

Protection of Plant Varieties & Plant Breeders Rights

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The
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Agricultural Sector

- Primary source of livelihood in India
 - for about 60 percent of India's population.
- It accounts for approximately 18 percent of India's GDP ,
 - with 70 percent of rural household still depending primarily on agriculture for their livelihood
- Indian agriculture sector is primarily an informal activity
 - Formal sector –NAREES; R&D is particularly dominated by ICAR and SAUs
 - The private sector's research contribution -16%

Farmers - the Mainstay

- Historically contributed towards development of traditional varieties
 - preserving the genetic diversity of these traditional varieties
 - enriched their diversity by human selection
- The traditional varieties
 - are passed on from generation to generation by farmers
 - and also many of these show compatibilities to local conditions
- GR -a success
 - primarily for increasing crop production substantially by using high yielding varieties of crops
 - modern methods of farming.
- GR also led to
 - adverse impact on soil fertility, on crop diversity, and erosion of water table

Seeds- Major Gift from Informal Sector

- Therefore, a need to protect farmers rights
 - Traditional practices by the farmers has resulted in conservation of various plant varieties.
- Calls for relevant policy intervention to support the farmers who are protectors of crop diversity
- Innovation and new agricultural methods should not be at the cost of destroying the agriculture diversity!!
 - Need to develop a linkage between the pace of technological developments and market forces with our Agro-biodiversity wealth

Need To Enhance Trade

- Unique, uniform ,best produce with bulk production needed
- Can be done by developing unique varieties befitting the market requirements
- Through production of these varieties on large scales in the identified agro-climatic zones to maintain the quality and
- By attaching the uniqueness of the variety with easily marketable traits

UPOV Convention

- To carry forward this idea, the convention developed specific guidelines and rules to protect plant varieties under one umbrella system.
 - The plant varieties of members of UPOV convention are protected in all the countries who are part of the convention.
- The UPOV 1978 provisions allowed the countries to protect varieties either with distinct breeder right or patent but not with both.
 - The provisions were further strengthened in 1991 allowing dual protection with breeder's right and patent.

Trade Related aspects of Intellectual Property Rights (TRIPS) Agreement of the WTO

- Mandated every member country to provide some sort legal protection to plant varieties
- As per TRIPS Agreement (Article 27.3 (b)) members have three options
 - i. to provide protection for plant varieties
 - ii. Either patents
 - iii. effective sui generis (of its own kind) system or their combinations

India chose to create its own sui generis system for protection of plant varieties, PVP&FR Act in 2001

Protecting Plant Varieties

- Development of new plant varieties is one of the key determinants for strengthening the agriculture ecosystem
- Led to the establishment of the International Convention for the Protection of New Varieties of Plants (UPOV) in 1961
 - to promote the development of new plant varieties by creating a suitable incentive mechanism that would motivate the development of new plant varieties

Protecting Plant Varieties

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	UPOV 1978	UPOV 1991	PVP&FR Act
Scope of protection	Requires prior authorization of breeders for production for commercial purposes, offering for sale and marketing of reproductive material of the variety	Expands the scope of breeder's authorization to also require permission for importing, stocking, and exporting. Also extends rights to harvested materials and to EDVs	Breeder has right to produce, sell, market, distribute and to import or export of the variety
Type of protection	Did not allow dual protection (either with distinct breeder right or patent but not with both)	Dual protection allowed	Only breeder's right India does not allow patent protection to plant variety
Genera or Species protected	5 Genera on joining UPOV, 24 thereafter within 8 years	15 Genera on joining UPOV and all thereafter	158 crop species notified under new, extant, farmer registration 161 crop species notified under extant, farmer registration
Criteria of protection	Novelty, Distinctness, Uniformity and Stability (DUS)	Novelty, DUS	Novelty along with DUS Novelty criteria primarily constructed from UPOV1991
Farmers' right	Farmers are allowed to sell or exchange seeds with other farmers for the purpose of propagation	Farmers are not allowed to sell or exchange seeds with other farmers for the purpose of propagation Allowed to use product of harvest of protected variety for the purpose of protection on their own lands	Farmers are allowed to save seed from one's crop, use it for sowing, exchanging, sharing or selling to other farmers except selling it as branded seeds.
Duration of Protection	18 years for trees and vines. 15 years for other varieties	25 years for trees and vines. 20 years for other varieties	Same as UPOV 1978; other varieties also include same level of protection for extant varieties

PPV&FR Authority

- The Protection of Plant Varieties and Farmer's Rights Authority was established on
 - 11th November 2005 by the Central Government
 - *vide* Gazette Notification No. S.O. 1589(E).PPV&FR Authority
- The enactment and establishment of the Authority was based
 - on the *sui generis* system adopted in harmonization with UPOV system of Novelty, Distinctness, Uniformity and Stability
- Farmers' Rights Section is a unique feature of the Act, which gives the much needed importance to the Farmers

Objectives of PPV&FR Authority

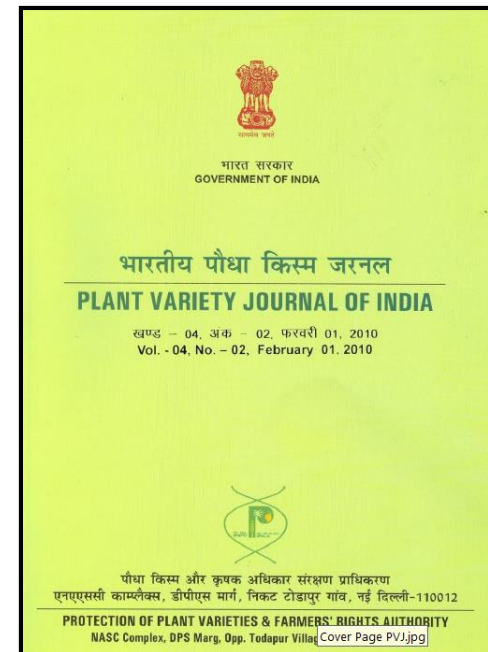
1. To provide an effective system for **protection** of Plant varieties and rights of farmers and plant breeders
2. To recognize the **farmers** in respect of their contribution made at conserving , improving and making available plant genetic resources (in light of FAO and CBD Agenda 21) for development of new plant varieties
3. To protect plant breeders' rights to **stimulate** investment for R&D and develop new varieties (essence of UPOV convention)
4. To **facilitate** the growth of seed industry to ensure production and availability of high quality seed/planting material

Implementation of PPV&FR Act 2001

- PPV&FR rules **notified** in 2003
- Authority **established** on 11th November, 2005 [**vide Gazette Notification No. S.O. 1589(E).**]
- Regulations **notified** in 2006
- Publication of Plant Variety Journal of India **started** from February-March 2007
- General guidelines for DUS testing and Crop specific DUS test guidelines for 12 crops **were published and released** on 20th February, 2007



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



The Act covers

❖ All propagating material are covered by the PPVFR Act

❖ All types of Variety

- True Variety
- Essentially Derived Variety
- Hybrids
- Parental lines
- Inbred lines
- Stocks
- Transgenics



Seeds



Cuttings



Grafts



Saplings



Trees

Harvested material



if obtained through **unauthorized use** of propagating material **unless**, reasonable opportunity for breeder to exercise his right

Registrable Varieties

- New varieties
- Extant Variety
 - Notified under Seeds Act, 1966
 - Farmers Variety
 - Variety of Common Knowledge (VCK)
- Essentially Derived Variety (EDV)
- Transgenic variety

Table 2 Categories of plant variety protection in the PPV&FR Act

	New variety	Extant variety	Farmer's variety	Essentially derived variety
Definition	A variety whose propagating or harvested material has not been sold or otherwise disposed of by or with the consent of its breeder or his successor for the purposes of exploitation of such variety at the date of filing of application (Chapter 3 PPV & FR Act)	• All varieties already available in India. • Either notified under Section 5 of the Seeds Act, 1996; a farmers' variety; a variety about which there is common knowledge or any other variety that is in the public domain. • There is no condition of novelty.	Variety traditionally cultivated by the farmers or is a wild relative or landrace of a variety about which the farmer possessed the common knowledge (Chapter 1 PPV&FR Act)	Predominantly derived from initial variety, while retaining the expression of the essential characteristics that results from the genotype or combination of genotype of such initial variety and is clearly distinguishable from such initial variety. (Chapter 1 PPV&FR Act)
Criteria for registration	• Registration requirements are very similar with the UPOV Convention guidelines • A new variety must conform to the criteria of commercial novelty, distinctiveness, uniformity and stability (DUS). (Chapter 3 PPV&FR Act)	• Conditions for registration are limited to DUS. • After notification of the species a three-year moratorium is provided within which extant varieties can be registered.	DUS criteria need to be fulfilled for registration.	Commercial novelty and DUS criteria need to be fulfilled for registration.

Variety	Criteria for Registration	Rights conferred	Duration of Protection
i. New Variety	• Novelty • Distinctness • Uniformity • Stability	Exclusive right for the breeder to produce, sell, market, distribute, import or export the variety	•Initially 9 years renewable up to total of 18 years for trees and vines •Initially 6 years renewable up to total of 15 for other crops from the date of registration.
ii. Extant Variety*	• Distinctness • Uniformity • Stability	Exclusive right to produce, sell, market, distribute, import or export the variety if claimed by the breeder and in cases where not claimed by breeder, the Central Government or State Government shall have the right	•15 years from the date of notification of that variety by the Central Government under Section 5 of the Seeds Act, 1966
iii. Farmers' Variety	• Distinctness • Uniformity • Stability	Same rights as breeder of a variety	•Initially 9 years renewable up to total of 18 years for trees and vines •Initially 6 years renewable up to total of 15 for other crops from the date of registration.
iv. Essentially Derived Variety	• Genera or species specified by the Central Government and tests to determine if it is an EDV	Same rights as a breeder of a new variety provided that the authorization by the breeder of the initial variety to the breeder of essentially derived variety, subject to terms mutually agreed upon by both the parties	•Initially 9 years renewable up to total of 18 years for trees and vines •Initially 6 years renewable up to total of 15 for other crops

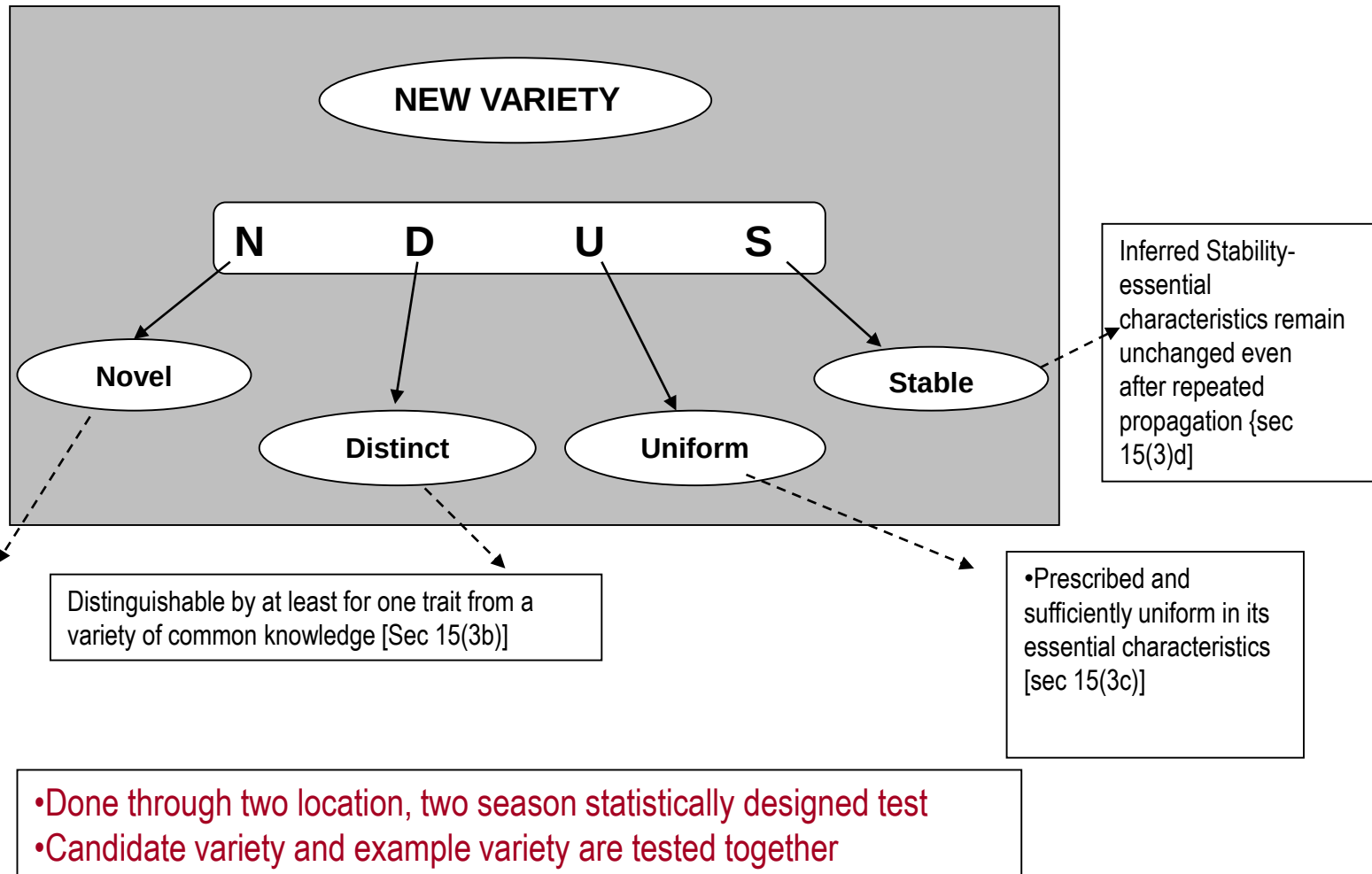
Extant Variety

- Varieties notified under section 5 of the seed Act 1966 or
- Farmers' Variety or
- A variety about which there is common knowledge or
- Any variety that is under public domain
 - Through two Regulation EVRC has been prescribed to examine EV that have not exceeded the registerable time
 - Within three years EV and FV are to be registered
 - Number of EV and FV have been registered

Extant Variety

- As per section 2 (j) is further classified into following categories:
 - Variety Notified under section 5 of the Seeds Act, 1966, also known as Extant Notified Variety (ENV).
 - Example: NCS 145-Bunny (NCHH-145) was notified by CVRC & published in Gazette Notification (vide Notification S.O.1134 (E) dated 15-11-2001).
 - Farmers Variety (FV): is defined as “a variety which has been traditionally cultivated and evolved by the farmers in their fields; or is a wild relative or land race of a variety about which the farmers possess the common knowledge”[
 - Example: 55 applications have been filed as farmers’ variety till 22nd November, 2010. Authority has issued certificate of registration to three rice varieties namely Tilak Chandan, Hansraj and INDRASAN[1].
 - A variety about which there is common knowledge also known as Extant Variety of Common Knowledge (VCK).
 - An official notice was published in the Plant variety journal Volume 3, No. 09 explaining the conditions to be met by a variety to qualify as Extant Variety of Common Knowledge
 - It says that: “A candidate variety should have been sold or otherwise disposed of in India one year prior to the date of filing of the application and it should not have been sold or otherwise disposed of 13 years prior to the date of filing of application and in case of trees and vines it should not have been sold or otherwise disposed of 16 years prior to the date of filing of application.”
 - Example: There are several varieties filed under this category to name a few Karishma-NP 111, VANDANA and PRIYA SWEET CORN
 - Any other variety which is in public domain

Criteria for Registration



DUS Test

Type of Variety	Type of Test	No. of Locations	No. of seasons
i. New	DUS Test	2	2
ii. VCK	DUS Test	2	1
iii. Farmers	Grow-Out Test	2	1
iv. EDV	Manner of testing –EDV shall be decided by Authority on case-to-case basis		

Plant Variety Protection (PVP) Registration Process

Reception

To receive application and allot PVP number. Coupon to be issued to applicant. Only completed application with all enclosures, registration fee (non-refundable), with the requisite quantity of seeds in officially sealed packing will be accepted. Vegetatively propagated planting material has to be submitted to respective crop specific DUS centre as per details available on website within 10 days of submitting the application with an exception in case of perennial crops as listed on the website where testing will be on site and no propagating material to be enclosed

PVP application number

Updating of records, PVP application number and printing of acknowledgement

Acknowledgement

- For application received by hand at HQ/branch offices before noon, acknowledgment can be collected between 5:00 to 5:30 pm in exchange of coupon

For applications received through post/courier acknowledgment shall be posted latest by next working day by dispatch section

Application transferred to concerned Registrar

Examination of application

Queries raised by Registrar to be issued within 7 days to the applicant for compliance within 15 days. Within next 7 days, the Registrar shall examine the reply and if acceptable, ask for depositing DUS testing fee. If fee not received in 15 days, application with seed shall be returned to the applicant

Allotment of Registration (REG) number

If the application is accepted, the REG number of the variety shall be informed to the applicant & published in PVJ. REG number shall be the reference number of the variety



Dispatch of seed to DUS centre

Registrar to dispatch seed (in case of vegetatively propagated planting material, specific instructions) to concerned DUS centre at least 15 days before the sowing season with the instructions on reference variety/ies based on database



DUS Testing

DUS centres will test the candidate variety as per DUS guidelines. If, at the end of 1st season, it is noted that an essential trait is expressing significant distinctiveness between the locations, then Registrar/nominee along with a representative of the applicant has to visit the sites for consensus decisions during 2nd season



DUS Testing for EDVs

For testing of EDV hybrid/variety DUS characterization is done along with original hybrid/variety (initial hybrid/variety) and in case of hybrid EDV, essentially derived parent(s) and original parent(s) for one year at two locations.



Data analysis

After DUS testing, tabulated and certified pooled data from the centres will be submitted to Registry by the PI within 4 months after harvest. Registrars to take final decision within next 15 working days on the candidate variety



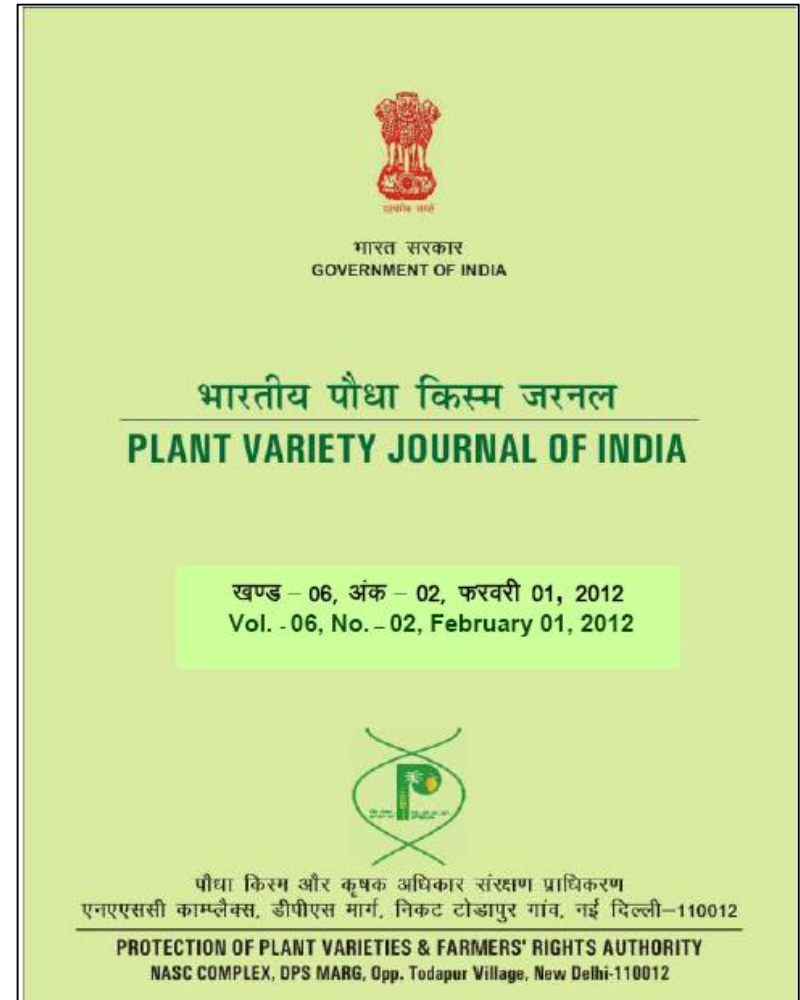
Pre-grant opposition

Published in PVJ for inviting pre-grant opposition. If no pre-grant opposition received within stipulated time as per Section 21 (2)) checklist will be prepared by Registry within 2 weeks and Registration Certificate will be issued to the applicant

Approved on 28.11.2018

Application process

- A monthly published by the PPV&FRA – equivalent to the gazette of the Act.
- Once an application is accepted minimum passport data are published.
- Within 90 days any aggrieved can file objection.
- Those found registerable after DUS test are also brought to notice.
- Regular office orders and to whom so ever concerned are published.



Making PVP Application

- Application Form (Form I for New or Extant Variety or Form II for EDV -- From Regulations)
- Technical Questionnaire (in prescribed Format -- from Regulations)
- Authorization (Form PV-1 -- From Rules)
- Proof of right to make application (Form PV-2 -- From Rules)
- Affidavit swearing in absence of GURT [u/s 29(3)]
- Other prescribed particulars/ Fees/ Seed Sample/ etc

Filing PVP Application

- Application to be filed in triplicate
- To be typed only on one side of the paper and each page to be signed by Applicant/ Authorized Signatory
- Declaration in Form 1 to be signed with stamp
- Technical Questionnaire to be signed with stamp by a witness
- Affidavit declaring absence of GURT/ Terminator Technology to be made on a stamp paper of Rs. 100 denomination
- Denomination of variety on Affidavit and in application form to be exactly same.
 - Even the change of “,” “-“ is not permitted

•In case an application is to be filed in another country, then you must abide by the law/rules/procedures of that country.

Denomination

- The denomination seed submitted for the DUS test should be representative of the candidate variety
- It should be free from physical or chemical treatment.
- Should be free from factors that affect the expression of the variety characters.

Sample Advertisement of New Plant Variety

FORM O - 1
(See Rule 30)
Government of India, Plant Varieties Registry
ADVERTISEMENT OF ACCEPTED APPLICATION FOR REGISTRATION

01. Application No. **N22 ZM 149 08 198** filed on 12/02/2008 by Indian Council of Agricultural Research (ICAR), Krishi Bhawan, Dr. Rajendra Prasad Road, New Delhi-110001, India for a new plant variety of crop Maize [Zea mays L.] having denomination **Vivek QPM 9**, the specification includes its drawings and photograph(s) of which are given below, has been accepted and given registration number -----NA-----on -----NA-----.

The convention application no. ----NA----, in respect of the said variety has been filed on ----NA----, in ----NA----.

Appropriate office for the opposition of proceeding under Rule 29, of the Protection of Plant Varieties and Farmers' Rights Rules, 2003 is Office of the Registrar, PPV & FR Authority, New Delhi - 110 012.

Passport data of the variety **Vivek QPM 9:**

Applicant : Indian Council of Agricultural Research,
Address of the Applicant : Krishi Bhawan, Dr. Rajendra Prasad Road,
New Delhi-110001
Nationality of Applicant : Indian
Application details
a. Number : **N22 ZM 14 08 198**
b. Date of acceptance : 17.12.2009
Crop (Taxonomical Lineage) : Maize (Zea mays L.)
Denomination : **Vivek QPM 9**
Type of Variety : **New**
Classification of Variety : Hybrid

Date of Filing

Denomination of Variety

Date of Acceptance

Category of Variety

Previously Proposed Denomination : Not applicable
Name of Parental Material : VQL-1 x VQL-2
Name of Reference Varieties : Vivek Maize Hybrid 9

Variety Description:

A. Group Characteristics	Remarks measured values, example varieties, etc.
Tassel: Time of anthesis (on middle third of main axis, 50% of plants)	Very early [HKI 335]
Ear: Time of silk emergence (50% plants)	Very early [HKI 335]
Ear: Anthocyanin colouration of silks	Present [HKI 323]
Plant: Length	Long [HQPM 1]
Ear: Type of grain	Semi-flint [HKI 1344]

B. Distinct Characteristics:

Vivek QPM 9 has distinguishing characters like small leaf angle between blade and stem, presence of anthocyanin colouration in grains, yellow coloured grains with cap on top of grains, high tryptophan content.

Distinctiveness as compared to reference varieties

C. Reference varieties:

1. **Vivek Maize Hybrid 9**: It has distinguishing characters like small leaf angle between blade and stem, presence of anthocyanin colouration in brace root and leaf sheath, semi-flint grains, yellow coloured grains with cap on top of grains, indented kernel shape with normal tryptophan content.

D. Date of commercialization of the variety : Commercialized since 22/08/2007.

Date of Commercialization/ First Sale

E. Photographs: (See figure 01)

DUS Test Field Monitoring

- DUS experimental fields on a given day are field by expert and others.
 - A fee of Rs. 500/ is charged for others.
- Field data computerized data matrix compared, checked with UPOV and global data base before accepting for registration by the registrar.
- Registrar has magisterial powers and shall owns his responsibility.

Objection

- Once the application is found have claim for registration,
 - then a brief details shall be published in the PVJ
- Within the validity period any one can file a detail or infringement if any to the Registrar on a valid reason on the claims made
- The denomination then goes for further evaluation as a new variety under the provisions of the Act

Follow-up Steps

- Verification of Application for completeness –
 - by PVP Examiner
- Serving notice to complete the application, if required
- Amendment of application to the satisfaction of Registrar
- Advertisement of application
 - Plant Variety Journal of India
- Opposition to the application (manner/ fees/ 3 + 1 month)
- Serving Copy of Notice of Opposition to the Applicant
- Countering the opposition (2 months)

Details of Fee

Registration :

<i>Type of variety</i>	<i>Fees for Registration</i>
Essentially Derived Varieties	Individual Rs. 7000/- Educational Rs. 10000/- Commercial Rs. 50000/-
Extant variety notified under section 5 of Seeds Act, 1966	Rs. 2000/-
New Variety	Individual Rs. 7000/- Educational Rs. 10000/- Commercial Rs. 50000/-
Extant variety about which there is common knowledge	Individual Rs. 7000/- Educational Rs. 10000/- Commercial Rs. 50000/-
Farmers' Variety	No fee

DUS Test :

The applicant has to submit the DUS test fee for conduct of the DUS test of the candidate variety.

The DUS test fee has been decided by the Authority for different crops and notified in the Plant Variety Journal of India.

The DUS test fee notified for different crops

Annual Fee :

For maintenance of registration the applicant has to pay annual fee which is specified as under:

<i>Type of variety</i>	<i>Annual Fee</i>
New Variety	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.
Farmers' Variety	Rs. 10/- only
Extant variety notified under Section 5 of the Seeds Act, 1966 (54 of 1966)	Rs. 2000/- only.
Extant variety (VCK)	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.
Annual fee shall be determined on the basis of declaration given by the registered breeder or agent or licensee regarding the sales value of the seeds of the variety registered under the Act during the previous year and royalty, if any, received during the previous year from the sale proceed of seeds of the registered variety and verified by the Authority.	

Follow-up Steps

- Issue of certificate of registration
- Publication of list of registered varieties in Plant Variety Journal of India
- Determination of benefit sharing by Authority
- Decision by Order by the Authority (when the claim is proved and admitted)
- Contribution to gene fund
- Benefit sharing/ Compensation payments from gene fund

Rights Under the Act

- 3 types
- Breeders' Rights
 - Breeders will have exclusive rights to produce, sell, market, distribute, import or export the protected variety.
 - Breeder can appoint agent/ licensee and may exercise for civil remedy in case of infringement of rights.
- Researchers' Rights
 - Researcher can use any of the registered variety under the Act
 - for conducting experiment or research
 - This includes the use of a variety as an initial source of variety for the purpose of developing another variety but repeated use needs prior permission of the registered breeder.
- Farmers' Rights

Farmers' Rights

- The PPV &FR Act 2001, permits the farmers, to save, use, sow, re-sow, exchange, share or sell his farm produce including that of the registered variety except that he cannot mark and market it as branded seed with packing, label etc that is demanded by the market.
- Farmers who develop new variety of plants like any other plant breeder can apply their material for registration by DUS testing procedures.

New Regulation for Tree Crops

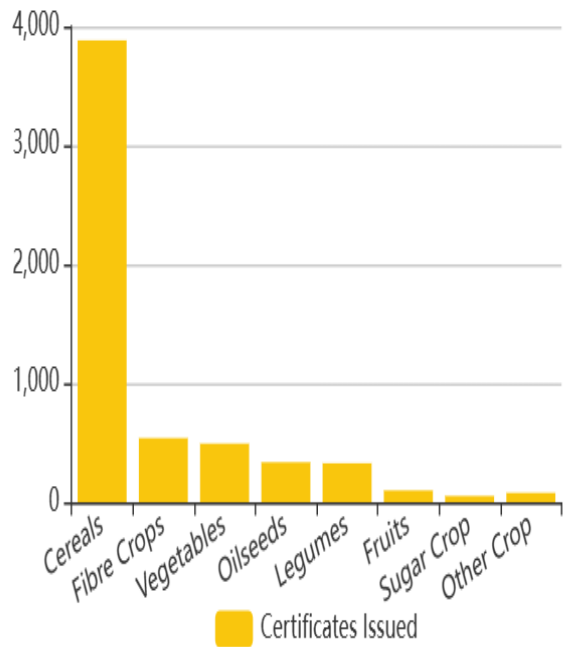
- The Gazette notification issued
 - gives an option to the applicant to go for a normal DUS test
 - or opt for the visit of the expert monitoring team to the orchard site
 - record DUS data and confirm the registerability of the material.

5810 Certificates issued crop group-wise as on 20.11.2023

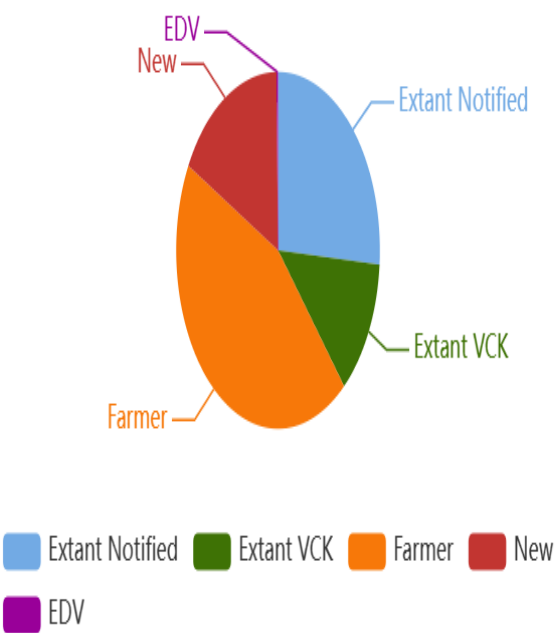


5810 Certificates issued as on 20.11.2023

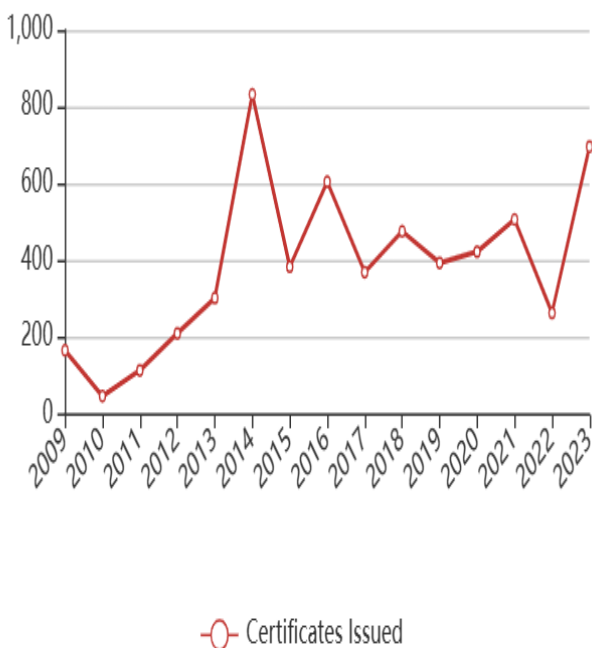
Crop Group wise



Category Wise



Year Wise



Revocation of Rights-Pepisco Case



**Pepisco's registration of the variety revoked
PPV&FRA –Dec 2021**

Source: The Hindu-Dec
3,2021

- FL-2027 variety used in Lays potato chips
 - Introduced to India in 2009,
 - crop grown by about 12,000 farmers
 - Through exclusive contract with PepsiCo to sell seeds and buy back their produce.
- In 2016, registered the variety under the PPV&FR Act, 2001.
- In 2019, PepsiCo India sued nine Gujarati farmers
 - for allegedly infringing patent rights by growing its registered potato variety
- **Alliance for Sustainable and Holistic Agriculture**, filed the petition to revoke registration
- The PPV&FRA questioned the documentation produced by PepsiCo claiming it was the owner of the variety.

Recent Developments



- The FC5 potato variety is known for its lower moisture content, making it ideal for snack production, particularly potato chips
- On July 5, 2023, Delhi High Court dismissed PepsiCo's appeal in potato variety patent case

- **Reference:**

Vilas A Tonapi et al 2009. Plant Variety protection made easy.207pp. (ISBN 81-89335-25-1).

Second Edition . April 2010