehensive international agreements on intellectual property to date.

TRIPS delineates the legal obligations that countries must fulfil regarding copyright rights, encompassing the rights of performers, producers of sound recordings, and broadcasting entities; geographical indications, including appellations of origin; industrial designs; integrated circuit layout designs; patents; monopolies for developers of new plant varieties; trademarks; and undisclosed or confidential information. TRIPS delineates enforcement protocols, remedies, and dispute resolution mechanisms. The safeguarding and enforcement of all intellectual property rights shall aim to foster technological innovation and facilitate the transfer and dissemination of technology, benefiting both producers and users of technological knowledge, while promoting social and economic welfare and maintaining a balance of rights and obligations. Ratification of TRIPS is a mandatory condition for WTO membership; thus, any nation aspiring to gain seamless access to the myriad international markets facilitated by the WTO must implement the stringent intellectual property regulations stipulated by TRIPS.

The TRIPS Agreement encompasses three components pertaining to agriculture: geographical indications (Articles 22-24); patent protection for agricultural chemical products (Articles 70.8 and 70.9); and plant variety protection (Article 27.3(b)). According to TRIPS Article 27.3(b), member nations may exclude plants, animals (excluding microorganisms), and other biological processes from patent eligibility, yet they are required to offer intellectual property protection for plant varieties. Under these provisions, nations are required to implement plant variety protection through patents, a 'sui generis' system, or a combination of both. 'Sui generis' literally signifies 'of its own kind or unique'. Countries must adhere to the specific standards outlined in the TRIPS agreement for granting patent rights to plant varieties; however, the sole criterion for establishing a sui generis system is its effectiveness. This allows nations to define the extent and substance of the rights to be conferred under a sui generis system <sup>2</sup>.

### 1.3 Impact of TRIPs on Indian Patent Law

The TRIPs Agreement has significantly altered Indian Patent law. Indian patent law has experienced both a disadvantage and an advantage concerning TRIPs.

#### 1.3.1 Patent first amendment Act, 1999

The ordinance to amend the IPA was initially promulgated by the President of India in December 1994. However, owing to the objections from the pharmaceutical industry and civil society in India, the Patent Amendment Act was enacted in December 1999. The United States filed a complaint against India in the WTO for India's non-compliance with the TRIPS Agreement. The Patent Amendment Act, 1994 was enacted on May 20, 2003. <sup>3</sup>.

The Patents (Amendment) Act, 1999 introduced Chapter IV-A, comprising Sections 24-A to 24-F, with retrospective effect from January 1, 1995, addressing Exclusive Marketing Rights (EMRs) for the sale or distribution of an article or substance in India. A patent claim for an invention pertaining to a substance designed for use, or potentially usable, as a medicine or drug.

### 1.4 Seed Sovereignty and Farmers' Traditional Knowledge

Seed sovereignty refers to the authority of seed savers or small farmers to determine the most suitable seeds for their cultivation conditions, granting them the autonomy to choose what to grow and sow, as they possess a superior understanding of the local context and requirements.

Seeds constitute a fundamental input in agriculture. Historically, farmers have consistently preserved seeds from their own crops until they recently started to abandon conventional agricultural practices. There has been no differentiation between specialized seed production and conventional crop production. As times have evolved, driven by proactive policies and legal, technological, and market interventions, farmers have progressively become reliant on seeds initially provided by government entities and subsequently marketed by private corporations. Farmers, historically traditional seed breeders,

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<sup>2</sup> Overview: *The TRIPS Agreement*.

<sup>3</sup> Shyama V. And Ramani & Augustin Maria, *TRIPS: Its Possible Impact on Biotech Segment of the Indian Pharmaceutical Industry*, 40 (2005).

selectors, and custodians, are approaching a juncture where they have, to a degree, diminished and are rapidly forfeiting their skills, knowledge, and the practice of seed preservation and selection. This is encouraged by objectives established by state departments of Agriculture, which implement a 'Seeds Replacement Rate' policy to deter farmers from reusing their own seeds.

This is diminishing the extensive genetic diversity that Indian farmers have cultivated over centuries, adapting to various growing conditions and applications. Numerous paddy varieties and hundreds of pulse varieties, which catered to diverse nutritional needs and growing conditions, have vanished, leading to the dominance of a limited number of extensively bred varieties designed for higher yields. This has placed farmers and consumers in a lamentable condition of continuous reliance on the seed industry, not only for seed procurement but also for their dietary selections. This has directly affected farmers' income security due to the exponential increase in seed prices, as well as food and nutrition security, and their decision-making capabilities<sup>4</sup>.

Traditional knowledge is orally transmitted and changeable, which makes it difficult to identify truly local and autochthonous knowledge<sup>5</sup>. The fact that traditional knowledge is local, empirical, and holistic implies that indigenous people do not have to worry about consistency across larger areas, as plant collectors and geneticists do. According to<sup>6</sup>, name lists cannot accurately estimate genetic diversity or population structure beyond the farm level due to their oral transmission, repetition, widespread use, and fragmentation. Capturing knowledge in a single domain by collecting nomenclature, such as crop variety names, is simple but has limited application. The inherent characteristics of locality, oral transmission, and fragmented distribution make it difficult to link substantive domain nomenclatures to one another and to management domains. The best studies demonstrating linkages between different domains (e.g., crop diversity and local ecological conditions) are carried out in single communities or micro-regions<sup>7</sup>. Research on traditional agricultural systems often fails to link multiple domains, such as crop type, soils, and plant diseases, or demonstrate cross-regional connections<sup>8</sup>.

### 1.5 WTO-TRIPS Compliance and Its Impact on Farmers

The Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS) was adopted in 1994 as one of the three fundamental agreements that formed the World Trade Organization (WTO). The World Trade Organization (WTO) was established in 1995, and the TRIPS Agreement was implemented in 1996. The TRIPS Agreement's goal is to promote the effective and adequate protection of intellectual property rights in order to reduce distortions and impediments to international trade, as well as to promote technological innovation and dissemination. The most relevant provision in terms of Farmers' Rights is Article 27.3 (b), which states that WTO members may exclude plants and animals from patentability, as well as essentially biological processes for the production of plants or animals, but must provide for the protection of plant varieties either by patents or by an effective *sui generis* system (a system of its own kind) or a combination thereof.

There has been much debate about what this means in practice, owing to the fact that implementing this provision will have an impact on farmers' rights to save, use, exchange, and sell farm-saved seed. Some argue that countries must join UPOV (see below) to meet the requirement outlined in this provision. Others have argued that a *sui generis* system could truly be unique, exempt from UPOV compliance. Meanwhile, history has shown that the latter is the case, as several countries have joined the WTO, ratifying the TRIPS Agreement, despite not being UPOV members. Alternative plant variety protection systems have emerged in countries such as India, Thailand, and Malaysia, which are all WTO members but not UPOV

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<sup>4</sup> Sayani Bhattacharya, *Seed Sovereignty : Empowering Farmers*, 51 (2016).

<sup>5</sup> Michael R Dove, *The Life-Cycle of Indigenous Knowledge, and the Case of Natural Rubber Production*, INDIG. ENVIRONMENTAL KNOWL. ITS TRANSFORM. CRIT. ANTHROPOL. PERSPECT. 209 (2003).

<sup>6</sup> C F Quiros et al., *Biochemical and Folk Assessment of Variability of Andean Cultivated Potatoes*, ECON. BOT. 254 (1990).

<sup>7</sup> Mauricio R Bellon & J Edward Taylor, "Folk" Soil Taxonomy and the Partial Adoption of New Seed Varieties, 41 ECON. DEV. CULT. CHANGE 763 (1993).

<sup>8</sup> Stephen B. Brush, *FARMERS' RIGHTS AND PROTECTION OF TRADITIONAL AGRICULTURAL KNOWLEDGE* (2005).

members. Interestingly, Norway has decided to remain a member of UPOV 1978 rather than the UPOV 1991 Act, in order to maintain a balance between farmers' and plant breeders' rights.

Article 27.3(b) of the TRIPS Agreement expresses a clear ownership approach to genetic resources as opposed to a stewardship approach. The CBD's ownership approach was largely developed in response to the ownership approach that emerged under the TRIPS Agreement, which was negotiated in part concurrently. This has been thoroughly examined in the book *Governing Agrobiodiversity: Plant Genetics and Developing Countries*<sup>9</sup>.

## 2 Literature review

In this part, we explore the existing body of research on the influence of WTO on Indian Patent Law within the context of Hybrid Plants. The findings and insights from prior studies are synthesized and presented, effectively encapsulating the identified research gaps.

The Trade Related Aspects of Intellectual Property (TRIPs) agreement, set to be reviewed at the end of 1999, aims to set minimum standards for IP rights worldwide. Successful implementation requires legal, administrative, and institutional reforms, appropriate research investments, and first-rate science and technology capability. The agreement can promote innovations, technology transfer, foreign direct investment, use of genetic resources, and environmental protection. The success of Indian agriculture may be determined more by effective marketing and product innovation than yield improvement.<sup>10</sup> explored the potential impact of changes in the TRIPs agreement on Indian agriculture.

<sup>11</sup> explored the relationship between patent law, genetically modified (GM) technologies, and farmers' rights in India. It found that while the draft PPVFR Act 2001 and The Biodiversity Act 2002 provided some measures, enforcement is weak. The study also highlighted the need for more balanced policies and stronger multilateral governance to address gender inequity and biodiversity decline.

<sup>12</sup> discussed that globalization in trade and investment, particularly intellectual property rights, is a major impact of GATT/WTO. Knowledge contributes to economic development, but challenges include public need vs. private control, conflict between chemical-intensive agriculture and non-chemical sustainable innovations, and food security. India's role in world markets and overcoming deprivation and hunger will be crucial in incorporating intellectual property in national development strategies.

<sup>13</sup> Farmers' rights, defined as the entitlement of farmers to freely acquire, use, trade, and sell agricultural genetic resources, are a fundamental aspect of food sovereignty. They are also the subject of a significant discourse among academics and advocates. The notion is recognized as unclear, and its application is laden with challenges. Due to the sluggish advancement in the implementation of farmers' rights over the last 25 years, certain scholars, although acknowledging the theory of farmers' rights, have been more skeptical of their practical efficacy.

Trademarks are signs that identify goods or services in a market, dating back to Ancient Greece and Roman times. They attract consumers and are crucial in global marketing. The industrial property system offers legal protection for trademarks, and this research paper aims to explain and analyze these agreements.

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<sup>9</sup> Regine Andersen, *The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)*, (2023).

<sup>10</sup> Surinder Kumar & Aditya Mishra, *Impact To Trips Agreement on Indian Agriculture*, 234 (2016).

<sup>11</sup> *Agriculture Sovereignty: The Impact Of Modern Patent Laws And Genetically Modified Technologies On Farmers' Rights In India*, 13 838 (2025).

<sup>12</sup> Anil Gupta, *Implications of WTO for Indian Agriculture: The Case of Intellectual Property Rights and Emerging Biosafety Protocol* CHAPTER 10 IMPLICATIONS OF WTO ON INDIAN AGRICULTURE: THE CASE OF INTELLECTUAL PROPERTY RIGHTS AND EMERGING BIOSAFETY PROTOCOL (2015).

<sup>13</sup> Karine Peschard, *Farmers' Rights and Food Sovereignty: Critical Insights from India*, in CRITICAL PERSPECTIVES ON FOOD SOVEREIGNTY 185 (2017).

<sup>14</sup> analyzed that trademarks are signs that identify goods or services in a market, dating back to Ancient Greece and Roman times. They attract consumers and are crucial in global marketing. The industrial property system offers legal protection for trademarks, and this research paper aims to explain and analyze these agreements.

Biogenetic resources, including seeds, germplasm, and traditional knowledge, are crucial for agroecological sustainability.

<sup>15</sup> proposed that food sovereignty can inspire stronger biogenetic rights in India, focusing on local food systems, greater farmer control, sustainability, and agroecology. By moving beyond intellectual property law and farmers' rights, this thesis aims to introduce new valuations centered around food, farmers, and ecology. Empirical research from Gujarat and Sikkim has guided the development of a biogenetic rights framework inspired by food sovereignty, accommodating India's diversities without losing its essence.

<sup>16</sup> Farmers' rights, crucial for food sovereignty, are now debated due to the expansion of intellectual property rights over plant varieties. The Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act in India, a unique legislation, has faced challenges in implementing these rights due to the politics of biodiversity and IPRs, which has compromised their meaningful implementation.

<sup>17</sup> explained that India was one of the first countries to legislate on Farmers' Rights, enacting the Protection of Plant Varieties and Farmers' Rights Act in 2001 to safeguard plant breeders' intellectual property rights and encourage investment in new plant variety research. After contributing to international talks on farmers' rights, India's expertise in biodiversity and agriculture has enabled it to play a leading role in implementing these rights. Farmers' rights case studies are few in this subject. The method is focused participatory research in action (PLA) or Participatory Research Analysis (PRA). In the micro-research, a Case Study will be conducted in two villages utilising an evaluative approach. These case studies provide a success story and overview of farmers' rights in India, with opinions from over 40 marginal farmers on the chances of achieving these rights.

<sup>18</sup> examined the impact of Bt cotton on genetically modified (GM) crops among smallholder farmers in developing countries. Results show stagnant Bt cotton yields, a null effect on profits, and increased sensitivity to pest pressure. Despite higher crop yields in the first decade, convergence in benefits in the second decade raises questions about the future of GM technology.

Patent Law and Competition Law are complementary in promoting innovation and consumer welfare. However, achieving a balance between the two is challenging, leading to varying interfaces between Competition Policy and Intellectual Property Rights (IPRs).<sup>19</sup> analyzed the interface between IPRs and competition from two perspectives: pro-competition provisions in patent law and IP-related provisions in competition law, focusing on India's case.

<sup>20</sup> evaluated the Indian Constitution guarantees the right to life, personal liberty, and public health, with the government ensuring medicines are available and affordable. This paradigm is the basis for India's vision for the right to health. Policymakers aim to meet constitutional obligations while promoting innovation and safeguarding MNCs' business interests. The Indian patent regime has evolved since 1947, leveraging flexibilities under the TRIPS Agreement to prevent

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<sup>14</sup> Sarah Wainaina, *Research Topic*, TECHNOLOGY 1 (2023).

<sup>15</sup> Indian Farmers, *INDIAN FARMERS AND RIGHTS OVER BIOGENETIC RESOURCES: TOWARDS GREATER* (2024).

<sup>16</sup> Karine Peschard, *Food Sovereignty: A Critical Dialogue Food Sovereignty: Critical Insights from India*, FOOD SOVEREIGNTY A CRIT. DIALOGUE (2013).

<sup>17</sup> A Manju Vani, *A Case Study Relating to the Realization of Farmers Rights to Non-Patented Variety of Seeds in India*, 3 240 (2018).

<sup>18</sup> Arjunan Subramanian, *Sustainable Agriculture and GM Crops: The Case of Bt Cotton Impact in Ballari District of India*, 14 FRONT. PLANT SCI. 1 (2023).

<sup>19</sup> Ujjwal Kumar\*\* and Parveer Pradeep S Mehta & Singh Ghuman, *Interface between Competition Policy and Intellectual Property Rights: Select Case Studies from India*, 2507 1 (2020).

<sup>20</sup> WENJUAN ZHANG, *CONSTITUTIONAL GOVERNANCE IN INDIA AND CHINA AND ITS IMPACT ON NATIONAL INNOVATION* (2019).

evergreening, award compulsory licenses, retain pre-grant opposition, and introduce post-grant opposition, with global impacts.

<sup>21</sup> explored the negative perception of intellectual property (IP) and proposes solutions to promote constructive and ethical use. It suggests that patents and plant breeders' rights can complement each other, but tension arises from non-harmonized rights use. Solutions can be achieved through industry-based provisions and legislative frameworks, promoting access and benefit sharing, and promoting ethical use of IP.

<sup>22</sup> investigated regulations such as removal of trade barriers, quantitative restrictions, licenses and quotas on import and export, liberalization of markets, and protection of intellectual property rights. It also explores new ideas like e-commerce and investment, new infrastructure for investment, environmental issues, SMEs, global value chains, elimination of domestic subsidies, Domestic Special Safeguard Mechanism (SSM), and public holding of food stocks limit. The study divides the period of trade in major Indian traditional agricultural commodities into two periods: the Pre and Post WTO period. The study recommends encouraging the production of commodities with comparative advantages in export and safeguarding those vulnerable to the new competitive world agricultural trade regime.

<sup>23</sup> attempted to define intellectual property rights in life forms, patents, and plant varieties, highlighting regulatory options for national governments to protect plant varieties and achieve public policy objectives. It identifies international institutions and organizations regulating intellectual property rights in plant varieties and genetic resources, and outlines core obligations in international agreements.

India has developed intellectual property (IP) laws to regulate GM technologies, including seed production, benefit sharing, and preventing biopiracy. <sup>24</sup> aims to collect and discuss these laws, focusing on India's GM crop laws and other regulatory frameworks. It also explores the impact of GM crops on the environment, human health, and biosafety.

<sup>25</sup> addressed India's 2001 Protection of Plant Varieties and Farmers' Rights Act's legislative control structure. India signed TRIPS in 1994, mandating plant variety protection laws. India used the 1970 Indian Patent Act to remove agricultural and plant techniques from patentability. A sui generis framework integrated breeders, farmers, and village residents' rights while assuring fair benefit distribution.

Agriculture is crucial for India's socio-economic development, with genetic engineering (GE) improving production and quality. Genetically modified (GM) seeds and plants have been expanded under the World Trade Organization's intellectual property rights (IPRs). However, GM commodification raises socio-economic and ecological concerns. The NITI Aayog advocates for GM seed use to revive agriculture growth. <sup>26</sup> examined the commodification of seeds and sociolegal issues related to IPR protection, focusing on the sustainable use of agrobiodiversity, farmers' rights, indigenous communities' rights, and private control over PGRs.

## 2.1 Research Gap

Despite the existing literature offers substantial insights into the ramifications of the TRIPS Agreement, the evolution of India's sui generis system under the PPV&FR Act, and the overarching dialogue on farmers' rights and intellectual property, a notable deficiency persists in the critical examination of the practical convergence between WTO-induced patent reforms

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<sup>21</sup> Michael A Kock, *Patents for Life: Toward an Ethical Use of Patents on Plant Innovations*, PATENTS LIFE–RELIGIOUS, MORAL, SOC. JUSTICE ASP. BIOTECHNOL. INTELLECT. PROP. CAMBRIDGE UA 227 (2019).

<sup>22</sup> Debasish "Chakraborty & Dr. Anil" "Bhumi, *IMPACT OF WTO ON INDIAN AGRICULTURAL TRADE (A Comparison of the Trade in Agricultural Commodities in India in the Pre & Post WTO Regime)*, ECONOMICS "xxv,207p."

<sup>23</sup> Mohammad Rasikh Wasiq, *INTELLECTUAL PROPERTY RIGHTS FOR LIFE FORMS: A LEGAL DISCOURSE TO INDIAN LEGAL FRAMEWORK*, IV (2023).

<sup>24</sup> Arun Kumar Maurya & Ashwini Siwal, *Current Legal Status of GM Crops in India with Special Reference to Intellectual Property Laws*, 6 NUJS J. REGUL. STUD. 51 (2021).

<sup>25</sup> U. Grewal, "THE FUNDAMENTAL ISSUES RELATED TO THE LEGAL CONTROL MECHANISM OF PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS IN INDIA," (2021).

<sup>26</sup> Sanjit Kumar Chakraborty, *Genetically Modified Seeds, Intellectual Property and Agriculture: Has India Addressed the Challenges of Commodifying Plant Genetic Resources and Farmers' Right to Access Seed?*, 3 90 (2021).

and seed sovereignty, particularly concerning hybrid plants. While scholars have investigated GM crops, biodiversity, and policy effects on smallholder farmers, there is a paucity of empirical and doctrinal analysis regarding the impact of hybrid seed commercialization under TRIPS-compliant frameworks on traditional agricultural practices, legal rights, and socio-economic independence of Indian farmers. Moreover, while the enforcement issues of farmers' rights have been recognized, there is little assessment of how court precedents and corporate litigations influence or compromise these rights, particularly where plant variety protections intersect with proprietary biotechnologies. Additionally this paper aims to examine the legal conflicts and policy paradoxes that emerge at the intersection of international intellectual property rights duties, hybrid seed regulation, and grassroots seed sovereignty in India.

### 3 Research Methodology

This research uses content analysis as a research methodology to evaluate the impact of Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) on Indian Patent law, with specific emphasis on hybrid plants, farmer rights and seed sovereignty. The study critically examines the major legal cases, judgments by courts, legislative documents, and academic papers to determine the role of principles of intellectual property, international standard-setting, and domestic legal contexts in determining protection of plant varieties. The research is centered on the interaction between the WTO-TRIPS Agreement and India's Protection of Plant Varieties and Farmers' Rights (PPVFR) Act, impacting the legal protection and recognition of hybrid plant varieties. This paper employs a secondary data collected from research articles, law journals, policy reports, and global treaties are examined using content analysis to determine prevalent themes and lessons learned about the economic, legal, and social implications of hybrid plant protection in the context of India's compliance with TRIPS. This research seeks to elucidate the impact of global patent regimes on national law and the rights and autonomy of Indian farmers in agricultural biotechnology by examining significant case law and regulatory developments.

### 4 Case Studies

#### 4.1 Impact of the WTO on Indian Patent Law

The World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) has significantly transformed India's intellectual property (IP) framework, especially in the agricultural sector. TRIPS mandated patent protection for plant varieties or effective *sui generis* systems, necessitating India to revise its patent rules, resulting in the 2005 modifications to the Patents Act and the establishment of the Protection of Plant Varieties and Farmers' Rights Act (PPVFR Act) of 2001. These legal changes have created conflicts among corporate seed monopolies, traditional farming techniques, and national food security requirements. Case studies like the introduction of Bt cotton illustrate significant contradictions: although India's unique framework ostensibly protects farmers' rights to save and exchange seeds, the prevalence of genetically modified (GM) crops and stringent patent practices have undermined seed sovereignty, intensified farmer indebtedness, and precipitated systemic crises in rural livelihoods. This research examines the evolution of Indian patent law led by TRIPS, its consequences for hybrid plant protection, and the persistent challenge of aligning global intellectual property standards with agricultural sustainability.

#### Rights Conferred Under the Act:

The act includes various rights that are accessible to farmers, breeders, researchers, and communities as a whole, expanding the scope of the law. The legislation grants some of the following rights:

##### 1. Farmer's Rights <sup>27</sup>

- A farmer who has bred or produced a variety must be granted the privilege of registration and acknowledgment as a breeder of that variety.
- A farmer involved in the protection of genetic resources of terrestrial ecosystems and wild relatives of economically significant plants, as well as their enhancement via selection and preservation, will be eligible for recognition and payment from the Gene Fund in the designated way. Seven

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<sup>27</sup> Kumar and Mishra, *supra* note 10.

- Farmers must be considered allowed to conserve, sow, trade, share, or sell their agricultural products, including seeds of a variety protected under the Act, in the same way as they were permitted prior to the enactment of this Act. Nevertheless, the farmer shall not possess the right to sell branded seeds protected by the Act.
- Section 39 of the Act safeguards the interests of the innocent farmers. It stipulates that if a breeder supplies or sells a seed variety to any farmer(s), he is obligated to reveal the anticipated performance of the seed under the specified conditions. Should this not occur, the farmer(s) is entitled to compensation.
- Section 42 offers protection against unintentional violation of the Act by a farmer who was uninformed of the existence of such rights at the time of the infringement.
- Section 43 stipulates that when an essentially derived variety originates from a farmers' variety, the breeder's authorization for such farmers' variety shall only be granted with the consent of the farmer(s) who contributed to its preservation and development.
- Farmers or village communities must not incur any fees during actions before any Authority, Registrar, Tribunal, or High Court (Section 44).

## 2. Breeder's Rights

According to Section 28 of the legislation, certain rights are conferred solely to the breeder and their successors, which include:

- The production of seeds and propagation materials.
- The liquidation of seeds and propagation materials.
- The marketing and distribution of seeds and propagation materials.
- The export and import of seeds and propagation materials.
- Moreover, a breeder may provide any other person the same rights as aforementioned.

## 3. Researcher's Rights

The rights granted to any researcher under the terms of the legislation are:

- Executing experiments from any category listed under the statute.
- To use an existing registered variety for the development of other variations<sup>28</sup>.

## 4. Rights Available to Communities

Chapter VI of the legislation delineates the rights of farmers while also conferring rights onto towns and villages collectively, recognizing that individuals who contribute to the discovery and development of a variety must be recognized and appropriately paid. Consequently, under Section 41, the act empowers any individual, governmental organization, or NGO to assert a claim on behalf of a village or community for their contributions to the development of a variety, or to claim a share of the benefits derived from the discovery of such a variety.

## TRIPS Article 27.3 (b) and Plant Variety Protection

Article 27.3(b) of TRIPS allows member states to exclude plants and animals from patent eligibility while mandating protection for plant varieties via patents, a sui generis system, or a combination thereof. India adopted a unique strategy, dismissing the Union for the Protection of New Varieties of Plants (UPOV) framework, which favors breeders' rights above the interests of farmers<sup>29</sup><sup>30</sup>. The PPVFR Act of 2001 aimed to reconcile the rights of commercial breeders with the traditional methods of farmers, acknowledging their contribution to the conservation of agro-biodiversity. This dual focus

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<sup>28</sup> Rights Act, *Protection of Plant Varieties and Farmers'* (2001).

<sup>29</sup> Philippe Cullet & Phhppe Cullet, *REVISION OF THE TRIPS AGREEMENT CONCERNING THE PROTECTION OF PLANT VARIETIES LESSONS FROM INDIA CONCERNING THE DEVELOPMENT OF A SUI GENERIS SYSTEM Revision of the TRIPS Agreement Concerning the Protection of Plant Varieties Lxssonsfrom India Concerning the Development of a Sui Generis System*, J. WORLD INTELLECT. PROP. 617 (1999).

<sup>30</sup> Markus P. Bidell, *Research Paper*, 31 COUNS. PSYCHOL. REV. 67 (2016).

demonstrated India's effort to reconcile TRIPS requirements with socio-economic realities, given that 70% of the population depends on agriculture.

#### **4.2 Case on PepsiCo vs Farmers-Trademark Dispute**

The PPVFRA faced significant focus when PepsiCo India commenced legal action against four Gujarati farmers, demanding 1.05 crore each for allegedly cultivating their potato variety, which is registered under the Act, and infringing against its Intellectual Property Rights. The corporation said that farmers violated its patent rights by cultivating the potato type used in its product, Lays crisps.<sup>31</sup> PepsiCo has invoked Section 64 of the Act, which forbids any entity other than the seed breeder or a registered licensee of that variety from selling, exporting, importing, or producing that variety.

The critical inquiry is who is authorized to cultivate which crops under this intellectual property rights framework. In February 2016, PepsiCo had two hybrid potato types, FL 1867 and FL 2027, for a duration of 15 years, with the latter being sold under the name FC-5. Planting a registered variety is not inherently a crime under Section 39 of the PPVFRA, and the farmers used this defense since they were not marketing branded seeds of the registered variety. PepsiCo ultimately recalled the lawsuit; nonetheless, it raised several questions about the Act. Although farmers were prohibited from selling "branded" seeds according to the Act, the FC-5 may be provided and disseminated via the repurchase scheme without contravening the legislation itself. The Commercial Court in Ahmedabad prolonged an ex-parte ad-interim order against four farmers till June 2019, prohibiting them from cultivating or selling FC-5. The significant events included the Gujarat government's decision to support the farmers, culminating in an out-of-court settlement between the government and the corporation, resulting in the latter retracting the majority of their claims.

The significant conclusion from this instance is that FC-5 was listed as a "extant" variety, indicating its existence prior to registration and the prevalence of information of it. However, from PepsiCo India Holdings Pvt. Ltd. against Bipin Patel, it can be deduced that the business misrepresented it as a "new" variety rather than a "extant" one. The aforementioned registration technique was condemned by specialists since it permits firms to register established kinds and thereafter litigate against farmers for their use. Furthermore, the case underscored the legal uncertainty in this context, becoming a question of perspective; campaigners said that it may infringe upon farmers' rights, but it could also result in substantial financial losses for the firm, which derives considerable money from yearly Lays sales.

#### **4.3 Case of Bt Brinjal Moratorium in India**

Overview: Bt Brinjal, created by Mahyco with Monsanto's technology, was India's first genetically modified (GM) food crop. In 2010, the Indian government instituted a ban after comprehensive public discussions<sup>32</sup>. Concerns emerged about biosafety and the illicit use of indigenous brinjal cultivars without appropriate approval, resulting in accusations of biopiracy.

The National Biodiversity Authority commenced legal proceedings against Mahyco for contravening the Biological Diversity Act by obtaining indigenous germplasm without authorization. This dispute underscored the need of safeguarding indigenous genetic resources and adhering to biodiversity regulations, particularly with the introduction of genetically modified crops.

#### **4.4 Case of Sungro Seeds Ltd, V. Union of India and Anr (9th January, 2015)**

This case addresses whether the seed of a plant variety should be regarded as unique if it is used to produce a hybrid seed. The petitioner argued that an order issued by the Registrar against them was contested.<sup>33</sup> The directive issued stipulates that the Protection of Plant Varieties and Farmers' Rights Authority prohibits the registration of parent lines of established hybrid varieties as "new" plant varieties under the Protection of Plant Varieties and Farmers' Rights. Petitioners assert that a parental seed, even after it has generated a hybrid crop, remains eligible for classification as a new product, and that both

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<sup>31</sup> Pranavnayar, *Analysis of Protection of Plant Varieties and Farmers Rights Act, 2001 in Light of Judicial Decisions Laid Down by the Indian Courts* (2020).

<sup>32</sup> Suman Sahai & Carly Nichols, *The Bt Brinjal Story*, SUMAN SAHAI BLOG. FRIDAY, DECEMBER 10 (2010).

<sup>33</sup> aishwarya sandeep, *Plant Varieties and Sustainable Agriculture: Promoting Sustainable Agriculture through Plant Variety Protection*, (2023).

the hybrid and the parental seed may be registered separately for novelty under the Act. It was determined that if the hybrid qualifies as an existent variety with general awareness, its parental lines cannot be considered unique.

#### 4.5 Case of Pioneer Overseas Corporation vs. Chairperson 2019

The petitioner possesses a plant variety protected by The Patents Act, 1970. Pioneer asserts that KMH50 is identical or similar to their maize variety 30V92, hence alleging that Kaveri has engaged in the plunder of the germplasm of Pioneer's variety 30V92. Kaveri's application for the registration of its variety was approved solely based on the results of the DUS test report. Consequently, the registration method was also scrutinized here. Pioneer not only opposed Kaveri's variety registration application but also presented proof indicating a 99.45% to 99.80% resemblance between the two kinds. It has submitted an application according to Section 24(5) of the Act for the permission to undertake a special test (DNA Test) to ascertain the genetic similarities of KMH50 and 30V92 in support of its allegation of germplasm theft. Kaveri allegedly misused the provision by submitting fake declarations and supplying inaccurate information.

Kaveri did not demonstrate any explicit desire to submit their counter statement, nor did they challenge the technical evidence or substantiate the legitimate creation and ownership of KMH-50. The court denied the motion for a special test, and the Registrar determined that the two varieties met the DUS requirements (distinctiveness, uniformity, and stability) after the performed test, hence negating the need for a special test. It then stated that both kinds qualified for registration. However, the Court assessed whether Pioneer's resistance necessitated rejection solely on the basis that Kaveri's variety KMH-50 had passed the DUS Test and concluded that the answer to this inquiry was unequivocally negative.

The court construed rule 29, which stipulates that a special test may be sought by an aggrieved party, whether an applicant for plant variety registration in instances of DUS test failure or an opponent opposing the registration of a candidate variety. The court determined that the registrar's reliance on rule 29(1) to deny the application for a special test was erroneous. The application from Pioneer for a special test was reinstated in the Registrar's file. Following the DUS tests, the Court, prima facie, determined that the features of both varieties met the criteria for the DUS test and that they were mostly equivalent when compared to one another.

Consequently, the contested orders issued by the Registrar were annulled, indicating that Kaveri is unable to seek for registration, and the special test sought by Pioneer is to be reinstated in the Registrar's file. The parties were thus required to incur their own expenses.

**The case of Maharashtra Hybrid Seeds v. Union of India**, adjudicated in January 2015, exemplifies the Judiciary's enforcement of the terms of the PPV&FR Act, 2001. Before deliberating on the case facts and rendering a judgment, the court underscored the necessity of enforcing the act's provisions, noting that although Chapter VIII of the act provides for the establishment of an Appellate Tribunal, it had not been constituted even six years after the act's implementation. Moreover, the court underscored the need of such a tribunal owing to the technical expertise and knowledge required for adjudicating disputes under the statute<sup>34</sup>.

The petitioner submitted an application for the registration of a cotton variety, which was subsequently published in the Plant Variety Journal in accordance with the act's requirements. The respondent submitted an application contesting the registration under the act; however, this was done after the expiration of the three-month permitted period for submitting such an application. The registrar approved a late application, prompting a dispute in court about the registrar's authority to excuse the delay in submitting the objection.

In adjudicating the appellant's arguments, the court examined the Protection of Plant Varieties and Farmers' Rights Rules and Section 21(2) of the PPV&FR Act. The court emphasized Rule 32 and Rule 33 of the PPV&FR Rules, asserting that while Rule 33(6) gives the registrar the authority to condone delays, this applies only to the filing of evidence. Rule 32 mandates adherence to the act's specified timelines for the submission of oppositions, among other requirements. The court concluded that the authority conferred by Section 33 of the regulations cannot be applied to Section 32, since they are two

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<sup>34</sup> Jahnvi Taneja & Abhay Pandit, *Home Explore Search Login Register Indian Perspective on Plant Varieties and Farmer's Rights 101* (2025).

different and distinct clauses. Section 21(2) stipulates a three-month restriction that may be extended by the registrar, since the act does not provide penalty for non-compliance with the specified timeframe.

In 2019, the Government of India attempted to alter the PPV&FR Act. The amendment was proposed under Section 24(6), which stipulates that the registration period for trees and vines is 18 years, while for other crops it is 15 years. The government's proposal seeks to extend this duration under Section 24(6) to 20 and 25 years, respectively, to align with the protection afforded under UPOV.

#### **Prabhat Agri Biotech Ltd. And Anr. vs Registrar of Plant Varieties and Ors. on 2 December, 2016**

Prabhat Agri Biotech and Nuziveedu Seeds contested the Registrar's ruling that rejected the registration of their hybrid cotton varieties, asserting that their parental lines met the criteria for "extant varieties" as defined by the PPV&FRA.<sup>35</sup> The court assessed the standards for the registration of plant varieties and the safeguarding of breeders' rights. The case underscored the difficulties seed firms have in safeguarding their intellectual property and the need for transparency in the registration procedure under the PPV&FRA.

#### **Farmer's Rights and Seed Sovereignty:**

Seed sovereignty entails the rights of farmers to freely conserve, trade, and cultivate seeds, hence safeguarding biodiversity and cultural heritage. It contests the monetization of seeds via patents and genetically modified technology, which shift power from agricultural communities to corporate interests. The PPVFR Act in India ostensibly endorses these objectives but does not effectively mitigate the structural forces of industrialization and globalization<sup>36</sup>.

Notwithstanding legislative safeguards, seed sovereignty continues to be tenuous. The growth of hybrid and genetically modified seeds has dissuaded seed-saving practices, as firms promote non-renewable hybrids or enforce contractual limitations. For example, Bt cotton hybrids diminish in effectiveness after one generation, necessitating farmers to yearly buy seeds. Moreover, rigorous seed certification regulations marginalize informal seed networks, making the sharing of unregistered cultivars illegal.

Movements such as Navdanya have advocated for organic agriculture and communal seed banks to restore ancient techniques. These efforts highlight participatory breeding programs, whereby farmers partner with scientists to create climate-resilient, open-pollinated varieties (OPVs). These approaches conform to the benefit-sharing principles of the PPVFR Act but need substantial governmental assistance for successful scaling.

#### **4.6 The Case of Monsanto v Nuziveedu (Patent-PPV Conundrum)**

In the case of genetically modified (GM) seeds, the issue arises as to which legislation should be used when a portion of the seed is protected by Patent legislation and the rest is under Plant Variety Protection. The Bt Cotton Technology is patented by Monsanto, while any derived Bt Cotton Seed variety is protected by the PPVFR Act. This case highlights the conflict between IPR and competition when using the Patents Act and PPVFR Act<sup>37</sup>.

Monsanto and Nuziveedu had a sub-licensing deal that included selling donor seeds generated by the former to Nuziveedu for a royalty. Nuziveedu modified their breeding strategy by using donor seeds to enhance Bt traits. This led to the creation of their registered proprietary plant varieties under the PPVFR Act. Following the Cotton Seeds Price (Control) Order, 2015, the government set the trait value lower than the contractually stipulated value. Consequently, domestic seed producers petitioned Monsanto to charge trait value at government-set prices. Monsanto declined. Nuziveedu declined Monsanto's licensing payments. Monsanto canceled the patent licensing agreement and sued them for distributing and promoting GM seeds notwithstanding the termination of sub-license agreements, alleging IP infringement.

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<sup>35</sup> R.K. Gauba S. Ravindra Bhat, *Prabhat Agri Biotech Ltd. And Anr. vs Registrar Of Plant Varieties And Ors. on 2 December*, (2016).

<sup>36</sup> Navdanya, *MONSANTO VS INDIAN FARMERS* (2025).

<sup>37</sup> S MehtaP, *Interface between Competition Policy and Intellectual Property Rights: Select Case Studies from India*, 136 CORRIDORS KNOWL. PEACE DEV. (2020).

The gene and transformation procedure were not shared, and only transgenic seeds were provided. Nuziveedu argued that the Bt Cotton plant types created by it differed from Monsanto seeds and therefore be protected under the PPVFR Act. By charging licensing fees for the Bt. Trait, Monsanto was violating the Patents Act and seeking to revoke rights given to breeders, researchers, and farmers under the PPVFR Act. The Delhi High Court's single bench rejected Nuziveedu's patentability argument and ruled that the subject matter's patent may be protected under the Patents Act.<sup>38</sup> Additionally, the court ruled that terminating the sub-license arrangement was unlawful. The Court ruled that Monsanto's license fee/trait value would be controlled by current legislation. Angered by the ruling, both parties appealed to the High Court Division Bench.

#### 4.7 Case of Novartis Ag v. Union of India

In *Novartis AG v. Union of India*, the pharmaceutical company challenged the rejection of its patent application for the leukemia drug Gleevec, marking the first major legal challenge to India's amended patent law<sup>39</sup>. In 2005, India reportedly made necessary changes to comply with TRIPS, the WTO's minimum standards for intellectual property protection. However, its patent law still contains controversial provisions. Patent protection for pharmaceutical corporations like Novartis in India is crucial for research incentives and impacts the generic medication business, affecting patient access to affordable treatment. Novartis AG is crucial for India, the second most populous and fastest-growing major economy, since 70% of its population lives on less than Rs. 120 a day. Novartis petitioned the Madras High Court in May 2006, facing opposition from the Indian government, the Patent Office, generic medication makers, and a public interest organization. Novartis argued that the Patent Controller's rejection of the Gleevec patent application was improper, since Section 3(d) was not consistent with TRIPS and was discriminatory against Novartis, violating Article 14 of the Indian Constitution. The Madras High Court and IPAB split the matter. The Madras High Court heard challenges on TRIPS compliance and Section 3(d)'s legality.

Parliament of India enacted Section 3(d) of the India Patents Act on January 1, 2005, as part of many changes. This legislative provision has been in place for almost seven years. Novartis' appeal to the provision's validity and conformity with the WTO TRIPS Agreement was dismissed by the High Court at Madras in 2007. No one appealed that ruling. On April 1, 2013, the Supreme Court of India ruled in favor of Novartis in a product patent appeal against the India Patent Office's rejection of a beta crystalline imatinib mesylate application. Novartis markets imatinib mesylate as “Glivec” or “Gleevec” to treat chronic myeloid leukemia. The Supreme Court affirmed that the beta crystalline form of imatinib mesylate failed the Section 3(d) test, confirming the rejection. The Court defined effectiveness under Section 3(d) as therapeutic efficacy. This ruling has garnered global publicity. Several pharmaceutical corporations, including Novartis, and the US Chamber of Commerce have criticized the Indian Supreme Court's ruling, seeing it as a significant setback for innovation in India.

#### Seed Regulation

In India, the quality of commercially supplied seeds is poorly controlled due to the inadequacies of the Seed Act of 1966. The rapid transformations in the seed and agricultural industry, such as the proliferation of private seed enterprises and the gradual use of transgenic seeds, indicate a need for new regulations. The PPVFR Act assumes a significant role in seed control in the lack of corresponding legislation.

The Supreme Court in *Emergent Genetics India (P) Ltd. v. Shailendra Shivam* concluded that Indian farmers have cultivated their seeds locally for millennia, and a significant portion of the population relies on agriculture for their income and subsistence. Approximately 75% of these seeds are produced by farmers and peasants themselves. The PPVFR Act offers specific protections for farmers, granting them the rights to use, preserve, trade, share, sell, sow, or re-sow agricultural products, including seeds safeguarded under the Act. A breeder must declare the sale of any registered material to the farmer. This enables the farmer to anticipate performance and seek compensation in the event of failure to provide the

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<sup>38</sup> Malathi Lakshmikumar, *Genetically Modified Plants: The IP and Regulatory Concerns in India*, INNOV. ECON. DEV. INTELLECT. PROP. INDIA CHINA COMP. SIX ECON. SECT. 367 (2019).

<sup>39</sup> Frederick M Abbott, *The Judgment in Novartis v. India: What the Supreme Court of India Said*, INSID. VIEWS, INTELLECT. PROP. WATCH (2013).

same. Consequently, the legislation establishes a robust regulatory framework for domains not addressed by the Seed legislation. It safeguards agricultural integrity by prohibiting patented seeds, which would otherwise deprive impoverished farmers of their livelihoods as large companies would monopolize and exploit the royalties.

#### 4.8 Findings

The findings of this paper demonstrates that the adoption of the WTO-TRIPS Agreement has profoundly altered India's legal framework on intellectual property rights in agriculture, especially in relation to hybrid plants. India's decision to implement a sui generis system via the Protection of Plant Varieties and Farmers' Rights Act (PPV&FRA), instead of conforming to the UPOV model, illustrates an attempt to reconcile breeders' rights with farmers' traditional practices. Case investigations, like *Monsanto v. Nuziveedu*, *PepsiCo v. Farmers*, and the Bt Brinjal issue, reveal ongoing conflicts and uncertainties in the law, particularly concerning the intersection between patent protection and plant variety rights. The results indicate that while the PPV&FRA offers significant safeguards for farmers (such as the right to store, use, and trade seeds), the effective implementation of these rights is constrained by legislative ambiguity, corporate lawsuits, and the marginalization of informal seed networks. The growing corporatization of agriculture via hybrid and genetically modified seeds has resulted in the diminishment of seed sovereignty, imposing economic and legal burdens on small-scale farmers. The courts have intermittently affirmed farmers' rights; but, inconsistent judicial interpretation and delays in regulatory processes have impeded effective protection. The study highlights the intricate relationship between international commitments and national socio-economic requirements, particularly concerning agricultural sustainability and rural livelihoods.

#### 5 Conclusion

In conclusion, the WTO-TRIPS system has significantly altered Indian patent law, albeit it remains contentious, particularly regarding hybrid plants and farmers' rights. India's efforts to maintain agricultural diversity and farmers' autonomy via the PPV&FRA have been undermined by a dual legal framework—patents for biotechnological features and plant variety protection for cultivars—resulting in loopholes and disputes. Multinational firms often use these legal deficiencies to dominate seed markets, undermining the efficacy of seed sovereignty and traditional agricultural rights. The current legislative system, despite its progressive intentions, fails to effectively tackle the challenges of enforcement, awareness, and access to justice for farmers. The study indicates that India must enhance legislative clarity, institutional frameworks, and support systems to align its international trade obligations with domestic agricultural interests, therefore empowering farmers and preventing the monopolization of genetic resources. Legislative changes, public interest litigation, and farmer-driven innovation models will be essential for ensuring that the essence of the PPV&FRA is maintained in reality rather than only in concept.

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