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Seeds of Innovation: Tracing India's Journey in Plant Variety Protection

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Introduction

Agriculture plays a pivotal role in India's economy. Numerous varieties of landraces, local plant types suited to particular soils and climate, have been cultivated and conserved by Indian farmers throughout the ages. However, with the liberalization of international commerce and the rise of intellectual property laws, India found itself with a fundamental dilemma: How can the rights of breeders be protected without adversely affecting farmers' interests? This article examines the way India built its one-of-a-kind plant variety protection (PVP) system that respects both innovation and tradition.

Background:

From Free Exchange to Legal Recognition Agrarian Heritage & Post-Independence Policies

The Indian seed sector is today a multi-billion-dollar market with the rising significance of commercial enterprises. However, historically, it was driven by farmer-saved seeds and governmental sector efforts. In India, seeds belonged to the people, and they were extensively distributed, freely traded, and grown in a variety of ecological settings. In the years following independence, public institutions pioneered the plant breeding initiatives for attaining food security. During the Green Revolution era, government research institutes and state agricultural universities (such as IARI, PAU, CCSHAU, etc.) came forward for the spread and multiplication of seeds (Manjunatha et al., 2013). However, this scenario would start to change in the coming decades. The private sector started to gain pace owing to government support for innovation, with the New Seed Policy (1988) and the start of economic liberalization (1991). In order to safeguard the substantial expenditures made in breeding research, this change necessitated the implementation of some proprietary rights mechanisms (MANAGE, 2002).

Global Pressures & Emergence of TRIPS

Uruguay Round discussions of the early 1990s resulted in the formation of the WTO and its TRIPS Agreement, which had a significant impact on the plant protection domain. These negotiations obliged nations to acknowledge intellectual property rights for plant varieties, either through patents, membership in UPOV, or a 'sui generis' system (a system of its own kind). India chose the sui generis approach, since others were not in line with India's stand on farmers' rights protection (Singh & Kamal, 2022).

Enactment of the PPV&FR Act (2001)

In the late 1990s, the Indian government established several task forces and expert panels for complying with the TRIPS norms. The Expert Committee on Seed Policy (1997) and the Seed Policy Review Group (1998) examined global models, such as the International Union for the Protection of New Varieties of Plants (UPOV). It concluded that India requires its own legislation. These working groups suggested creating legislation that acknowledged the rights of farmers (to maintain traditional methods and cultivars) and breeders (to encourage innovation). In line with these recommendations, the Protection of Plant Varieties and Farmers' Rights Bill (PPV&FR) was introduced in Parliament in 1999 and finally enacted in 2001. With this, India became the first country to enact laws specifically protecting the rights of farmers and plant breeders (Ministry of Agriculture & Farmers' Welfare, 2001).

Features of the PPVFRA Act

India's PPVFR Act has some UPOV provisions, such as breeder's rights, researchers' exemptions, and DUS criteria of protection (Distinctness, Uniformity, Stability). However, the duration of protection is much lower than UPOV. While in UPOV, it is generally 20-25 years for most crops, in PPVFRA, it is 15 years. It permits the registration of "extant" and new varieties, including farmer-developed seeds and traditional landraces (Ministry of Agriculture & Farmers' Welfare, 2001). The other deviations from UPOV are as follows.

Dual Rights: Farmers and Breeders

Breeders have exclusive rights to produce, sell, and trade registered varieties, but importantly, farmers are still allowed to save, sow, re-sow, exchange, share, or sell seeds they have produced as long as they are non-branded. Farmers can also register their own traditionally conserved varieties provided they comply with DUS criteria.

The Gene Fund and Benefit-Sharing

The National Gene Fund, a pioneering initiative, accumulates financial benefits (such as fees and royalties) and disburses them to farmer groups or individuals who contributed to the development of a registered variety. This assures fair compensation and encourages conservation.

Restitution for Poor Performance

In case a registered variety performs poorly, farmers can seek compensation, offering an accountability element that is usually not included in other IP rules.

Implementation: Successes and Challenges

The PPVFR Authority was established in 2005, and the application process started in 2007. As of December 2023, the registered plant varieties totaled 6373, with 49 percent being farmers' varieties (Prasanna et al., 2024). In order to support farmers' and communities' efforts to preserve traditional plant varieties, the PPV&FRA established the National Plant Genome Saviour Award in 2012–13 under the PPVFR Rules, 2012 (PPV&FRA, 2023). Despite positive traction, some innate challenges persist. A significant number of rural farmers remain unaware of their rights under the Act. DUS testing and documentation are often opaque or inaccessible to smaller farmers. Although the Gene Fund exists, actual benefit sharing with farmers remains modest. Additionally, delays in the registration process are caused by the PPV&FR Authority's inadequate infrastructure, workforce, and testing facilities. Jurisdictional conflicts can arise due to the existence of confusion among the PVP, Seeds Bill, patents, and biodiversity laws, which may potentially weaken farmers' rights. Many grassroots custodians go unacknowledged due to the limited scope and uneven distribution of initiatives like the Plant Genome Saviour Awards, which aim to honour farmer-conserved varieties (Government of India, 2021). These difficulties demonstrate the discrepancy between the Act's aspirations and its actual application.

Some Iconic Farmer Innovators

Farmers in India have long made little-known innovations.

- Dadaji Ramaji Khobragade created several rice varieties in Maharashtra.
- Anjamma conserved more than 70 ancient rice breeding lines in Telangana.
- Hariman Sharma created an apple in Himachal Pradesh that does not have blooming delays caused by freezing.
- Innovative choices such as 'Sanjeev Selection' cauliflower and novel Basmati varieties have surfaced in Bihar and Haryana (Prabhu & Agrawal, 2018).
- Sathyanarayana Beleri (Kerala), who has conserved over 650 rice varieties, has been awarded the Plant Genome Saviour Award (2021) and Padma Shri (2024) (Express News Service, 2024).
- These illustrations show how innovation and tradition coexist and are deserving of official acknowledgement and conservation.

Some Notable Cases that Strengthened the PVP Enforcement

1. PepsiCo vs. Gujarat Farmers (2019):

Under India's PPV&FR Act (2001), PepsiCo registered its proprietary potato variety

FL-2027, from which the popular potato chips 'Lays' are made. The corporation brought legal action against several farmers in Gujarat in 2019, saying that they had violated the breeder's rights by growing and selling the potato without permission. With the help of civil society organizations, farmers invoked Section 39(1)(iv) of the Act, which permits farmers to save, exchange, and re-sow unbranded seeds. The dispute attracted much public attention and brought to light the conflict between traditional farmer rights and private companies' IPR claims. PepsiCo withdrew the majority of its lawsuits in response to criticism and legal investigation. The PPV&FR Authority later cancelled PepsiCo's registration in December 2021, citing concerns about public interest and misinformation (The Hindu BusinessLine, 2021). In July 2023, the Delhi High Court affirmed the revocation, setting a historic precedent that upholds farmers' rights against corporate claims in the Indian seed industry (Indian Express, 2023).

2. Legal Clarity Regarding Application Validity and DUS Testing

In November 2023, the Delhi High Court's ruling in *Nuziveedu Seeds Pvt Ltd. v/s. Registrar, PPV&FRA*, made clear that for a plant variety to be eligible for registration, a DUS test is to be performed before the application advertisement. Applications that were promoted prior to DUS testing were deemed invalid (*Nuziveedu Seeds Pvt. Ltd. v. Protection of Plant Varieties and Farmers Rights Authority and Anr.*, 2023).

3. Maharashtra Hybrid Seeds vs. Union of India (2015)

The case looked at whether hybrid seeds qualified for PPV&FR registration as "new" or "extant" varieties. PPV&FRA declared that hybrid seeds are not eligible for registration since they do not fit into either category. The Delhi High Court upheld this conclusion in 2015 (Paul & Pandey, 2025).

4. Jurisdiction of Civil Court: Pan Seeds v. Ramnagar Seeds (2023)

After the case of the legality of Pan Seeds' registered variety (PAN 804) was contested in a civil court, the Calcutta High Court ruled that civil courts are not qualified to decide whether a registered variety is legitimate. Under the terms of the PPVFR Act (2001), registrations may only be revoked or cancelled by the Registrar or PPV&FRA (Pujari, 2023).

Conclusion: An Equitable Model for Agricultural Innovation

India's mission to conserve plant varieties is a unique success story because it balances international commitments with national values to protect smallholder farmers and encourage breeding research at the same time. A prime illustration of this balance is the PPV&FR Act of 2001. When combined with institutional systems and biodiversity regulations, it provides a strong basis for sustainable agriculture.

However, the system must bridge information gaps, improve processes, and increase equitable benefit-sharing if it is to live up to its promise. If it succeeds, other countries looking

to strike a balance between innovation, equality, and biodiversity may find inspiration in India's strategy.

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