

Intellectual Property Rights and Competition Interplay in the Indian Seed Sector

P.A. Lakshmi Prasanna and J. Rajashekar Reddy¹

ABSTRACT

This paper analyzes the interaction between Intellectual Property Rights (IPR) systems and competition in India's seed industry. The study focuses on three IPR systems: Protection of Plant Varieties and Farmers' Rights (PPV&FR), Geographical Indications (GI), and trademark protection. As of December 2023, farmers held 49 per cent of the total Plant Variety Protection (PVP) certificates, while the private sector dominated new varieties (82 per cent) and hybrids (69 per cent). The private sector registered its varieties in a few crops, with rice, tetraploid cotton, and maize leading. The study observes that the private sector actively uses PVP and trademark protection, although it is behind in other areas. C4 ratios, indicating market concentration, varied across crops, with higher competition observed in hybrids than in traditional varieties. The study also highlights the potential for conflict between GI and PVP protection systems, particularly in crops like basmati rice, where varieties are protected under both systems. The paper calls for continuous monitoring of seed market dynamics and the interplay between IPR systems and competition, given the evolving nature of the industry and the varied impacts on different crops.

Keywords: Competition, Intellectual Property Rights, Plant Variety Protection, Geographical indication, trademark, hybrids,

JEL codes: O34, Q12, Q13, Q18

I

INTRODUCTION

Intellectual Property Rights (IPR) protection is among several mechanisms for incentivizing economic innovation. A serious debate is there regarding the necessity of Intellectual Property Rights (IPR) protection for incentivizing plant varieties development. Some view that IPR protection will lead to the concentration of IPR in the hands of a few firms, affecting affordability to farmers, offering limited choices to farmers, and also destroying plant diversity (Halpert and Chappell,2017). Some researchers have viewed IPR in plant varieties as a rent-seeking tool (Heald and Chapman,2011). However, under the TRIPS agreement of WTO, it became mandatory for member countries to provide IPR protection for plant varieties either through patents, an effective sui generis system, or a combination of both. In this context, India opted for a sui generis system and enacted the Protection of Plant Varieties and Farmers Rights (PPV&FR) Act 2001. Besides this, India also enacted the Geographical Indications (GI) of Goods (registration and protection) Act of 1999 and the Trade Mark (TM)Act of 1999. These three Acts influence the Indian seed sector. This paper attempts to analyse the interplay of these acts among themselves and with competition in the Indian seed sector.

¹ Indian Institute of Rice Research, Rajendranagar, Hyderabad, Telangana state, India-500030.

II

DATA AND METHODOLOGY

The present study data was collected from the Protection of Plant Varieties and Farmers Rights Authority (PPVFRA) website and its “Plant Variety Journal” issues at <https://plantaauthority.gov.in/>. Data on agricultural GI was collected from GI registry at [https://ipindia.gov.in/IPIndiaAdmin/writereaddata/Portal/Images/pdf/Year wise GI Application Register - 26-04-2024.pdf](https://ipindia.gov.in/IPIndiaAdmin/writereaddata/Portal/Images/pdf/Year_wise_GI_Application_Register_-_26-04-2024.pdf). Data on trademarks was collected using public search facility at <https://tmrsearch.ipindia.gov.in/tmrpublicsearch/frmmain.aspx> using word “seed” during 22-02-2024 to 27-02-2024. The data collected was analysed using simple descriptive analytical tools.

III

RESULTS AND DISCUSSION

Indian PPV&FR Act is a tailor-made IPR Act exclusively targeting plant varieties development (unlike GI Act and TM Act, which also cover other types of goods), accounting for the sequential and cumulative nature of plant varieties development process (Prasanna et al.,2023). Under this Act, plant varieties can be registered under four categories: extant varieties, new varieties, farmers' varieties, and Essentially Derived Varieties (EDVs). To implement the PPV&FR Act of 2001, the Protection of Plant Varieties and Farmer’s Rights Authority (PPVFRA) was constituted. The authority started receiving applications for registration from the year 2007 and started registration from the year 2009. Till December 2023, 6373 plant varieties were registered. Out of this, only 997 varieties were new, constituting 16 per cent of plant varieties registered. The distribution of issued Plant Variety Protection (PVP) certificates across crop groups and categories of IPR holders is given in Table 1. A maximum number of PVP certificates were registered for cereal crops, followed by fibres and vegetables. Together, these three crop groups contributed 84 per cent of the PVP certificates that were registered.

Indian PPV&FR act is unique in that it provides for registering farmers' varieties (a subcategory under extant varieties). Table 1 shows that a major share of PVP certificates (49 per cent) were held by farmers and was followed by the public sector (26 per cent). Further, farmers were dominant in PVP certificates compared to the public and private sector in cereals (61 per cent), fruits (78 per cent), and spices (65 per cent). The public sector was dominant in legumes (58 per cent), medicinal and aromatic plants (100 per cent), oilseeds (47 per cent), sugar crop (96 per cent), and tree, forest, and plantation crops (Table 1). The private sector dominated fibres (78 per cent) and vegetables (60 per cent). This observation corroborates with reporting by Venkatesh and Pal (2013) and access to seed reports (WBA,2022). In farmer's PVP certificate portfolio, 86 per cent was cereals, followed by legumes (4 per cent) and

TABLE.1 TOTAL PVP CERTIFICATES ISSUED TILL THE YEAR 2023 AND THEIR DISTRIBUTION ACROSS CROP GROUPS AND DIFFERENT CATEGORY OF OWNERS

(1)	Number of crop species (2)	Total PVP certificates number (3)	Distribution of PVP certificates (4)-(6)			Share of different category PVP holders (per cent) (7)-(9)			Share of different crop groups in portfolio of different category of PVP holders (per cent) (10)-(12)		
			Farmers (4)	Public (5)	Private (6)	Farmers (7)	Public (8)	Private (9)	Farmers (10)	Public (11)	Private (12)
Cereals	14	4323	2657	910	756	61	21	17	86	55	47
Fibres	4	551	1	120	430	0	22	78	0	7	27
Flowers	4	12	5	5	2	42	42	17	0	0	0
Fruits	13	108	84	23	1	78	21	1	3	1	0
Legumes	8	361	131	210	20	36	58	6	4	13	1
Medicinal and aromatic plants	1	1	0	1	0	0	100	0	0	0	0
Oil seeds	9	381	110	180	91	29	47	24	4	11	6
Spices	7	60	39	21	0	65	35	0	1	1	0
Sugar crop	1	54	1	52	1	2	96	2	0	3	0
Tree forest and plantation crops	6	17	1	16	0	6	94	0	0	1	0
Vegetables	20	505	76	124	305	15	25	60	2	7	19
All crops	87	6373	3105	1662	1606	49	26	25	100	100	100
Total number of crop spices		87	56	76	35						
Top 3 crops		1. Rice 2. Tetraploid Cotton 3.. Maize	1.Rice 2.Wheat 3.Sorghum	1.Rice 2.Maize 3.Bread wheat	1.Tetraploid cotton 2.Rice 3.Maize						
Share of top three crops (%)		62	82	37	58						

oilseeds (4 per cent). In the case of the public sector's PVP certificate portfolio, the top crop group was cereals (55 per cent), followed by legumes (13 per cent) and oilseeds (11 per cent) in that order. Cereals were the top crop group (47 per cent) in the case of the private sector portfolio but were followed by fibres (27 per cent) and vegetables (19 per cent). Total PVP issued were spread across 87 crop species. Public sector PVP certificates were spread across 76 crop species, followed by farmers' varieties (56 crop species) and private sector (35 crop species). This indicates that the private sector focuses on fewer crops for research/protection purposes. The top three crops in farmers' cases were rice, wheat, and sorghum, constituting 82 per cent of their total PVP certificates. In the case of the public sector, the top three crops were rice, maize, and bread wheat. On the other hand, in the private sector, the top three crops were tetraploid

cotton, rice, and maize. The top three crops' share in the public sector was 37 per cent, and in the private sector, it was 58 per cent. Thus, rice appeared among the top three crops for farmers and the private and public sectors. On average, 425 plant varieties per annum were registered during the last 15 years. Of these 425 varieties, 207 were farmers' varieties, 111 were public sector varieties, and 107 were private.

TABLE 2. PVP CERTIFICATES ISSUED TILL THE YEAR 2023 WITH RESPECT TO NEW VARIETIES AND THEIR SPREAD ACROSS CROP GROUPS AND DIFFERENT CATEGORY OWNERS

Crop group (1)	Total certificates number		PVP Number of PVP certificates for new varieties			Share of new varieties in total PVPs of different crop group PVPs (%)			Share in new varieties of different crop groups		
	Public (2)	Private (3)	Total (4)	Public (5)	Private (6)	Total (7)	Public (8)	Private (9)	Total (10)	Public (11)	Private (12)
Cereals	910	756	1666	123	466	589	14	62	35	21	79
Fibre	120	430	550	14	162	176	12	38	32	8	92
Flowers	5	2	7	1	0	1	20	0	14	100	0
Fruits	23	1	24	13	0	13	57	0	54	100	0
legumes	210	20	230	5	14	19	2	70	8	26	74
Oil seeds	180	91	271	2	50	52	1	55	19	4	96
Spices	21	0	21	1	0	1	5		5	100	0
Sugar crop	52	1	53	7	0	7	13	0	13	0	0
Tree, forest and plantation crops	16	0	16	7	0	7	44		44	0	0
Vegetables	124	305	429	5	127	132	4	42	31	4	96
Total	1661	1606	3267	178	819	997	11	51	31	18	82
Total number of crop species	75	35	76	27	23	37					
1.Rice											
2.Maize											
3.Bread cotton		1.Tetraploid cotton	1.Rice 2.Tetraploid Cotton 3.Maize	1.Maize 2.Sorghum 3.Rice	1.Rice 2.Maize 3.Tetraploid cotton	1.Rice 2.Maize 3.Tetraploid cotton					
Top 3 crops	Wheat	2.Rice 3.Maize									
Share of top 3 crops (%)	37	58	45	57	59	56					

As stated earlier, plant varieties under the PPVFR Act can be registered as extant or new. New varieties share at the aggregate level was 11 per cent only in the case of the public sector PVP portfolio and 51 per cent in the case of the private sector PVP portfolio (Table 2). New varieties were spread across 27 crops in the public sector. In the private sector, new varieties were spread across 23 crops. Out of 10 crop groups in

which new varieties were registered, in 5 crop groups, the public sector was an exclusive holder of new PVP certificates. The private sector was dominant in the remaining five crop groups compared to the public sector. At the aggregate level in total PVP certificates for new varieties, the private sector share was 82 per cent. In the public sector new varieties portfolio, the top three crops were maize, sorghum, and rice (all three from the cereals group), constituting 57 per cent of new varieties. On the contrary, in the case of the private sector's new varieties portfolio, the top three crops were rice, maize, and tetraploid cotton, constituting 59 per cent of new varieties (Table 2).

Under the PPVFR Act, hybrids are also eligible for registration, and they can fall under three categories: extant hybrid, new hybrid, and EDV hybrid. Further, under the PPVFR Act, a hybrid must be registered with its parents. This provision is incorporated in the Act, to check the 'evergreening of PVP' by way of sequential registration of hybrid, parental line one, and parental line two. Details of PVP certificates registered for hybrids are given in Table 3. In the case of the public sector, hybrids were spread

TABLE.3 PVP CERTIFICATES ISSUED WITH RESPECT TO HYBRIDS TILL THE YEAR 2023 AND THEIR SPREAD ACROSS CROP GROUPS AND DIFFERENT CATEGORY OWNERS.

(1)	Total PVP certificates number		(4)	Number of PVP certificates for hybrid varieties			Share of hybrids in total PVPs of different crop groups (%)		Share in hybrids of different crop groups (%)		
	(2)	(3)		(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Pub lic	Priv ate	Total	Public	Private	Total	Pub lic	Priv ate	To tal	Pub lic	Priva te
Cereals	910	756	1666	153	255	408	17	34	24	38	63
Fibre	120	430	550	21	151	172	18	35	31	12	88
Flowers	5	2	7	2	0	2	40	0	29	100	0
Fruits	23	1	24	8	0	8	35	0	33	100	0
Legumes	210	20	230	1	1	2	0	5	1	50	50
Oil seeds	180	91	271	14	27	41	8	30	15	34	66
Spices	21	0	21	2	0	2	10		10	100	0
Sugar crop	52	1	53	1	0	1	2	0	2	100	0
Tree, forest and plantation crops	16	0	16	6	0	6	38		38	100	0
Vegetables	124	305	429	12	59	71	10	19	17	17	83
Total	1661	1606	3267	220	493	713	13	31	22	31	69
Total number of crop species	75	35	76	26	18	31					
		1. Tetraploid cotton		1. Maize		1. Maize					
Top 3 crops	Rice	2. Rice	1. Rice	2. Pearl millet	1. Tetraploid cotton	2. Tetraploid cotton					
Share of top 3 crops (%)	37	58	45	64	63	62					

across 26 crops, but in the case of the private sector, hybrids were spread across 18 crops only (Table 3). In the case of the public sector PVP certificate portfolio, the hybrid share was above 30 per cent only for flowers, fruits, trees, forests, and plantation crops. Overall, the share of hybrids in the public sector portfolio was only 13 per cent. However, in the private sector, the aggregate level share of hybrids was 31 per cent. However, in the private sector portfolio, only three crop groups (cereals, fibres, and oilseeds) shared hybrids, 30 per cent or above. At an aggregate level, cutting across all crop groups, the share of the private sector in hybrids was 69 per cent. In the case of public-sector hybrids registered for protection, the top three crops were maize, Pearl millet, and sorghum, constituting 64 per cent of public-sector hybrids. On the contrary, in the case of private-sector hybrids, the top three crops were tetraploid cotton, maize, and rice.

Till the year 2017, number of companies seeking PVP were 55 (Prasanna et al. 2019). This increased to 82 companies in 2023 (Table 4). Forty-six companies registered their varieties in single crop only, constituting 11 per cent of total PVP certificates issued. Only four companies registered their varieties in over ten crops, constituting 38 per cent of PVPs.

TABLE 4. FREQUENCY DISTRIBUTION OF PRIVATE COMPANIES BASED ON NUMBER OF CROP VARIETIES REGISTERED UNDER PPVFR ACT

Range of number of crops (1)	Number of companies (2)	Total PVP certificates (3)	Share in PVPs(%) (4)
1	46	177	11.02
2-4	25	438	27.27
5-10	7	377	23.47
11-15	2	180	11.21
16-20	2	434	27.02
Total	82	1606	100

Details of the crop-wise number of companies and number of PVPs registered are presented in Table 5. The private sector registered their varieties in 35 crops. For 22 crops, the number of companies was less than or equal to four (for individual crops). Out of these 22 crops, in five crops, namely cotton, bitter-gourd, cabbage, cauliflower, and watermelon, private industry was dominant as the number of PVP certificates held by it was more than the PVP certificates of public sector and farmers put together. In 13 crops, more than four companies registered their PVPs. Out of these 13 crops, in 5 crops, i.e., rice, sorghum, wheat, bread wheat, and Indian mustard, the number of PVP certificates held together by the public sector and farmers was more than that held by the private sector. As is evident from Table 5, in only six crops, more than ten companies registered their PVPs (individually). The crops are rice, tetraploid cotton, pearl millet, maize, tomato, and sorghum. A maximum number of companies (34) were associated with rice crop, followed by tetraploid cotton (32) and pearl millet (24). However, as already observed, the top three crops in terms of the number of PVPs registered by private industry were tetraploid cotton, rice, and maize.

TABLE 5. DETAILS REGARDING PRIVATE SECTORS PVP CERTIFICATES IN DIFFERENT CROPS

Crop (1)	Number of companies(2)	Number of PVP certificates		New EDV certificates		Extant		New Hybrid		New Typica		EDV Hybrid		EDV Typical		Total		
		Total	Extant	New	EDV	Hybrid	Typical	Hybrid	Typical	Hybrid	Typical	Hybrid	Typical	Hybrid	Typical	Hybrid	Typical	Total
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Barley	2	2	1	1	0	0	1	0	1	0	0	0	0	0	0	0	2	
Bitter gourd	1	8	8	0	0	0	8	0	0	0	0	0	0	0	0	8	8	
Blackgram	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	
Bottle gourd	1	6	6	0	0	1	5	0	0	0	0	1	0	0	1	5	5	
Bread wheat	6	10	3	7	0	1	2	0	7	0	0	1	9	0	1	9	9	
Bryonia	9	112	80	32	0	20	60	2	30	0	0	22	90	0	22	90	90	
Cabbage	1	4	0	4	0	0	0	0	4	0	0	0	4	0	0	4	4	
Castor	4	6	4	2	0	2	2	2	0	0	0	4	2	0	4	2	2	
Cauliflower	3	24	7	17	0	0	7	2	15	0	0	2	22	0	2	22	22	
Cotton	1	3	3	0	0	3	0	0	0	0	0	3	0	0	3	0	0	
Cucumber	1	2	2	0	0	0	2	0	0	0	0	0	2	0	0	2	2	
Diploid cotton	4	19	9	10	0	7	2	1	9	0	0	8	11	0	8	11	11	
Durum wheat	1	1	0	1	0	0	0	0	1	0	0	0	1	0	0	1	1	
Greengram	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0	1	1	
Groundnut	1	1	0	1	0	0	0	0	1	0	0	0	1	0	0	1	1	
Guava	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0	1	1	
Indian Mustard	6	18	15	3	0	3	12	2	1	0	0	5	13	0	5	13	13	
Jute	1	3	0	3	0	0	0	0	3	0	0	0	3	0	0	3	3	
Kidney bean	1	2	2	0	0	0	2	0	0	0	0	0	2	0	0	2	2	
Maize	23	239	86	153	0	43	43	55	98	0	0	98	141	0	98	141	141	
Okra	8	39	22	17	0	4	18	4	13	0	0	8	31	0	8	31	31	
Papayalilet	24	152	77	75	0	37	40	27	48	0	0	64	88	0	64	88	88	
Pigeon pea	3	16	2	14	0	0	2	1	13	0	0	1	15	0	1	15	15	
Potato	5	24	7	17	0	2	5	0	17	0	0	2	22	0	2	22	22	
Rapeseed	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0	1	1	
Rice	34	283	103	180	0	41	62	34	146	0	0	75	208	0	75	208	208	
Rose	2	2	2	0	0	0	2	0	0	0	0	0	2	0	0	2	2	
Sorghum	11	56	14	42	0	9	5	8	34	0	0	17	39	0	17	39	39	
Soyabean	2	6	1	5	0	0	1	0	5	0	0	0	6	0	0	6	6	
Sugarcane	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0	1	1	
Sunflower	9	59	20	39	0	16	4	2	37	0	0	18	41	0	18	41	41	
Tetraploid cotton	32	405	242	149	14	83	159	49	100	8	6	140	265	0	140	265	265	
Tomato	11	82	42	40	0	12	30	12	28	0	0	24	58	0	24	58	58	
Watermelon	1	4	4	0	0	0	4	0	0	0	0	0	4	0	0	4	4	
Wheat	7	13	6	7	0	0	6	0	7	0	0	0	13	0	0	13	13	
All crops	82	1606	773	819	14	284	489	201	618	8	6	493	1113	0	493	1113	1113	

Details of the C4 ratio of 13 crops (in which the number of companies was more than four) are presented in Table 6. In the case of rice, tetraploid cotton, pearl millet, and maize, the C4 ratio of PVP certificates was below 60 per cent (Table 6). PVP concentration in terms of c4 ratio was higher in vegetable crops, ranging between 83 to 96 per cent, indicating high concentration. Further, the results align with the report by OECD (2018), which states that concentration varies with crop. Further, in most cases, the concentration in hybrids was less than in typical varieties, indicating more competition in hybrid development.

TABLE.6. CROP WISE C4 RATIO IN DIFFERENT TYPE PVP CERTIFICATES

Crop (1)	Total (2)	Extant (3)	New (4)	Extant Hybrid (5)	Extant Typical (6)	New Hybrid (7)	New Typical (8)	Private Hybrid (9)	Private Typical (10)
Crops in which private industry sector PVP certificates number is < than that of public sector and farmers									
Bread									
Wheat	80	100	86	100	100	0	71	100	78
Indian Mustard	83	87	100	100	100	100	100	100	100
Rice	54	55	62	51	66	44	70	41	61
Sorghum	70	79	79	78	100	75	85	71	77
Wheat	77	100	71	0	100	0	86	0	77
Crops in which private industry sector PVP certificates number is > that of public sector and farmers									
Maize	58	48	65	60	60	58	74	54	65
Brinjal	90	96	81	85	100	100	80	86	93
Okra	90	91	100	100	94	100	100	100	94
Pearlmillet	55	60	65	62	78	70	73	55	65
Potato	96	100	100	100	100	0	100	100	100
Sunflower	80	75	95	75	100	100	97	78	98
Tetraploid									
cotton	56	67	50	55	75	41	60	49	63
Tomato	83	95	75	83	100	83	93	75	97

Implications on Pricing

On 23 January 2019, a PPVFRA notice stated that henceforth, for plant varieties protected under the PPVFR act, the price of all categories of seeds shall be fixed under section 28 of the Act, only with the authorization of the registered breeder or their assignee as per the terms and conditions agreed upon for the purpose between the right holder and others concerned. This mechanism will be applicable during the protection period. This will lead to a dual pricing regime for protected and unprotected varieties or varieties for which the protection period has expired. PPVFR Act also has a compulsory licensing provision. According to this, in the case of protected varieties, compulsory licensing will be permitted after three years of registration, where a registered breeder charges an unreasonably high sale price or the seed is not available in adequate quantity. These provisions focus on seed pricing, where a farmer is a seed purchaser (oligopoly). However, changing competition will also affect prices received by seed producers (oligopsony). These aspects of rice crop are examined in the next section.

Changing Competition in Rice Varieties Development.

Paddy/rice was the first crop notified for registration under the PPVFR Act, as shown in its notification dated first November 2006. Hence, it is worth studying the changing competition scenario in this crop in terms of varietal registration for protection and effect on price. Till the year 2014, 715 rice varieties were registered for protection. Of this, 71 per cent were farmers' varieties, 19 per cent were public varieties, and 10 per cent were private industry varieties. By the end of the year 2023, 3018 rice varieties were registered. Of this, 81 per cent were farmers' varieties, 10 per cent were public varieties, and 9 per cent were private industry varieties. Details of the change in the C4 ratio in rice crops are given in Table 7. The number of companies registering their varieties increased from 18 to 34 between 2014 and 2023. During the same period, the total number of private rice varieties registered for PVP protection increased four times. Accordingly, the C4 ratio declined from 56 per cent to 54 per cent. The C4 ratio decreased in the case of new varieties and hybrids.

TABLE.7 TREND IN PVP CERTIFICATE CONCENTRATION IN RICE CROP

(1)	Total all		New		Extant	
	2014	2023	2014	2023	2014	2023
	(2)	(3)	(4)	(5)	(6)	(7)
Number of companies	18	34	13	25	14	25
Number of varieties	70	283	41	180	29	103
C4 ratio	56	54	68	62	59	55
	All hybrids		New hybrids		Extant hybrids	
	2014	2023	2014	2023	2014	2023
Number of companies	14	24	11	17	8	17
Number of varieties	30	75	18	34	12	41
C4 ratio	50	41	61	44	67	51

Venkatesh and Pal (2013) reported a price premium of 11 per cent in the case of protected rice variety seed compared to unprotected rice variety seed. Further, they noted that the private sector seed price was higher by 10 per cent compared to the seed price of the public sector. Prasanna et al. (2018) observed a wide variation in the price of hybrid rice seed from different companies in 2017. The variation was to the extent of 20 per cent more from the lowest price.

On the seed production front, Kumari and Reddy (2005) reported realizing a benefit-cost ratio ranging between 0.42 to 2.18 by hybrid rice seed-producing farmers spread across eight companies during 2003-04 in Karimnagar district. They reported the highest benefit-cost ratio realized by farmers producing hybrid rice seeds from Pioneer Seed Company due to the highest price paid by the seed company. Jayaprada (2024) reported a benefit-cost ratio of 0.71 to 0.79 across farmers producing hybrid rice seeds of 5 companies in the Karimnagar district. Due to the highest seed yield, farmers producing hybrid seeds of pioneer companies realized the highest benefit-cost ratio despite the lowest price paid by the company, (Jayaprada,2024). The company

happens to be the topmost company in PVP certificates for rice hybrids as of 31-12-2023. However, more in-depth studies are needed to establish market power.

PVP Interplay/Interface with GI Protection

A geographical Indication (GI) is a sign of a good originating from a specific geographical area and possessing a given quality, reputation, or other characteristics essentially attributable to that geographic origin. By signaling a product's distinctness and intrinsic quality, GI helps mitigate the problem of "asymmetry of information" between producers and consumers and builds the product's reputation. In India till March 2024, 643 GIs were registered, of which 200 were agricultural GIs spread across 67 crops and 11 crop groups (Table 8). Interplay occurs between GI protection and PVP because, within an agricultural GI, several varieties can be developed to improve characteristics like yield, disease, and pest resistance. For instance, in the case of basmati rice, a rice with a GI tag, till 2022, 43 varieties were notified under the Seeds Act of 1966, and some of these basmati rice varieties were protected under the PPVFR Act. Likewise, varieties of other agricultural GIs may be protected under the PPVFR act. The noteworthy points here are (i) GI protection is for ten years and can be renewed for perpetual protection every ten years. On the other hand, PVP protection is non-renewable for a limited period; (ii) While GI protection is for the crop output, PVP protection is for a variety and its propagule. In the case of typical varieties, output (like husked grain) can be used as propagule (seed); (iii) While GI is a collective IPR, PVP protection is not necessarily collective. Hence, a conflict may arise between GI and PVP protection, affecting the seed industry. Thus, there is a need to monitor this interface and interplay.

TABLE.8 AGRICULTURAL GIS REGISTERED IN INDIA TILL MARCH 2024

Crop groups (1)	Number of GIs (2)
Cereals	37
Cash crops	10
Flower	4
Fruits	60
Legumes	10
Oilseeds	2
Spice crop	17
Sugar crops	3
Tree, forest and plantation crop	18
Vegetables	32
Other	7
Total	200

PVP Protection and Trademark Protection Interface/Interplay

Trade mark means a mark capable of being represented graphically and distinguishing the goods or services of one person/company/organization from those

of others. It may include the shape of goods, their packaging, and a combination of colors (Trademark Act,1999). Trademarks also attempt to address information asymmetry by signaling the quality of a good from a given organization, reducing search costs in repeat purchases. In the seed industry, trademarks are also widely used. However, a denomination assigned to a variety shall not be registered as a trademark under that Act (PPVFR Act section 17). Thus, Trademarks and PVP protections can be cumulatively used by seed companies. Trademark protection is valid for ten years and can be renewed perpetually. This is evident from the results presented in Table 9. Fifty-two private companies that registered their plant varieties under the PPVFR Act, also registered their 605 trademarks. Unlike PVP protection, available only for research seed companies, trademark protection can be availed by seed traders and seed companies selling seeds (not doing research). Table 9 shows that the public sector still lags in availing trademark protection. Trademarks, if they go beyond their function of distinguishing seeds of one company from another, and serve for advertising/persuading/building brand loyalty, then Trademark use becomes a hindrance to competition.

TABLE.9 NUMBER OF TRADEMARKS IN SEED INDUSTRY AS AT 27-02-2024

Category (1)	Number of Trade Marks (2)
Private Companies registered with PPVFR Authority	605
Other Companies and traders	1027
Government Companies	12
Total	1644

IV

CONCLUSIONS

This study concludes that IPR and competition in India's seed sector are intricately linked, with notable crop variations. Farmers held 49 per cent of total PVP certificates as of December 2023, highlighting their participation in the IPR system. However, the private sector dominated the registration of new varieties (82 per cent) and hybrids (69 per cent), focusing on a limited number of crops, including rice, tetraploid cotton, and maize. The study observed a declining C4 ratio (market concentration) in rice over time, reflecting increased competition in varietal registration. It was also noted that the private sector is actively using both PVP and trademark protections to gain a competitive edge, though they lag in some aspects. There is a need for continuous monitoring of the seed market, particularly in hybrid crops, where private sector dominance is significant. The overlap between GI and PVP systems presents potential conflicts in ownership, particularly in crops like basmati rice, which are protected under both systems. The study emphasizes the need for closer examination and regulation of the interplay between GI and PVP protections to prevent conflicts. As the dynamics of IPR and competition evolve, the study calls for periodic, in-depth analyses to better understand their impacts on different crops, ensuring that the seed sector remains competitive and inclusive.

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