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Saved Seed, Patented Genes: Farmers' Rights in the Age of Seed Patents with Special Reference to India

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ABSTRACT

Farmers have been saving seeds for ages. Since time immemorial, they have saved their seed for the following crop. But there is no room for saving seeds in patent laws. When an invention is patented, the owner of the patent can prevent others from using, selling or manufacturing it. Seeds will be infringing every time they grow. Hence, the farmer is left with no option but to purchase the seed from the patentee every time. This is the point of conflict: farmers have the right to save seeds which they want to grow again, whereas the patentee has an exclusive right to sell them. This article seeks to examine the conflict between farmers' rights to save seeds and patentees' rights, with special reference to India. Seeds are excluded from patent protection under Section 3(j) of the Patents Act, 1970, but biotechnological companies have been granted patents for the genes or characters possessed by seeds. Certain rights exist for farmers under the Protection of Plant Varieties and Farmers' Rights Act, 2001 and various international treaties. Farmers are in safe hands where rights over a plant variety are concerned, but the rights that exist for a patent on a seed leave them exposed to infringement claims. This article concludes with suggestions to help bridge the gap between the two.

Keywords: *Seeds, farmer rights*

I. INTRODUCTION

In agriculture, everything starts from a seed. If a farmer has to pay for seed every year, the cost of farming rises sharply and the farmer loses the liberty to cultivate different varieties. The problem is greater in India, where most farmers are smallholders and many rely on saved seed to start the next season.[1]

As biotechnology has evolved, companies have begun inserting patented genes into crops. Bt cotton is an example: cotton was genetically modified to produce a toxin that kills the bollworms which damage the crop. The modification led to many patents, covering the inserted gene, the

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[1] AGRIC. CENSUS DIV., DEP'T OF AGRIC., COOP. & FARMERS WELFARE, GOV'T OF INDIA, AGRICULTURE CENSUS 2015–16 (provisional results released Oct. 1, 2018) (recording small and marginal holdings, below two hectares, as about 86 per cent of all operational holdings).

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method of inserting it and, in some countries, the plant itself. Can a farmer be said to infringe a patent by planting a seed that carries a patented invention?[2]

There are many ways to approach this problem, but this paper keeps its inquiry simple: how farmers' rights operate against patents, and how they stand in India.

The next part discusses the rights given to farmers at the international level. The third part explains how patents on seeds work in India, and the fourth sets out the rights available to farmers in India. The fifth part looks at other countries, the sixth examines disputes that have arisen in India, and the seventh analyses the problem. The last part concludes with recommendations.

II. RIGHTS OF FARMERS INTERNATIONALLY

A. The International Treaty on Plant Genetic Resources for Food and Agriculture

The International Treaty on Plant Genetic Resources for Food and Agriculture was adopted in 2001 and entered into force in 2004. It recognises the great contribution farmers have made to the conservation and development of plant genetic resources. Article 9 provides for the rights of farmers. Article 9.3 adds that nothing in the article limits any rights that farmers have to save, use, exchange and sell farm-saved seed or propagating material, subject to national law and as appropriate. The Treaty therefore takes no rights away; it acknowledges them and leaves each country to take measures to protect them.[3]

B. The Declaration on the Rights of Peasants

The 2018 United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas includes a right to seeds in Article 19. It covers the right to save, use, exchange and sell farm-saved seed, the protection of traditional knowledge, and the right to take part in decisions on seed policy. A declaration is not a treaty and is not binding, but it supports the view that farmers' rights are human rights.[4]

C. The TRIPS Agreement

Article 27(3)(b) of the TRIPS Agreement allows members to exclude plants and animals from patentability, but requires them to protect plant varieties by patents, by an effective *sui generis*

[2] *See Monsanto Tech. LLC v. Nuziveedu Seeds Ltd.*, (2019) 3 SCC 381, ¶¶ 2, 20 (India) (suit on Indian Patent No. 214436, whose claims cover a process of inserting into plant cells a nucleic acid sequence carrying the Cry2Ab Bt gene, and the sequence itself); the case is discussed below.

[3] International Treaty on Plant Genetic Resources for Food and Agriculture art. 9, Nov. 3, 2001, 2400 U.N.T.S. 303 (entered into force June 29, 2004).

[4] G.A. Res. 73/165, annex, United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas, art. 19 (Dec. 17, 2018).

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system, or by both. This is the legal basis for India's choice. TRIPS gives farmers no rights of its own, but it does not stop countries from protecting them.[5]

III. Patents and seeds in Indian law

A. Section 3(j)

Section 3(j) of the Patents Act, 1970 provides that plants and animals in whole or any part thereof, other than micro-organisms, including seeds, varieties and species, and essentially biological processes for the production or propagation of plants and animals, are not inventions within the meaning of the Act. Micro-organisms are not excluded.[6]

The effect is that a seed, a plant variety or a plant cannot be patented in India. This is a strong protection for farmers, because it removes the most direct threat to seed saving.

B. The grey area: genes, cells and traits

Section 3(j) does not say clearly whether a gene or a nucleic acid sequence, which becomes part of a plant, can be patented, or whether a patent on a gene is a patent on "any part" of a plant. This is the main area of dispute. Companies argue that a gene sequence, or a method of producing a genetically modified plant cell, is a human invention and is not excluded. Farmer groups argue that allowing such patents makes the exclusion in Section 3(j) pointless, since the gene is in every seed and every plant that grows from it.[7]

The Patent Office has issued guidelines on how examiners are to treat biotechnology applications, but the question has not been settled by the courts: in *Monsanto Technology LLC v. Nuziveedu Seeds Ltd.* the Supreme Court held that whether the patent in suit fell within Section 3(j) had to be decided at trial on evidence, not summarily.[8]

C. Other relevant provisions

- **Disclosure of origin.** The Patents Act requires an applicant to disclose in the specification the source and geographical origin of any biological material used in an invention. Failure to disclose it, or a wrong disclosure, is a ground for opposing the patent and for revoking it.[9]

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[5] Agreement on Trade-Related Aspects of Intellectual Property Rights art. 27(3)(b), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299.
[6] The Patents Act, 1970, § 3(j), No. 39, Acts of Parliament, 1970 (India).
[7] *Id.*; *Monsanto Tech.*, *supra* note 2, ¶¶ 4, 6, 20 (setting out the competing contentions on the nucleic acid sequence and process claims).
[8] Office of the Controller Gen. of Patents, Designs & Trade Marks, Guidelines for Examination of Biotechnology Applications for Patent (2013); *Monsanto Tech.*, *supra* note 2, ¶¶ 22–26.
[9] The Patents Act, 1970, §§ 10(4)(d)(ii)(D), 25(1)(j), 64(1)(p), No. 39, Acts of Parliament, 1970 (India).

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- **Traditional knowledge.** An invention that is in effect traditional knowledge is not patentable under Section 3(p).[10]
- **Compulsory licensing and public interest.** Section 84 allows a compulsory licence, three years after the grant of a patent, where the reasonable requirements of the public are not satisfied or the invention is not available at a reasonably affordable price. The remedy has not been widely used for seeds.[11]
- **Price control.** Under the Cotton Seeds Price (Control) Order, 2015, the Central Government caps the sale price of Bt cotton seed, including the trait value that can be charged.[12]

IV. FARMERS' RIGHTS UNDER INDIAN LAW

A. The PPV&FR Act, 2001

The Protection of Plant Varieties and Farmers' Rights Act, 2001 (the PPV&FR Act) is India's answer to TRIPS and the main source of farmers' rights.[13] Its key farmers' rights are the following.

- **The farmers' privilege (Section 39(1)(iv)).** A farmer may save, use, sow, resow, exchange, share or sell farm produce, including seed of a protected variety, in the same manner as before the Act, but may not sell branded seed of a protected variety.[14]
- **Information and compensation (Section 39(2)).** A breeder must disclose to the farmer the expected performance of the propagating material under given conditions, and the farmer can claim compensation before the Authority if it fails to perform.[15]
- **Recognition and reward.** A farmer who has bred a new variety may register it, farmers' varieties may be registered, and farmers who conserve land races and wild relatives of economic plants are entitled to recognition and reward from the Gene Fund.[16]

[10] The Patents Act, 1970, § 3(p), No. 39, Acts of Parliament, 1970 (India).
[11] The Patents Act, 1970, § 84(1), No. 39, Acts of Parliament, 1970 (India).
[12] Cotton Seeds Price (Control) Order, 2015 (Dec. 7, 2015) (India), issued under The Essential Commodities Act, 1955, § 3, No. 10, Acts of Parliament, 1955 (India).
[13] The Protection of Plant Varieties and Farmers' Rights Act, 2001, pmbl., No. 53, Acts of Parliament, 2001 (India) (giving effect to TRIPS art. 27(3)(b)).
[14] *Id.* § 39(1)(iv) & expl.
[15] *Id.* § 39(2).
[16] *Id.* § 39(1)(i)–(iii).

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- **Benefit sharing and the Gene Fund.** The Act provides for benefit sharing, for compensation to village and local communities that contributed to a registered variety, and for a National Gene Fund that supports conservation and pays these benefits.[17]
- **Protection against innocent infringement.** A right under the Act is not deemed to be infringed by a farmer who was not aware of it at the time, and no court relief can be granted against a farmer who proves this.[18]

The Act also limits the breeder. A breeder's exclusive right is subject to the other provisions of the Act, including the researchers' exemption and the farmers' privilege.[19]

B. How the two laws fit together

The PPV&FR Act deals with plant varieties, and the Patents Act deals with inventions. A seed can be both: it can be a registered variety under one law and carry a patented gene under the other. In that case the farmers' privilege in Section 39 is a defence against a claim under the PPV&FR Act, but it is not written as a defence to a patent claim. Whether a farmer can rely on it against a patent holder is one of the central unsettled questions in this area.[20]

V. Comparison with other countries

A. United States

The United States allows patents on plants, seeds and genes. In *Bowman v. Monsanto Co.* (2013), the Supreme Court held that a farmer who bought soybeans from a grain elevator and planted them, thereby growing a new generation of patented seed, infringed the patent. The doctrine of patent exhaustion allows a buyer to use and resell the seed bought, but not to make new copies by planting it. Seed companies also use licence agreements that forbid saving seed. The United States has no general farmers' privilege against patents.[21]

B. Canada

In *Monsanto Canada Inc. v. Schmeiser* (2004), a majority of the Supreme Court of Canada held that a farmer who saved and planted canola seed containing a patented gene had infringed the patent, even though he said the gene had first arrived on his land by accident. The Court found

[17] *Id.* §§ 26 (benefit sharing), 41 (rights of communities), 45 (National Gene Fund).
[18] *Id.* § 42.
[19] *Id.* §§ 28(1), 30, 39(1)(iv).
[20] *Compare id.* § 39(1)(iv) ("[n]otwithstanding anything contained in this Act"), *with* The Patents Act, 1970, § 48, No. 39, Acts of Parliament, 1970 (India) (patentee's exclusive rights, with no equivalent privilege for farmers). *See also Monsanto Tech.*, *supra* note 2, ¶ 6 (recording the Division Bench's view, set aside on appeal, that the two Acts were not complementary but exclusive).
[21] *Bowman v. Monsanto Co.*, 569 U.S. 278 (2013).

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that he had used the patented invention knowingly, and it did not award profits because he had not benefited from the gene's special trait.[22]

C. European Union

The EU Biotechnology Directive allows patents on plant-related inventions but not on plant varieties. It includes a limited farmers' privilege that allows seed of certain crops to be saved for use on the farmer's own holding, on the terms of the EU plant variety rules, under which farmers other than small farmers pay remuneration to the right holder.[23] The European Patent Office has also dealt with patents on plants made by conventional breeding, and its rules now exclude plants obtained exclusively by essentially biological processes.[24]

D. What the comparison shows

In the United States and Canada, patent law gives farmers little protection. The EU gives a limited privilege. India offers more protection through Section 3(j) and the PPV&FR Act, but with the gene-patent gap described above.

VI. Key Indian disputes

A. Monsanto and Nuziveedu (Bt cotton)

Monsanto held an Indian patent covering a nucleic acid sequence carrying a Bt gene and the process of inserting it into plant cells, and licensed the technology to Indian seed companies. Disputes arose over the trait fees once price control took effect, and Monsanto terminated the sub-licence. When Monsanto sued, Nuziveedu Seeds and others argued, among other things, that price control limited the fees and that the patent was invalid under Section 3(j).[25] The case moved between a Single Judge and a Division Bench of the Delhi High Court. In 2019, the Supreme Court set aside the Division Bench's ruling that the patent was invalid and sent the case back for full trial.[26]

The case matters for farmers in two ways. First, it showed that a company can claim patent rights over a trait in a seed even though seeds cannot be patented. Second, it showed that the real fight is between companies over fees, while farmers are the people who ultimately pay.

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[22] *Monsanto Canada Inc. v. Schmeiser*, 2004 SCC 34, [2004] 1 S.C.R. 902 (Can.).
[23] Directive 98/44/EC, of the European Parliament and of the Council of 6 July 1998 on the Legal Protection of Biotechnological Inventions, arts. 4, 11, 1998 O.J. (L 213) 13.
[24] Implementing Regulations to the Convention on the Grant of European Patents r. 28(2); Case G 3/19, *Pepper* (Enlarged Bd. of Appeal, Eur. Pat. Off. May 14, 2020).
[25] *Monsanto Tech.*, *supra* note 2, ¶¶ 3–4; Cotton Seeds Price (Control) Order, *supra* note 12; The Patents Act, 1970, § 3(j), No. 39, Acts of Parliament, 1970 (India).
[26] *Monsanto Tech.*, *supra* note 2, ¶¶ 5–6, 26.

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B. PepsiCo and potato variety FL 2027

PepsiCo India registered the potato variety FL 2027, the variety used for its Lay's chips, under the PPV&FR Act on 1 February 2016. In 2019 it sued farmers in Gujarat who were growing the variety outside its contract farming programme, alleging infringement of its rights as breeder under Section 28. The suits were later withdrawn. Kavitha Kuruganti, a farmers' rights activist, then applied to the Authority under Section 34 to revoke the registration, and on 3 December 2021 the Authority revoked it. In the Delhi High Court, a Single Judge dismissed PepsiCo's appeal in July 2023, sustaining the revocation on some grounds, but in January 2024 a Division Bench allowed PepsiCo's appeal and set aside the revocation order.[27] On 5 August 2026 the Supreme Court disposed of Kuruganti's special leave petitions, finding no reason to interfere with the Division Bench's judgment, so the revocation remains set aside. It made clear, however, that any individual farmer sued by PepsiCo can claim the protection of Section 39(1)(iv) in that proceeding and prove that the farmer comes within it.[28]

This case arises under plant variety law, not patent law, but it matters for this paper in three ways. It shows how infringement suits by a large rights holder bear on small farmers, although the High Court found nothing to establish that PepsiCo's suits were vexatious, and the Supreme Court did not disturb that finding. It shows that the farmers' privilege is a real defence when the claim is brought under the PPV&FR Act. And it leaves the patent question untouched: nothing in the order tells a farmer sued on a patented gene or trait whether Section 39(1)(iv) will protect them.

C. Biopiracy and patents on traditional knowledge

Patents granted abroad on turmeric, neem and basmati-related inventions were challenged by Indian bodies and others, and were revoked or narrowed.[29] These cases led to the creation of India's Traditional Knowledge Digital Library, and they are widely seen as the background to the disclosure rules in the Patents Act.[30]

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[27] *PepsiCo India Holdings Pvt. Ltd. v. Kavitha Kuruganti*, LPA 590/2023 & LPA 644/2023, ¶¶ 1, 8–9, 70, 77–78 (Del. HC Jan. 9, 2024) (India) (recording the registration of Feb. 1, 2016, the revocation application of June 17, 2019, the Authority's order of Dec. 3, 2021, the withdrawal of the suits and the Single Judge's judgment of July 5, 2023); The Protection of Plant Varieties and Farmers' Rights Act, 2001, §§ 28, 34, No. 53, Acts of Parliament, 2001 (India).

[28] *Kavitha Kuruganti v. PepsiCo India Holdings Pvt. Ltd.*, SLP (C) Nos. 10320–10321 of 2024, 2026 INSC 811, ¶¶ 3, 6–8 (Aug. 5, 2026) (India).

[29] On turmeric, U.S. Patent No. 5,401,504 (claims cancelled on reexamination requested by the Council of Scientific and Industrial Research, 1997); on neem, Eur. Patent No. 0436257 (revoked by the Opposition Division, 2000), *appeal dismissed*, Case T 0416/01, *Thermo Trilogy Corp.* (Eur. Pat. Off. Bd. of Appeal Mar. 8, 2005); on basmati, U.S. Patent No. 5,663,484 (claims narrowed or withdrawn on reexamination, 2001–2002).

[30] COUNCIL OF SCI. & INDUS. RSCH., Traditional Knowledge Digital Library (established 2001); The Patents Act, 1970, §§ 3(p), 10(4)(d)(ii)(D), No. 39, Acts of Parliament, 1970 (India).

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VII. Analysis

A. Where farmers are well protected

1. Seeds and varieties cannot be patented in India, so most traditional and improved varieties are free from patent claims.[31]
2. The farmers' privilege is written into statute for protected varieties and covers the sale of farm-saved seed, other than branded seed.[32]
3. Disclosure and traditional knowledge rules help prevent patents on knowledge farmers already hold.[33]
4. Price control limits what can be charged for some patented traits.[34]

B. Where farmers are exposed

1. **Gene and trait patents.** If a patent on a gene is valid, a farmer who saves seed carrying the gene may be seen as making copies of the invention. Section 39 does not clearly answer a patent claim.[35]
2. **Contracts and licences.** Seed sold under licence terms can forbid saving or replanting, and a farmer may not be able to negotiate.
3. **Cost and proof.** A small farmer facing a suit has to prove facts and pay for lawyers, which many cannot do.
4. **Unclear boundaries.** Terms such as "branded seed" are open to dispute, and the line between the PPV&FR Act and the Patents Act is not settled.
5. **Outside pressure.** Trade partners often press for stronger seed rights and for membership of UPOV 1991, which would narrow the farmers' privilege.[36]

C. The patent holder's view

Companies argue that developing a trait costs a great deal and that without patents there is no reason to invest. They say that price control and refusal to pay trait fees reduce investment in new technology, and that farmers benefit from higher yields and lower pesticide use. A fair

[31] The Patents Act, 1970, § 3(j), No. 39, Acts of Parliament, 1970 (India).
[32] The Protection of Plant Varieties and Farmers' Rights Act, 2001, § 39(1)(iv), No. 53, Acts of Parliament, 2001 (India).
[33] The Patents Act, 1970, §§ 3(p), 10(4)(d)(ii)(D), 25(1)(j), 64(1)(p), No. 39, Acts of Parliament, 1970 (India).
[34] Cotton Seeds Price (Control) Order, *supra* note 12.
[35] The Protection of Plant Varieties and Farmers' Rights Act, 2001, § 39, No. 53, Acts of Parliament, 2001 (India); *Monsanto Tech.*, *supra* note 2, ¶¶ 22–26. *See also Bowman*, *supra* note 21 (replanting patented seed as making new copies of the patented invention).
[36] International Convention for the Protection of New Varieties of Plants art. 15(2), Dec. 2, 1961, as revised Mar. 19, 1991 (optional exception for farm-saved seed, within reasonable limits and subject to safeguarding the legitimate interests of the breeder).

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assessment has to give these arguments weight. The question is not whether to protect innovation, but how to do so without taking away the traditional freedom to save seed.

VIII. CONCLUSIONS AND RECOMMENDATIONS

Indian law protects farmers better than most patent systems, mainly because seeds and plant varieties cannot be patented and because the PPV&FR Act gives farmers a statutory privilege. But the protection is weakest exactly where the commercial pressure is strongest: patents on genes and traits.

The following recommendations are made:

- Clarify Section 3(j) by law or binding guidance, so that it is clear whether and when a gene or trait in a plant can be patented.
- Add a farmers' privilege to patent law, or state clearly that Section 39(1)(iv) is also a defence to a patent claim for seed that a farmer has lawfully obtained and saved.
- Limit restrictive seed contracts, so that licence terms cannot remove statutory farmers' rights.
- Use existing tools, such as compulsory licensing and price control, where trait fees are unfair.
- Support farmers who are sued, through legal aid and a requirement that claims against farmers be notified to the Authority.
- Resist UPOV 1991 and similar trade terms unless the farmers' privilege is fully protected.

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