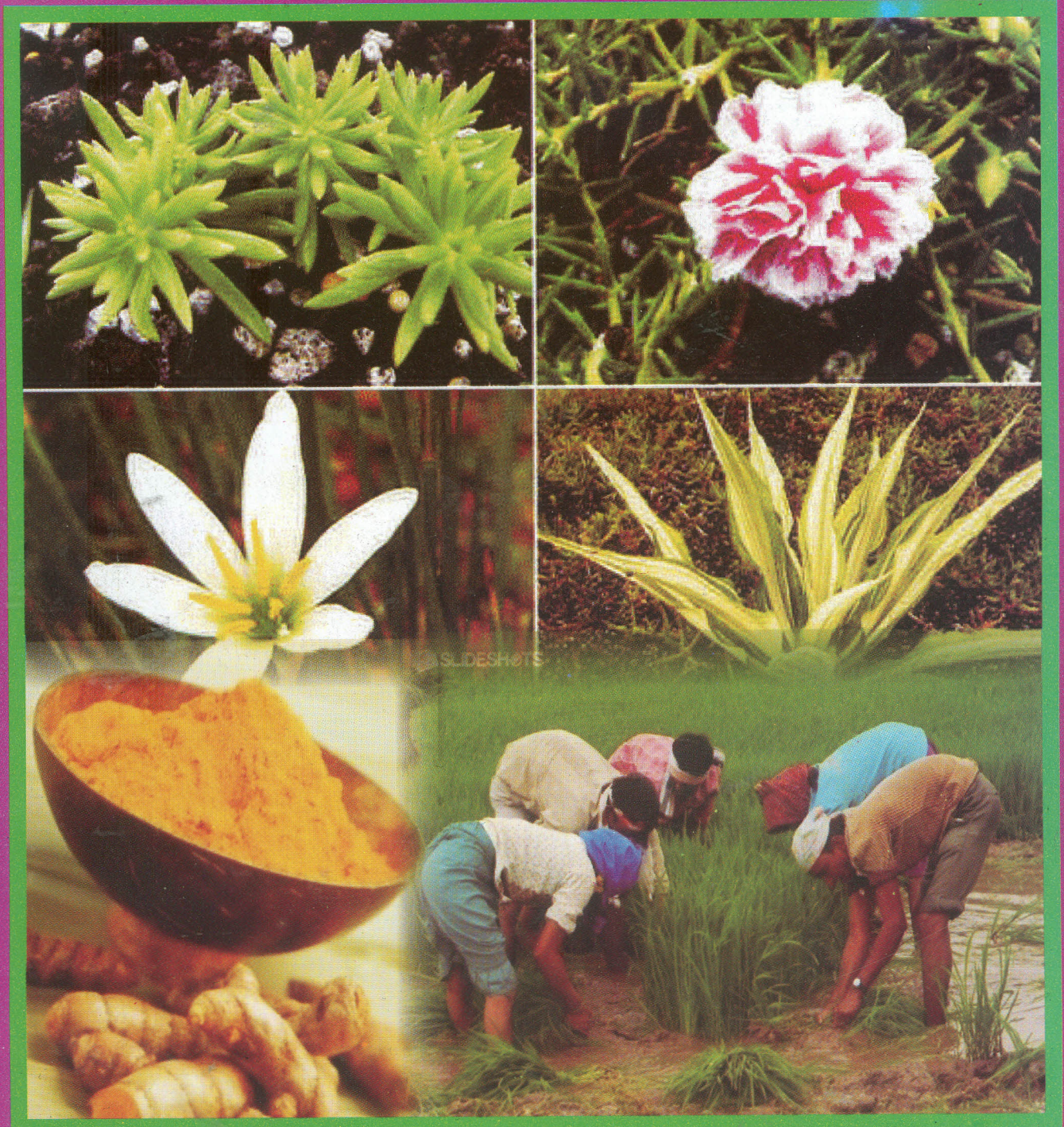


# PLANT VARIETIES PROTECTION, BIOTECHNOLOGY AND TRADITIONAL KNOWLEDGE



**Protection of Plant Varieties, Farmers'  
and Breeders' Rights in India**

**2**

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“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतंत्र की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्गगत विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

— इन्दिरा गांधी

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*"Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances."*

—Indira Gandhi

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Block

**2****PROTECTION OF PLANT VARIETIES, FARMERS'  
AND BREEDERS' RIGHTS IN INDIA****UNIT 5****Plant Varieties and Farmers' Rights Act 5****UNIT 6****Enforcement of PBRs 26****UNIT 7****The Protection of Plant Varieties and Farmers' Rights  
Authority 47****UNIT 8****IP Protection for Farmers' Varieties and Related  
Traditional Knowledge 60**

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## **BLOCK 2 PROTECTION OF PLANT VARIETIES, FARMERS' AND BREEDERS' RIGHTS IN INDIA**

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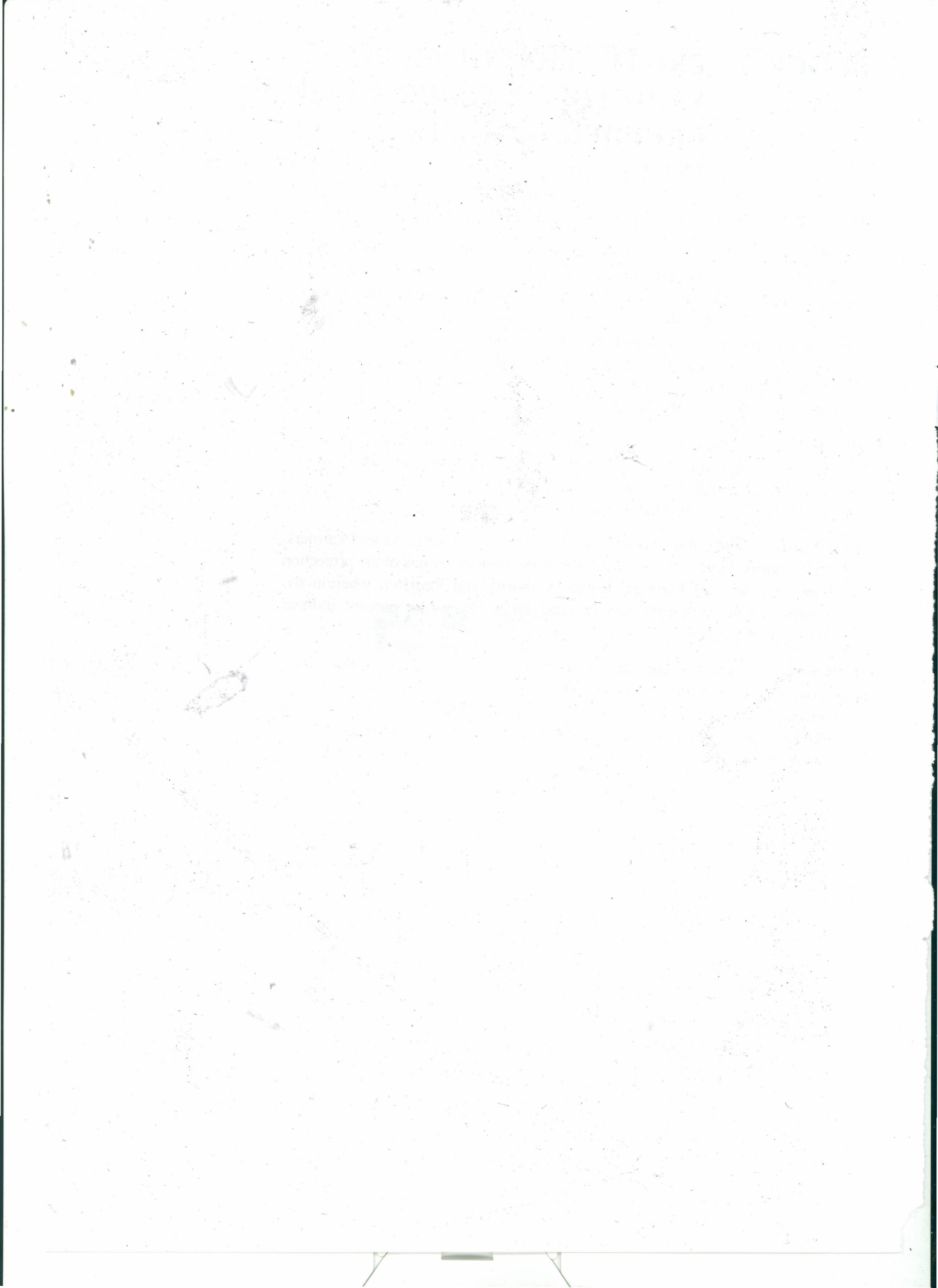
This Block consists of four units.

**Unit 5** of the Course explains the objectives of PPV and FR Act. According to the Act it has been introduced to recognize and protect the rights of the farmers in respect of their contribution made. According to the Protection of Plant Varieties and Farmers Act, a "breeder" is a person or a group of persons or a farmer or group of farmers or any institution which has bred, evolved or developed any variety. This unit discusses topics like registration of these plant varieties and the rights conferred by registration. It also explains the criteria for protection, including the different tests like the DUS test etc.

**Unit 6** of this Course explains the enforcement procedure of PBRs (Protection of Breeders Rights). It covers the scope of breeder rights which includes within the UPOV Convention. Other topics like period of protection, infringements, the problems in enforcing PBRs, the different strategies for enforcing PBRs etc.

**Unit 7** of this Course deals with the protection of Plant Varieties and Farmers' Rights Authority. In this Unit we will discuss the basic functions of the protection of Plant Varieties and Farmers' Rights Authority and Registry, wherein the composition of the authority, their powers, duties, delegating powers, judicial powers etc is discussed.

**Unit 8** of this Course explains the rationale for farmers' rights, it explains why farmer should possess this right, and what is the ambit of this right over seed, farmers as a breeder, farmer as a conservationist. It also explains about the compulsory license given to farmers for use. The Biological Diversity Act is also dealt in this unit.



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# UNIT 5 PLANT VARIETIES AND FARMERS' RIGHTS ACT

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## Structure

- 5.1 Introduction
- 5.2 Objectives
- 5.3 Objectives of the PPV and FR Act
- 5.4 Rights Conferred by Registration
- 5.5 Varieties Protected
- 5.6 Criteria for Protection
- 5.7 Conducting the Dus Tests
  - 5.7.1 Requirements of Material for DUS Testing
  - 5.7.2 Characteristics Used in DUS Testing
  - 5.7.3 Examining Distinctiveness
  - 5.7.4 Examining Uniformity
  - 5.7.5 Examining Stability
  - 5.7.6 Denomination
- 5.8 Application Form
- 5.9 Advertisement and Opposition to Application
- 5.10 Period of Protection
- 5.11 Payment of Annual Fee
- 5.12 Registration of Essentially Derived Varieties
- 5.13 Researcher' Right
- 5.14 Farmers' Rights
- 5.15 Communities Rights
- 5.16 Compulsory License
- 5.17 Benefit Sharing
- 5.18 National Gene Fund
- 5.19 Exclusion of Certain Varieties
- 5.20 Plant Variety Protection Appellate Tribunal
- 5.21 Summary
- 5.22 Terminal Questions
- 5.23 Answers and Hints
- 5.24 References and Suggested Readings

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## 5.1 INTRODUCTION

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That specific provision for intellectual property protection of new plant varieties introduced in the TRIPS Agreement made it mandatory that members of the WTO must introduce legal measures either in the form of patent or an “effective”

*sui generis* system or a combination of both to protect plant varieties. India was one of the first countries in the world to have evolved PBR legislation that simultaneously granted rights to both breeders and farmers. The Protection of Plant Varieties and Farmers' Rights Act, 2001, (PPVFR) establishes a unique system by extending the concept of Plant Breeders Rights (PBRs), which is applied to new varieties of breeders, to varieties held by farmers and public sector institutions. The law attempts to address and incorporate the interests of various stakeholders within the property rights framework. While the Act is based on the important principle of distributing ownership rights in a fair and equitable manner, the implementation of the Act is expected to accelerate agricultural development; protect plant breeder's rights for creating new plant varieties and thereby encouraging higher research and development investments in both public and private plant breeding. It shall also protect the rights of the farmers for the contributions made in conserving, improving and making available plant genetic resources for the crop improvement programmes.

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## **5.2 OBJECTIVES**

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After completing the study of this unit, in relation to the PPVFR Act, you should be able to:

- acquire a basic understanding of scope of the PBRs given by PPVFR Act;
- explain briefly the requirements for protection of plant varieties; and
- explain briefly the exceptions to the rights provided in the Act.

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## **5.3 OBJECTIVES OF THE PPV AND FR ACT**

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It is obvious from the preamble of the PPV&FR Act that the legislation has been introduced to recognize and protect the rights of the farmers in respect of their contribution made at any time in conserving, improving and making available plant genetic resources (PGRs) for the development of new plant varieties. It also recognises that accelerated agricultural development requires development of new plant varieties and providing PBRs will stimulate investment for research and development, both in the public and private sector and facilitate the growth of the seed industry in the country thus ensuring the availability of high quality seeds and planting material to the farmers. The PPV&FR Act has also been introduced primarily to satisfy the obligation under Article 27(3)(b) of the TRIPS Agreement, utilizing the *sui generis* option to draft the legislation best suited to the countries socio-political situation.

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## **5.4 RIGHTS CONFERRED BY REGISTRATION**

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The PPVFR Act defines a "breeder" as "a person or group of persons or a farmer or group of farmers or any institution which has bred, evolved or developed any variety". As per Section 16 any person claiming to be the breeder of a variety, his/her successor or assignee can make an application for registration. It also recognises farmers as breeders and therefore, any farmer individually or as a group or community claiming to be the breeder of the variety can file an application for registration themselves or through any person authorised in the prescribed manner. Further, any university or publicly funded agricultural

institution claiming to be the breeder of the variety can also file an application for registration.

Breeders' rights over the varieties have been protected in the Act. As per Section 28 (1), on registration, the breeders get the rights of commercialization for the registered variety either on his own or through anyone he designates. These rights include the right to produce, sell, market, distribute, import or export a variety, in short, full control over formal marketing. However, in the case of an extant variety, unless a breeder or his successor establishes his right, the Central Government, and in cases where such extant variety is notified for a State or for any area thereof under Section 5 of the Seeds Act, 1966, the State Government shall be deemed to be the owner of such right.

## 5.5 VARIETIES PROTECTED

The Act covers all categories of plants except microorganisms. Section 29(2) of the PPVFR Act provides the flexibility to notify through gazette the genera and species of the varieties for protection, after the appropriate rules and by-laws are framed for the enforcement of the Act. Accordingly, at present 57 genera have been notified till date as given in table below:

1.	Bread wheat	19.	Cotton ( <i>Gossypiumarboreum</i> L.)
2.	Durum wheat	20.	Cotton ( <i>Gossypiumherbaceum</i> L.)
3.	Dicoccum wheat	21.	Jute ( <i>Corchorusolitorius</i> L.)
4.	Other <i>Triticum</i> species	22.	Jute ( <i>Corchorouscapsularis</i> L.)
5.	Damask Rose	23.	Sugarcane
6.	Rice	24.	Ginger
7.	Pearl millet	25.	Turmeric
8.	Sorghum	26.	Potato
9.	Maize	27.	Tomato
10.	Pigeon pea	28.	Brinjal
11.	Chickpea	29.	Garlic
12.	Green gram	30.	Onion
13.	Black gram	31.	Okra
14.	Kidney bean/ French bean	32.	Cabbage
15.	Lentil	33.	Cauliflower
16.	Field pea / Garden pea	34.	Black pepper
17.	Cotton ( <i>Gossypiumhirsu-tum</i> L.)	35.	Small Cardamom
18.	Cotton ( <i>Gossypiumbarbadense</i> L.)	36.	Rose

37.	Chrysanthemum
38.	Castor
39.	Indian Mustard ( <i>Brassicajuncea</i> L. Czern.& Coss)
40.	Karan Rai ( <i>Brassica carinata</i> A Braun)
41.	Rapeseed
42.	Gobhi Sarson
43.	Soybean
44.	Linseed
45.	Groundnut
46.	Sunflower

47.	Safflower
48.	Sesame
49.	Mango
50.	Coconut
51.	Periwinkle (Sadabahar)
52.	Indian Pennywort (Brahmi)
53.	Isabogol
54.	Pudina
55.	Cymbidium Sw. (Orchid)
56.	Vanda Jones ex R.Br. (Orchid)
57.	Dendrobium Sw. (Orchid)

<b>Self Assessment Question</b>	<b>(Spend 3 minutes)</b>
<p>1) Can a new and distinct plant found growing in nature be protected under the PPVFR Act?</p> <p>.....</p> <p>.....</p> <p>.....</p>	

The definition of a variety includes, extant variety, farmers' variety and essentially derived varieties, which are also separately defined in the Act (Box 1). Extant variety is defined to include a variety available in India which is notified under Section 5 of the Seeds Act, 1966 or a farmers' variety or a variety about which there is common knowledge or any other variety which is in public domain. Even though farmers' variety is included in this definition, the Act envisages separate protection for farmers' variety. The farmers' variety is defined to mean 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. Essentially derived variety is defined to include a variety predominantly derived from a variety protected under the law. It appears that this is included on the basis of the UPOV Act 1991 and there is no need to protect the same keeping in mind the Indian conditions.

<p><b>Box 1:</b></p> <p><b>Definitions of Varieties Protected under the PPVFR Act</b></p> <p>“variety” means a plant grouping except microorganism within a single botanical taxon of the lowest known rank, which can be -</p> <p>i) defined by the expression of the characteristics resulting from a given genotype of that plant grouping;</p>
--

- ii) distinguished from any other plant grouping by expression of at least one of the said characteristics; and.
- iii) considered as a unit with regard to its suitability for being propagated, which remains unchanged after such propagation, and includes propagating material of such variety, extant variety, transgenic variety, farmers' variety and essentially derived variety.

“**extant variety**” means a variety available in India which is –

- i) notified under Section 5 of the Seeds Act, 1966; or
- ii) farmers' variety; or
- iii) a variety about which there is common knowledge; or
- iv) any other variety which is in public domain;

“**farmers' variety**” means a variety which –

- i) has been traditionally cultivated and evolved by the farmers in their fields; or
- ii) is a wild relative or land race or a variety about which the farmers possess the common knowledge;

“**essentially derived variety**”, in respect of a variety (the initial variety), shall be said to be essentially derived from such initial variety when it –

- i) is predominantly derived from such initial variety, or from a variety that itself is predominantly derived from such initial variety, while retaining the expression of the essential characteristics that results from the genotype or combination of genotypes of such initial variety;
- ii) is clearly distinguishable from such initial variety; and
- iii) conforms (except for the differences which result from the act of derivation) to such initial variety in the expression of the essential characteristics that result from the genotype or combination of genotype of such initial variety;

## 5.6 CRITERIA FOR PROTECTION

Protection of a new variety is based on the criteria of novelty, distinctiveness, uniformity and stability (NDUS). It is important to note that the conditions stated in this section are for a new variety. As per Section 15 of the Act a new variety shall be deemed to be–

- a) novel, if, at the date of filing of the application for registration for protection, the propagating or harvested material of such variety 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–
  - i) in India, earlier than one year, or
  - ii) outside India, in the case of trees or vines earlier than six year, or, in any other case, earlier than four years,before the date of filing such application:

Provided that a trial of a new variety which has not been sold or otherwise disposed of shall not affect the right to protection.

Provided further that the fact that on the date of filing the application for registration, the propagating or harvested material of such variety has become a matter of common knowledge other than through the aforesaid manner shall not affect the criteria of novelty for such variety;

- b) distinct, if it is clearly distinguishable by at least one essential characteristic from any other variety whose existence is a matter of common knowledge in any country at the time of filing of the application.
- c) uniform, if subject to the variation that may be expected from the particular features of its propagation it is sufficiently uniform in its essential characteristics;
- d) stable, if its essential characteristics remain unchanged after repeated propagation or, in the case of a particular cycle of propagation, at the end of each such cycle.

As far as extant variety is concerned the condition of novelty is not required and the criteria of distinctiveness, uniformity and stability will be determined as specified under the regulations made by the Authority.

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## **5.7 CONDUCTING THE DUS TESTS**

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As per the requirement of the PPVFR, 2001, the candidate variety should fulfil the criteria for DUS test and registration. This test is based on the growing test to be done by the plant breeder. The specific descriptive characteristics are taken to test the variety. To set out the principles, which are used in the examination of DUS, the PPVFR Authority has brought out a document "General Guidelines", and the associated series of Specific Guidelines. The General Guidelines document addresses the issues related to DUS testing, in addition to providing guidance on the development of Specific Guidelines. Specific Guidelines provide detailed practical guidance on certain aspects of the examination of DUS and identify appropriate characteristics for variety description. The individual Specific Guidelines have been prepared with the assistance of the appropriate Task Force, comprising experts and professional consultants. The DUS examiner can use the basic principles contained in the General Guidelines, rather than follow the detailed recommendations of the Specific Guidelines and also follow them in case of the absence of Specific Guidelines for the species or variety as there is a specific mention on the Conduct of DUS Testing in the Absence of Specific Guidelines. Details of the current versions of all documents are available on PPVFR Authority website: [www.plantauthority.in](http://www.plantauthority.in).

The design of the growing trial is based on the nature of variety and determines aspects such as the number of growing cycles, layout of the trial, number of plants to be examined and method of observation, which is largely determined by the nature of the variety to be examined. Guidance on design is a key function of the Specific Guidelines.

**Self Assessment Question**

**(Spend 2 minutes)**

2) What is a DUS growing test and what is its purpose?

.....

.....

.....

.....

**5.7.1 Requirements of Material for DUS Testing**

The plant material submitted for examination should be representative of the candidate variety. Meaning thereby, the material such as hybrid and synthetic varieties should include material in the final stage in the cycle of propagation. Also the submitted material should be fresh from recent harvest and healthy (free from any infestation) and should have sufficient germination capacity for the conduct of a satisfactory examination. It should be free from any sort of physical or chemical treatment. The storage of 'reference samples' is an important component of this Act. The Authority has created independent storage infrastructure facilities at National Gene Bank at National Bureau of Plant Genetic Resources, New Delhi and selected locations in the country for storage of vegetatively propagated materials.

**5.7.2 Characteristics Used in DUS Testing**

Section (15) of PPVFR Act, 2001 mandates that well-defined characteristics of varieties are to be considered for examination for fulfilment of DUS criteria which are required for protection. Although the term characteristic is not specified in the criteria for uniformity, it is clearly implied that the uniformity requirement relates to the characteristics of the variety, given that they are the basis for distinctiveness and stability.

The basic requirements that a characteristic should fulfil before it is used for DUS testing or producing a variety description are that its expression:

- a) Results from a given genotype or combination of genotypes, – means that the expression of the characteristic should be because of the variety genotype and it should not be influenced by the environment in which the variety is grown. For example, the expression of the characteristic of the plant height of the same variety may be influenced by the soil moisture conditions; therefore, it is not the right character to choose.
- b) Is sufficiently consistent and repeatable in a particular environment – the characteristic should show the same differences when varieties are grown in the same location the following year. While it is possible that some characteristics may only be expressed in a particular environment, such characters can also be used if the differences in that particular environment, or condition, are consistent.
- c) Exhibits sufficient variation between varieties to be able to establish distinctiveness – the expression of the characteristic should exhibit some variation between the varieties, as only then it can be used to clearly distinguish varieties. For example, colour of the flower can be chosen as a

characteristic if the variety as a grouping has white, red or yellow flower colours and it is possible to differentiate any variety by the colour of the flower. However, if all varieties have white flowers it will not be a good characteristic for DUS test.

- d) Is capable of precise definition and recognition – the expression of the characteristic should be such that it can be clearly defined to be assessed, as far as possible, in an objective way.
- e) Allows uniformity requirements to be fulfilled.
- f) Allows stability requirements to be fulfilled, meaning that it produces consistent and repeatable results after repeated propagation or, where appropriate, at the end of each cycle of propagation.

While intrinsic commercial value or merit is not a requirement for considering a characteristic, if such a characteristic satisfies all the criteria for inclusion, it may be considered in the normal way. The characteristics included in the individual Specific Guidelines are not necessarily exhaustive and may be expanded with additional characteristics if that proves to be useful and the characteristics meet the conditions set out above.

The expression of characteristics can be expressed as:

***i) Qualitative Characteristics***

The characteristics that are expressed in discontinuous states and not influenced by the environment, for example, the sex of the plant can be described in four different ways, namely, 1) dioecious female; 2) dioecious male; 3) monoecious unisexual and 4) monoecious hermaphrodite. These states are self-explanatory and independently meaningful. All states are necessary to describe the full range of the characteristic, and every form of expression can be described by a single state. The order of states is not important.

***ii) Quantitative Characteristics***

The characteristics are those where the expression covers the full range of variation from one extreme to the other. The expression can be recorded on a one-dimensional, continuous or discrete, linear scale. The range of expression is divided into a number of states for the purpose of description. For example length of stem can be recorded as very short (1), short (3), medium (5), long (7), very long (9). The division seeks to provide, as far as is practical, an even distribution across the scale.

***iii) Pseudo-Qualitative Characteristics***

In the case of “pseudo-qualitative characteristics”, the range of expression is at least partly continuous, but varies in more than one dimension (e.g. shape: ovate (1), elliptic (2), circular (3), obviate (4) and cannot be adequately described by just defining two ends of a linear range. In a similar way to qualitative (discontinuous) characteristics each individual state of expression needs to be identified to adequately describe the range of the characteristic.

The Specific Guidelines divide the range of expression of each characteristic into a number of states so as to a variety description to be established. The wording of each state is attributed a numerical “Note”. The division into states

of expression is influenced by the type of expression of the characteristic. Where appropriate example varieties are provided in the Specific Guidelines to clarify the states of expression of a characteristic on the patterns of UPOV to which the Indian procedure has been adequately harmonized.

The Specific Guidelines where possible and useful, also provide recommendations for plot size, sample size, number of replications and the number of independent growing cycles for comparable and reliable results. They also provide specific guidance if it is necessary to examine characteristics in the form of bulk samples.

**iv) Special Characteristics**

*Characteristics Expressed in Response to External Factors:* Characteristics based on the response to external factors, such as living organisms (e.g. disease resistance characteristics) or chemicals (e.g. herbicide resistance characteristics), may be used provided that they fulfil the basic requirements for DUS as mentioned above. In addition, because of the potential for variation in such factors, it is important for those characteristics to be well defined and an appropriate method established which will ensure consistency in the examination.

*Combined Characteristic:* A combined characteristic is a simple combination of a small number of characteristics, provided the combination is biologically meaningful, i.e., characteristics that are assessed separately may subsequently be combined, for example the ratio of length to width, to produce such a combined characteristic. Combined characteristics must be examined for distinctness, uniformity and stability to the same extent as other characteristics. In some cases, these combined characteristics are examined by means of techniques, such as Image Analysis.

*New Types of Characteristics:* The guidelines keep the option of using new types of characteristics, including the possible use of molecular characteristics, that may be considered in due course of time or wherever appropriate.

<b>Self Assessment Question</b>		<b>(Spend 3 minutes)</b>		
3) Based on the criteria for selecting DUS characteristics answer in "Yes" or "No" in each case as to whether the characteristics of "Flower colour" (if the variety produces red, yellow and purple flowers); "Yield" and "Flower beauty" can be used in the DUS test for the criteria (a) to (f):				
Criteria	Flower Colour	Yield	Flower Beauty	
(a) results from a given genotype or combination of genotypes				
(b) is sufficiently consistent and repeatable in a particular environment				
(c) exhibits sufficient variation between varieties to be able to establish distinctness				
(d) is capable of precise definition and recognition				
(e) allows uniformity requirements to be fulfilled				
(f) allows stability requirements to be fulfilled				
Commercial value				
Acceptable for DUS test				

v) *Individual Specific Guidelines*

In most cases, individual Specific Guidelines are prepared for each species. In some cases, it may be appropriate to prepare Specific Guidelines covering a wider or narrower grouping of varieties. Different groups of varieties within a species can be dealt with in separate or subdivided Specific Guidelines, if the categories can be reliably separated on the basis of characteristics suitable for distinctiveness, or where an appropriate procedure has been developed to ensure that all varieties of common knowledge will be adequately considered for distinctiveness.

The individual Specific Guidelines are prepared and are open to revision subsequently by an appropriate Technical Working Party for the species concerned. The list of DUS test site nodal officers and full text of the specific guidelines is also available at [www.plantauthority.in](http://www.plantauthority.in) or with the Registrar of the Authority.

vi) *Testing Authorities*

A "General Agreement" has been developed by the PPVFR Authority to ensure that DUS tests are conducted in a perfect manner and realise that cooperation with other test sites and authorities can reduce the overall time, expense and number of examiners involved in the DUS tests, and minimizes the work involved in the maintenance of variety collections. The "centralized" DUS testing is on a regional or national basis, where the entire examination is carried out on behalf of Authority regardless of the variety or the breeder concerned. This is possible if the environment, whether natural or controlled, is suitable for the examination of all the relevant varieties.

In most situations variety testing is administered by an official authority although the breeders participate in the growing tests to varying degrees. Close cooperation with breeders is being promoted by, PPVFR Authority by linking the test sites, strengthening infrastructures, competence and by sharing the benefits. They are required to conduct the DUS test and produce a test report in accordance with the principles contained in the Guidelines. The decision on DUS may be based entirely on the test report supplied and the Authority may verify the results through Qualified Persons (QPs). The QPs will be designated persons, consultants by the Authority and if the Authority so desires, can ask them to visit the DUS site for joint recording of the observations. The QPs will be persons of high professional standing and ethics. The Authority has drawn up a list of conditions for the examination of a variety on the basis of DUS tests carried out by or on behalf of breeders.

### **5.7.3 Examining Distinctiveness**

The PPVFR Act requires that the candidate variety must be clearly distinguishable from any other variety whose existence is a matter of common knowledge.

The criteria to satisfy the requirement of distinctiveness requires that the candidate variety (variety proposed to be registered) must be clearly distinguishable from any other variety whose existence is a matter of common knowledge. A variety of common knowledge should satisfy the definition of a variety given under Section 2 (i) (iii) of the PPVFR Act, but it may not necessarily have to fulfil the DUS criteria. However, if felt necessary, PPVFR Authority for reasons of

getting a clearly distinguishable character may conduct such a test. Key aspects for determining whether the existence of a variety is a matter of common knowledge may include among others:

- a) Commercialization of propagating or harvested material of the variety, or publishing a detailed description;
- b) The filing of an application for the grant of a breeder's right or for the entering of a variety in an official register of varieties under PPVFR Act, 2001 which is deemed to render that variety a matter of common knowledge from the date of the application, provided that the application leads to the grant of a breeder's right or to the entering of the variety in the official register of varieties, as the case may be;
- c) Existence of living plant material in publicly accessible plant collections.

It is necessary to examine distinctiveness in relation to all varieties of common knowledge. However, a systematic individual comparison may not be required with all varieties of common knowledge. For example, where a candidate variety is sufficiently different, in the expression of its characteristics, to ensure that it is distinct from a particular group (or groups) of varieties of common knowledge, it would not be necessary for a systematic individual comparison with the varieties in that group (or those groups). In addition, certain supplementary procedures may be developed to avoid the need for a systematic individual comparison.

The 'General Guidelines to the examination of DUS and the Development of Harmonized Descriptions of Plant Varieties', published by the PPVFR Authority, details the criteria for distinctness using characteristics.

#### **5.7.4 Examining Uniformity**

As per the criteria of uniformity mentioned in the PPVFR Act, Article 15 (3) (c), subject to variation that may be expected from the particular features of its propagation, the candidate variety has to be sufficiently uniform in its essential characteristics. The relevant characteristics of a variety include at least all characteristics used for the examination of DUS or included in the variety description established on the date of grant of protection of that variety. Therefore, any obvious characteristic may be considered relevant, irrespective of whether it appears in the Specific Guidelines or not.

The uniformity requirement for a variety is linked to the particular features of its propagation. This means that the level of uniformity required for truly self-pollinated varieties, mainly self-pollinated varieties, inbred lines of hybrid varieties, vegetatively propagated varieties, cross-pollinated varieties, mainly cross-pollinated varieties, synthetic varieties, composites, multilines and hybrid varieties will, in general, be different.

Where all the plants of a variety are very similar, and in particular for vegetatively propagated and self-pollinated varieties, it is possible to assess uniformity by the number of obviously different plants – “off-types” – that occur. However, where the range of variation within a variety is larger, because of the features of its propagation, and in particular for cross-pollinated, including synthetic, varieties, the plants are not all very similar and it is not possible to visualize which plants should be considered as atypical or “off-types”. In this case the uniformity can

be assessed by considering the overall range of variation, observed across all the individual plants, to determine whether it is similar to comparable varieties. These two general approaches as generally followed by UPOV and adopted by PPVFR Authority are detailed in the "General Guidelines to the examination of DUS and the Development of Harmonized Descriptions of Plant Varieties" published by the PPVFR Authority.

### **5.7.5 Examining Stability**

The PPVFR Act, Section 15 (3) (d) of the Act requires that to satisfy the criteria of stability of a variety, its essential characteristics should remain unchanged after repeated propagation or, in the case of a particular cycle of propagation, at the end of each cycle. The relevant or essential characteristics include at least all characteristics used for the examination of DUS or included in the variety description established at the date of grant of protection of that variety. Therefore, all obvious characteristics may be considered, irrespective of whether they appear in the Test Guidelines or not.

In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctiveness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable. Furthermore, if the variety is not stable, material produced will not conform to the characteristics of the variety, and where the breeder is unable to provide material conforming to the characteristics of the variety, the breeder's right may be cancelled. The Guidelines provide that where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied. The stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines, if so demanded.

### **5.7.6 Denomination**

The PPVFR Act Section 17 requires that every applicant shall assign a single and distinct denomination to a variety with respect to which the registration is sought. The PPVFR Authority shall, having regard to the provisions of any international convention or treaty to which Indian has become a party, make regulation governing the assignment of denomination to a variety. In case the denomination assigned to the variety does not satisfy the requirements specified in the regulations, the Registrar may require the applicant to propose another denomination within two months from the date of receipt of such direction as specified by the regulations. However, it is not permitted to register a denomination assigned to a variety as a trade mark under the provisions of Trademarks Act, 1999. The Regulations regarding assignment of denomination are given in Box 2.

#### **Box 2:**

#### **Regulations regarding Assignment of Denomination to a variety**

#### ***7. Assignment of Denomination to a Plant Variety.***

A mark may only be approved as a denomination for a variety if the applicant concerned submits documentary proof that the holder of the mark concerned

renounces his or her right to such mark as from the date on which a Plant Breeder's Right to the variety is granted; and

The denomination approved by the Registrar for a variety in respect of which protection has been granted by, or an application for protection has been lodged with the designated authority in a convention country or an agreement country in accordance with the laws in force in that country shall be the same as the denomination thus protected or thus applied for in such country, on condition however that the provision of Sub-section (1) are complied with and that a priority claim on such denomination is not proved by another person.

**8. *The manner in which a single and distinct denomination shall be assigned by the Applicant.***

The denomination that is proposed for a variety in terms of Section 18 of the Act shall—

- a) be suitable to identify the variety;
- b) be expressed by means of letters or combination of letters and figures in Hindi or English;
- c) not to be such as to be mislead or to lead to confusion concerning the characteristics, value or identity of the variety in question or the identity of the breeder thereof;
- d) be different from each denomination which designates existing varieties of the same or a closely related species registered under this Act, in a convention country or an agreement country, or not likely to create confusion in the public regarding identity of the variety;
- e) not be identical with or similar to or liable to lead to confusion with a mark which enjoys the protection accorded thereto by the Trademarks Act, 1999 (47 of 1999) and which applies to propagating material or the use in connection there with or in connection with a product thereof;
- f) not be inimical to public order or contrary to morality;
- g) be the same in all convention countries or agreement countries;
- h) not generally comprise of solely or partly of geographical name;
- i) be not prohibited for use as a name or emblem for any purpose mentioned in Section 3 of the Emblems and Names (Protection of Improper Use) Act, 1950 (52 of 1950).

Notwithstanding anything to the contrary contained in these regulations

- a) when a variety is advertised, offered for sale or marketed, it shall be permitted to associate a trademark, trade name or other similar indication with a registered variety denomination after informing the Registrar in writing;
- b) a trademark, trade name or other similar indication referred to in clause (a) of Section 4 above shall not be used alone without the registered variety denomination and also without the prior information to the Registrar

## 5.8 APPLICATION FORM

The conditions for filing application are given in PPVFR Act Section 18 as mentioned below:

18. (1) Every application for registration under Section 14 shall –
- a) be with respect to a variety;
  - b) state the denomination assigned to such variety by the applicant;
  - c) be accompanied by an affidavit sworn by the applicant that such variety does not contain any gene or gene sequence involving terminator technology;
  - d) be in such form as may be specified by regulations;
  - e) contain a complete passport data of the parental lines from which the variety has been derived along with the geographical location in India from where the genetic material has been taken and all such information relating to the contribution, if any, of any farmer, village community, institution or organisation in breeding, evolving or developing the variety;
  - f) be accompanied by a statement containing a brief description of the variety bringing out its characteristics of novelty, distinctiveness, uniformity and stability as required for registration;
  - g) be accompanied by such fees as may be prescribed;
  - h) contain a declaration that the genetic material or parental material acquired for breeding, evolving or developing the variety has been lawfully acquired; and
  - i) be accompanied by such other particulars as may be prescribed.

Provided that in case where the application is for the registration of farmers' variety, nothing contained in clauses (b) to (i) shall apply in respect of the application and the application shall be in such form as may be prescribed.

(2) Every application referred to in Sub-section (1) shall be filed in the office of the Registrar.

(3) Where such application is made by virtue of a succession or an assignment of the right to apply for registration, there shall be furnished at the time of making application, or within such period after making the application as may be prescribed, a proof of the rights to make the application.

The application for registration of a variety is to be made in the form prescribed in the PPVFR Regulations, 2006 which include:

- 1) Form I - for registration of new variety, extant variety and farmer's variety and
- 2) Form II - for essentially derived varieties (EDVs).

Technical Questionnaire is attached with Form I/Form II – for detailed information of the concerned variety. These filled application forms must be accompanied by the registration fee prescribed in the PPVFR Rules, 2003 is as given below:

Type of Variety	Registration Fee
Essentially Derived Varieties/ New Varieties	Individual Rs. 5000/- Educational Rs. 7000/- Commercial Rs. 10000/-
Extant Variety notified under Section 5 of the Seeds Act, 1966	Rs. 1000/-
Extant Variety about which there is common knowledge	Individual Rs. 2000/- Educational Rs. 3000/- Commercial Rs. 5000/-
Farmers' Variety	No fee

For conducting the required tests under Section 19, the applicant shall deposit with the Registrar the requisite fee for the purpose as specified in column (3) of the Second Schedule, of PPVFR Rules. The Authority shall charge separate fees for conducting DUS test and special test on each variety, dependent on the nature and type of test subject to a maximum of Rs. 50,000 per entry.

## 5.9 ADVERTISEMENT AND OPPOSITION TO APPLICATION

The applications received are examined by the Registrar for acceptance. In case the application does not comply with the requirements of the Act or any rules or regulations made thereunder, he may, either require the applicant to amend the application to his satisfaction or reject the application (Section 20).

The PPVFR Act Section 21 requires that the accepted application is advertised in the prescribed manner calling objections from the persons interested in the matter. The written notice for opposition can be filed with the Registrar within three months from the date of the advertisement in the Form PV-3 of the First Schedule of the PPVFR Rules. The fee payable for filing an opposition is specified in column (3) of the Second Schedule of the Rules, which provides that no such fee shall be payable in respect of an opposition made by a farmer or group of farmers, or village community. The Act recognises that the grounds for opposition may include:

- a) that the person opposing the application is entitled to the breeder's right as against the applicant; or
- b) that the variety is not registerable under this Act; or
- c) that the grant of certificate of registration may not be in public interest; or
- d) that the variety may have adverse effect on the environment.

The notice of opposition is served on the applicant for variety registration who is required to submit in the prescribed manner, a counter-statement, within two months of the receipt of the notice of the applicant. If the counter statement is not filed, the application shall be deemed to have been abandoned. The counter-

statement received shall be served on the person giving notice of opposition. The opponent and the applicant may submit evidence upon which they may rely in the manner prescribed and within the time prescribed, to the Registrar and the Registrar shall give an opportunity to them to be heard, if so desired. The Registrar after hearing the parties and considering the evidence, shall decide whether and subject to what conditions or limitations, if any, the registration is to be permitted and may take into account a ground of objection whether relied upon by the opponent or not. A simplified flow chart of processing of application is given in Fig. 5.1.

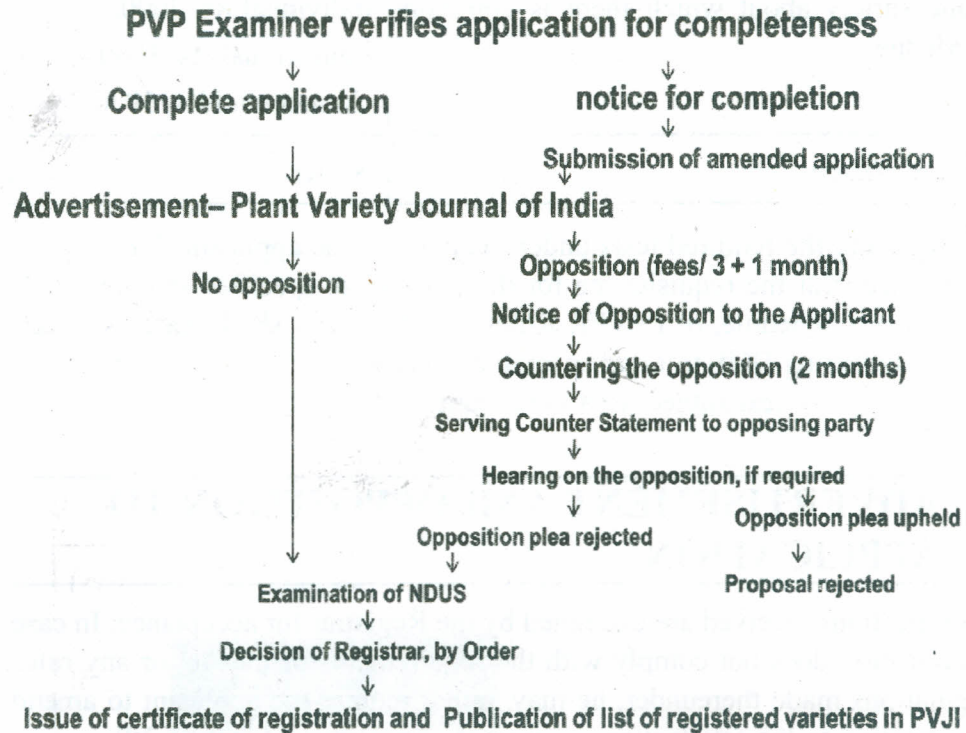


Fig. 5.1: Simplified flowchart for processing of application by the PPFR Registry

Plant Variety Journal of India is the Official Journal of the PPVFR Authority published by the Registrar.

## 5.10 PERIOD OF PROTECTION

The period of protection provided in the Act is 18 years for trees and vines and 15 years for other plant varieties Section 24(6) i-iii). The extant varieties, shall be protected for 15 years from the date of notification. The novelty criteria are therefore not required for registration of extant varieties.

## 5.11 PAYMENT OF ANNUAL FEE

The Authority may, with the prior approval of the Central Government, by notification in the Official Gazette, impose a fee to be paid annually, by every breeder of a variety, agent and licensee thereof registered under this Act determined on the basis of benefit or royalty gained by such breeder, agent or licensee, as the case may be, in respect of the variety, for the retention of their registration under this Act Section 35(1).

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## 5.12 REGISTRATION OF ESSENTIALLY DERIVED VARIETIES

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The essentially derived varieties for the purpose of the Act are those which are clearly distinguishable from an initial variety while retaining the expression of essential characteristics that result from the genotype or combination of genotypes of such initial variety. The breeder of the essentially derived variety shall have the same rights as the plant breeder of other new varieties, which include production, selling, marketing, and distribution including export and import of the variety. The other eligibility criteria for award of registration are also the same as for new variety registration under the Act. [Section 23(1), (6)]

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## 5.13 RESEARCHERS' RIGHT

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The researchers have been provided access to protected varieties for bone fide research purposes. [Section 30]. The Article states, "Nothing contained in this Act shall prevent (a) the use of any variety registered under this Act by any person using such variety for conducting experiments or research; and (b) the use of a variety by any person as an initial source of a variety for the purpose of creating other varieties provided that the authorisation of a the breeder of a registered variety is required where the repeated use of such variety as a parental line is necessary for commercial production of such other newly developed variety."

**Self Assessment Question**

**(Spend 3 minutes)**

- 4) Variety A is a protected variety. Is it required to seek the authorization of the titleholder of A in order to: (a) develop another variety (b) sell F 1 seed of a hybrid variety produced using variety A as a parent.

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## 5.14 FARMERS' RIGHTS

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The farmers' rights under the PPVFR Act define the privilege of farmers and their right to protect varieties developed or conserved by them. Provision of Section 39 provides that any farmer can save, use, sow, resow, exchange, share and sell farm produce of a protected variety except sale under a commercial marketing arrangement (branded seeds). Further, Section 42 provides farmers protection for innocent infringement when at the time of infringement a farmer is not aware of existence of breeder's rights.

The Section 39 (2) of the Act requires that the expected performance of a variety is to be disclosed to the farmers at the time of sale of seed/propagating material. A farmer or a group of farmers or an organisation of farmers can claim compensation as per the Act, if a variety or the propagating material fails to give the expected performance under given conditions, as claimed by the breeder of the variety.

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## 5.15 COMMUNITIES RIGHTS

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The Rights of the communities as defined provide for compensation for the contribution of communities in the evolution of new varieties in quantum to be determined by the PPVFR Authority [Section 41 (1)].

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## 5.16 COMPULSORY LICENSE

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Under Section 47 (1) of the PPVFR Act, the Authority can grant compulsory license, in case of any complaints about the availability of the seeds of any registered variety to public at a reasonable price. The license can be granted to any person interested to take up such activities after three years from the date of issue of certificate of registration to undertake production, distribution and sale of the seed or other propagating material of the variety. The license shall be granted after consultation with the Central Government and after giving an opportunity to the breeder of such variety.

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## 5.17 BENEFIT SHARING

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Upon the issuance of the registration certificate, the Authority shall, for the purpose of inviting claims for benefit sharing under Section 26(1) PPVFR Act, shall advertise the details of the registration certificate and the registered variety. The authority shall determine the quantum of such award after ascertaining the extant and nature of the benefit claim, after providing an opportunity to be heard, to both the plant breeder and the claimer.

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## 5.18 NATIONAL GENE FUND

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The National Gene Fund to be constituted under the Act, which shall be credited with

- a) The benefit sharing from the breeder
- b) The annual fee payable to the authority by way of royalties
- c) By the compensation provided to the communities as defined under Section 41(1)
- d) Contribution from any national and international organisation and other sources

The fund will be applied for disbursing shares to benefit claimers either to individuals or organisation, and for compensation to village communities. The fund will also be used for supporting conservation and sustainable use of genetic resources including *in-situ* and *ex-situ* collection and for strengthening the capabilities of the panchayat in carrying out such conservation and sustainable use. Accordingly, the PPVFR Authority has constituted the "*Plant Genome Saviour Community Award*" for recognising the contributions of community of farmers particularly the tribal, rural communities engaged in conservation, improvement and preservation of genetic resources of economic plants and their wild relatives particularly in areas identified as agro-biodiversity hot spots.

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## 5.19 EXCLUSION OF CERTAIN VARIETIES

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As per PPVFR Act Section 29, protection can be denied to a variety on the grounds that the commercial exploitation of the variety is prevented to protect (i) public order; (ii) morality; (iii) human, animal and plant life and health and (iv) avoid serious prejudice to the environment. These grounds are similar to the grounds stated in the TRIPS Agreement for the exclusion of inventions from patent protection. It is also made clear that a variety containing any gene or gene sequence involving any technology, including genetically used restriction technology and terminator technology that is injurious to the life or health of human beings, animals or plants are excluded from protection. The applicant for registration of a new variety must give an affidavit that the variety does not contain any gene or gene sequence involving terminator technology.

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## 5.20 PLANT VARIETY PROTECTION APPELLATE TRIBUNAL

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The Tribunal will be established after notification by the Government in the gazette to exercise jurisdiction, powers and authority conferred on it under this Act. The Tribunal will consist of Judicial as well as Technical members.

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## 5.21 SUMMARY

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- Responding to the TRIPS Agreement, India evolved a *sui generis* form of PBR legislation namely the Protection of Plant Varieties and Farmers' Rights Act, 2001, (PPVFR) that simultaneously granted rights to both breeders and farmers. The PPVFR is expected to stimulate investment for research and development, and facilitate the growth of the seed industry in the country.
- The Act provides for protection for a variety, extant variety, farmers' variety and essentially derived varieties which have been defined. It covers all plant varieties except microorganisms but provides operational flexibility to notify the genera or species for the purposes of registration of varieties in phases; and at present 57 genera have been notified.
- Certificate of registration shall be valid for nine years in case of trees and vines and six years in the case of other crops which may be renewed for a total period not exceeding eighteen years in case of trees and vines, and fifteen years for others from the date of registration.
- The issue of a certificate of registration for a variety confers exclusive right on the breeder to produce, sell, market, distribute, import or export the variety. The provision of compulsory licensing has been incorporated to ensure the availability of seeds of protected variety at affordable prices.
- The criterion defined for registration under the Act is that the variety should be novel, distinct, uniform and stable. The Protection of Plant Varieties and Farmers Rights Authority (PPVFRA) has developed and notified for different groups of genera and species defined guidelines and specific Centres for conducting the tests for distinctness, uniformity and stability (DUS) in highly precise cultivation conditions.

- It is mandatory to provide complete passport data of the parent line from which new variety has been developed including the location from where the genetic material has been taken; and a declaration that the genetic material used has been lawfully acquired. In addition, an affidavit is to be submitted by the applicant that the variety does not contain any gene or gene sequence involving terminator technology. Also the breeder is required to deposit such quantity of seeds of registered variety in the National Gene Bank.
- There is an exemption to the rights for research purposes, with authorization of plant variety protection holder required before commercialization when repeated use of parental lines of a variety is done.
- The Act permits the farmers to save, use, exchange, share or sell his farm produce of a protected variety in the same manner as he was entitled before the coming into force of this Act, except that branding is not permitted. In addition, when any new variety is sold to a farmer, the breeder is required to disclose, the expected performance under given conditions, and the farmer may claim compensation in case the performance is not as expected. A provision is also made for protecting the farmer from innocent infringement.
- A National Gene Fund has been established from benefit sharing received and the compensation deposited, annual fee payable to the Authority by way of royalty and contribution from any national and international organisation and other sources. The farmer(s) and communities engaged in the conservation of genetic resources of land races and wild relatives of economic plants and their improvement through selection and preservation are entitled for recognition and reward from the National Gene Fund.

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## **5.22 TERMINAL QUESTIONS**

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- 1) What is a variety that can be protected as per the PPVFRA?
- 2) What is DUS testing?
- 3) What are the regulations regarding assignment of denomination to a variety?

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## **5.23 ANSWERS AND HINTS**

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### **Self Assessment Questions**

- 1) The PPVFR Authority notifies the genera and species, the varieties of which can be protected under the Act. If the genera is notified the plant varieties present in wild cannot be registered as such. However, any traditionally cultivated plant variety which has undergone the process of domestication/improvement through human interventions can be registered and protected, subject to the fulfilment of the eligible criteria.
- 2) A DUS growing test involves the cultivation of the variety in a way which ensures the expression of the relevant characteristics of the variety.

3)

Criteria	Flower Colour	Yield	Flower Beauty
(a) results from a given genotype or combination of genotypes			
(b) is sufficiently consistent and repeatable in a particular environment			
(c) exhibits sufficient variation between varieties to be able to establish distinctness			
(d) is capable of precise definition and recognition			
(e) allows uniformity requirements to be fulfilled			
(f) allows stability requirements to be fulfilled			
Commercial value			
Acceptable for DUS test			

- 4) In the case (a) authorisation is not required as development of new variety would be covered as an act of research which is permitted. In case (b) authorisation will be required. Selling F1 seed of a hybrid variety produced using variety A as a parent implies the propagating material of the variety to be sold that requires the repeated use of the protected variety A

#### Terminal Questions

- 1) Refer to Section 5.5
- 2) Refer to Section 5.7
- 3) Refer to Sub-section 5.7.6 and Box 2

### 5.24 REFERENCES AND SUGGESTED READINGS

- 1) The Protection of Plant Varieties and Farmers' Rights Act, 2001
- 2) <http://agricoop.nic.in/PPV&FR%20Act,%202001.pdf>
- 3) The Protection of Plant Varieties of Farmers Rights Rules, 2003
- 4) <http://agricoop.nic.in/seeds/farmersact2001.htm>
- 5) Protection of Plant Varieties and Farmers' Rights Authority Regulations Ministry of Agriculture (Department of Agriculture and Cooperation) Notification 7th December, 2006
- 6) <http://faolex.fao.org/docs/pdf/ind68512.pdf>
- 7) General Guidelines to the examination of DUS and the development of harmonized descriptions of plant varieties
- 8) <http://www.plantauthority.gov.in/pdf/EnglishPart.pdf>
- 9) <http://www.plantauthority.gov.in>

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# UNIT 6 ENFORCEMENT OF PBRs

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## Structure

- 6.1 Introduction
- 6.2 Objectives
- 6.3 Scope of Breeder's Right
  - 6.3.1 Protection of Plant Varieties and Farmers' Right Act
  - 6.3.2 The UPOV Convention
  - 6.3.3 Community Plant Variety Rights
- 6.4 The Period of Protection
- 6.5 Infringements
  - 6.5.1 Enforcing Protection
  - 6.5.2 Infringement and Enforcement Remedies
- 6.6 Problems in Enforcing PBRs
  - 6.6.1 Exemptions
- 6.7 Strategies for Enforcing PBRs
  - 6.7.1 Fixed Royalty Rate
  - 6.7.2 Royalty Connected to the Seed Price
  - 6.7.3 Minimum Royalty Rate
  - 6.7.4 Royalty Intervals Connected to Sold Quantity
  - 6.7.5 Multiplication Acreage and End-point Royalties (EPR)
- 6.8 Non-PBR Mechanisms to Enforce the Interest of Breeders
  - 6.8.1 Biological Protection
  - 6.8.2 Seed and Biosafety Regulations
  - 6.8.3 Contracts
  - 6.8.4 Brands and Trademarks
- 6.9 Support by the National Offices in the Enforcement of the PBRs
- 6.10 Summary
- 6.11 Terminal Questions
- 6.12 Answers and Hints
- 6.13 References and Suggested Readings

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## 6.1 INTRODUCTION

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Acquisition and maintenance of any intellectual property right, including the PBRs, is meaningless if that right cannot be enforced in the marketplace. It is the threat of enforcement which allows the right owner to reap the fruits of new inventions by exploiting them as a commercial asset. The effective enforcement of PBRs is fundamental to an effective and efficient plant breeding industry. The PBR system is significantly devalued if owners of PBR cannot enforce their rights in a speedy and cost efficient manner. When viewed in this context, the existence of an effective enforcement regime becomes a central aspect of a well-functioning PBR system.

TRIPS Article 27 (3)( b) requires explicitly that the plant varieties are to be protected either through patents or a *sui generis* system that is 'effective'. However, the TRIPS Agreement does not specify any criteria for effectiveness. The essential elements identified to contribute effectiveness to *sui generis* relates to the level of protection and requires certain substantial minimum rights to be conferred by the *sui generis* right. Such an interpretation, however, causes enormous difficulties as soon as one attempts to define those minimum rights. The legal framework that can provide protection to the largest range of new varieties developed can alone be considered an 'effective' system.

The TRIPS Agreement itself points at a different interpretation of the term 'effective'. The TRIPS Agreement contains, in particular, provisions on the means of enforcing IPRs, which can be argued as common standards applicable at international level for an effective system. The Agreement in the context of national enforcement of rights and the procedures for the multilateral prevention and settlement of disputes between governments requires effective action against any act of infringement of IPRs including expeditious remedies to prevent infringements and remedies which constitute a deterrent to further infringements as per Articles 41. The civil and administrative procedures as required by TRIPS Articles 42-49 are based on the presumption that IPRs are private rights for the enforcement of which members only have to provide the judicial procedures. The right-holders are responsible for uncovering infringements of their rights and, subsequently, taking the appropriate action in court, if they so wish. This interpretation, as considered for an 'effective' *sui generis* system requires effective action against any act of infringement and does not depend on its requirements for or on the level of protection.

In respect of other areas of IPRS, the TRIPS Agreement sets out the minimum standards of protection, defining the main elements of protection, namely, the subject-matter to be protected, the rights to be conferred and permissible exceptions to those rights, and the minimum duration of protection. The Agreement sets these standards by requiring, first, that the substantive obligations of the main conventions of the WIPO, the Paris Convention for the Protection of Industrial Property (Paris Convention) and the Berne Convention for the Protection of Literary and Artistic Works (Berne Convention), in their most recent versions, must be complied with. In addition, the TRIPS Agreement includes a substantial number of other obligations on matters where the pre-existing conventions are silent or were seen as being inadequate. In contrast for protection of plant varieties, there are no references to the UPOV Acts. By this argument, the UPOV Acts do not qualify as a yardstick for enforcement of PBRs and it might be impossible to define effectiveness on a global scale. The same protection system may be of different effectiveness in different countries whatever specific criteria are being used for evaluating the effectiveness.

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## 6.2 OBJECTIVES

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After completing the study of this unit, you should be able to:

- acquire a basic understanding of scope of the PBRs;
- analyse the problems associated with enforcement of PBRs; and
- explain briefly the mechanisms available for enforcement for PBRs.

## 6.3 SCOPE OF BREEDER'S RIGHT

A PBR provides the breeder with the right to exclude others from using the registered variety for a range of commercial activities and from misusing the variety name. It is pertinent to understand the scope of these rights before looking into the aspects of their enforcement

### 6.3.1 Protection of Plant Varieties and Farmers' Right Act

The PBR system in India is governed by the Protection of Plant Varieties and Farmers' Right Act (PPVFR Act), 2001 and its Rules in 2003. The Protection of Plant Varieties and Farmers' Right Authority was established in the year 2005. The process of registration of plant varieties for first set of 12 crop species was initiated from November 2006 and formal registration of varieties started from 20 February 2007. Section 28 (1) of the Act confers an exclusive right on the breeder or his successor, his agent or licensee, to produce, sell, market, distribute, import or export the variety registered under the Act. In the case of an extant variety, unless a breeder or his successor establishes his right, the Central Government, and in cases where such extant variety is notified for a State or for any area thereof under Section 5 of the Seeds Act, 1966, the State Government shall be deemed to be the owner of such right. The "breeder" means a person or group of persons or a farmer or group of farmers or any institution which has bred, evolved or developed any variety.

### 6.3.2 The UPOV Convention

The UPOV Convention sets out a minimum scope of protection and offers members the possibility of taking national or regional circumstances into account in their legislation. The UPOV Act 1978 (Article 5.1) requires the permission of the right owner for:

- production for purposes of commercial marketing
- offering for sale or offering marketing rights to reproductive or vegetative propagating material

Typical examples of propagating material are seeds, cuttings and grafting stock. The scope was further expanded by UPOV Act 1991 (Article 14.1) by adding the following activities for which permission of the owner is required:

- production or reproduction (multiplication)
- conditioning for the purposes of propagation
- exporting
- importing
- stocking for any of [these] purposes

The UPOV Convention defines acts concerning propagating material in relation to which the holder's authorization is required. For example, under the 1991 Act, it is sufficient to show unauthorised reproduction, while the 1978 Act required proof of intent to "*commercial[ly] market*" the material. Also under the 1991 Act (Article 14.2) protection is extended to "*harvested materials, including entire plants or parts of plants.*" Thus the exclusive rights apply not only to propagating material but also to harvested material, where the harvest has been

obtained through an unauthorised use of the propagating material and the breeder has not had a reasonable opportunity to exercise his or her right in relation to that material. This means, for example, that the blooms from an unauthorised propagation of a rose variety overseas can be barred access. Under the 1978 Act (Article 5.4), such an extension of protection was optional. In addition, members states are permitted but not required under Article 14.3 in the 1991 Act, to extend protection to “*products made directly from harvested material of the protected variety*”.

Under the 1978 Act Article 4 provides flexibility to members states to progressively extend protection to an increasing number of genera or species, beginning with five on the date the treaty enters into force for that state and ending with twenty-four within eight years. The 1991 UPOV Act requires members states to protect at least fifteen plant genera or species upon ratifying or acceding to the Act, and to extend protection to all plant varieties within ten years (Article 3(2)).

Although the UPOV 1978 Act was expected to focus on plant varieties created through classical breeding methods, Article 6.1(a) indicates that a protected variety may result from a natural source of initial variation, meaning thereby that members states are required to protect varieties which have been discovered. The UPOV 1991 Act makes it explicit through article 1(iv)’s definition of a “breeder” as including a “person who bred, or discovered and developed a variety.” It also provides a definition for plant “variety” as a “plant grouping within a single botanical taxon of the lowest known rank” which can be “defined by the expression of the characteristics resulting from a given genotype or combination of genotypes; distinguished from any other plant grouping by the expression of at least one of the said characteristics; and considered as a unit with regard to its suitability for being propagated unchanged.” In contrast, no definition of “variety” is provided in the UPOV 1978 Act, which indicates that the members states to earlier Act have greater discretion in defining the characteristics of plant groupings that qualify for protection.

Further, the UPOV 1991 Act permits members states to protect the same plant variety with both a breeders’ right and a patent (plant patents can be taken in some countries), thus removing the ban on dual protection existing in the UPOV 1978 Act.

### 6.3.3 Community Plant Variety Rights

The Community plant variety rights also confer upon their holder the rights to perform the same acts as defined in Article 13 of EC Regulation 2100/94. This concerns, in particular, the production or reproduction, conditioning for the purpose of propagation, offering for sale, selling, exporting from the Community, importing to the Community, etc. of the variety for which Community protection has been granted.

#### Self Assessment Question

(Spend 2 minutes)

- 1) List seven acts which a breeder of a protected variety may prohibit in respect of his/her propagating material under the UPOV 1991 Act.

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## **6.4 THE PERIOD OF PROTECTION**

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Like all intellectual property rights, plant breeders' rights are granted for a limited period of time. Under the PPVFR Act, the total period of validity shall not exceed eighteen years in case of trees and vines, and fifteen years in other cases from the date of registration of variety. The extant varieties can be protected for fifteen years from the date of notification of the variety by the Central Government under Section 5 of the Seed Act, 1966.

Under UPOV 1991 Act, the breeder's right is granted for a period of not less than 20 years from the date of grant or, in the case of trees and vines, for not less than 25 years. Once the PBR has expired, the variety may be freely used by the public.

It is also important to note that the authorization of the holder of a plant breeder's right is not required for the use of their variety for private and non-commercial purposes, for research purposes, nor for use in the breeding of further new varieties.

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## **6.5 INFRINGEMENTS**

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The rights of a PBR holder are infringed if someone performs any act described in the Scope of Grant of Protection without the consent of the owner in respect of the propagating material and/or harvested material of the plant variety. The owner of the plant variety can take civil legal action against an infringing party, including seeking relief in the form of an injunction to stop the infringing action, demanding for the profits gained by the infringing party at his expense and/or seeking damages for the loss suffered.

The most common type of infringement is unlawful appropriation of germplasm for seed production and sale, either directly cultivating a plant that is the same as the protected or cultivating plants from the protected plant variety by asexual means without permission of the rights holder. Infringement also can occur by registering existing varieties as genuinely new ones if the DUS tests not performed efficiently. Another form of infringement is the practice what is popularly called "brown bagging". In this some farmers produce and sell large volumes of seed, far more than they would be able to plant on their own farms as the illegal seed is often sold in unmarked brown bags, from which it derives the name brown bagging. While this is not considered as an infringement under the PPVFA Act which permits farmers to sell seeds (only branded seeds are prohibited) of a protected variety, the farmer exemption in most other PBR laws permits farmers to grow and save enough seed of a PVP variety to plant on their own acreage. However, there is a US Supreme Court decision that upholds the rights of PVP certificate owners, and may discourage, but will not stop, brown-bag sales.

The cost of infringement largely comprise (a) the loss of sales by the rights holder due to unauthorised sale of seed of protected varieties or “brown bagging” and (b) The cost incurred to investigate and take action against those who are selling seed of protected varieties.

<b>Self Assessment Question</b>	<b>(Spend 3 minutes)</b>
<p>2) As per the UPOV 1991 Act for consumers having lawfully purchased material of a protected variety, which of the following acts constitutes an infringement of the plant breeder’s right?</p> <p>a) to consume the purchased products</p> <p>b) to plant them in their own garden (e.g. potato)</p> <p>c) to take cuttings to establish a garden (e.g. rose)</p> <p>d) to sell flowers derived from the rose garden mentioned in choice ‘c’ above</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	

**6.5.1 Enforcing Protection**

Like any other IPR, enforcing PBRs is also primarily the responsibility of the owner of the rights. It is essential for the breeder of the PBR protected variety to stay alert for unauthorised sales and take measures against such things as advertisements in local newspapers of illegal activity, inform any individuals, companies, or other organisations that sell or distribute the variety to be alert to illegal sales and to notify immediately if they detect them. The inherent property of reproduction of the protected product such as seed or propagating material makes it possible that in many cases the unauthorised seller may very well not realize that the variety is protected. In such cases generally a legal notice or a warning is often sufficient to stop the problem. If the offender persists in making illegal sales, he/she may be threatened with stopping future releases. The PBR owners largely take somebody to court only as a last resort, considering whether a court battle is worth the cost in money and public relations. Many of the US companies, however, use Bag-tag warning by labelling all seed containers of the variety as “*Unauthorised Propagation Prohibited, U.S. Variety Protection PVPA 1994 Applied*” before PVP certificate is awarded; and “*U.S. Protected Variety PVPA 1994 Unauthorised Sales for Reproductive Purposes Prohibited*” after the PVP certificate is awarded.

Plant varieties can be protected in the USA under a system of plant patents, or under a system of utility patents or under the Plant Variety Protection Act (PVPA). The conflict between patent protection and protection under PVPA was resolved by the Federal Circuit Court of Appeal in its decision in *Pioneer Hi-Bred International Inc. v. J.E.M. Ag Supply Inc.* Pioneer’s patents covered the manufacture, use, sale, and offer for sale of the company’s inbred and hybrid corn seed products as well as certificates of protection under the Plant Variety

Protection Act for the same seed-produced varieties of corn. The defendants argued that the enactment of the Plant Variety Protection Act had removed seed-produced plants from the realm of patentable subject matter the Patents Act. The Federal Circuit rejected this argument noting that the Supreme Court held that 'when two statutes are capable of co-existence, it is the duty of the courts ... to regard each as effective'.

While Patents offer a much stronger protection but are far more costly to apply for and to maintain. The difference is not in the application fees structure, which may in fact be lower for patents, but rather, a patent usually requires an attorney's assistance to prepare the application. PBR applications are typically completed by the breeders. Adding the elaborate translation requirements under some patent laws and the annual maintenance fees can also make patenting a costly process, compared with PBR.

### **6.5.2 Infringement and Enforcement Remedies**

The PPFR Act provides that in case of an infringement of its rights, the rights holder can file a civil suit in a court, which will not be inferior to a District Court. In the suit, the rights holder may seek an injunction and either damages or a share of the profits. The order for injunction could include interlocutory order for discovery of documents, preserving of infringing variety or documents or other evidence which are related to the subject matter of the suit, and attachment of such property of the infringer that the court deems necessary to recover damages, costs, or other pecuniary remedies which may be finally awarded to the rights holder.

Enforcement of plant breeder's right under UPOV system is primarily the responsibility of the breeders based upon the appropriate legal remedies provided by members of the UPOV Convention. In this regard, UPOV has a position to discuss activities of UPOV and possible future initiatives in relation to the enforcement of PBRs on the examination of laws of future members, raising awareness of the importance of enforcement through seminars, lectures, distance learning and guidance, coordination and cooperation.

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## **6.6 PROBLEMS IN ENFORCING PBRs**

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In recent years the owners of PBRs have repeatedly expressed concerns about the difficulties associated with enforcing PBR. Some in the industry were critical of the actual protection provided by PBR, which has resulted in a significant amount of infringement. Over time this is reducing the attractiveness of PBR and forcing industry to look at other forms of protection, or none at all, and may result in a reduced investment in plant breeding.

PBR is not a preferred IP protection tool, except for, as noted, the protection of inbred lines used to create hybrids. The major areas of concern for the PBR owners include:

- i) Limitations of the current PBR laws: This relates to national legislations and includes issues such as exclusive/extended rights, exhaustion of rights, lack of clarity, pre-grant enforcement and essentially derived varieties.
- ii) The difficulties in procedural issues: This encompasses issues that are relevant to the enforcement of PBR, alternative dispute resolution and civil

versus criminal sanctions. All PBR systems need to be underpinned by a strong judicial system for dealing with both civil and criminal offenses, staffed by an adequate number of judges with suitable background and experience. Without a proper system for both on enforcing rights and also enabling the grant of rights to others, any PBR system will have no value.

- iii) Difficulties with the collection of royalty payments made possible through the exploitation of the new plant variety.

### 6.6.1 Exemptions

The PBR legislations in most countries contain important exemptions that allow people to use protected plant varieties in certain ways without having to obtain the permission of the PBR owner. Provisions for farmer's privilege (where allowed) and breeders' rights are generally considered to give holders of PBR certificates weaker protection than do patents. This helps explain why, where the choice is available, commercial breeders often prefer patents, or patents plus PBR, over PBR alone.

#### a) *The Rights of Researchers*

The Section 30 of the PPVFR Act states that:

*“nothing in the Act will prevent (a) the use of any protected variety by any person using the variety for conducting experiments or research; or (b) the use of a variety by any person as an initial source of variety for the purpose of creating other varieties.”*

However, there is a condition that *“the authorisation of the breeder of a registered variety [which] is required where the repeated use of such variety as a parental line is necessary for commercial production of such other newly developed variety.”*

The breeders' exemption is rooted in the UPOV and manifests itself in the PBR legislations of many nations. This exemption under the PBRs allows using a protected plant variety privately and for non-commercial purposes, or for experimentation, or to breed other varieties. These breeder's exemptions are statutory with PBR and hence is relatively clear in their scope. The national patent systems do allow some research on patented inventions, but the form and extent of research allowed is based on case law and so it is more difficult to assess. The difference in this matter between patents and PBR is one of clarity alone; however, this makes research use under PBR a more clear-cut process than for patented inventions. However, common law contracts between the PBR owner and other parties can be used to limit such uses.

#### b) *Farmers' Rights*

The PPVFR Act stipulates that farmers are *“entitled to save, use, sow, resow, exchange, share or sell”* their farm produce, including seed of a variety which is protected under the Act (Section 39.1). However, farmers are not entitled to sell branded seed of a protected variety. According to the Act, branded seed *“means any seed put in a package or any other container and labelled in a manner indicating that such seed is of a [protected] variety.”* Arguments have been raised 'whether or not this qualification on the so-called 'branded seeds' will affect the farmers ability to engage in brown-bagging.

While there is no reference to the farmers' privilege in the 1978 UPOV Act, but the interpretation of Article 5 of the 1978 Act gave rise to the "farmers' privilege", which implies that farmers are allowed to reuse the propagating material from the previous year's harvest. Farmers are also allowed to freely exchange seeds of the protected varieties. The 1991 UPOV Act, however, strengthened the rights of breeders at the expense of small farmers. According to Article 15 of the Act, Contracting parties may, within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, restrict the breeder's right in relation to any variety to permit farmers to use for propagating purposes on their own holdings, the product of the harvest which they have obtained by planting, on their own holdings, the protected variety.

Community plant variety rights also, in order to protect farming production, allow farmers to use crop products that are based on protected seed material that was purchased legally by the farmers ("reproduction seeds") for the purpose of progeny on crop growing on their own farm ("farmers' privilege"). The exemption is only applicable for certain crops (Article 14).

The PBR systems are distinct from patents in allowing the farmers to save the propagating material harvested from a legitimately obtained protected plant variety. A farmer who buys the seeds, plants the crop, keeps the seed from the crop, and reseeds on his own holdings for the following year is not infringing any PBR. Also if the farmer does not sell his crop seeds to his neighbour, but gives those seeds to him or her is not an infringement. There is also no infringement if a party buys the seeds from the PBR holder and resells those same seeds. This is known as the 'farm-saved seed exemption' or 'farmer's privilege'.

Under patents, such actions would constitute infringement. The effects of patents, although territorial in nature, may extend beyond the territory of cultivation and reach derivatives of patented plants or genes. Monsanto, for instance, does not have a patent on Roundup Ready® soybean in Argentina, which is exporting processed soybean flour to European countries. In Argentina, the original Monsanto materials have been used in breeding since 1996, and around 160 local varieties containing the gene have been developed and registered by third parties. Although Monsanto did not oppose the commercialization of those varieties, it has filed requests to the customs authorities of several European countries (where Monsanto does have patent protection for Roundup Ready® soybeans) demanding that the importation of soya flour produced in Argentina be prevented, and has initiated litigation against European importers.

<b>Self Assessment Question</b>	<b>(Spend 3 minutes)</b>
3) A farmer lawfully acquires seed of a protected variety. Will the following acts be considered as infringement under the PPVFR Act? Explain.	
a) Grain produced from the cultivation of lawfully acquired seed is sold.	
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b) Seeds produced from lawfully acquired seed is sold to another farmer.

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**c) Protection of innocent infringement**

The PPVFR Act Section 42 provides that:

*“a right established under this Act shall not be deemed to be infringed by a farmer who at the time of such infringement was not aware of the existence of such right; and a relief which a court may grant in any suit for infringement referred to in section 65 shall not be granted by such court nor any cognizance of any offence under this Act shall be taken for such infringement by any court against a farmer who proves, before such court, that at the time of the infringement he was not aware of the existence of the right so infringed”.*

Therefore, if a person satisfies a court that, at the time of the infringement, the person was not aware of, and had no reasonable grounds for suspecting the existence of a PBR in a particular plant variety, the court may refuse to award damages or to make an order for an account of profits against the person. This is known as ‘innocent infringement’. It can deal with issues such as inadvertent cross-pollination between GM and non-GM varieties. However, this defense is not available where the propagating material of the protected plant variety has been labeled to indicate the existence of PBR and it has been sold to a substantial extent before the date of infringement.

In this context the case of Saskatchewan farmer *Percy Schmeiser v. Monsanto* raises important questions about gene patents, innocent infringement, and farmers’ rights. The case concerns a Canadian patent granted to Monsanto in 1993 for an invention named “Glyphosate-Resistant Plants”. The patent was for “man-made genetically engineered genes, and cells containing those genes which, when inserted in plants, in this case canola, make those plants resistant to glyphosate herbicides” such as Monsanto’s product Roundup Ready. In 1997, Monsanto sent private investigators to take samples from the canola farm of Percy Schmeiser.

Monsanto Canada sued Percy Schmeiser, asserting that he was infringing a Canadian patent that covered Monsanto’s Roundup Ready canola. It claimed that the farmer planted glyphosate-resistant seeds to grow a crop of GM canola, for harvest. It claimed that Schmeiser used, reproduced, and created genes, cells, plants and seeds containing the genes and cells claimed in the patent

Percy Schmeiser claimed in the first instance that the seeds with the patented gene blew onto his fields. According to Schmeiser’s testimony in the case, in 1997, Schmeiser was spraying Roundup herbicide in ditches bordering his canola fields, when he noticed that some volunteer canola plants growing in the ditches survived the spraying. He then sprayed portions of his canola fields, and some 60% of the sprayed crop survived. Eventually, Schmeiser harvested seed from the fields and from the ditches, saved some of the harvested seed,

and replanted it in 1998. According to grow-out tests conducted on Schmeiser's 1998 crops by Monsanto's expert, those crops contained a high proportion of Roundup Ready canola.

Because Schmeiser had never purchased Roundup Ready canola from any authorized sources, Monsanto sued, asserting that the 1998 crop infringed Monsanto's patent. Schmeiser challenged the principle that unintentional, "innocent" infringement is still infringement, arguing that infringement should be excused where it comes about because of the unintentional appearance of volunteer plants within a farmer's crop.

The issues of patent infringement and "farmer's rights" were settled, in Monsanto's favour, at the trial before the Federal Court of Canada and upheld at the appeal level before the Federal Court of Appeal. The Canadian appellate court concluded that Schmeiser's infringement was not innocent, because he knew or should have known that the seeds saved from the 1997 crop exhibited Roundup tolerance. However, the court's comments leave open the possibility that an innocent-infringement defense may survive in a future case. After acknowledging the general principle that innocence does not excuse infringement, the court suggested that patented plants might present a special case:

*"[The patented Monsanto gene] is a patented invention found within a living plant that may, without human intervention, produce progeny containing the same invention. It is undisputed that a plant containing the Monsanto gene may come fortuitously onto the property of a person who has no reason to be aware of the presence of the characteristic created by the patented gene... In my view, it is an open question whether Monsanto could, in such circumstances, obtain a remedy for infringement..."*

Second, Schmeiser argued that Monsanto had "waived" its patent rights by failing to take adequate steps to prevent pollen drift contamination, or, perhaps, by releasing Roundup Ready canola into the environment knowing or suspecting that pollen drift would result. The Canadian appellate court expressed considerable skepticism about this argument, concluding that Monsanto's efforts to control pollen drift had been adequate and that Schmeiser knew or should have known that his 1998 crop was Roundup tolerant in any event. The court did, however, mention in passing that the inevitability of pollen drift "may cause Monsanto some difficulty in defending its patent rights in certain situations," even if it could not "be taken as a waiver by Monsanto of its patent rights."

Both courts found that a key element in Mr. Schmeiser's patent infringement in his 1998 crop was that he knew or ought to have known the nature of the seed he planted.

Leave was requested of the Supreme Court of Canada to hear the case. This was granted in May, 2003 and the trial began on January 20, 2004. The issue before the Supreme Court was whether Schmeiser's planting and cultivation of genetically modified canola constituted "use" of Monsanto's patented invention of genetically modified canola cells. Intervening on Schmeiser's behalf were a consortium of six non-government organisations.

The Court considered the question of whether knowingly (or, where one ought to have known) planting and cultivating genetically modified canola constitutes "use" of Monsanto's patented invention of genetically modified canola cells, even

if the crop is not treated with Roundup and the presence of the gene affords no advantage to the farmer. The court ruled in favour of Monsanto, holding that his use of the patented genes and cells was analogous to the use of a machine containing a patented part: *"It is no defense to say that the thing actually used was not patented, but only one of its components."* The court also held that by planting genetically modified Roundup resistant canola, Schmeiser made use of the "stand-by" or insurance utility of the invention. That is, he left himself the option of using Roundup on the crop should the need arise. This was considered to be analogous to the installation of patented pumps on a ship: even if the pumps are never actually switched on, they are still used by being available for pumping if the need arises.

On May 21, 2004, the Supreme Court ruled 5-4 in favor of Monsanto. Schmeiser won a partial victory, where the court held that he did not have to pay Monsanto his profits from his 1998 crop, since the presence of the gene in his crops had not afforded him any advantage and he had made no profits on the crop that were attributable to the invention. The amount of profits at stake was relatively small, C\$19,832, however by not having to pay damages, Schmeiser was also saved from having to pay Monsanto's legal bills, which amounted to several hundred thousand dollars.

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## 6.7 STRATEGIES OF ENFORCING PBRs

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Benefits of acquiring PBRs can only accrue when the rights can be enforced, otherwise, infringers and counterfeiters will always take advantage. The enforcement of PBRs is essential to:

- Preserve the legal validity before the relevant public authority
- Prevent infringement
- Seek compensation for actual damage resulting from any instance of infringement in the marketplace.

The owners of the PBRs and breeding companies in order to commercialize their plant varieties generally license out seed production and distribution rights to seed companies. The variety license consists of an agreement between the owners of the varieties, or an authorized representative and a legally eligible person who wishes to commercialize the variety.

Seed in addition to being a commercial commodity is also a means of transferring the latest technology to the farmers. In this context in countries like India the public sector breed varieties have been provided to seed producers and farmers at no cost or minimum cost. This free sharing of varieties makes it difficult to give recognition, in terms of royalty payments, for the variety improvement work. However, the use of seed as commercial commodity entails its trading and opportunities for earning profits. This is an incentive, especially for the private seed business, for continued crop development, as they are interested in a return on the investment so as to re-invest in further breeding and the development of new technology and plant varieties.

The rights to commercial exploitation of the plant varieties granted by the PBR owners under the license agreements require that the licensee pays a royalty to the licensor. The royalty is governed largely by the market forces, balancing the

cost-effectiveness for the farmers and the profit margins. It is common practice to split the collected royalty between the licensor and the licensee, which is negotiated. The amount depends on the structure of sharing costs related to trials, maintenance of national list entries, PBR, market support, and other factors. The royalty shall depend upon case-to-case. However, the commonly used royalty-calculation principles include: fixed royalty rate, royalties connected to the seed price, minimum royalty rate, royalty intervals and sold quantities, and multiplication acreage and end-point royalties.

### **6.7.1 Fixed Royalty Rate**

By far the most common remuneration system is setting the royalty at a fixed rate. The most important factors considered are the status of the seed business in the territory and the ability of the farmers to pay for the seed. The fixed rate is independent of the sales price and is calculated per weight unit of seed bags containing a specified quantity. One can also calculate a fixed royalty based on the units of a specified number of seeds. The latter system is used, for example, for winter oilseed rape (*Brassica napus*) in Europe, where the seed is sold in units of 1.5 or 2 million germinating seeds (hybrid and line varieties, respectively, in Germany) and 2 million seeds (hybrid varieties in France).

Royalties can also be settled centrally in negotiations between breeder and farmer representatives. This is done, for example, by GESLIVE15 in Spain and SICASOV16 in France. The royalties are negotiated and fixed annually for each species and seed generation — they could potentially be settled for individual varieties.

### **6.7.2 Royalty Connected to the Seed Price**

A royalty level connected to the price of the seed will instantly change as seed prices increase or decrease. The rate may be calculated as a percentage of the net sales price to the farmer, and since the actual net sales prices may be difficult for the licensor to verify, trust between the licensee and the licensor is of great importance.

### **6.7.3 Minimum Royalty Rate**

A minimum royalty rate paid annually is a less common form of royalty and must be combined with some other royalty system. In this system, the royalty is calculated on one of the calculation principles described above, but a minimum royalty is added to it. For example, if the royalty is calculated on a fixed rate and the total royalty collected exceeds the minimum royalty, the royalty based on the fixed rate will be paid to the licensee. If the total royalty collected is below the minimum rate, the minimum rate will be paid regardless of the actual total royalty to the licensor.

### **6.7.4 Royalty Intervals Connected to Sold Quantity**

Royalties can also be connected to the seed quantities sold. The royalty rates per unit can be fixed at intervals of sold seed quantities. The licensee either pays the royalty rate for the highest interval achieved for all seed sold or for the royalty corresponding to each interval.

### 6.7.5 Multiplication Acreage and End-point Royalties (EPR)

There are royalty systems that are independent of the actual seed sales. If sales volumes are difficult to control, it might be more efficient to use a royalty system calculated on the multiplication acreage with a fixed rate per surface unit. EPRs are an essential income source for Australia's cereal, pulse and oilseed breeding programs. EPR is a fee charged for the use of a PBR variety. Royalties are collected at the first point of sale or commercial use. In Australia the first EPR variety was released in 1996. Grain produced from approximately 180 EPR varieties now makes up the major proportion of Australia's winter crop. The collection of these royalties is evolving and now there are two main systems:

*Automatic deduction of EPRs by the grain traders purchasing the grain directly from a grower:* Grain traders can deduct EPRs when a variety is correctly identified on grain receivable documents. When a grower delivers to a bulk handler for sale to a grain trader, the trader relies on the bulk handler's variety declaration system and the grain trader will deduct the EPR automatically according to variety. In all cases, the EPR collection agent remits any accrued EPR payments to individual royalty managers with a comprehensive report, which identifies the grower, varieties and quantities of grain purchased.

*Royalty managers directly invoicing growers for EPR payments:* This system applies to growers who either decide to use their grain on their own farm or sell it to businesses not automatically deducting EPRs from their grain payments. Royalty managers will invoice growers for outstanding EPRs. Outstanding EPRs to be invoiced to growers are identified by royalty managers via grain purchase data supplied, under agreement, from various grain traders and from the information provided by growers returning their annual EPR Harvest Declaration Form. Royalty managers require growers to declare the following information for each EPR variety they have grown:

- quantity of seed sown;
- quantity of harvest grain sold;
- quantity of harvest grain used on farm;
- quantity of harvest grain warehoused at end of April each year;
- quantity of harvest grain retained for planting; and
- quantity and the name of the entity where the harvest grain was sold.

Under an EPR system breeders and growers share the production risk – but also share in the rewards. Growers have access to superior varieties faster through streamlined research. The breeding programs need to be market-driven and meet end-user requirements to recoup their investment. When making decisions on new varieties, growers are encouraged not just to consider the level of EPR they are likely to pay but the performance of the variety, local trials, agronomic advice and marketing opportunities. The EPR will be payable for the life of the variety in the market place. The ownership of the variety is protected under the PBR Act (1994) for a maximum of 20 years.

**Self Assessment Question**

**(Spend 2 minutes)**

4) List two ways in which a breeder of a protected variety may exercise his/her right.

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**6.8 NON-PBR MECHANISMS TO ENFORCE THE INTEREST OF BREEDERS**

The plant breeding industry does not rely solely on formal IPR systems to protect its varieties and limit their use. The alternatives include biological processes, conventional seed law, contract law, biosafety regulations, brands and trademarks, and secrecy.

**6.8.1 Biological Protection**

The earliest and still one of the most prevalent mechanisms for protecting a plant variety is hybridization. Hybrids are the products of the cross between two (or more) inbred lines. The discovery of the phenomenon of hybrid vigor opened new possibilities for producing high yielding varieties and offered two distinct advantages for variety protection. The seed of hybrid origin will lose some yield potential and other valuable characteristics (such as uniformity) in subsequent generations. This provides a self-regulating kind of protection for hybrid varieties by drastically reducing farmers' incentives for seed saving and increases profitability for the licensee and the licensor through repeated seed sales.

The first commercial use of hybrid technology was in maize in the 1930s, since then hybrids have been developed in most cross-fertilizing crops such as sunflower, canola, cotton, cabbage, and high-value horticultural crops for which labor-intensive hand pollination is economic. Hybrids overcome much of the uncertainty in the conventional seed market, where factors such as the weather determine the degree of on-farm seed saving and hence the demand for fresh seed. The use of hybrids provides a steady demand for seed. Hybrid seed is more expensive to produce but if the varieties thus developed are superior in homogeneity and yield potential, substantially higher seed prices can be charged.

The extreme technology to ensure that farmers can't successfully replant their harvested seed is the Genetic Use Restriction Technology (GURTs) or the popularly known Terminator technology. Such technologies in their design, provide a mechanism to switch introduced genes on or off, using external inducers like chemicals or physical stimuli such as heat shock (called an inducible system). This leads to sterile seed when reproduced without special treatments and would ensure that commercial seed could not be saved by farmers for subsequent planting and make it difficult for another breeder to use the protected germplasm. There are several such mechanisms that are the subject of research based on genetic transformation. Terminator technology has not yet

been commercialized or field-tested and has led to widespread debate globally. Because of the global concerns that this technology might lead to dependence of poor, small-holder farmers, Monsanto Company, an agricultural products company and the world's biggest seed supplier, pledged not to commercialize the technology in 1999. However, customers who buy seeds from Monsanto Company must sign a "Monsanto Technology/Stewardship Agreement". The agreement specifically states that the grower will not save or sell the seeds from their harvest for further planting, breeding or cultivation. This legal agreement pre-empts the need for a "terminator gene".

The PPVFR Act in Section 29 excludes from registration variety of any genera or species which involves any technology which is injurious to the life or health of human beings, animals or plants, explaining that any "technology" includes genetically use restriction technology and terminator technology. Further, any application for the registration of variety under the Act is required to be accompanied by an affidavit sworn by the applicant that such variety does not contain any gene or gene sequence involving terminator technology.

### 6.8.2 Seed and Biosafety Regulations

In countries where seed certification is compulsory for all seeds, the breeders can control the market to a large extent by limiting access to breeders' seed. Any unauthorised multiplication will not be acceptable to the certification agency, this means, for instance, that a public research organisation can establish an exclusive contract with a seed company for the production of its varieties, even in the absence of PBRs. Similarly, a private breeder may set a high seed price for breeder's seed or can develop a contract with more specific conditions concerning royalties and market segmentation, supported by seed certification regulations. Variety release regulations may also be used to offer some type of protection, for instance in limiting the extent to which a company can market an essentially derived version of a released variety (including the unauthorised use of a transgene) or prohibiting the sale of a released variety under another name.

In India, the Seeds Bill, 2004 aims to regulate the quality of seeds sold, and shall replace the Seeds Act, 1966. The Bill requires all varieties of seeds for sale have to be registered and meet certain prescribed minimum standards. Transgenic varieties of seeds can be registered only after the applicant has obtained clearance under the Environment (Protection) Act, 1986. In addition, the label of a seed container has to indicate specified information.

Biosafety regulations are meant to protect the environment and to promote the safe use of biotechnologies. In cases where national PBR systems do not provide adequate protection, biosafety regulations may be used to prohibit the sale of varieties that include the unauthorised use of a privately owned transgene. In addition, biosafety data itself may be valuable property. The biosafety system generates data from extensive testing to demonstrate environmental and food safety. Such testing is very expensive, especially when feed and food trials are necessary and may require specialized testing facilities. Some countries require safety data for each 'event', i.e. the introduction of a particular construct (gene, promoter, etc.) at a particular place or places in the genome. When such a modified plant is used in conventional plant breeding to produce new varieties, the construct and its place are generally not altered and biosafety clearance for the new variety (on the basis of data from the original event) can be quickly

accomplished. In other countries, the biosafety data must be presented for every new variety. Since such data are commonly confidential, access to the biosafety data has great commercial value and creates the basis for contracts that create rights over the genes.

### 6.8.3 Contracts

It is also becoming customary for seed industry to include license restrictions on seed bags of the patented varieties called "bag tag" or "seed-wrap" licenses. These are similar to "shrink-wrap" or "click-wrap" licenses used by software industry.

A case in point is Monsanto's 'Technology Agreement', in which they agreed that the patented seeds were to be used 'for planting a commercial crop only in a single season', that the purchaser would not 'save any crop produced from this seed for replanting, or supply saved seeds to anyone for replanting'. Accordingly, in a decision, the Court of Appeals for the Federal Circuit upheld Monsanto's Roundup Ready technology agreement against a challenge mounted by a Mississippi farmer, Homan McFarling. McFarling had purchased Roundup Ready soybeans from Monsanto and had signed the technology agreement. Notwithstanding the restrictions in the agreement, McFarling saved 1,500 bushels of Roundup Ready soybeans from one harvest and replanted them during the next season. He then repeated the practice, and indicated that he intended to continue despite conceding that his actions violated the technology agreement. According to McFarling, the provision in the agreement that prohibited the saving of seed should not be enforced for a variety of reasons, including that it contravened the notion of "exhaustion" of patent rights. The Court declined to limit the patent law by reference to the PVPA and McFarling was found to have infringed Monsanto's patent.

If it is possible to control the market for the harvested product, then another type of contract can be enforced. The breeder can oblige a grower to use the plant variety in certain ways and can impose restrictions on seed saving or multiplication. One important example is the cut flower industry, where the output can only be sold in a limited number of wholesale markets in Europe. If a flower variety is protected in the country where the major market is located, growers in other countries may have to sign contracts limiting multiplication or unauthorised sale, or risk being denied further access to the major market. The contract can be effective even if the flower-growing country has no IPR system. A similar phenomenon is beginning to appear in several Latin American countries growing Monsanto's 'Roundup-Ready' soybeans and Bt cotton. In the latter case, control over ginneries provides a convenient point of enforcement; for soybeans there are indications that some grower associations appear ready to accept the collection of a royalty at the point of sale (e.g. the grain depot) in order to ensure unimpeded access to the technology.

Material transfer agreements (MTAs) are another form of contract that may be used in the plant breeding industry. These may be established between gene-banks or other public institutions and private breeders, or may be used to govern transactions among private or public breeders. The MTAs can establish exclusive access, stipulate the type of benefit sharing in the case of commercialization, and generally prohibit legal protection by the recipient of the materials 'in the form received'.

### 6.8.4 Brands and Trademarks

The denomination is the name of a plant variety as legally recognised under the PBRs. However, seed industry is increasingly taking advantage of the value that can be created by a successful branding and trademark strategy. Seed companies and public sector organisations involved in variety development programmes often register their brands or trademarks as a way of distinguishing their products from those of their competitors. Development of a strong brand image and reputation can protect a company from some types of competition.

In some instances secrecy is an effective way to protect markets, and the choice between patenting and secrecy may depend on the type of technology and the size of the firm. In industries where a long lead time is required for imitation, being first to market may be more valuable than patent rights. In plant breeding, the primary example of a trade secret is the protection of the inbred lines used to produce a company's hybrids. The ability to exploit this type of secrecy depends to a great extent on the degree of physical security that can be provided to plant breeding facilities and seed multiplication plots.

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## 6.9 SUPPORT BY THE NATIONAL OFFICES IN THE ENFORCEMENT OF THE PBRs

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Many countries such as Estonia, Finland, Hungary, Ireland, Israel, Japan, Korea, Lithuania, Poland and Sweden have support system by the national plant variety protection office to facilitate the enforcement of breeders' rights at national level in the case of an alleged infringement of the right. Hungary, Estonia, Lithuania, Poland provide a service of expert's opinion on the identification of the product of the suspected variety. The government of some countries like China, Finland, Japan, Korea, Poland and USA provides the legal advice concerning the enforcement of plant variety rights and legal aid in court or other legal matters for natural persons. The US provide toll free hotline monitored by attorneys at the USPTO in order to provide IP rights holders information about resources for the enforcement of their intellectual property by STOP Hotline. Organizations of implementing border measure to prevent the unlawful import and export of the material of protected varieties in UPOV member countries are various. Most of the countries have customs house with different names depending on the country.

Naktuinbouw Variety Tracer of Netherlands has been especially developed to answer questions about the identity of plant material, suspicion of repeated cropping, suspicion of infringement of Plant Breeders' Rights and patents and 'Essential Derived Varieties' (EDV's). This product provides a concept which can be used to settle (legal) discussions about identity of the variety. The Japanese government is implementing policies to improving the circumstances for the enforcement of PBR. Japanese government appointed 10 members as PVP G-man in 2006 which provide advice on counter measures, preparation of report of infringement, deposit of plant material and identification test carrying out cultivation and DNA test to compare characteristics between two varieties

In case of India, the PPVFR Authority remains neutral and does not take any position in specific cases involving the enforcement of breeders' rights. The Authority, however, takes public awareness system of plant variety protection

by providing information on the Web-site, publication and distribution of information, organizing national seminars, creation and maintenance of electronic databases containing national variety register.

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## **6.10 SUMMARY**

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- A PBR provides the breeder the right to exclude others from using the registered variety for a range of commercial activities and from misusing the variety name. The effective enforcement of PBRs is fundamental to an effective and efficient plant breeding industry.
- The rights of a PBR holder are infringed if someone performs any act described in the scope of grant of protection without the consent of the owner in respect of the propagating material and/or harvested material of the plant variety.
- The limitations of the PBR laws, difficulties in procedural issues and difficulties related to the collection of royalty payments makes enforcement of PBR difficult. The PBR legislations in most countries contain important exemptions such as Rights of Researchers, Farmers' Rights and Protection of innocent infringement that allow people to use protected plant varieties in certain ways without having to obtain the permission of the PBR owner and thus make enforcement challenging.
- The PBR owners enforce their rights through various provisions in the licensing agreements that include fixed royalty rate, royalties connected to the seed price, minimum royalty rate, royalty intervals and sold quantities, and multiplication acreage and end-point royalties. In addition the plant breeding industry adopts various strategies to protect its varieties and limit their use. The alternatives include biological processes, conventional seed law, contract law, biosafety regulations, brands and trademarks, and secrecy.
- Many countries have support system by the national plant variety protection office to facilitate the enforcement of breeders' rights at national level in the case of an alleged infringement of the right. In case of India, the PPVFR Authority remains neutral and does not take any position in specific cases involving the enforcement of breeders' rights. The Authority, however, takes public awareness system of plant variety protection by providing information on the Web-site, publication and distribution of information, organizing national seminars, creation and maintenance of electronic databases containing national variety register.

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## **6.11 TERMINAL QUESTIONS**

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- 1) What is the scope of breeder's rights provided under the PPVFR Act and UPOV Convention?
- 2) What exemptions are provided in the PPVFR Act which if performed will not be considered as infringement?
- 3) What are the strategies of enforcing PBRs?

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## 6.12 ANSWERS AND HINTS

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### Self Assessment Questions

- 1) According to Article 14 of the, the following acts may be prohibited by the breeder of a protected variety:
  - Production or reproduction (multiplication)
  - Conditioning for the purpose of propagation
  - Offering for sale
  - Selling or other marketing
  - Exporting
  - Importing
  - Stocking for any of the above purposes
- 2)
  - a) No infringement. Consumption of the purchased products is not covered by the plant breeder's right neither does it imply the multiplication of the propagating material of the protected variety.
  - b) No infringement. Planting in own garden is not covered by the PBR. It could imply the multiplication of the propagating material of the protected variety but falls or could fall under Article 15(1)(i).
  - c) No infringement. Establishing the garden implies an act done privately and for non-commercial purposes, excluded from the scope of the plant breeder's right by the provisions of Article 15(1)(i).
  - d) Constitutes an infringement, because the cut flowers are harvested material obtained from propagating material (e.g. cuttings) on which the breeder did not have the chance to exercise his right (i.e. flowers obtained from plants of the protected variety obtained from the multiplication of propagating material).
- 3)
  - a) No, because grain is harvested material derived from seed (propagating material) which has been sold with the authorization of the breeder, therefore, his right is exhausted.
  - b) No. the farmer is entitled to *save, use, sow, resow, exchange, share or sell* his/her farm produce (Section 39.1). However, he cannot brand the seed before selling.
- 4) A breeder may (i) exclude others from performing the acts subject to authorization (i.e. exploiting himself the protected variety), or (ii) may grant licenses to another party(ies) on an agreed basis.

### Terminal Questions

- 1) Refer to Section 6.3
- 2) Refer to Sub-section 6.6.1
- 3) Refer to Sections 6.7 and 6.8

## 6.13 REFERENCES AND SUGGESTED READINGS

- 1) Nilsson M., The In- and Out-Licensing of Plant Varieties, in *Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices*, 2007 (eds. A Krattiger, RT Mahoney, L Nelsen, et al.). MIHR: Oxford, U.K., and PIPRA: Davis, U.S.A. Available online at [www.ipHandbook.org](http://www.ipHandbook.org).
- 2) [http://www.forum-institut.de/fileadmin/data/Bereich\\_1/Plant\\_Innovation/Hague\\_Court\\_of\\_Appeal\\_judgment\\_29-12-09\\_Astee\\_v\\_Danziger\\_CHECKED.pdf](http://www.forum-institut.de/fileadmin/data/Bereich_1/Plant_Innovation/Hague_Court_of_Appeal_judgment_29-12-09_Astee_v_Danziger_CHECKED.pdf)
- 3) "IP Newz", issue no. 29, November 2002 and the January 2002 issue
- 4) Lesser WH.. Plant Breeders' Rights: An Introduction, in *Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices*, 2007 (eds. A Krattiger, RT Mahoney, L Nelsen, et al.). MIHR: Oxford, U.K., and PIPRA: Davis, U.S.A. Available online at [www.ipHandbook.org](http://www.ipHandbook.org).
- 5) Keun Jin CHOI, Chan Woong Park and Hee Yeol Kim Current Situation of Enforcement of Plant Breeder's Right under the UPOV Convention <http://www.intlcss.org/files/congress-proceedings/2008-papers/cs3-s7/cs3-s7-06-keun-jin-choi.pdf>
- 6) International IPR Agreements Regulating Plant Varieties and Plant Breeders' Rights <http://www.fao.org/docrep/007/y5714e/y5714e03.htm>
- 7) <http://jxb.oxfordjournals.org/content/early/2012/01/02/jxb.err368.full>

**DISCLAIMER:** The material presented in this Unit is a simplified summary of important provisions of various legislations for study purposes only. It should not be construed as legal advice.

# UNIT 7 THE PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS AUTHORITY

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## Structure

- 7.1 Introduction
- 7.2 Objectives
- 7.3 Composition of the Authority
  - 7.3.1 The Chairperson
  - 7.3.2 Non-official Members
- 7.4 Meetings
- 7.5 Standing Committee
- 7.6 Committees and Task Force
- 7.7 Duties
- 7.8 Delegation of Powers
- 7.9 Judicial Powers
- 7.10 Establishment of Plant Variety Registry
- 7.11 Determination of Benefit Sharing
- 7.12 Invoking Compulsory License
- 7.13 Registrar General and Registrar
- 7.14 Finance, Accounts and Audit
- 7.15 Summary
- 7.16 Terminal Questions
- 7.17 Answers and Hints
- 7.18 References and Suggested Readings

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## 7.1 INTRODUCTION

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The Protection of Plant Varieties and Farmers' Rights Act (PPVFR Act), 2001 has been legislated by the Government of India as a *sui generis* system for the protection of PBRs. This Act has been passed in order to provide for the establishment of an effective system for protection of plant varieties, so as to encourage the development of new varieties of plants. The Act concurrently recognizes and protects the rights of the farmers in respect of their contribution made at any time in conserving, improving and making available plant genetic resources for the development of the new plant varieties. The Act also satisfies the obligation under the Agreement on Trade Related Aspects of the Intellectual Property Rights (TRIPS) for making legislation to provide protection to plant varieties. In exercise of the powers conferred by Section 96 of the PPVFR Act read with Section 22 of the General Clauses Act 1897 (10 of 1897), the Central Government vide GSR 738 (E) dated 12 September 2003 notified the Plant Varieties and Farmers' Rights Rules 2003.

The Government of India, exercising the power conferred under Sub-section (1) of Section 3 of the PPVFR Act, established the Protection of Plant Varieties and Farmers' Rights Authority vide Gazette notification No. S.O. 1589 (E) dated 11 November, 2005, for the purposes of the implementation of the Act. The Authority became functional with the joining of the Chairperson of the Authority and consequent Gazette notification in November 2005. Subsequently, the Protection and Plant Varieties and Farmers' Right Regulations were notified on 7 December, 2006. The process of receiving PVP applications for registration and protection of eligible varieties of notified genera of crops by the PPVFR Registry started with effect from 21 May 2007. The PPVFR Authority is located at: NASC Complex, Dev Prakash Shastri Marg, New Delhi-110 012. The PPVFR Authority has also established two branch offices, one at the Assam Agricultural University Campus, Khanapura Guwahati and the other at Birsa Agricultural University Campus, Ranchi.

The functions of the Authority are discussed in this Unit.

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## **7.2 OBJECTIVES**

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After completing the study of this unit, you should be able to:

- explain the basic functions of the Protection of Plant Varieties and Farmers' Rights Authority and Registry.

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## **7.3 COMPOSITION OF THE AUTHORITY**

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The Authority consists a Chairperson and fifteen members with the Registrar-General as the *ex officio* Member-Secretary. The Chairperson and the members are appointed by the Central Government. The members include:

Eight *ex officio* members representing the Government Departments, that include:

- the Agriculture Commissioner, Government of India, Department of Agriculture and Cooperation, New Delhi;
- the Deputy Director General in charge of Crop Sciences, Indian Council of Agricultural Research, New Delhi;
- the Joint Secretary in-charge of Seeds, Government of India, Department of Agriculture and Cooperation, New Delhi;
- the Horticulture Commissioner, Government of India, Department of Agriculture and Cooperation, New Delhi;
- the Director, National Bureau of Plant Genetic Resources, New Delhi;
- one member not below the rank of Joint Secretary to the Government of India, to represent the Department of Bio-technology, Government of India;
- one member not below the rank of Joint Secretary to the Government of India to represent the Ministry of Environment and Forests, Government of India; and

- one member not below the rank of Joint Secretary to the Government of India to represent the Ministry of Law, Justice and Company Affairs, Government of India.

Five members to represent (one each) a National or State level farmers' organisation; tribal organisation; seed industry; an agricultural University and a National or State level women's organisation associated with agricultural activities.

Two members are nominated to represent State Governments on rotation basis.

### **7.3.1 The Chairperson**

As per the Section 3 of the Act, the Chairperson shall be a person of outstanding caliber and eminence with long practical experience to the satisfaction of that Government especially in the field of plant varietal research or agricultural development. The Department of Agriculture and Cooperation of the Central Government is the nodal department for the selection and appointment of the Chairperson. As per PPVFR Act Section 7, the Chairperson shall be the Chief Executive of the Authority and shall exercise such powers and perform such duties as may be prescribed

The PPVFR Rules Section 11 provides the Manner of Selection and Appointment of the Chairperson. The Chairperson is appointed in the rank of the Secretary to the Government of India and is, accordingly, entitled to such salary, allowances, leave, pension, provident fund and other perquisites as are admissible to a Secretary to the Government of India.

The appointment is on the basis of a panel of names recommended by a Selection Committee comprising Secretary, Department of Agriculture and Co-operation, Government of India as Chairman; and members include Secretary, Department of Agriculture Research and Education, Government of India and one expert nominated by Ministry of Agriculture, Government of India.

The appointment as Chairperson can either be on deputation or on contract basis. The Chairperson can hold office for a term of five years or up to the age of sixty-five years, whichever is earlier, and shall be eligible for re-appointment. However, no Chairperson shall hold office for a total period exceeding ten years, or after he has attained the age of sixty-five years, whichever is earlier.

The Chairperson may resign his office by giving notice thereof in writing to the Central Government and on such resignation being accepted, he shall be deemed to have vacated his office. On the resignation of the Chairperson or on the vacation of the office of the Chairperson for any reason, the Central Government may appoint one of the members to officiate as Chairperson till a regular Chairperson is appointed in accordance with clause (a) of Sub-section (5).

The PPVFR Rules Section 21 provides that in addition to the duties specified in the Act, the Chairperson shall have powers of general superintendence and directions in the conduct and management of the affairs of the Authority, to enable the Authority in effectively discharging its duties and overseeing the compliance of the provisions of the Act, and the rules and regulations made thereunder. The Chairperson shall also discharge such other duties and functions as the Authority may by general or special order in writing delegate to him or

the Central Government may authorise him to discharge from time to time. The Chairperson shall convene, preside over and conduct the meetings of the Authority and be responsible for carrying out all decisions taken by the Authority. The Chairperson shall guide and facilitate the development of new plant varieties by protecting the rights of the breeders, researchers, farmers, and community of farmers as provided under the Act. The Chairperson shall facilitate and act upon his satisfaction for compulsory licensing of registered plant varieties and advice the Central and the State Governments on the restriction of public use of any such registered plant varieties which may invite action under sub-rule (4).

The PPVFR Rules Section 14 (2) provides conditions on which the Central Government may remove the Chairperson from office, i.e., if he,

- a) is or at any time has been adjudicated as an insolvent;
- b) has been convicted of an offence which, in the opinion of the Central Government, involves moral turpitude;
- c) has become physically or mentally incapable of acting as the Chairperson;
- d) has failed in discharging the duties and responsibilities under the Act and the rules made thereunder;
- e) has acquired such financial or other interest as is likely to affect prejudicially his function as the Chairperson;
- f) has, in the opinion of the Central Government, so abused his position as to render his continuation in office detrimental to the public interest;
- g) any other substantiated ground which is unbecoming of a public servant under the Government of India :

The chairperson, however, shall not be removed under this sub-rule unless he has been given a reasonable opportunity of being heard in the matter.

**Self Assessment Question**

**(Spend 1 minute)**

- 1) a) The Chief Executive of the PPVFR Authority is
  - b) Registrar General
  - c) Chairperson
  - d) Secretary, Department of Agriculture and Co-operation
  - e) Minister of Agriculture

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.....

**7.3.2 Non-official Members**

Every non-official member of the Authority shall hold office for a period of three years from the date of their appointment. The Central Government shall appoint new non-official member of the Authority within six months of the expiration of the term of the non-official member. The non-official members are entitled to sitting allowance and travelling expenses, at such rate as may be fixed by the Central Government from time to time in this regard (PPVFR Rules Section 15).

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## 7.4 MEETINGS

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As per the PPVFR Act Section 4 (1), the Authority shall meet at such time and place and shall observe rules and procedure of Meetings in regard to the transaction of business at its meetings. The PPVFR Rules Section 15 state that the Authority shall meet at least twice in a year at the headquarters of the Authority or at such place as may be decided by the Chairperson. A special meeting of the Authority can be called by the Chairperson upon a written request of not less than five members of the Authority or upon a direction of the Central Government. At least fifteen days' notice of an ordinary meeting and three days' notice of a special meeting specifying the purpose, the time and the place at which such meeting is to be held, shall be given to the members.

The Chairperson of the Authority shall preside at the meetings of the Authority. If for any reason the Chairperson is unable to attend any meeting of the Authority, any member of the Authority chosen by the members present shall preside at the meeting. Every member shall have one vote and the quorum for the meeting of the Authority shall be five. All questions which come before any meeting of the Authority shall be decided by a majority of the votes of the members of the Authority present and voting and in the event of equality of votes, the Chairperson of the Authority or in his absence, the person presiding shall have and exercise a second or casting vote. Every member who is in any way, whether directly, indirectly or personally, concerned or interested in a matter to be decided at the meeting shall disclose the nature of his concern or interest and after such disclosure. The member concerned or interested shall not attend that meeting.

PPVFR Act Section 4(6) provides that no act or proceeding of the Authority shall be invalid merely by reason of—

- a) any vacancy in, or any defect in the constitution of, the Authority; or
- b) any defect in the appointment of a person acting as the Chairperson or a member of the Authority; or
- c) any irregularity in the procedure of the Authority not affecting the merits of the case.

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## 7.5 STANDING COMMITTEE

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According to PPVFR Act Section 3(7), the Chairperson shall appoint a Standing Committee consisting of five members, one of whom shall be a representative from a farmers' organisation, to advise the Authority on all issues including farmers' rights.

As per PPVFR Rules Section 17, the Chairperson shall select a member of the Standing Committee to preside over its meetings. In the absence of the member selected the meeting of the Standing Committee shall be presided over by the member who shall be elected by the members present at the meeting from amongst themselves. The decision in the meeting of the Standing Committee shall be taken by a majority of the members present and voting and in the event of equality of votes, the member selected or in his absence, the member presiding over the meeting shall have a second or casting vote. Every member shall have one vote. The quorum for the meeting of the Standing Committee

shall be three. The convener of the Standing Committee may, in consultation with the Authority, determine the venue of its meetings anywhere in India; and serve notice of such meeting to all members at least fifteen days in advance.

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## **7.6 COMMITTEE AND TASK FORCE**

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According to PPVFR Act Section 5, the Authority may appoint such committees as may be necessary for the efficient discharge of its duties and performance of its functions under the Act. The persons appointed as members of the committee shall be entitled to receive such allowances or fees for attending the meetings of the committee as may be fixed by the Central Government.

Further, subject to such control and restriction as may be prescribed, the Authority may appoint such officers and other employees as may be necessary for the efficient performance of its functions and the method of appointment, the salary and allowances and other conditions of service of such other officers and employees of the Authority shall be such as may be prescribed.

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## **7.7 DUTIES**

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Section 8(1) of the PPVFR Act provides that it shall be the duty of the Authority to promote, by such measures as it thinks fit, the encouragement for the development of new varieties of plants and to protect the rights of the farmers and breeders. The Section 8(2) lists out the measures the PPVFR Authority may provide for -

- a) the registration of extant new plant varieties subject to such terms and conditions and in the manner as may be prescribed;
- b) developing characterization and documentation of varieties registered under the Act;
- c) documentation, indexing and cataloguing of farmers' varieties;
- d) compulsory cataloguing facilities for all varieties of plants;
- e) ensuring that seeds of the varieties registered under the Act are available to the farmers and providing for compulsory licensing of such varieties if the breeder of such varieties or any other person entitled to produce such variety under this Act does not arrange for production and sale of the seed in the manner as may be prescribed;
- f) collecting statistics with regard to plant varieties, including the contribution of any person at any time in the evolution or development of any plant variety, in India or in any other country, for compilation and publication;
- g) ensuring the maintenance of the Register.

Accordingly, the Authority advises the Central Government in relation to the provisions contained in Section 29 (2) of the PPVFR Act for specifying and notifying the genera and species for the purposes of registration of new plant varieties other than extant varieties and farmers' varieties. It provides for registering extant varieties within such period as may be determined by it with suitable test criteria to conform to distinctiveness, uniformity and stability (DUS) of such varieties. Similarly, the Authority develops DUS test and other

test criteria and conducts such tests for characterization of each variety of crop species notified by the Central Government.

As per PPVFR Act Section 17, every applicant shall assign a single and distinct denomination to a variety with respect to which he is seeking registration under this Act in accordance with the regulations. The Authority shall, having regard to the provisions of any international convention or treaty to which India has become a party, make regulations governing the assignment of denomination to a plant variety.

The Authority is mandated to compile and maintain a database on all varieties of common knowledge including all registered extant and farmers' varieties and such varieties being cultivated outside India for each crop species prior to grant for registration for new varieties belonging to such species. It is entitled to call for and procure the details of any crop variety under use in the country for the purpose of bringing the same into its database. Any public or private institution, community or individual involved in the production and use of seed of such varieties shall be required to provide full information on its characteristics or and a true sample of seed of such variety. It is required to keep a record of the production and sale of seed of all registered varieties. Therefore, it is required for all breeders of registered varieties to supply certified figures on annual seed production and sales to the Authority within a period not exceeding three months from the completion of such reporting period. The Authority, if required, is also entitled to call for such figures specifically relating to any region of the country.

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## **7.8 DELEGATION OF POWERS**

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PPVFR Act Section 9 requires that all orders and decisions of the Authority shall be authenticated by the signature of the Chairperson or any other member authorized by the Authority in this behalf. However, Section 10 provides that the Authority may, by general or special order in writing, delegate to the Chairperson, any member or officer of the Authority subject to such conditions or limitations, if any, as may be specified in the order, such of its powers and functions (except the power to make regulations under Section 94) under this Act as it may deem necessary.

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## **7.9 JUDICIAL POWERS**

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Section 11 of the PPVFR Act provides that in all proceedings under this Act the Authority or the Registrar, as the case may be, shall have all the powers of a civil court for the purposes of receiving evidence, administering oaths, enforcing the attendance of witnesses, compelling the discovery and production of documents and issuing commissions for the examination of witnesses; the Authority or the Registrar may, subject to any rules made in this behalf under this Act, make such orders as to cost as it considers reasonable and any such order shall be executable as a decree of a civil court.

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## **7.10 ESTABLISHMENT OF PLANT VARIETY REGISTRY**

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Under Section 12, the PPVFR Act, the Central Government shall establish for

the purposes of this Act, a Registry which shall be known as the Plant Varieties Registry. The head office of the Plant Varieties Registry shall be located in the head office of the Authority, and for the purpose of facilitating the registration of plant varieties, there may be established, at such places, as the Authority may think fit, branch offices of the Registry.

The PPVFR Act Section 13 requires that the National Register of Plant Varieties shall be kept at the head office of the Registry, wherein shall be entered the National names of all the registered plant varieties with the names and addresses of their respective breeders, the rights of such breeders in respect of the registered variety, the particulars of the denomination of each registered variety, its seed or other propagating material along with specification of salient features thereof and such other matters as may be prescribed. Subject to the superintendence and direction of the Central Government, the Register shall be kept under the control and management of the Authority. There shall be kept at each branch office of the Registry a copy of the Register and such other documents as the Central Government may, by, notification in the Official Gazette, direct.

As per the PPVFR Rules Section 23 the National Register of Plant Varieties shall contain the following particulars of each registered variety, namely:

- 1) Registration Number;
- 2) Nationality of Breeder(s);
- 3) Denomination as granted;
- 4) Date of Grant of Registration;
- 5) Date on which application was received;
- 6) Provisional number given to the application;
- 7) Date of Gazette notification;
- 8) Grouping of the plant variety (new, extant or farmers);
- 9) Classification of the variety (typical variety, hybrid variety or essentially derived variety);
- 10) Denomination of variety, Common Crop name to which the variety belongs, Taxonomical Lineage of the Crop in Botanical names;
- 11) Key Passport data of the variety;
- 12) Essential characters making the variety distinct;
- 13) Starting date of protection;
- 14) Expiry date of protection;
- 15) Date of revocation with other details (grounds etc.);
- 16) Name and address of the applicant(s);
- 17) Address for service of document(s);
- 18) Name and address of the breeder(s) (in case breeder is not the applicant);
- 19) Name and address of the legal representative (if applicable);

- 20) Name, address and other details of the licensee and terms of license (if applicable);
- 21) Name, address and other details of the agent with jurisdictional rights, if any (if appointed);
- 22) Type of crop;
- 23) Name of the family, genus, species, variety and common name;
- 24) Name and address of the breeder of initial variety (in case of essentially derived variety);
- 25) Details of the acquisition of propagating material/ seeds (if applicable);
- 26) Details of parental material used in the development (if applicable);
- 27) Name and address of the contributor(s) of genetic material (if applicable);
- 28) Any other feature specified by the Authority or Registrar-General;
- 29) Country of origin of the plant variety;
- 30) Brief description of the variety along with characteristic details of the nearest variety including results of DUS testing, supplemented with the drawings or photographs or both;
- 31) In case of compulsory licensing, name and address of licensee with other details (terms and conditions, revocation, etc), if applicable;
- 32) Declaration and details of the renunciation to the variety (if applicable);
- 33) Details of benefit sharing;
- 34) Details of opposition, revocation, restoration, maintenance (whatever applicable);
- 35) In the case of varieties protected outside India prior to registration in the country, following additional information shall be entered in the National Register of plant varieties namely: -
  - a) Name of the country(ies) where protection is made along with the denomination of the variety in each of them,
  - b) Date of first protection with country,
  - c) Variation in important trait with respect to first filing,
  - d) Country wherein the Variety was first commercialized with date,
  - e) Any other feature specified by the Authority or Registrar-General;
- 36) In case of a convention application, the following information shall also be furnished, namely:
  - a) Name of the convention country
  - b) Passport data of the convention application
  - c) Date of application
  - d) Date of grant of registration
  - e) Registration number

- f) Denomination as accepted
- g) Date of Gazette notification
- h) Starting date of protection
- i) Expiry date of protection
- j) Whether the variety has been sold or otherwise disposed of within and outside the country, if so, details thereof

**Self Assessment Question**

**(Spend 2 minutes)**

2) Is the Authority mandated to maintain information of the registered varieties?

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### **7.11 DETERMINATION OF BENEFIT SHARING**

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On the registration of the variety (other than an essentially derived variety), the Registrar shall issue to the applicant a certificate of registration in the prescribed form and sealed with the seal of the Registry and send a copy to the Authority for determination of benefit sharing and to such other authority, as may be prescribed, for information. The maximum time required by the Registrar for issuing the certificate of registration from the date of filing of the application for registration of a variety shall be such as may be prescribed.

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### **7.12 INVOKING COMPULSORY LICENSE**

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Under Section 47 (1) of the PPVFR Act, at any time, after the expiry of three years for the date of issue of a certificate of registration of a variety, any person interested may make an application to the Authority alleging that the reasonable requirements of the public for seeds or other propagating material of the variety have not been satisfied or that the seed or other propagating material of the variety is not available to the public at a reasonable price and pray for the grant of a compulsory license to undertake production, distribution and sale of the seed or other propagating material of that variety.

The Authority, after consultation with the Central Government, and if satisfied after giving an opportunity to the breeder of such variety, to file opposition and after hearing the parties, that the reasonable requirements of the public with respect to the variety have not been satisfied or that the variety is not available to the public at a reasonable price, may order such breeder to grant a license to the applicant upon such terms and conditions as it may deem fit and send a copy of such order to the Registrar to register the title of such applicant as licensee under Sub-section (4) of Section 28 on payment of such fee by the applicant as is referred to in that sub-section.

**Self Assessment Question**

**(Spend 1 minute)**

3) Can the PPV&FR Authority take action in case the protected variety is not being made available to the farmers at affordable prices?

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**7.13 REGISTRAR GENERAL AND REGISTRAR**

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The Authority shall appoint a Register-General of Plant Varieties who shall be entitled to such salary and allowances and shall be subject to such conditions of service in respect of leave, pension, provident fund and such other matters as may be prescribed. The Authority may appoint such number of Registrars as it thinks necessary for registration of plant varieties under the superintendence and direction of the Registrar- General under this Act and may make regulations with respect to their duties and jurisdiction. The term of office and the conditions of service of the Registrars shall be such as may be provided by regulations. The Authority may, by notification in the Official Gazette, define the territorial limits within which a branch office of the Registry may exercise its functions. There shall be a seal of the Plant Varieties Registry.

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**7.14 FINANCE, ACCOUNTS AND AUDIT**

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The issues related to Grants by Central Government to the Authority, budget, accounts and audit, and the financial and administrative powers of the Chairperson are addressed in chapter IX of the PPV and FR Act (Sections 60 to 63).

The Central Government shall make grants and loans to the Authority of such sums of money as it may think fit for being utilised for the purposes of this Act. There shall be constituted a fund to be called the Protection of Plant Varieties Authority Account to which shall be credited (a) all grants and loans made to the Authority by the Central Government under Section 53; (b) all fees received by the Authority and the Registrars except the annual fee by way of royalty under Sub-section (1) of Section 35; and (c) all sums received by the Authority from such other sources as may be decided upon by the Central Government.

The Protection of Plant Varieties Authority Account shall be applied for meeting (a) the salaries, allowances and other remuneration of the Chairperson, officers and other employees of the Authority and allowances, if any, payable to the members; and (b) the other expenses of the Authority in connection with the discharge of its functions and for purposes of this Act.

The Authority shall prepare a budget, maintain proper accounts and other relevant records (including the accounts and other relevant records of the Gene Fund) and prepare an annual statement of account in such form as may be prescribed by the Central Government in consultation with the Comptroller and

Auditor-General of India. The accounts of the Authority shall be audited by the Comptroller and Auditor-General of India at such intervals as may be specified by him and any expenditure incurred in connection with such audit shall be payable by the Authority to the Comptroller and Auditor-General of India. The accounts of the Authority as certified by the Comptroller and Auditor General of India or any other person appointed by him in this behalf together with the audit report thereon shall be forwarded annually to the Central Government and the Government shall cause the same to be laid before each House of Parliament.

The Chairperson shall exercise such financial and administrative powers over the functions of the Authority as may be prescribed. However, the Chairperson shall have the authority to delegate such of his financial and administrative powers as he may think fit to a member or any other officer of the Authority subject to the condition that the member or such other officer shall, while exercising such delegated powers, continue to be under the direction, control and supervision of the Chairperson.

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## **7.15 SUMMARY**

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- The Protection of Plant Varieties and Farmers' Rights Authority was established by the Government of India for the purposes of the implementation of the Protection of Plant Varieties and Farmers' Rights Act.
- The Authority consists a Chairperson and fifteen members with the Registrar-General as the ex officio Member-Secretary. The Chairperson and the members are appointed by the Central Government. Members include eight ex officio members representing the Government Departments and five members to represent (one each) a National or State level farmers' organisation; tribal organisation; seed industry; an agricultural University and a National or State level women's organisation associated with agricultural activities. Two members are nominated to represent State Governments on rotation basis.
- The Chairperson shall have powers of general superintendence and directions in the conduct and management of the affairs of the Authority, to enable the Authority in effectively discharging its duties and overseeing the compliance of the provisions of the Act, and the rules and regulations made thereunder.
- The Authority shall appoint a Standing Committee consisting of five members, one of whom shall be a representative from a farmers' organisation, to advise the Authority on all issues including farmers' rights; and other committees as may be necessary for the efficient discharge of its duties and performance of its functions under the Act.
- The duty of the Authority is to promote, by such measures as it thinks fit, the encouragement for the development of new varieties of plants and to protect the rights of the farmers and breeders.
- All proceedings under this Act shall have all the powers of a civil court for the purposes of receiving evidence, administering oaths, enforcing the attendance of witnesses, compelling the discovery and production of documents and issuing commissions for the examination of witnesses.

- The head office of the Plant Varieties Registry shall be located in the head office of the Authority. The Authority shall appoint a Register-General of Plant Varieties and for facilitating the registration of plant varieties, there may be established, at such places, as the Authority may think fit, branch offices of the Registry.

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## 7.16 TERMINAL QUESTIONS

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- 1) What is the composition of Protection of Plant Varieties and Farmers' Rights Authority?
- 2) What are the duties of the PPVFR Authority for encouraging development of new varieties of plants and to protect the rights of the farmers and breeders?
- 3) What is the National Register of Plant Varieties?

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## 7.17 ANSWERS AND HINTS

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### Self Assessment Questions

- 1) Option (b) is the correct answer
- 2) Yes The PPVFR Authority is required to maintain a National Register of Plant Varieties. The National Register shall include information such as the National names of all the registered plant varieties with the names and addresses of their respective breeders, the rights of such breeders in respect of the registered variety, the particulars of the denomination of each registered variety, its seed or other propagating material along with specification of salient features thereof and such other matters as may be prescribed in the rules.
- 3) Yes in such cases the Authority can invoke the Compulsory Licensing provision.

### Terminal Questions

- 1) Refer to Section 7.3
- 2) Refer to Section 7.7
- 3) Refer to Section 7.10

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## 7.18 REFERENCES AND SUGGESTED READINGS

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- 1) Protection of Plant Varieties and Farmers' Rights Act, 2001
- 2) <http://agricoop.nic.in/PPV&FR%20Act,%202001.pdf>
- 3) The Protection of Plant Varieties and Farmers' Rights Rules, 2003
- 4) [http://www.plantauthority.gov.in/pdf/PPVFRA\\_RULES\\_2003.pdf](http://www.plantauthority.gov.in/pdf/PPVFRA_RULES_2003.pdf)
- 5) <http://www.plantauthority.gov.in>

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# UNIT 8 IP PROTECTION FOR FARMERS' VARIETIES AND RELATED TRADITIONAL KNOWLEDGE

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## Structure

- 8.1 Introduction
- 8.2 Objectives
- 8.3 Rationale for Farmers' Rights
- 8.4 Protection of Plant Varieties and Farmers' Rights Act
  - 8.4.1 Farmers' Rights Over Seed
  - 8.4.2 Farmer as a Breeder
  - 8.4.3 Farmer as a Conservationist
  - 8.4.4 Benefit Sharing Provision
  - 8.4.5 Compensation for Crop Failure
  - 8.4.6 Disclosure of Information
  - 8.4.7 Compulsory Licenses
  - 8.4.8 Right to Free Services
  - 8.4.9 Protection from Infringement
  - 8.4.10 Terminator Technology Forbidden
- 8.5 Biological Diversity Act
- 8.6 Summary
- 8.7 Terminal Questions
- 8.8 Answers and Hints
- 8.9 References and Suggested Readings

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## 8.1 INTRODUCTION

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The concept of Farmers' Rights originated in the international debates held within FAO based on the asymmetry in the distribution of benefits between farmers as donors of germplasm, and the producers of commercial varieties that ultimately rely on such germplasm. The major argument was that while a plant variety developed from the varieties maintained by the farmers and communities could generate returns to the commercial breeders and seed companies, particularly in the context of Plant Breeders' Rights, no system of compensation or incentives for the providers of germplasm existed.

The International Undertaking on Plant Genetic Resources was the first comprehensive international agreement dealing with plant genetic resources for food and agriculture. It was adopted by the FAO Conference in 1983 as a non-binding instrument under which the States parties agreed to provide other parties adhering to the Undertaking "free access" to the plant genetic resources (PGRs) within their territory.

The Undertaking was the subject of a series of agreed interpretations, in the form of three FAO Conference resolutions, which are now annexed to it. They were intended to achieve a balance between the production of commercial varieties and breeders' lines on the one hand, and farmers' varieties and wild genetic resources and between the interests of developed and developing countries on the other hand, by balancing the rights of breeders and farmers.

The 25<sup>th</sup> Session of the FAO Conference, Rome, 11-29 November 1989, endorsed the concept of Farmers Rights with a view to:

- ensuring global recognition of the need for conservation and the availability of sufficient funds for these purposes;
- assisting farmers and farming communities throughout the world, especially those in areas of original diversity of plant genetic resources, in the protection and conservation of their PGR and of the natural biosphere; and,
- allowing the full participation of farmers, their communities and countries in the benefits derived, at present and in the future, from the improved use of PGR.

In accordance with Article 5b of Resolution 4/89, the benefits to be derived from the Undertaking are *"part of a reciprocal system, and should be limited to countries adhering to the International Convention"*.

The Conference Resolution 5/89 for the first time defined **Farmers' Rights** as *"rights arising from the past, present and future contribution of farmers in conserving, improving and making available plant genetic resources, particularly those in the centres of origin/diversity."* The purpose of these rights is stated to be *"ensuring full benefits to farmers and supporting the continuation of their contributions."*

Further, the sovereign rights of nations over their genetic resources were recognized in Resolution 3/91, and it was agreed that Farmers' Rights would be implemented through an international fund for plant genetic resources.

The principle of "free access" in this context, however, did not necessarily mean "free of charge", as clarified by Article 5a of Resolution 4/89. Under these provisions, countries could not, in principle, prevent access to PGRs present in their territories, but they could certainly establish the conditions under which such access could take place. This point was later developed by the Convention on Biological Diversity (CBD), which made access (although not restricted to non-commercial purposes) conditional upon "prior informed consent" and "mutually agreed terms" ensuring equitable sharing of benefits arising from the use of the material.

Adoption of the concept of Farmers' Rights, their role in relation to plant genetic resources was also supported in other international fora and reaffirmed in various contexts. The Agenda 21 (approved at the UN Conference on Environment and Development held in Rio de Janeiro in 1992), stated that the appropriate United Nations agencies and regional organisations should *"strengthen the Global System on the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture (PGRFA) by ... taking further steps to realise Farmers' Rights"*. Also the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture included the

realization of Farmers' Rights at the national, regional and international levels, as one of the long-term objectives of the Plan, in the context of *in situ* conservation (para. 32).

The adoption of CBD may be considered a relevant framework for the implementation of some components of such rights, particularly with regard to the regulated access and sharing of benefits. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) was negotiated to reconcile access and property rules governing agricultural biodiversity, and to promote its conservation, sustainable use and benefit-sharing in accordance with the CBD. The ITPGRFA, which was adopted by the FAO Conference on 3 November 2001 and entered into force on 29 June 2004, specifically recognises farmers' rights in Article 9 (Box 1).

**Box 1:**

**ITPGRFA**

**Article 9 - Farmers' Rights**

9.1 The Contracting Parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.

9.2 The Contracting Parties agree that the responsibility for realizing Farmers' Rights, as they relate to plant genetic resources for food and agriculture, rests with national governments. In accordance with their needs and priorities, each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights, including:

- a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture;
- b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture; and
- c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

9.3 Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.

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## **8.2 OBJECTIVES**

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After completing the study of this unit, you should be able to:

- acquire a basic understanding of evolution of the concept of farmers rights;
- explain the rationale of protecting farmers rights; and
- explain provisions of the PPVFR Act related to farmers rights;

### 8.3 RATIONALE FOR FARMERS' RIGHTS

Traditional farmers and indigenous communities are an integral component of the plant genetic resource management system that comprises activities related to conservation, research and development, and utilization of PGRs. Traditional farmers have undertaken the activities related to conservation and empirical research at the farm level. Plant domestication was vital step that led the transition of human civilization to shift from hunter-gatherers to agriculture based societies and initiated the rise of modern civilization.

It is obvious that from the pool of genetic diversity available, farmers and communities selected the variations of a wild plant that best suited their needs. To put in simple words, the plants were harvested selectively, based on the preferred characteristics. These included traits that were essential for bringing it into cultivation, that is, they allowed a crop to be reliably sown, cultivated and harvested. The selection process was unconscious in many cases. For example, the wild wheat, possessed the trait of shattering, or the tendency of seeds to break off the central grain stalk once mature. This provided advantage for wild plants, because it helps to ensure the seed dispersal and more chances of their survival. But the same trait is a disadvantage for a cultivated crop plant which must retain its seeds long enough that the seed heads can be gathered at harvest. Thus over thousands of years when these grains were harvested by cutting the heads with a sickle, an unconscious selection occurred for "non-shattering" types that could then be continually replanted. Once the crops were amenable to domestication in the second stage, conscious selection were made for improved qualities, for example, farmers might breed many different varieties of a crop that differ in grain taste, fruit colour or fruit shape. For example, a variant as useful as a seedless banana must have been immediately selected and maintained by planting offshoots of the plant. Thus the farmers and communities through a long history of trial and error, have brought into cultivation a few hundred species from the hundreds of thousands available.

Further, the traditional farmers have not only developed agricultural crops *per se* through domestication but have attempted to improve crops since the beginning of civilization. This has given us a priceless heritage of landraces and traditional varieties in different crops. This vast array of diversity has been generated through persistent selection for superior types with desirable traits of the best adapted varieties. The diversity of landraces comes from hybridization between crops and their wild relatives over long periods and from human and natural selection of crops over thousands of generations in diverse environments. The composition of landraces is frequently deliberately manipulated by cultivators as there is always a reason for choosing a particular type due to the uses, preferences and cultural practices. These features may include traits such as grain quality, faster growth, drought/frost resistant, larger seeds or sweeter fruits etc. The various genotypes have survived in the particular region for long periods of time or else they are offspring of lines that have undergone selection for many generations. Thus, landraces and traditional varieties have traits adapted to their environment both natural and manmade. The genetic variability of the landraces provides some built-in insurance against disease epidemics as the population contains such an array of genes that no single race of pathogen can build up to epidemic proportions.

In addition, there are a number of ethnic/tribal groups and forest villages, which have maintained their own unique culture. This cultural diversity has also played a role in increasing diversity and there are specific varieties, which have been selected for cultivation for use, specifically during festivals, marriages, or other auspicious occasions. Thus, priceless heritage of genetic resources in the form of landraces or traditional varieties of major and minor crops have been generated by the farmers and communities, over the millennia and farmers' dependability makes them useful in difficult or marginal situations. For example, a single species of rice domesticated from the wild, sometime in the distant past has diversified into 50000 landraces, which are often highly variable in appearance, but are identifiable, usually have local names and possess particular properties or characteristics, viz., early or late maturing, adaptability to a particular soil type, expected usage etc.

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## **8.4 PROTECTION OF PLANT VARIETIES AND FARMERS' RIGHTS ACT**

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The Protection of Plant Varieties and Farmers' Rights Act (PPVFR ) is a unique Act, which while addressing the issue of proprietary claims to PBRs at the same time addresses the issue of farmers' proprietary claims to plant varieties. The objectives of the Act are to:

- i) provide for the establishment of an effective system of protection of plant varieties,
- ii) to protect the rights of farmers and plant breeders,
- iii) to encourage development of new varieties of plants,
- iv) to stimulate investment for research and development and facilitate growth of the seed industry, and
- v) to ensure availability of high quality seeds and planting materials to farmers.

Accordingly, the Act defines farmers as any person who in addition to cultivation the land also "*conserves and preserves, severally or jointly, with any person any wild species or traditional varieties, or adds value to such wild species or traditional varieties through selection and identification of their useful properties*".

Similarly a "farmers' variety" has been defined as a variety which –

- i) Has been traditionally cultivated and evolved by the farmers in their fields; or
- ii) Is a wild relative or land race of a variety about which the farmers possess the common knowledge;

The major issues of concern of extending PBR regime included that (i) the PBR should not have a contrary effect on the traditional seed system in the country, (ii) the varieties developed by the farmers should also be provided protection as provided to varieties developed by formal breeders and (iii) farmers and communities should be rewarded for their contribution in conservation and maintenance of plant genetic resources. The Act in Chapter VI on Farmers' Rights appropriately addresses these issues.

Section 39 (1) states "Notwithstanding anything contained in this Act –

- i) a farmer who has bred or developed a new variety shall be entitled for registration and other protection in like manner as a breeder of a variety under this Act;
- ii) the farmers' variety shall be entitled for registration if the application contains declaration as specified in clause (h) of sub-section (1) of section 18;
- iii) a farmer who is engaged in the conservation of genetic resources of land races and wild relatives of economic plants and their improvement through selection and preservation shall be entitled in the prescribed manner for recognition and reward from the Gene Fund:

*Provided that material so selected and preserved has been used as donors of genes in varieties registrable under this Act;*

- iv) a farmer shall be deemed to be entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act in the same manner as he was entitled before the coming into force of this Act:

*Provided that the farmer shall not be entitled to sell branded seed of a variety protected under this Act.*

*Explanation- For the purposes of clause (iv), "branded seed" means any seed put in a package or any other container and labelled in a manner indicating that such seed is of a variety protected under this Act".*

#### **8.4.1 Farmers' Rights Over Seed**

Traditionally, the farmers or communities have decided which crops and varieties to grow and carried over self-regenerated seeds (generally after selection) for next season. The tradition of seed exchange with other farmers from the same or other communities always existed and resulted in enhancement and spread of the genetic diversity. Agriculture, particularly in the areas of crop diversity in countries such as India, therefore, developed as a dynamic system that integrated seed production, selection, storage and exchange, which was often aided by natural crossing between varieties and wild and weedy relatives, migration, mutations and environmental conditions assisting in evolution and maintenance of *in situ* crop genetic diversity for thousands of years. Even today these farmer-based systems of seed supply have been the mainstay in the mega-diverse countries and depending on the crop and country, 60-90% of the seed planted is farmer-produced and exchanged. In India, local varieties maintained by farmers occupy major part of the crop-land, and diffusion of new varieties through exchange of seeds from farmer-to-farmer has been shown in many cases to be more effective than formal sector seed distribution. This formulation allows the farmer to save, use, exchange or sell seed in the same manner he/she was entitled to before the Act came into force, while by restricting that the seed can not be branded with the Breeder's registered name, the interests of the breeders are also protected.

#### **8.4.2 Farmer as a Breeder**

The Act gives the framers the right to register varieties akin to commercial breeders and obtain PBR on varieties bred by them. The criterion for registration

of varieties, however, is similar to breeders requiring tests for distinctness, uniformity and stability; but novelty is not a requirement. The plant breeder's right granted on farmers' varieties provides the farmers exclusive right to produce and market the seed of registered varieties.

### 8.4.3 Farmer as a Conservationist

The Act provides for establishing a National Gene Fund under Section 45 (Box 2). The National Gene Fund can be used for support and reward to farmers engaged in conservation. The Act provides this general provision to promote conservation but does not provide further specifications regarding the method. The Protection of Plant Varieties and Farmers' Rights Authority set up under the Act to implement it has constituted the "*Plant Genome Saviour Community Award*" for recognising the contributions of community of farmers particularly the tribal, rural communities engaged in conservation, improvement and preservation of genetic resources of economic plants and their wild relatives particularly in areas identified as agro-biodiversity hot spots. The award consists of Rs 10 lakhs in cash, a citation and a memento. The Authority is left with the task of operationalizing this right.

#### Box 2:

#### National Gene Fund

45. (1) The Central Government shall constitute a Fund to be called the National Gene Fund and there shall be credited thereto –
- a) the benefit sharing received in the prescribed manner from the breeder of a variety or an essentially derived variety registered under this Act, or propagating material of such variety or essentially derived variety, as the case may be;
  - b) the annual fee payable to the Authority by way of royalty under Sub-section (1) of Section 35;
  - c) the compensation deposited in the Gene Fund under Sub-section (4) of Section 41;
  - d) the contribution from any national and international organisation and other sources;
- (2) The Gene Fund shall, in the prescribed manner, be applied for meeting –
- a) any amount to be paid by way of benefit sharing under Sub-section (5) of Section 26;
  - b) the compensation payable under Sub-section (3) of Section 41;
  - c) the expenditure for supporting the conservation and sustainable use of genetic resources including in-situ and ex-situ collections and for strengthening the capability of the Panchayat in carrying out such conservation and sustainable use;
  - d) the expenditure of the schemes relating to benefit sharing framed under Section 46.

The fee collected from breeders who are required to pay for benefit sharing is to be deposited in the National Gene Fund.

#### 8.4.4 Benefit Sharing Provision

According to Section 26, the PPVFR Authority is required to publish the registered varieties and invite claims for benefit sharing (Box 3). The Act states that any person or group of persons or firm or governmental or nongovernmental organisation can submit its claim of benefit sharing. The rewards from the gene fund can be given to a farmer/community who can prove that they have contributed to the selection and preservation of materials used in the registered variety.

**Box 3:**

**Determination of benefit sharing by Authority**

26. (1) On receipt of copy of the certificate of registration under Sub-section (8) of Section 23 or Sub-section (2) of Section 24, the Authority shall publish such contents of the benefit certificate and invite claims of benefit sharing to the variety registered under such certificate in the manner as may be prescribed.

(2) On invitation of the claims under Sub-section (1), any person or group of persons or firm or governmental or non-governmental organisation shall submit its claim of benefit sharing to such variety in the prescribed form within such period, and accompanied with such fee, as may be prescribed:

Provided that such claim shall only be submitted by any –

- i) person or group of persons, if such person or every person constituting such group is a citizen of India; or
- ii) firm or governmental or non governmental organisation, if such firm or organisation is formed or established in India.

3) On receiving a claim under Sub-section (2), the Authority shall send a copy of such claims to the breeder of the variety registered under such certificate and the breeder may, on receipt of such copy, submit his opposition to such claim within such period and in such manner as may be prescribed.

4) The Authority shall, after giving an opportunity of being heard to the parties, dispose of the claim received under Sub-section (2).

5) While disposing of the claim under Sub-section (4), the Authority shall explicitly, indicate in its order the amount of the benefit sharing, if any, for which the claimant shall be entitled and shall take into consideration the following matters, namely –

- a) the extant and nature of the use of genetic material of the claimant in the development of the variety relating to which the benefit sharing has been claimed;
- b) the commercial utility and demand in the market of the variety relating to which the benefit sharing has been claimed.

6) The amount of benefit sharing to a variety determined under this section shall be deposited by the breeder of such variety in the manner referred to in clause (a) of Sub-section (1) of Section 45 in the National Gene Fund.

7) The amount of benefit sharing determined under this section shall, on a reference made by the Authority in the prescribed manner, be recoverable as an arrear of land revenue by the District Magistrate within whose local limits of jurisdiction the breeder liable for such benefit sharing resides.

### 8.4.5 Compensation for Crop Failure

Section 39 (2) of the Act provides that the breeder must give information about expected performance of the registered variety. If the material fails to perform, the farmers may claim for compensation under the Act. This provision attempts to ensure that seed companies do not make exaggerated claims about the performance (yield, pest resistance) to the farmer. In providing a liability clause, the farmer in principle is protected against the supply of spurious and/or bad quality seed. It enables farmers to apply to the Authority for compensation in case they suffer losses due to the failure of the variety to meet the targets claimed by the companies. The compensation has not been specified.

### 8.4.6 Disclosure of Information

Section 40 (see Box 4) requires from the breeder mandatory disclosure of information regarding the use of genetic material conserved by any tribal or rural families in the breeding or development of such variety. For failure to disclose such an information, the application for registration may be rejected. Further, as per Section 43 *"Notwithstanding anything contained in sub section (6) of section 23 and section 28, where an essentially derived variety is derived from a farmers' variety, the authorization under sub-section (2) of section 28 shall not be given by the breeder of such farmers variety except with the consent of the farmers or group of farmers or community of farmers who have made contribution in the preservation or development of such variety"*.

#### Box 4:

##### **Certain information to be given in application for registration**

40. (1) A breeder or other person making application for registration of any variety under Chapter III shall disclose in the application the information regarding the use of genetic material conserved by any tribal or rural families in the breeding or development of such variety.
- (2) If the breeder or such other person fails to disclose any information under sub-section (1), the Registrar may, after being satisfied that the breeder or such person has willfully and knowingly concealed such information, reject the application for registration.

### 8.4.7 Compulsory Licenses

The provision of Compulsory licences as per Section 47 (1) states that *"At any time, after the expiry of three years for the date of issue of a certificate of registration of a variety, any person interested may make an application to the Authority to alleging that the reasonable requirements of the public for seeds or other propagating material of the variety have not been satisfied or that the seed or other propagating material of the variety is not available to the public at a reasonable price and pray for the grant of a compulsory licence to undertake production, distribution and sale of the seed or other propagating material of that variety"*. This ensures the right of farmers and communities to adequate availability of registered material. The breeder is required to provide adequate supply of seeds or material of the variety to the public at a reasonable price. Compulsory licenses revoke the exclusive right given to the breeder and enable third parties to produce, distribute or sell the registered variety.

### 8.4.8 Right to Free Services

The Act exempts farmers from paying fees for registration of a variety, for conducting tests on varieties, for renewal of registration, for opposition and for fees on all legal proceedings under the Act. According to Section 44, "A farmer or group of farmers or village community shall not be liable to pay any fee in any proceeding before the Authority or Registrar or the Tribunal or the High Court under this Act or the rules made thereunder." For the purposes of this section, "fee for any proceeding" includes any fee payable for inspection of any document or for obtaining a copy of any decision or order or document under this Act or the rules made thereunder.

### 8.4.9 Protection from Infringement

Considering low literacy levels regarding the Act in the country, safeguards are provided against innocent infringement by farmers as per Article 42 (Box 5). Farmers who unknowingly violate the rights of a breeder are not to be punished if they can prove that they were not aware of the existence of such a breeder's right.

#### Box 5:

##### Innocent infringement

42. Notwithstanding anything contained in this Act, –
- i) a right established under this Act shall not be deemed to be infringed by a farmer who at the time of such infringement was not aware of the existence of such right; and
  - ii) a relief which a court may grant in any suit for infringement referred to in section 65 shall not be granted by such court, nor any cognizance of any offence under this Act shall be taken, for such infringement by any court against a farmer who proves, before such court, that at the time of the infringement he was not aware of the existence of the right so infringed.

### 8.4.10 Terminator Technology Forbidden

Breeders will have to submit an affidavit that their variety does not contain a Gene Use Restricting Technology (GURT) or terminator technology. Such technologies in their design, provide a mechanism to switch introduced genes on or off, using external inducers like chemicals or physical stimuli such as heat shock (called an inducible system). This leads to sterile seed when reproduced without special treatments and would ensure that commercial seed could not be saved by farmers for subsequent planting and make it difficult for another breeder to use the protected germplasm.

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## 8.5 BIOLOGICAL DIVERSITY ACT

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Provisions of the Protection of Plant Varieties and Farmers' Rights Act, 2001 are complemented by the Biological Diversity Act, 2002. The objectives of this Act are to provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith

or incidental thereto. As per the Biological Diversity Act, 2002 [Section 41] *“Every local body shall constitute a Biodiversity Management Committee (BMC) within its area for the purpose of promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity”.*

It defines biological diversity in an inclusive fashion, encompassing domesticated biodiversity, including habitats, land races, folk varieties and cultivars as:

- a) “cultivar” means a variety of plant that has originated and persisted under cultivation or was specifically bred for the purpose of cultivation;
- b) “folk variety” means a cultivated variety of plant that was developed, grown and exchanged informally among farmers;
- c) “landrace” means primitive cultivar that was grown by ancient farmers and their successors.

Given these provisions of the Biological Diversity Act, it is appropriate that Biodiversity Management Committees be assigned a role in the process of registration of farmers' varieties under the Protection of Plant Varieties and Farmers' Rights Act. The Protection of Plant Varieties and Farmers' Rights Authority recognizes this role and has, therefore, authorized Secretaries of Biodiversity Management Committees to forward applications to the Protection of Plant Varieties and Farmers' Rights Authority for registration of farmers' varieties.

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## **8.6 SUMMARY**

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- Traditional farmers and indigenous communities are an integral component of the plant genetic resource management system that comprises activities related to conservation, research and development, and utilization of PGRs. The asymmetry in the distribution of benefits between farmers and communities as donors of germplasm, and the producers of commercial varieties in the international debates held within FAO led to the evolution of the concept of Farmers' Rights.
- The adoption of CBD may be considered a relevant framework for the implementation of some components of such rights, particularly with regard to the regulated access and sharing of benefits. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) was negotiated to reconcile access and property rules governing agricultural biodiversity, and to promote its conservation, sustainable use and benefit-sharing in accordance with the CBD.
- The Protection of Plant Varieties and Farmers' Rights Act (PPVFR ) is a unique Act, which while addressing the issue of proprietary claims to PBRs at the same time addresses the issue of farmers' proprietary claims to plant varieties.
- India's PPVFR Act enables farmers to claim special forms of intellectual property rights over their varieties as a breeder and grants plant variety

protection on not only new varieties but also extant varieties and essentially derived varieties. Extant varieties include farmers' varieties, varieties in the public domain and varieties about which there is common knowledge. The Act upholds farmers' rights to save, use and exchange seeds and propagating material along with the right to information about expected performance of a variety and compensation for failure of variety to meet the claimed performance.

- The availability of seeds of registered variety is ensured through the provision of compulsory licencing. The Act also provides for free services to farmers for registration, conducting tests on varieties and legal claims under the Act and protects them from innocent infringement. The Act also has provision for benefit sharing between breeders and farming or tribal communities who have contributed to the genetic diversity used by the breeder, and recognition and reward for conservation of varieties.
- The National Biodiversity Act, 2002, based on the Convention on Biological Diversity, regulates access to and use of genetic resources and also focuses on benefit sharing, protection of traditional knowledge and prior informed consent.

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## **8.7 TERMINAL QUESTIONS**

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- 1) What is the rationale of providing Farmer's rights in the PPVFR Act?
- 2) What are the rights provided to farmers under the PPVFR Act?
- 3) How does the provisions of Biological Diversity Act, 2002 and PPVFR Act complement for realizing the farmers rights?

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## **8.8 ANSWERS AND HINTS**

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### **Terminal Questions**

- 1) Refer to Section 8.3
- 2) Refer to Section 8.4
- 3) Refer to Section 8.5

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## **8.9 REFERENCES AND SUGGESTED READINGS**

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# Notes

The first part of the report discusses the current state of the world's forests. It notes that the world's forests are being lost at an alarming rate, and that this is having a significant impact on the environment. The report also discusses the importance of forests in providing ecosystem services, such as carbon sequestration and water regulation.

## 8.9. FOREST MANAGEMENT

The second part of the report discusses the current state of forest management. It notes that many forests are being managed in a way that is not sustainable, and that this is leading to a decline in forest health. The report also discusses the importance of sustainable forest management in ensuring that forests can continue to provide ecosystem services for future generations.

## 8.10. CONCLUSIONS

The report concludes that the world's forests are in a state of crisis, and that urgent action is needed to address this crisis. It calls for a global effort to protect and restore the world's forests, and for governments to take action to ensure that forests are managed in a sustainable way.

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