

Review Article

<https://doi.org/10.20546/ijcmas.2021.1008.018>

## Protection of Maize Varieties under PPV & FR Act, 2001

Dhirendra Singh<sup>1</sup>, Usha Nara<sup>3</sup>, G. K. Chikkappa<sup>2</sup> and Ramesh Kumar<sup>1\*</sup>

<sup>1</sup>ICAR-Indian Institute of Maize Research, Ludhiana, India

<sup>2</sup> ICAR-Indian Institute of Maize Research, Unit office, New Delhi, India

<sup>3</sup>Department of Plant Breeding, PAU, Ludhiana, India

\*Corresponding author

### ABSTRACT

ICAR-Indian Institute of Maize Research (ICAR-IIMR), Ludhiana has been identified as a nodal agency for filing the applications of the public-bred maize varieties for registration under the Protection of Plant Varieties & Farmers' Rights, Act 2001 (PPV&FRA, 2001). ICAR-IIMR is selected as a DUS centre for testing of maize varieties with sub-centers at Seed Research and Technology Centre (PJTSAU), Hyderabad; ICAR- Vivekananda Parvatiya Krishi Anusandhan Sansthan, Almora; Punjab Agricultural University, Ludhiana and ICAR Research Complex for NEH Region, Umiam. Till date, 146 applications comprising of 95 hybrids and 51 open pollinated varieties have been filed for protection under this PPV&FR Act. Out of these, 52 varieties (40 hybrids and 12 open pollinated varieties) fall under new category and 95 varieties (55 hybrids and 39 open pollinated varieties) fall under extant category. The varieties have been registered under new category after completion of two years of DUS testing whereas Variety of Common Knowledge (VCK) category after completion of one year of DUS testing at two locations i.e. Delhi and Hyderabad, respectively. The period of protection is 15 years which starts from dates of registration after completion of DUS testing in case of variety filed under new category. Under extant notified category the duration of protection is counted from date of Gazette notification of the variety.

#### Keywords

Maize, Registration, Variety, PPV&FRA, Protection

#### Article Info

##### Accepted:

12 July 2021

##### Available Online:

10 August 2021

## Introduction

The agreement on Trade Related aspects of Intellectual Property Rights (TRIPS) especially requires member countries to protect plant varieties. TRIPS provide a choice to the member countries for protecting plant varieties under Patent Act or they can develop a *sui generis* system or a combination of both.

According to the Sec. 3 (h) of the Patent Act, 1970, methods of agriculture or horticulture are excluded from patentability. Therefore, in order to protect plant variety in India, the Government of India has established a *sui generis* system for protection of plant varieties such as ‘Protection of Plant Varieties and Farmers’ Rights Act, 2001’. For the enactment of the Act, the Central Government through its

notification vide S.O.1589 (E) dated 11<sup>th</sup> November, 2005 established the “Protection of Plant Varieties and Farmers Rights Authority (PPV&FRA)” at New Delhi. The PPV & FR Act has established a legal system for plant varieties protection along with farmers and plant breeder’s rights. The plant variety protection has importance in both directions i.e. narrow as well as broad. In narrow direction, plant variety protection increase benefits as incentive to breeders for developing plant varieties. In broad direction plant variety protection has protect farmer’s rights, in which farmers can protect their local varieties and wild relatives. Under Section 28 (4) of PPV&FR Act, 2001, breeder’s or licensee or an agent or his successor are become/entitled to produce, sell, market, distribute, import or export of variety registered under the Act. Under this Act, farmer’s rights means a group of farmers or the organizations of the farmers are entitled for the registration of the varieties. The section has provided a security for investment in research for developing new varieties. The registration of varieties was initiated on 21<sup>st</sup> May, 2007 based on the Gazette Notification No. S.O.1884 (E) dated 1<sup>st</sup> November, 2006. For filing the applications of public- bred maize varieties under new and extant category for registration under PPV& FR, Act 2001, ICAR-Indian Institute of Maize Research (ICAR-IIMR), New Delhi has been identified as a nodal agency (Jyoti Kaul *et al.*, 2012).

A variety can be filed for protection under new category within one year of seed sale by memorandum of agreement (MoU) to any company/firm as well as within in one year of its gazette notification under Sec 5 of Seed Act, 1966. In another way, a variety can be protected under extant category if it has already completed one year of seed sale or notification. The varieties can also be protected under other categories such as farmer’s variety and variety of common

knowledge as per their availability. A new and extant hybrid/variety shall be registered under this Act if it confirms the criteria of novelty, distinctiveness, uniformity and stability. Novelty means that such variety has not been sold or disposed of by or with the concerned breeder or his successor. Distinctiveness indicates that it is clearly distinguishable by at least one essential characteristic from any other variety whose existence is a matter of common knowledge. Uniform, if subject to the variation that may be expected from the particular features in its essential characteristics. Stable, if it’s essential characteristics remains unchanged after its repeated cycles of cropping. A variety can be registered after successful completion of two years of DUS testing at two locations i.e. Delhi and Hyderabad, respectively. The period of protection is 15 years starts from dates of registration after completion of DUS testing in case of variety filed under new category. Under extant notified category the duration of protection has been counted from date of Gazette notification of the variety.

### **Application filing procedure**

The documents required for filing the application are given in table 1. Complete application includes the documents such as PV-I, PV-2, Form-I, Technical questionnaire, Dead assignment, GURT affidavit, application fee and registration fee (Table 2). These application forms are also available at PPV&FR Authority official website (<http://www.plantauthority.gov.in>).

These forms are required to fill the information for preparation of application for registration. The application form for registration is accepted with specific quantity of seed along with seed quality report as well as registration fee and DUS testing fee (table 2). The seed quality report must be issued by a certified laboratory having parameters

germination (%), physical purity (%) and moisture (%). The specific quantity of seed of the parental lines involved in the development of the hybrid is also required along with the application proforma. The seed quality report enclosed with application form must not be more than one month old. The specific quantity of seed (Jyoti Kaul *et al.*, 2015) and standards (Dass S *et al.*, 2011) are given in table 3.

Complete application form with all documents signed by the applicant on the bottom of every page, seed, seed quality report and applicable fees as applicable can be submitted at PPV&FR Authority, New Delhi from Monday to Friday from 10:00 AM to 5:30PM.

### **Registration Procedure for Protection of Maize variety**

Complete application is received by the PPV & FR Authority officials, after that officials will issue a PVP number to the applicant.

After issuing PVP number the application is examined by the concern Registrar or Authority officials, if any clarifications are required, queries raised by the Registrar within stipulated time limit (seven days) and to be issued to the applicant for clarifications within stipulated time limit (fifteen days).

After clarifications submission by the applicant on raised queries, if application is accepted, the authority is issue REG number and it is communicate to applicant. After the satisfaction of concern Registrar to dispatch the seed of the variety to concerned DUS centre for two years of DUS testing at two locations in case new category or one year of DUS testing at two locations in case variety of common knowledge (VCK). The registration of extant notified variety is subjected or based on recommendation of Extant Variety Recommendation Committee (EVRC).

The concerned DUS centre conduct DUS testing for new category and variety of common knowledge as per crop specific DUS guideline. During DUS testing of the variety, Chairperson /Registrar/nominee/representative of PPVFR Authority along with a representative/applicant of the variety has to visit the DUS testing sites.

After DUS testing, DUS centre generate and compiled/pooled the data for two years/seasons of two locations with reference varieties and submit the data to PPV&FR Authority with certification.

Authority will analyze the received data for novelty, distinctiveness, uniformity and stability.

Based on analyzed data report, Registrar to take final decision within stipulated time (fifteen days), the variety may be registered or not.

For pre-grant opposition authority has to publish the case in Plant Variety Journal (PVJ) for invitation of pre-grant opposition. If authority has not received any opposition within stipulated time as per Section 21 (2), then Registry office will be issued registration certificate to the applicant.

### **DUS testing in maize**

Since 2008, DUS testing has been carried out in maize at two locations i.e ICAR-IIMR, Delhi and SRTC, Hyderabad. DUS testing in maize under new category involves two years of testing at two locations. The category of variety of Common Knowledge (VCK) involves one year of DUS testing whereas farmer's varieties involves grow out test at two locations. The nodal institute and co-nodal institute has tested large number of varieties from the decade.

**Table.1** Documents required for application filing

<b>Format</b>	<b>Description</b>
<b>PV I</b>	The form to provide authorization to applicant for filling the application.
<b>PV II</b>	The form to provide the information of the variety holders/ developers.
<b>Form I</b>	The form to provide registration under new and extant category.
<b>Form II</b>	The form to provide registration under essentially derived variety category.
<b>Technical questionnaire</b>	The form to provide the scheme and technical information used in the development of the variety.
<b>Declaration</b>	The declaration to be signed by the applicant.
<b>Deed Assignment</b>	The assignment is signed between Assignee and Assignor
<b>GURT Affidavit</b>	The affidavit to be signed by the applicant on Rs 100/- stamp paper for indicating that the variety does not involve Terminator Technology or the Genetic Use Restriction Technology or any other restriction technology.
<b>Commercial and Agronomic Attribute</b>	The format to provide the information on commercial and agronomic attribute of the variety.
<b>Photo library</b>	The photo library is required to show the distinct trait/characters of the variety.

Source- <http://www.plantauthority.gov.in/>

**Table.2** Detail of fee for registration of maize variety under different category.

<b>S.No.</b>	<b>Description</b>	<b>Category</b>			
		<b>New</b>	<b>Extant</b>	<b>VCK</b>	<b>Farmers</b>
1.	Registration fee (Rs.)	10,000/-	2,000/-	10,000/-	Nil
2.	DUS testing fee (Rs.)	30,000/-	-	15,000/-	Nil

Source- <http://www.plantauthority.gov.in/>

**Table.3** Detail of required seed quantity and standards.

<b>S. No.</b>	<b>Registration category</b>	<b>Seed quantity (gm)</b>	<b>Germination capacity (SCH) (%)</b>	<b>Germination capacity (DCH) (%)</b>	<b>Moisture content (%)</b>	<b>Physical purity (%)</b>
<b>1</b>	New Hybrids	3000	80	90	8-10	98
<b>2</b>	Parental lines of New Hybrids	1500	80	80	8-10	98
<b>3</b>	Extant hybrids	600	80	90	8-10	98
<b>4</b>	Parental lines of Extant Hybrids	300	80	80	8-10	98

Source-<http://www.plantauthority.gov.in/> and <https://iimr.icar.gov.in/>

**Table.4** Details of the varieties filed for registration since 2007.

Year	Hybrid			Composite			Total
	New	Extant	Total Hybrid	New	Extant	Total Composite	
2021	-	2	2	-	-	-	2
2020	-	3	3	-	-	-	3
2019	-	7	7	-	-	-	7
2018	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-
2016	-	3	3	-	3	3	6
2015	7	2	9	-	-	-	9
2014	6	-	6	2	-	2	8
2013	3	2	5	-	1	1	6
2012	2	-	2	-	-	-	2
2010	11	-	11	-	-	-	11
2009	2	1	3	5	-	5	8
2008	5	6	11	5	5	10	21
2007	4	29	33	-	30	30	63
<b>Total</b>	<b>40</b>	<b>55</b>	<b>95</b>	<b>12</b>	<b>39</b>	<b>51</b>	<b>146</b>

Source- Anonymous, Annual Reports (2011-2020)

**Table.5** Details of protected public maize varieties under PPV & FR, Act 2001.

S. No.	Denomination Registered	Acknowledgement Number	Type of variety	Certificate Issue Date	Period of Protection
1	Amar (D-941)	REG/2007/347	Extant	20-Oct-10	01-Feb-16
2	Aravali Makka-1 (EV-90)	REG/2007/346	Extant	02-Jan-12	01-Feb-16
3	Azad Kamal (R 9803)	REG/2007/415	Extant	30-Sep-11	01-Feb-20
4	BajauraMakka (L 201 Composite)	REG/2008/436	New	26-Aug-16	25-Aug-31
5	BajauraMakka 1	REG/2009/341	New	22-Jan-15	21-Jan-30
6	Buland (JH-6805)	REG/2007/432	Extant	21-Oct-11	24-Aug-20
7	COBC 1	REG/2007/418	Extant	20-Oct-10	07-Jun-14
8	COH-3	REG/2007/400	Extant	12-Feb-09	16-Sep-12
9	COH(M)-4	REG/2007/405	Extant	20-Oct-10	24-Aug-20
10	COH (M) 5	REG/2007/411	Extant	20-Oct-10	19-Jul-22
11	CoH (M)7 (CMH 08-287)	REG/2015/2090	New	22-Oct-16	21-Oct-31
12	CoH (M)8 (CMH 08-292)	REG/2015/2091	New	22-Oct-16	21-Oct-31
13	CoH (M) 9 (CMH 08-350)	REG/2015/2089	New	22-Oct-16	21-Oct-31
14	CoH (M) 10 (CMH 08-433)	REG/2015/2088	New	22-Oct-16	21-Oct-31
15	Composite C-14	REG/2007/401	Extant	21-Dec-09	31-Dec-10
16	D-994	REG/2007/343	Extant	21-Dec-09	30-May-19
17	BH-1576(DHM-111)	REG/2010/76	New	19-Aug-16	18-Aug-31
18	BH-1620 (DHM-113)	REG/2010/77	New	26-Aug-16	25-Aug-31
19	DHM 117	REG/2010/75	New	08-Apr-15	07-Apr-30
20	DHM 119 (BH4062)	REG/2010/327	New	19-Aug-16	18-Aug-31
21	DHM 121 (BH 41009)	REG/2015/1445	New	25-Dec-17	24-Dec-32



22	DMH-2	REG/2007/416	Extant	20-Oct-10	03-Sep-17
23	Gaurav (D-931)	REG/2007/341	Extant	21-Dec-09	07-Jun-14
24	Gujarat Makai-2	REG/2007/336	Extant	12-Feb-09	03-Feb-10
25	Gujarat Makai-3	REG/2007/337	Extant	21-Dec-09	03-Sep-17
26	Gujarat Makai-4	REG/2007/339	Extant	21-Dec-09	01-Feb-16
27	Gujarat Makai-6	REG/2007/338	Extant	21-Dec-09	11-Mar-18
28	HHM-1 (HKH-1082)	REG/2007/399	Extant	31-Jan-13	02-Apr-15
29	HHM-2 (HKH-1071)	REG/2007/402	Extant	20-Oct-10	02-Apr-15
30	Him 129 (EHF 1121)	REG/2007/408	Extant	20-Oct-10	08-Sep-12
31	HM-10 (HKH-1200)	REG/2008/438	New	30-Apr-13	29-Apr-28
32	HM-11 (HKH-1237)	REG/2009/364	New	04-Dec-14	03-Dec-29
33	HM-12 (HKH 313)	REG/2012/379	New	19-Aug-16	18-Aug-31
34	HM-13 (HKH-317)	REG/2016/1341	Extant	07-Sep-18	27-Jan-30
35	HM-4	REG/2007/316	Extant	20-Oct-10	24-Aug-20
36	HM-5	REG/2007/311	Extant	12-Feb-09	24-Aug-20
37	HM-8 (HKH-1188)	REG/2007/317	New	16-May-13	15-May-28
38	HM-9	REG/2007/312	New	07-Dec-11	06-Dec-26
39	HQPM-1	REG/2007/319	Extant	20-Oct-10	24-Aug-20
40	HQPM-4	REG/2010/263	New	26-Aug-16	25-Aug-31
41	HQPM-5	REG/2007/310	New	07-Dec-11	06-Dec-26
42	HQPM-7	REG/2008/437	New	05-Feb-13	04-Feb-28
43	Jawahar Composite Makka-12 (JM-12)	REG/2007/427	Extant	02-Jan-12	07-Jun-12
44	Jawahar Composite Makka-8 (JM-8)	REG/2007/404	Extant	02-Jan-12	30-Apr-12
45	Jawahar Makka-216	REG/2007/423	Extant	02-Jan-12	03-Feb-19
46	JAWAHAR POP CORN-11	REG/2008/202	New	26-Oct-15	25-Oct-30
47	KMH-22168	REG/2013/310	Extant	31-Dec-13	30-Aug-25
48	MALVIYA HYBRID MAKKA-2	REG/2007/398	New	27-Dec-11	26-Dec-26
49	Matunga (DMH-1)	REG/2007/417	Extant	02-Jan-12	08-Sep-12
50	NAC-6002	REG/2008/41	Extant	07-Mar-11	03-Sep-17
51	NAC 6004	REG/2008/40	Extant	07-Mar-11	01-Feb-16
52	NAH-2049	REG/2009/370	Extant	02-Aug-12	10-Feb-24
53	Narmada Moti (IC- 9001)	REG/2007/340	Extant	20-Oct-10	03-Sep-17
54	Pant Shankar Makka-1	REG/2014/1309	New	19-Aug-16	18-Aug-31
55	Pant Sankul Makka-3 (D 131)	REG/2009/10	New	19-Aug-16	18-Aug-31
56	PAU 352 (JH 3982)	REG/2008/44	New	12-Feb-13	11-Feb-28
57	PMH 1 (JH-10655)	REG/2008/43	Extant	21-Dec-09	05-Feb-22
58	PMH 2 (JH-3851)	REG/2008/42	Extant	30-Sep-11	24-Apr-21
59	PMH 4	REG/2010/340	New	27-Apr-15	26-Apr-30
60	PMH 5(JH 3110)	REG/2010/341	New	19-Aug-16	18-Aug-31
61	PMH 6 (JH 31292)	REG/2014/1310	New	26-Aug-16	25-Aug-31
62	Parkash(JH-3189)	REG/2008/50	Extant	30-Sep-11	08-Sep-12
63	Pratap Hybrid Maize-1 (EH -50802)	REG/2007/315	Extant	12-Feb-09	03-Feb-19
64	Pratap Kanchan-2 (WC-236(Y)	REG/2009/9	New	09-Nov-16	08-Nov-31
65	PratapMakka Chari-6 (EC-3135)	REG/2013/309	Extant	31-Dec-13	10-Feb-24
66	Pratap Makka-3 (EC-3108)	REG/2007/318	Extant	07-Mar-11	01-Feb-20
67	Pratap Makka-4 (EC-1108)	REG/2007/314	Extant	07-Mar-11	24-Apr-21
68	Pratap Makka-5 (EC-3116)	REG/2007/313	Extant	02-Aug-12	24-Apr-21

69	PRATAP QPM HYBRID-1(EHQ-16)	REG/2013/774	New	19-Aug-16	18-Aug-31
70	Priya Sweetcorn	REG/2007/422	Extant	20-Oct-10	03-Sep-17
71	Pusa Composite-3 (Composite-85134)	REG/2007/384	Extant	21-Dec-09	04-Nov-20
72	Pusa Composite-4 (Composite 8551)	REG/2007/387	Extant	21-Dec-09	04-Nov-20
73	Pusa Early Hybrid Makka-1 (EH-202892)	REG/2007/388	Extant	12-Feb-09	16-Sep-12
74	Pusa Early Hybrid Makka-2 (EH 203492)	REG/2007/409	Extant	20-Oct-10	16-Sep-12
75	Pusa Early Hybrid Makka-3 (AH-58)	REG/2007/385	Extant	21-Dec-09	01-Feb-16
76	Pusa Extra Early Hybrid Makka-5 (AH-421)	REG/2007/386	Extant	21-Dec-09	03-Feb-19
77	Rajendra Hybrid Makka-3	REG/2010/304	New	23 April 19	22-Apr-34
78	Shaktiman-1	REG/2007/428	Extant	20-Oct-10	14-Nov-16
79	Sakthiman-2	REG/2007/420	Extant	20-Oct-10	03-Feb-19
80	Shaktiman-3	REG/2008/47	Extant	20-Oct-10	19-Sep-21
81	Shaktiman-4	REG/2008/48	Extant	20-Oct-10	19-Sep-21
82	Shalimar KG Maize-1	REG/2007/424	Extant	20-Oct-10	24-Aug-20
83	Shalimar KG Maize-2	REG/2008/49	Extant	21-Dec-09	24-Aug-20
84	Co 6	REG/2013/302	New	26-Aug-16	25-Aug-31
85	Vivek Hybrid-4 (FH-3049)	REG/2007/406	Extant	20-Oct-10	07-Jun-14
86	Vivek Hybrid-5	REG/2007/412	Extant	20-Oct-10	01-Feb-16
87	VIVEK MAIZE HYBRID 39	REG/2010/217	New	01-Feb-16	31-Jan-31
88	VIVEK MAIZE HYBRID 43	REG/2010/216	New	01-Feb-16	31-Jan-31
89	Vivek Maize Hybrid 45 (FH 3483)	REG/2013/1286	New	19-Aug-16	18-Aug-31
90	Vivek Maize Hybrid 47 (FH 3513)	REG/2015/1444	New	25-Dec-17	24-Dec-32
91	Vivek Maize Hybrid-15 (FH-3176)	REG/2007/407	Extant	12-Feb-09	01-Feb-20
92	Vivek Maize Hybrid -17 (FH-3186)	REG/2007/413	Extant	20-Oct-10	01-Feb-20
93	Vivek Maize Hybrid-21 (FH-3211)	REG/2007/309	Extant	07-Mar-11	05-Feb-22
94	Vivek Maize Hybrid-23 (FH-3529)	REG/2007/410	Extant	30-Sep-11	05-Feb-22
95	Vivek Maize Hybrid-25 (FH 3248)	REG/2007/345	Extant	20-Oct-10	04-Oct-22
96	Vivek Maize Hybrid-27 (FH 3288)	REG/2007/344	Extant	20-Oct-10	04-Oct-22
97	Vivek Maize Hybrid 33	REG/2007/439	New	06-Feb-13	05-Feb-28
98	Vivek Maize Hybrid-9 (FH-3077)	REG/2007/403	Extant	20-Oct-10	01-Feb-16
99	VIVEK QPM 9	REG/2008/198	New	17-Jan-13	16-Jan-28
100	VivekSankulMakka 31	REG/2008/199	New	30-Mar-15	29-Mar-30
101	VivekSankulMakka 35 (VL 113)	REG/2009/342	New	04-Dec-14	03-Dec-29
102	VIVEK SANKUL MAKKA 37	REG/2009/343	New	07-Apr-15	06-Apr-30
103	VivekSankul Makka-11	REG/2007/414	Extant (VCK)	31-Jan-13	30-Jan-28
104	VLBaby Corn-1 (VL-78)	REG/2007/419	Extant	20-Oct-10	01-Feb-20
105	Win Orange Sweet Corn	REG/2007/421	Extant	20-Oct-10	01-Feb-20
106	Birsa Makai-1	REG/2007/332	Extant	20-Jul-09	31-Dec-10
107	BirsaVikas Makka-2	REG/2007/333	Extant	20-Jul-09	24-Aug-20
108	DMRH 1301	REG/2019/185	Extant	12-Mar-21	25-Dec-33
109	DMRH 1305	REG/2019/183	Extant	16-Mar-21	25-Dec-33
110	DMRH 1308	REG/2019/184	Extant	02-Mar-21	23-Jan-33
111	DMRHP 1402	REG/2019/186	Extant	16-Mar-21	23-Jan-33
112	IMHB 1532	REG/2019/187	Extant	12-Mar-21	23-Jan-33
113	IMHB 1539	REG/2019/188	Extant	12-Mar-21	25-Dec-33

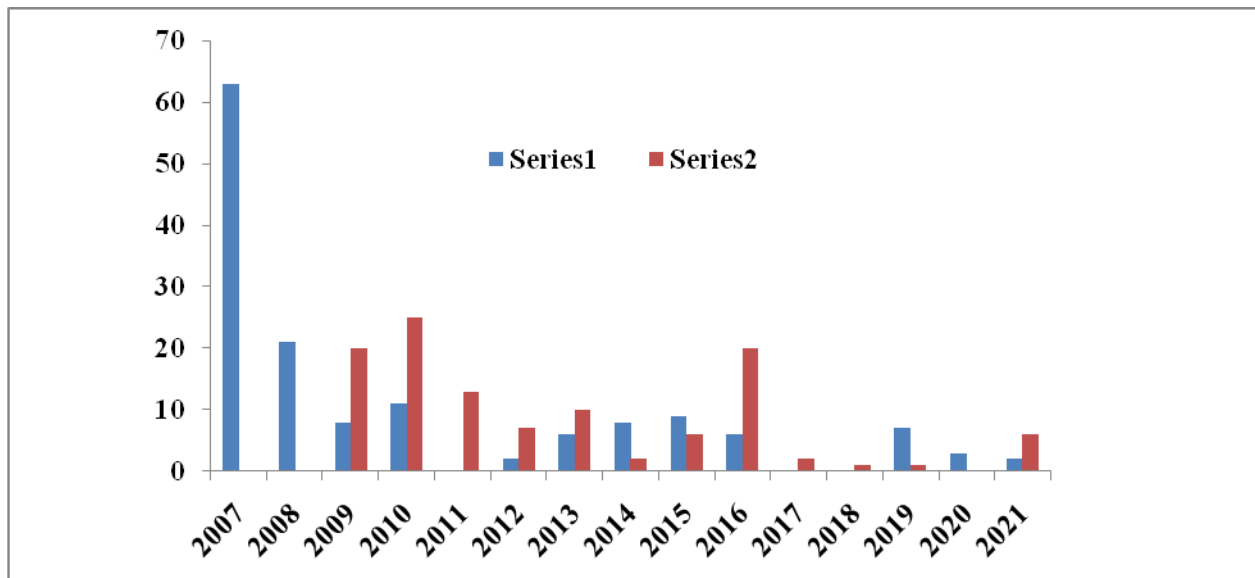
Source: [www.plantauthority.gov.in](http://www.plantauthority.gov.in)

**Table.6** Detail of fee for maintenance of maize varieties during protection period.

S.No.	Description	Category			
		New	Extant	VCK	Farmers
1.	Annual fee	Rs. 2000/- plus 0.2 per cent of the sales value of the seeds of the registered variety during the previous year plus 1 percent of royalty, if any, received during the previous year from the sale proceed of seeds of a registered variety	2,000/-	Rs. 2000/- plus 0.1 per cent of the sales value of the seeds of the registered variety during the previous year plus 0.5 percent of royalty, if any, received during the previous year from the sale proceed of seeds of a registered variety.	10/-
2.	Renewal fee	Rs 20000/- (one lump sum)	Rs 20000/- (one lump sum)	Rs 20000/- (one lump sum)	

Source: www.plantauthority.gov.in

**Fig.1** A comparative highlights of filing *versus* protected/registered/certificate issued maize variety.



**Registration filing details**

In maize, since 2007 registration filing has been carried out at ICAR-IIMR, Ludhiana (formerly known as Directorate of Maize Research, New Delhi).Registration filing in maize involves new and extant category for

Single Cross Hybrid, Multi-parent Hybrid and Composite/Open Pollinated Varieties. The new category is subjected to testing for two years at two locations and Variety of Common Knowledge (VCK) involves one year testing at two locations of whereas, in farmer’s varieties one year of grow out test has been



conducted at two locations. Till date, 146 applications of public maize hybrids and Open Pollinated Varieties has been filed for protection under PPV& FR, Act 2001. It includes 95 hybrids; 40 under new category and 55 under extent category, 51 composite; 12 under new category and 39 under extent category. The details of yearly filing of applications for registration under various categories are compiled in Table 4.

### **Registration status of public-bred varieties**

Till date, 146 applications of public maize variety has been filed for protection under PPV& FR, Act 2001. It involves new, VCK and extant category for Single Cross Hybrid, Multi-parent Hybrid and Composite/Open Pollinated Varieties. This result 113 maize variety are protected till date which includes 40 varieties under new category and 73 varieties under extant category table 5. The period of protection is 15 years starts from dates of registration after completion of DUS testing in case of variety filed under new category. Under extant notified category the duration of protection has also been counted from date of Gazette notification of the variety. ICAR-Indian Institute of Maize Research has major role in whole process from filing to the applications for registration of all maize AICRP centers. Institute has also maintained the registered maize varieties during protection period. For this, the institute has submitted annual and renewal fees as table 6 for the protected maize varieties from time

to time. This promotes scientists for the development of new varieties and its commercialization in Public-Private Partnership (PPP) mode with safe guard. The comparison of registration and filing is shown in diagram 1.

### **References**

- Anonymous, Annual Reports (2011-2020). ICAR-Indian Institute of Maize Research, Ludhiana
- ICAR-Indian Institute of Maize Research, Ludhiana official website: <https://iimr.icar.gov.in/>
- Protection of Plant Varieties and farmers Right Authority, New Delhi official website: <http://www.plantauthority.gov.in/>
- Dass S, Rakshit S, Singh S B, Singh R and Singh I (2011). Guidelines for the Conduct of Test for Distinctiveness, Uniformity and Stability On (*Zea mays* L.), DMR Technical Bulletin, 2006, pp. 26.
- Jyoti Kaul, Ramesh Kumar, Usha Nara, Om Prakash, P. K. Singh (2015). Intellectual property rights for maize varieties of India: A case study. *Progressive Agriculture* 15 (2): 295-299.
- Jyoti Kaul, Usha Nara, Om Prakash, Ramesh Kumar, R. Sai Kumar and Sain Dass (2012). Hybrids and composites of maize registered under PPV& FR Act, 2001. *Maize Journal*.

### **How to cite this article:**

Dhirendra Singh, Usha Nara, G. K. Chikkappa and Ramesh Kumar. 2021. Protection of Maize Varieties under PPV & FR Act, 2001. *Int.J.Curr.Microbiol.App.Sci.* 10(08): 140-148.  
doi: <https://doi.org/10.20546/ijcmas.2021.1008.018>