

**ORIENTATION LECTURES  
ON  
INDIA'S SEED POLICY, GENETICALLY MODIFIED CROPS  
&  
FARMERS' RIGHTS**

(22 January, 2008)

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## FOREWORD

Agriculture is the backbone of Indian economy and farmers play a pivotal role in supporting the Indian economy. Along with crop cultivation, farmers also play a crucial role in germplasm conservation and improvement. Crop improvement so far was mainly a public enterprise which was need based. With the entry of private sector and the development of genetically modified crops, the scenario has undergone a drastic change. Safeguarding our biological diversity and ensuring the rights of the farmers necessitate appropriate legislations. Hence, legislations like Protection of Plant Varieties and Farmers' Rights Act, Biological Diversity Act, New Seeds Bill etc. have been recently enacted by our parliament in tune to the guidelines of WTO and CBD.

Protection of Plant Varieties and Farmers' Rights Act recognizes the rights of farmers as cultivators, conservers and plant breeders. The New Seeds Bill 2004 has created lots of discussions across the country and needs revision to safeguard the interest of our resource poor farmers. Nowadays public and private sector R & D institutions and seed companies are putting more thrust on Genetically Modified (GM) crops and their popularization. Government of India has already approved Bt cotton for commercialization. Many other GM crops developed in India are in pipeline awaiting approval and commercial release. Hence, a broad awareness about such GM crops and their biosafety regulations are the need of the day. It is the duty of the Government and State Agricultural Universities along with Indian Council of Agricultural Research to create awareness among the stakeholders like farmers, scientists, extension workers and policy makers about the implications and implementation of these legislations.

It is in this background that Kerala Agricultural University (WTO Centre) along with WTO Cell of State Department of Agriculture is organizing one day orientation lectures on "India's Seed Policy, Genetically Modified Seeds and Farmers' Rights". The programme is planned to discuss India's Seed Policy, Farmers Rights and GM crops in detail so that the stakeholders will be able to harvest maximum benefits from this programme. The lectures are brought out in print form which will be the source of reference for various stake holders. On this occasion, I congratulate Dr.C.R.Elsy and other associating scientists, staff members and students for their concerted efforts in organizing the workshop in a most fruitful way. I wish the deliberations of the workshop a grand success.

Vellanikkara  
18.01.08

Sd/-  
**Dr.D.Alexander**  
Director of Research

## C O N T E N T S

1.	<i>India's Seed Policy and New Seeds Bill</i> <b>Harbir Singh</b>	7
2.	<i>Plant Variety Protection and Farmers' Rights</i> <b>Alexander, D., Jiji Joseph and Divya Balakrishnan</b>	9
3.	<i>New Seed Policy and Regulation Of Planting Material Production</i> <b>Rajan, S.</b>	17
4.	<i>Genetically Modified Crops- An Introduction</i> <b>Elsy, C.R. and Nisha Lekshmi, V.</b>	21
	Annexure I	
	Annexure II	
	Annexure III	



## India's Seed Policy and New Seeds Bill

Harbir Singh\*

### BACKGROUND

Seed is the key input that determines the genetic potential of the crop. Seed with high yield potential played a substantial role in ushering Green Revolution (GR) in the country. However, productivity in post-GR phase has reached a plateau, and the growth in crop yields and total factor productivity has slowed down – and in some cases stagnated – in recent years. For sustained increase in agricultural production and productivity, it is essential that farmers are provided with new and improved seed through an efficient delivery system. Assured seed supply is not only an essential characteristic of an efficient seed system but also the ultimate symbol of food security. Both public and private sectors have important roles to play in carrying out all the activities related to seed development, production, quality control, distribution and consumer protection. Recently, India has reviewed its seed policy as part of the wider process of economic liberalization and reform in agricultural sector. The objective is to create a policy framework for more effective participation of public and private sectors in various aspects of seed production, marketing and delivery systems so that farmers have access to quality seed at their doorstep.

### SEED REGULATIONS IN INDIA

Till 1960s, the formal seed sector in India was dominated by the public sector. During the 1980s, the seeds sector underwent structural changes with the entry of private seed companies, mostly family-owned, and this trend continued in the 1990s also. Private seed companies focused mainly on hybrid

seed and a few large companies diversified into research and development (R&D) to increase their share in seed market. Though, there was no intellectual property (IP) protection till 1990s, liberal seed regulations particularly the new Seed Policy of 1988 and the economy-wide reforms of 1991 attracted the private companies, including multinational companies in a major way. As India became member of the World Trade Organization (WTO), some legislative changes were required to be made, especially regarding intellectual property rights (IPR) to meet our WTO obligations. Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPV&FR Act) and National Seeds Policy, 2002, among a host of other regulations, were meant to liberalize our legislative framework in respect of agricultural sector. To meet the goal of the Seeds Policy, new Seeds Bill was tabled in the Parliament in December, 2004.

The main objectives of the National Seeds Policy, 2002 are the provision of an appropriate climate for the seed industry to utilize available and prospective opportunities, safeguarding of the interests of Indian farmers and the conservation of agro-biodiversity. Thus, the twin objectives of the Seeds Policy seem to encourage seed industry and ensure maximum prosperity for farmers. These objectives are supposed to be realized through the proposed Seeds Bill, 2004.

The preamble of Seeds Bill, 2004 states that it aims to *provide for regulating the quality of seeds for sale, import and export and to facilitate production and supply of seeds of quality and for matters connected*

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*therewith or incidental thereto.* It replaces the Seeds Act, 1966. The Bill requires that all varieties of seeds for sale have to be registered and the seeds are required to meet certain prescribed minimum standards. Though the Bill does not restrict the farmers' right to use or sell his farm seeds and planting material – provided he does not sell them under a brand name – all seeds and planting material sold by farmers will have to conform to the minimum standards applicable to registered seeds. The Bill permits self certification of seeds by accredited agencies and allows the central government to recognize certification by foreign seed certification agencies. Every seed producer and dealer, and horticulture nursery has to be registered with the state government.

#### AREAS OF CONCERN

Some provisions of the Seeds Bill, 2004 contradict and overlap with the Protection of Plant Varieties and Farmers' Rights Act, 2001. Although farmers are exempt from registering their seed varieties, the seeds have to conform to standards prescribed for commercial seeds. Farmers may find it difficult to adhere to the standards required of commercially sold seeds. If a registered variety of seed fails to perform to expected standards, the farmer can claim compensation from the producer or dealer under the Consumer Protection Act, 1986. However, this provision is unlike the PPVFR Act, which allows compensation to be decided by the Authority

established under that Act. Seed inspectors can take samples from anyone selling, purchasing or transporting seed with the power of search and seizure without a warrant. But such type of inspection mechanisms has not been much effective in the past, and a more transparent and accountable inspection system should have been suggested. In the light of the above, it is not very clear how effectively the Seeds Bill would safeguard the interests of the farmers.

#### CONCLUSIONS

Seed is going to be the critical input for sustained increase in agricultural production and productivity. Therefore, all the policy efforts should be directed towards establishing an efficient and effective seed system which promotes equity and provide good quality seed at the farmers' doorstep. With the increasing participation of private seed industry, seed regulations (Seeds Policy and Seeds Bill) have to play key role in ensuring seed security to the farmers and fair returns for R&D efforts by the private sector. Since the Seeds Bill is still to be approved by the Parliament, all our efforts must be made to address farmers' concerns about seed security, and to ensure that the seed regulations are in conformity with other national legislations. This alone would ensure that the proposed seed regulations help develop a vibrant seed system which delivers seeds of choice to the farmers in an efficient and equitable way. ●



## PLANT VARIETY PROTECTION AND FARMERS' RIGHTS

Alexander,D\*, Jiji Joseph and Divya Balakrishnan

Plant Genetic Resources (PGRs) are the foundation for the development of a food and nutritionally secure society. In addition, plants have many uses, including feed, fibre, medicine and industrial applications. PGRs were treated as the 'heritage of mankind' and were shared freely among nations, till the concerns for conservation of biological diversity were raised by the Convention on Biological Diversity (CBD), which came into force in 1993. The conservation and sustainable utilization and access to biological diversity were considered as national sovereignty by CBD. Consequently, many issues regarding the rights of the conservers, users, breeders, farmers and intellectual property have emerged.

Development of a new cultivar or variety, requires a lot of time and effort. To recover the costs of this research and development, the breeder may seek to obtain exclusive marketing rights for the new variety. Plant variety protection is a good choice for many breeders. A Plant Variety Protection (PVP) system is an administrative procedure to secure a form of intellectual property right called the **plant breeders' right** (UPOV, 2003). PVP is the exclusive rights given by the Government to the "Breeder" to recover the costs and efforts of his research and development in the way of production of a variety. PVP prevent others from utilizing the propagating material or harvested material of the protected plant variety without breeder's authorization (USDA, 1989). A plant breeders' right is an exclusive right to prohibit others from exploiting or using the protected plant variety without any permission or license from the rights holder. This right is limited to a particular time period, usually 18 years for trees and vines, and 15 years for other plant types.

International Undertaking on Plant Genetic Resources defines farmers' rights as 'rights arising from the past, present and future contributions of

farmers in conserving, improving and making available plant genetic resources, particularly those in the centers of origin/diversity'. FAO conference at Rome, during 11-29 November 1989 endorsed the concept of Farmers' Rights for

- Assisting farmers and farming communities throughout the world in the protection and conservation of Plant Genetic Resources (PGR) and of the natural biosphere.
- Allowing the full time participation of farmers, their communities and countries in the benefits derived, at present and in the future, from the improved uses of PGR.
- Ensuring global recognition and the availability of sufficient funds for those purposes.

Farmers' Rights were added in 1992 into Agenda 21 of the United Nations Conference on Environment and Development and into the Prior Informed Consent in the Convention on Biological Diversity (CBD).

Plant varieties has to be protected

- To reward breeder's innovation.
- To enable Indian plant breeders to protect varieties in other countries.
- To access improved varieties protected in other countries
- To encourage need based appropriate research
- To provide sufficient incentive to seed industry to invest in breeding sector.
- To maintain competition and vitality to plant breeding sector

For over 80 years different forms of PVP is in existence in industrialised countries.

**International Union for the Protection of Plant Varieties (UPOV) - 1961**

The UPOV system of plant variety protection came into being with the adoption of the International Convention for the Protection of New

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Varieties of Plants by a Diplomatic Conference in Paris on December 2, 1961. The main legal justification for the adoption of PVP is the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) under the General Agreements on Tariff and Trade (GATT)/ World Trade Organization (WTO) (Sahai, 1999).

### The genesis of the Indian legislation

The above developments and many other related discussions and conferences at United Nations led to the international acceptance of the concept that farmers, being custodians of genetic diversity, should be granted rights for their enormous contributions in identifying and conserving PGR. India is one of the first countries to have granted legal rights to farmers under the "Protection of Plant Varieties and Farmers' Rights Act, 2001". Through this Act India recognizes the contribution of farming communities in the identification, conservation and development of traditional varieties and useful germplasm. The Act provides means to recognize reward and award the farmers/farming communities who have conserved the germplasm and shared it with scientific institutions for the development of new varieties.

In India, agricultural research including the development of new plant varieties has largely been the concern of the government and public sector institutions. Earlier, India did not have any legislation to protect the plant varieties and, in fact, no immediate need was felt. However, after India became signatory to the Trade Related Aspects of Intellectual Property Rights Agreement (TRIPs) in 1994, such a legislation was necessitated. Article 27.3 (b) of this agreement requires the member countries to provide for protection of plant varieties either by a patent or by an effective *sui generis* system or by any combination thereof. Thus, the member countries had the choice to frame legislations suiting their own system and India exercised this option.

### *Sui generis* system

It means self generated system or our own system. The countries, which are not able to follow the rigid patent system, could generate their own system of PVP according to their situations and needs (Susan, 1999). The developing countries can adopt a system of PVP that it seems appropriate for its specific situation and needs. It may include

recognition of plant breeders' rights, requiring disclosure of origin of genetic material, acknowledgement of farmers' rights, providing benefit sharing etc. (TRIPS, 1994). Opting for *sui generis* system of PVP, India has implemented the PPV& FR Act 2001. The Act covers all categories of plants, except microorganisms. The genera and species of the varieties for protection shall be notified through a gazette, after the appropriate rules and by-laws are framed for the enforcement of the Act.

### Objectives

The objectives of the Act are as follows:

- To provide for the establishment of an effective system for protection of plant varieties.
- To provide for the rights of farmers and plant breeders.
- To stimulate investment for research and development and to facilitate growth of the seed industry.
- To ensure availability of high quality seeds and planting materials of improved varieties to farmers.

### The Protection of Plant Varieties and Farmers' Rights Act, 2001

This is "an act to provide for the establishment of an effective system for protection of plant varieties, the rights of farmers and plant breeders and to encourage the development of new varieties of plants". (GOI, 2003). The process of drafting the *Protection of Plant Varieties and Farmers' Rights* Bill lasted more than 10 years and generated a considerable amount of public debate and controversy. The first initiatives taken to develop Indian legislation on PVP occurred in the late 1980s. After almost a decade of development, the Bill was passed by Parliament in October 2001 (Shaila, 2005). The Act was enacted by The Ministry of Agriculture and the Ministry of Law, Justice and Company affairs; Government Of India and it was published in gazette notification No. S.O.1589 (E) as Act no; 53 of 2001 Dated: 11<sup>th</sup> November 2005.

PPV&FR ACT 2001 and PPV&FR Rules 2003, extends to whole India. It provides 15 years





(extant varieties from the date of notification and others from the date of registration) /18 years (trees and vines) protection for plant varieties, provisions for Farmers' Rights, Benefit Sharing and Community Rights. These can be achieved only through registration. Under the Act, PPV&FR Registration commenced from 2007 May 21.

The Act sets up a Plant Varieties and Farmers' Rights Protection Authority, with representatives from the various sectors in agricultural biodiversity issues, including women and indigenous peoples (Dhar *et. al.*, 1998). It allows the registration of new plant varieties within a specific list of genera and species, as well as farmers' varieties. It explicitly states that farmers or farmer organizations may apply for registration of their varieties. The Act introduces the concept of Farmers' Rights to counter-balance Breeders' Rights and address the issue of farmers' proprietary claims to plant varieties (Sahai, 2003).

#### Institutional set up

PPV&FR has four major apex offices. They are

- (i) **Protection of plant varieties and farmers' rights authority** - is the nodal governing body of PPV&FR Act Government of India, with its Head Office at New Delhi. And its present chairperson is Dr. S. Nagarajan
- (ii) **Plant variety protection appellate tribunal** - this body is to exercise jurisdiction, powers and authority conferred on it under this Act. The Tribunal will consist of judicial as well as technical members. It will hear all appeal and cases under the act and decide on legal procedures.
- (iii) **Plant varieties and farmers' rights registry** - will control registration of varieties and maintain national register of plant varieties
- (iv) **Plant varieties and farmers' rights audit and accounting** - give effect to the audit and account and will form the budget every year.
- (v) **The official journal of PPV&FR authority** -the general and specific guidelines about registration for DUS Testing of 12 notified crop species are available in Plant Variety Journal of India .

#### Objectives of PPV&FR act

- To protect plant varieties
- To recognize and protect farmer's rights
- To protect breeder's rights
- To develop new plant varieties
- To avail high quality seeds to farmer
- To accelerate agriculture growth in India
- To stimulate investment in R&D
- To facilitate growth of seed industry (PPVFR Act, 2001)

#### Coverage of PVP

**New Varieties** - genera and species, which can be registered, will be notified subsequently.

**Extant varieties** - variety available in India notified under section 5 of seed act 1966, farmer's variety or a common variety in public domain.

**Farmers varieties** - are varieties traditionally cultivated and evolved by farmers, wild relative/ land race / variety about which farmers possess common knowledge.

**Transgenic variety** - a variety which is formed by the transfer of one or few genes introduced by technological (not conventional breeding) methods (Ravishankar *et. al.*, 2000).

**Farmer** - is any person who (i) cultivates crops either by cultivating the land himself; or (ii) cultivates crops by directly supervising the cultivation of land through any other person; or (iii) 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. A person who cultivate / supervise cultivation or conserving wild/ traditional varieties in his land.

#### Rights offered to farmers

FAO Commission on Plant Genetic Resources developed the concept of Farmers' rights. India is the first country in the world to provide a strong and well-balanced farmers' rights. The law entitles farmers the following rights.

1. **On seed** : To save, use, sow, re-sow, exchange, share or sell their farm produce including protected varieties. Farmers' right to sell protected varieties specifically refers to those seeds that do not bear the package, container or label of the protected



- varieties (Prathibha *et.al.*, 2004). It assigns good faith to farmers who commit innocent infringement, and also provides for a liability clause in case a protected variety does not perform as claimed.
- Reward and recognition** : A farmer who is engaged in the conservation of genetic resources of landraces 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 the material so selected and preserved has been used as donor of genes in varieties registrable under the Act.
  - Claim compensation for under performance of registered variety** : Law ensures full disclosure of the expected performance of the seeds or planting material by the plant breeder. When these fail to perform in the manner claimed by the breeder, the farmer may claim compensation from the plant breeder (Cullet, 2000).
  - Benefit sharing** : Is available for a variety registered as Essentially Derived Variety. NGOs or individuals can claim a share of benefits that may arise from its commercialisation on behalf of any village or local community. Any individual or NGO can make a claim on behalf of a village or local community for the contribution that they had made in the evolution of any variety registered under the Act. (Hardon, 2000).
  - Register farmers variety** : Allows farmers and farming community to register either traditional varieties developed or conserved or bred by them.
  - Get adequate seeds of registered varieties** : After three years of registration, if seed of protected variety is not available in adequate quantity at reasonable price. Authority grant license to third party for production, distribution and sale of seeds (PPV&FR, 2005)
  - Seek consent of farmers** : Farmers and farming communities have right to grant permission to allow commercialization of an essentially derived variety.
  - Protection against innocent infringement** : Rightly assuming that farmers may unknowingly infringe Breeders' Rights since they will not be used to the new situation, the law provides for protection from prosecution for innocent infringement.
  - Exclusion from paying fees** : Act stipulates that farmers wishing to examine documents and papers or receive copies of rules and decisions made by the various authorities will be exempted from paying any fees.
- "Farmers' rights are the rights arising from the past, present and future contributions of farmers in conserving, improving and making available genetic resources, particularly those in the centers of origin/ diversity. These rights are vested in the international community as trustees for present and future generations of farmers, for the purpose of ensuring full benefits to farmers and supporting the continuation of their contributions"(Swaminathan, 1994). These also include the rights of farmers to participate in decision-making regarding plant genetic resources for food and agriculture, and in the fair and equitable sharing of the benefits arising from the use of these resources.

#### Community rights

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)].

#### National gene fund

The annual fee and benefit sharing from breeders of protected variety and contributions will

go to NGF and it will support on-farm conservation and use of land race, traditional varieties, genetic resources, share benefit to agencies and compensation. This will ensure the fair and equitable sharing of benefits arising from the commercial utilization of farmers' varieties.

### Plant Genome Savior Community Award

National awards for Plant Genome Savior Community are given to initiate awareness about PPVFR among Indian citizens to recognize role of farmers in germplasm conservation. The five recipients of awards were Rice farming communities, Palakkad, Kerala; Rung farmer's community of Vyas valley; Tribal and rural communities of Jeypore, Orissa; Women's group, Swati Samudaya Beeja bank, Karnataka; Single farmer Sundaram Verma.

### Benefits to public

The legislation includes public interest clauses, like exclusion of certain varieties from protection and the grant of compulsory licensing. To safeguard public interest, certain varieties may not be registered (GOI, 2005).

### Applicants for registration

A breeder, successor of breeder, assignee of breeder, farmer/ group of farmers, authorized person, any institute/ university and publicly funded agriculture organization can apply for plant variety protection.

### Conditions Imposed on Applicants:

Applicant must declare that:

- a) Variety sought to be protected should not contain terminator gene
- b) The genetic material or parental material has been lawfully acquired. Applicant should provide the passport data of the parental lines along with the geographical location in India from whose the genetic material has been taken.
- c) Contribution made by farmers, village community, institution or organisation in breeding, evolution or development of a variety and use of genetic material conserved by any tribal or rural families in its breeding.

### How to apply

To request protection for a new variety, the applicant must provide the following items: exhibits A, B, C, and E, a seed sample, and a fee.

A. The origin and breeding history of the variety are presented.

B. The novelty statement lists specific characters in which the subject variety differs from all other varieties in the crop

C. An objective description of the variety is given.

E. The basis of the applicant's ownership is stated by describing how ownership was obtained.

**Seed Sample.** A specimen of viable seeds (85 percent or greater germination rate) is required when the application is filed.

**Fees.** The filing fee is Rs 200 and the examination fee is Rs 27700. The PVP Office is completely funded by user fees, so fees may occasionally be raised to cover operating costs.

D. Additional information concerning the variety can be given

**ABCE and fees** are not required for farmer's variety (NAAS, 2002).

### Activities of KAU

#### Plant genome conservation

This Participatory Plant Breeding (PPB) programme in Kerala Agricultural University in association with the GALASA (Group Approach for Locally Adapted and Sustainable Agriculture) seed research programme entitled 'Participatory Plant Breeding for the genetic improvement of the traditional rice cultivar *Kunjukunju*' received National attention and appreciation when the participating farmers were selected for the "Plant Genome Savior Community Recognition Award" instituted by Protection of Plant Varieties & Farmers' Rights (PPV & FR) Authority, Government of India during 2007. The rice farmers of Palakkad district received the award for their contributions in the conservation and utilization of germplasm in the PPB programme implemented by Kerala Agricultural



University. On behalf of Palakkad rice farming community, five farmers who played a lead role in these activities received silver memento, citation, certificate and shawl from Sri. Sarad Pawar, the Honorable Union Minister of Agriculture in the launching ceremony of PPV&FR Act at New Delhi, during February 2007. These farmers, as invitees of Government of India, visited Agricultural Universities and advanced science institutions in New Delhi and nearby states. Participatory Plant Breeding thus emerges as a viable option for the protection of Farmers' Rights arising from the conservation and utilization of traditional germplasm for the development of new varieties, provided the new varieties and traditional varieties are registered under the PPV&FR Act, 2001.

### Farmers' rights protection using GI's

Pokkali is a unique system of rice cultivation in Kerala, depends on natural organic way of farming. A task force consist of Kerala Agricultural University and Pokkali Land Development Agency, Pokkali farming communities and State Department of Agriculture made a keen interest in preparing the application of GI protection of Pokkali rice. Kerala State Council for Science, Technology and Environment provided all the financial support for this effort and such application for GI registration of Pokkali Rice has been submitted during December 2006. It is supposed that GI registration of this product will give better trade opportunities to Pokkali rice.

### Conclusion

Protection of plant variety and farmers right act 2001 is expected to be an effective system to protect products of modern plant breeding and ensure the rights of farmers. This will significantly enhance the free flow of advanced germplasm and strengthen private investments to the benefit of farmers, consumers and society worldwide. However, developments of PPVFR are in its infancy, it is not justification to conclude its limitations and benefits. May some new limitations and benefits will arise in future by the full implementation of the act.

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## NEW SEED POLICY AND REGULATION OF PLANTING MATERIAL PRODUCTION

S. Rajan\*

The New Seed Policy Review Group formed in 1997 under the Chairmanship of Padmasri Dr. M.V. Rao recommended comprehensive suggestions to be introduced in seed sector for the country. The New Seed Bill 2004 proposed subsequently will replace Seed Act 1966 and the Seed Control Order 1983 on its enactment by the Parliament.

### A. National Seeds Policy 2002 & New Seed Bill 2004

#### *Salient features*

- Horticulture nursery is included and its registration is mandatory
- Compensation to farmers. If the variety fails to provide expected performance, the farmer may claim compensation from producer, distributor or vendor under Consumer Protection Act, 1986.
- Seed Certification, Seed inspection, Seed testing lab functioning are retained without any change
- Mechanism for release/recommendation of varieties at state level is not there in this new seed bill
- Registration of varieties made compulsory. But registration does not demand to reveal the source of genetic material used to develop the variety put up for registration is lawful possession of the material is not insisted upon.
- Labelling of vegetative propagules is compulsory
- Central/State variety release are done away with
- Commercial sale only for registered varieties
- No provision to check variety registered is bred by the applicant

### B. Recommendation/Observation of the Core Group on Planting Materials headed by the Horticulture Commissioner under National Horticulture Mission during 2006

- Most of the states do not have any Act for regulation of the nurseries. As such the State need to evolve a system to ensure quality planting material production and supply
- Tendering system is being followed in some States for procuring planting materials from private nurseries for taking up plantation programme. This has resulted in supply of sub-standard planting material. Therefore, tendering system for procuring planting material should be discouraged.
- Tissue culture propagation should be strengthened
- In most of the nurseries scientific management is lacking
- A system has to be put in place for accreditation of nurseries by the Committee comprising of officers from the State level, ICAR and SAUs.
- Every State should develop hi-tech nurseries
- Ministry of Agriculture, Government of India will take steps for evolving common norms for good nursery management practices (GNMP)
- Every State Government will constitute a regulatory mechanism for quality planting materials and their monitoring
- State Government should facilitate training of nursery men periodically for the latest technology in plant propagation and nursery management
- There should be uniform nursery law all over the country
- There are about 6300 nurseries under public/private sector in the country at the end of 2005-2006
- Besides the State Govt. have developed 385 Nos. of model nurseries (big & small) under NHM and Technology mission for integrated Development of Horticulture during 2006-07 (which include 8 Nos. from Kerala)
- During 2007-08, 1058 model nurseries are proposed under NHM of which 119 are proposed from Kerala

\* Associate Director of Research, Kerala Agricultural University

### C. Status of nursery regulation in the country

State	Existing mechanism
Andhra Pradesh	No mechanism for compulsory certification; Nursery Act to be enacted
Arunachal Pradesh	- do -
Assam	State Government authorized Joint Director, Horticulture to issue certificate; Nursery Act to be enacted.
Bihar	No Nursery Act; Registration of nursery under Seed Act is done by District Agricultural Officer
Chattisgarh	There is no regulation or Nursery Act for registration and certification of nurseries in the State
Goa	The private nurseries are registered under the Nursery Act 1997; A committee headed by the Director (Agri) and members from ICAR and State Directors of Horticulture certify the planting material
Gujarat	There is no regulation or Nursery Act; The Department of Horticulture certifies mother plants and grafts in nurseries
Haryana	The erstwhile Punjab Fruit Nurseries Act 1961 is prevalent with minor modification for registration, certification and regulation of fruit nurseries. The Department of Horticulture issues license for a period of three years which can be revalidated on request.
Himachal Pradesh	"The Himachal Pradesh Fruit Nurseries Registration Act, 1973" is still in force. Periodic monitoring is undertaken under this act.
Jammu & Kashmir	The Fruit Plant Nursery Registration Act, 1987 is there in J&K but not implemented due to non-formulation of rules thereof. There is Nursery Registration Officer in the Fruit Plant Registration Wing under Department of Horticulture
Jharkhand	No certification procedure or Nursery Act in force
Karnataka	No Nursery Act. Certification of plant material is done by a district level Committee headed by Dy. Director of Horticulture, Scientists from SAU and representatives from Nursery Men Association.
Maharashtra	The State Department of Horticulture grant registration and certify nursery under Maharashtra Fruit Nurseries (Regulation) Act, 1969 and Rules, 1974
Madhya Pradesh	No Nursery Act so far but steps are being taken up
Meghalaya	No Nursery Act. Dept. of Horticulture gives necessary approval
Mizoram	Nurseries are being registered under Mizoram Fruit Nurseries Registration Act, 1992.
Nagaland	There is no mechanism for certification



Orissa	Under the Orissa Fruits Nursery's Act (OFNA) 2001, there is a mechanism to certify the planting materials of fruits including cashew by a team of experts from 14 SAU, ICAR and State Department of Horticulture. But planting materials of spices, medicinal, aromatic and ornamental plants are not covered under the Act.
Punjab	Punjab Fruit Nurseries Act, 1961 is there for registration, certification and regulation of fruit nurseries in Punjab. The Dept. of Agriculture issues license for three years which can be revalidated or renewed on request. The competent authority can forfeit the license in case the conditions made mandatory under the license are contravened. It can also impound or destroy any planting material, if found to be unknown pedigree or affected by any infection.
Rajasthan	There is no regulation Act for Nurseries. But the Department of Horticulture does certification based on certain criteria
Sikkim	The State has no mechanism to certify planting materials
Tamil Nadu	The Nurseries are required to get license from the Dept. of Seed Certification under Seed Control Order, 1983 which was enforced in 1994. A draft bill named Tamil Nadu Horticulture Nurseries (Regulation) Act, 2006 is going to be introduced in the legislature
Tripura	No mechanism at present. The State has taken to enact 'Tripura Horticultural Nurseries (Regulation) Act, 2007'.
Uttar Pradesh	Although a Fruit Nursery Act, is in existence in the State since 1976. No action taken to implement.
Uttaranchal	State level Nursery Certification Committee is formed under Dept. of Horticulture for registration and certification of nurseries. U.P. Nursery, Act of 1976 has been adopted by the State
West Bengal	No State Government mechanism. There are about 2000 private nurseries, a few are registered with the Indian Nurserymen's Association. Most of these nurseries are functioning as a house hold industry.

#### **Kerala\***

*Govt. of Kerala issued guide lines for registration and approval of private nurseries as per Govt. Order Agri (Farm) Dept. RT No. 99/99 Agri dated 22.1.99. For strict compliance Govt. further issued Order G.O. (SA) 1766/2005/Agri dated Trivandrum 13.12.2005 (in Malayalam).\**

*The guidelines contain prerequisite, for recognizing the nurseries, qualification for the men who run the nursery, records to be maintained, map of the nursery and steps for registration etc.1.*

**Requirement of Nurseryman***The production and distribution of planting materials must be supervised by a graduate in Agriculture or a holder of Diploma in Agriculture from KAU or a holder of VHSE (Agri) Certification*

**2. Production of planting materials through vegetative propagation***Such nurseries should have progeny orchard which should be scientifically laid out, labelled and well maintained. The Assistant Director of Agriculture concerned should inspect the progeny orchard once in a month and certify mother plants.*

**3. Production of planting materials using seeds or rhizome***In case of crops where seed or rhizome propagation is resorted quality seed materials should be procured from authentic sources such as Departmental Farm Agri. Universities*

**4. Production of planting materials\****Production and multiplication of planting materials should be done in accordance with PoP recommendations\* Production site should be within nursery premises\* Each variety should be distinctly labelled\* Proper isolation distance should be maintained*

**5. Basic Infrastructure facilities required for a nursery.***Area: Minimum area required a. City corporation :*





10 cents b. Municipality : 20 cents c. Panchayat : 50 cents The nursery should have adequate irrigation facilities, office building etc. **Records:** Records showing authenticity of mother plants. Records showing the purity, source of seed materials etc. Records certifying quality of planting materials produced and distributed by the nursery. **C. Registers:** i. Cultivation register. ii. Stock register showing daily transaction etc. iii. Sales account register. iv. Inspection register. **Maps** i. Lay out map of nursery. ii. Progeny orchard map. iii. Production (multiplication) centre map

## 6. Certification and sale of seeds and planting materials

The Assistant Director of Agriculture is the competent person to inspect and certify the planting materials for sale. Necessary suggestions should be recorded in the inspection register. The quality certificate shall contain the name of variety, number of planting materials maintained in the nursery etc. Sub-standard planting materials shall be destroyed on the spot at the time of verification.

## 7. Formalities at selling points

- ▼ Separate stock register shall be maintained in each selling point
- ▼ Variety wise price list of each planting material should be displayed

## 8. Other conditions

- ▼ The responsibility of sale of planting materials produced in the nursery solely vests with the nurseryman.
- ▼ The nurseries should participate in agricultural fairs organised by the Government
- ▼ The production target for nursery shall be fixed by the nurseryman himself.
- ▼ The nurseries should take the responsibility of producing and distributing quality planting materials according to necessity if required by the Government

## 9. Method of application/approval

- ▼ The approval for nursery will be issued by Principal Agricultural Officers of the concerned districts.

- ▼ Nurseryman should submit duly filled prescribed application form along with the registration fees to the Agricultural Officer of the concerned Krishi Bhavan

- ▼ The Agricultural Officer should inspect the nursery site and forward application form to Block level. Assistant Director of Agriculture with specific recommendation within one week

- ▼ The Assistant Director should forward the application to Principal Agricultural Officer with his recommendation within 10 days

- ▼ The PAO should examine the application and approval should be given within 15 days

### a. Registration fee

- For new approval Rs.500.00
- For renewing the registration Rs.300.00

### b. Renewal of Registration

The validity of registration will be for a period of two years. Fresh applications should be submitted with the prescribed fees for renewal of registration.

## 10. Withdrawal of recognition of nursery

- ▼ Violation of condition will lead to permanent cancellation of approval of the nursery which is based on the show cause notice and non-satisfactory report.

- ▼ The appellate authority is the Director of Agriculture, whose decision will be final.



## Genetically Modified Crops - An Introduction

Elsy, C.R.\* and Nisha Lekshmi V

### Genetically Modified Crops-An Introduction

Application of biotechnological tools in crop improvement has made the transfer of genes from any organism to any other organism and also from animal kingdom to plant kingdom and *vice versa*. The process of transfer of specific genes through biotechnological transformation techniques is generally described as **Genetic Engineering**. The crops developed through genetic engineering are called as **transgenic crops** or genetically modified (GM) crops or biotech crops. GM crops contain a gene or genes usually from an unrelated organism.

With the progress of biotechnology and genetic engineering the process of gene transfer also became more easy and feasible. In the initial stages of genetic engineering genes of interest from the eukaryotes were transferred into prokaryotes like *E-coli* to obtain useful and valuable biochemicals like insulin, interferon etc. The second phase of gene transfer witnessed the mobilization of genes from

prokaryotes and eukaryotes into plants to impart protection from various biotic and abiotic stresses. The third and current phase of gene transfer aims at placing genes in plants with a view to produce valuable biochemicals like insulin, interferon, immunoglobulin etc. Genes producing these things have been successfully transferred and expressed in plants.

There is an explosion of interest in transgenic research leading to an ever expanding list of plant species in which transgenics have been produced .During the first decade of commercialization of GM crops ,(1996-2006)the area increased from 1.7 million hectares to 102 million hectares showing a sixty fold increase (Table 1). In 2006,102 million GM crops were planted by 10.3 million farmers in 22 countries, where during 1996 only 6 countries cultivated GM crops.

Table 1.Global Area of Biotech crops, 1996 to 2006

Year	Hectares(million)	Acres(million)
1996	1.7	4.3
2000	44.2	109.2
2004	81.0	200.0
2005	90.0	222.0
2006	102.0	252.0

The ten principal countries that grew Biotech crops in one million hectare or more area in 2006 is listed in Table 2.

Table 2. Global Area of Biotech crops in top ten countries in 2006 (million hectares)

Country	2006	%
USA	54.6	53
Argentina	18	18
Brazil	11.5	11
Canada	6.1	6
India	3.8	4
China	3.5	3
Paraguay	2.0	2
South Africa	1.4	1
Uruguay	0.4	<1
Philippines	0.2	<1

USA is having the highest area followed by Argentina and Brazil. India has an area of 3.8 million hectares where cotton is the crop cultivated. The United States of America is one of the six "Founder biotech crop countries" having commercialized GM maize; soybean, cotton and potato in 1996. The crops include herbicide tolerant soybean, Bt and herbicide tolerant cotton, virus resistant squash, virus resistant papaya, herbicide tolerant canola and herbicide tolerant alfalfa. US contribute to 53% of global GM crops hectareage.

Argentina is another 'founder biotech crop country' having commercialized RR soybean and Bt Cotton in 1996. It contributed to 18% of global crop biotech hectareage in 2006.

### GM crops in India

Bt Cotton, which confers resistance to important insect pests of cotton, was first adopted in India as hybrids in 2002. Then the area under Bt Cotton was approximately 50,000 ha which increased to 3.8 million ha in 2006. The major states growing Bt Cotton are Maharashtra, Andhra Pradesh, Gujarat, Madhya Pradesh and then Karnataka and Tamil Nadu. In 2006, a total of four of which two of

them were new in 2006, were approved for incorporation in a total of 62 hybrids offered for sale. The first event known as Bollgard 1 (BG-1) with cry 1Ac gene was developed by Maharashtra Hybrid Seed Company Ltd (MAHYCO) sourced from Monsanto. In 2006, the 62 approved hybrids were marketed by MAHYCO, Rasi (RCH), Ankur Seeds, Nuziveedu seeds, JK seeds, Nath seeds, Tulasi seeds, Ajeet seeds and Vikki Agrotech.

Public and private sectors in India is focusing on the development of GM crops for food, feed and fiber. Reduction of post harvest losses, particularly in fruits and vegetables through delayed ripening genes and improvement of crop nutrition are two other thrust areas. International collaborative projects for Golden Rice and Mustard with enhanced levels of beta-carotene are putting emphasis on enhanced crop nutrition. Several public institutions and private companies in India have projects to develop improved varieties of brinjal with resistance to shoot and fruit borer. MAHYCO has developed an egg plant with *cry 1Ac* gene that confers resistance to shoot and fruit borer.

Genetic Engineering approaches for development of GM crops in banana, black gram,



cabbage, brassica, cauliflower, chick pea, coffee, musk melon, mustard, rape seed, potato, rice, tobacco, tomato, and wheat is also progressing in India. As part of the efforts to streamline India's regulatory frame work for transgenic crops, the Genetic Engineering Approval Committee (GEAC) in its 69<sup>th</sup> meeting held on 30th June 2006, decided to adopt an "Event Based Approval System".

### Trait specific GM crops

*Genetic Engineering* has enabled mobilization of genes from any organism or even synthetic DNA sequences into the genome of any plant species and this resulted in the development of crops to suit various human needs. Some of the successful examples of such useful gene transfer are crops for

- insect resistance
- virus and other pathogen resistance
- improved nutritional quality
- induced male sterility
- enhanced storage and vase life
- suppression of harmful genes

### Insect resistance

The efforts to produce insect resistant transgenic plants have been quite successful and are already in commercial cultivation in many countries including India. Insect resistance is usually imparted using a gene (*cry* gene) from the bacterium *Bacillus thuringiensis*. At many times genes from other sources like cowpea trypsin inhibitor gene is used to impart insect resistance or to enhance the effect of *cry* genes. The *cry* gene of *Bacillus thuringiensis* produces a protein which forms crystalline inclusions in the bacterial spores. These crystal proteins are responsible for the insecticidal activities especially against lepidopteran insects. All *cry* proteins have a distinctive insecticidal spectrum.

The problem of development of insect resistance may be managed by (1) combining or (2)

Alternating two or more kinds of the proteins and (3) by reducing the selection pressure on insects by limiting *cry* gene expression to only the economically important plant parts.

### Virus resistance

Following approaches are adopted to develop plants for virus resistance.

- Use of coat protein genes
- Use of cDNA of satellite RNA
- Defective viral genome
- Antisense RNA approach
- Ribozyme mediated protection

Transgenic plants having virus coat protein gene linked to a strong promoter have been produced in many crops like tobacco, tomato, alfalfa, sugar beet, potato etc. Expression of a virus coat protein gene not only confers resistance to the concerned virus but also gives a measure of resistance to related viruses.

### Herbicide tolerance

In order to minimize environmental pollution increasing emphasis is placed on the development of safer and readily bio degradable herbicides. Genetic engineering is widely used for the development of herbicide tolerant varieties in many crops. Genes that can fight the herbicides are naturally present in many crop species and micro organisms. Such genes are identified and transferred to potential crops to make them tolerant. These genes induce either over production of enzymes or bio molecules inactivated by herbicides or degrade/inactivate herbicide molecules. Round up ready (RR) varieties of crops had been developed in many crop plants.

### Slow ripening tomato

In tomato enzyme polygalactouronidase (PG) degrades pectin which is the major component



of fruit cell wall. This leads to the softening of fruits and deterioration in fruit quality. Transgenic tomatoes have been produced which contain Antisense construct of the gene encoding PG. These transgenic show a drastically reduced expression of PG and markedly slower ripening and fruit softening. This has greatly improved the shelf life and general quality of tomato fruits. Such tomatoes named as 'Flavr Savr', were marketed in USA and became the 'First GM crop in the market'.

### Male sterility

Male sterility can be produced by transferring certain genes like *rol B* and *rol C* genes from *Agrobacterium rhizogenes* and *barnase* gene from *Bacillus amyloliquifaciens* etc. *Barnase* is the first gene to produce male sterility by Mariani and co workers in 1990 and has an effective fertility restoration system with *barstar* gene, again from same bacteria *Bacillus amyloliquifaciens*. *Barnase*-*barstar* system is the only system in crop plants to be used commercially to develop male sterile plants.

### Nutritional improvement-Golden rice

Ingo Potrykus and his collaborator Peter Beyer, with financial support from the Rockefeller Foundation, led the effort to develop a variety of rice that contains beta-carotene, the plant pigment that is the precursor of Vitamin A. This rice was named as "golden" rice because the inserted beta-carotene turns the grain a golden yellow color. This could supply enough beta-carotene in a typical serving to supply 10% of the daily requirement for Vitamin A. Research to transfer the genes to native varieties are progressing in many countries including India.

### Distribution of GM crops

Among the genetically altered traits, herbicide tolerance has consistently been the dominant trait with insect resistance second (Table 3).

Table 3. Global Area of GM crops by trait (million ha) in 2006

Trait	2006	%
Herbicide tolerance	69.9	68
Insect resistance(Bt)	10.0	19
Bt/Herbicide tolerance	13.1	13
Virus resistance/other	<0.1	<1

Herbicide tolerance, deployed in soybean, maize, canola, cotton and alfalfa occupied 69.9 million ha or 68% of the 102.0 million ha. Herbicide tolerant soybean is the dominant GM crop commercially grown in countries like USA, Argentina, Brazil, Paraguay, Canada, Uruguay, South Africa, Romania and Mexico. Globally, herbicide tolerant soybean occupies 58.6 million ha, followed by Bt maize with an area of 11.1 million ha.

### Safety regulation for transgenic plants

The main concerns while taking transgenic plants to the field relate to the possibilities of (1) their becoming persistent weeds (2) of gene transfers from them to other plants making the latter more persistent or evasive, and (3) of their being detrimental to the environment. In general, testing of transgenic plants should progress in a stepwise manner from laboratory to growth chamber, to green house, to limited field testing, to large scale field testing. Many countries have developed their own procedures and policies regulating field tests of such plants. In India, DBT, New Delhi, is concerned with the regulation of field testing of transgenic plants.



## ANNEXURE I

### THE SEEDS BILL, 2004

#### ARRANGEMENT OF CLAUSES

#### CHAPTER I - PRELIMINARY

CLAUSES	
1.	Short title, extent, application and commencement.
2.	Definitions.
	<b>CHAPTER II</b> <b>THE CENTRAL SEED COMMITTEE, REGISTRATION AND OTHER SUB-COMMITTEES</b>
3.	Constitution of the Central Seed Committee.
4.	Composition of the Committee.
5.	Powers and functions of the Committee.
6.	Power of Committee to specify minimum limits of germination, purity, seed health, etc.
7.	Registration and other Sub-Committees of the Committee and their functions.
8.	Procedure of the Committee and its Sub-Committees.
9.	Secretary and other officers of the Committee.
10.	Meetings of the Committee.
11.	State Seed Committee.
	<b>CHAPTER III</b> <b>REGISTRATION OF KINDS AND VARIETIES OF SEEDS, ETC.</b>
12.	Maintenance of National Register of Seeds of kinds and varieties.
13.	Registration of seeds of any kind or varieties.
14.	Procedure for registration.
15.	Special provision for registration of transgenic varieties.
16.	Cancellation of registration of seeds of kinds and varieties.
17.	Notification of cancellation of registration of seeds of kinds and varieties.
18.	Exclusion of certain kinds or varieties of seed from registration.
19.	Evaluation of performance.
20.	Compensation to farmers.
21.	Seed producers and processing units to be registered.
22.	Seed dealers to be registered.
23.	Horticulture nursery to be registered.
24.	Duties of registration holder of horticulture nursery.
	<b>CHAPTER IV</b> <b>REGULATION OF SALE OF SEED AND SEED CERTIFICATION AGENCIES</b>
25.	Regulation of sale of seeds of registered kinds and varieties.
26.	State Seed Certification Agency.
27.	Accreditation of Seed Certification Agencies.
28.	Grant of certificate by the State Seed Certification Agency.



29.	Revocation of certificate.
30.	Recognition of seed certification agencies in foreign countries.
	<b>CHAPTER V</b> <b>APPEALS</b>
31.	Appeals.
	<b>CHAPTER VI</b> <b>SEED ANALYSIS AND SEED TESTING</b>
32.	Central and State Seed Testing Laboratories.
33.	Seed Analysts.
34.	Seed Inspectors.
35.	Powers of Seed Inspector.
	<b>CHAPTER VII</b> <b>EXPORT AND IMPORT OF SEEDS AND PLANTING MATERIALS</b>
36.	Import of seeds.
37.	Export of seeds.
	<b>CHAPTER VIII</b> <b>OFFENCES AND PUNISHMENT</b>
38.	Offences and punishment.
39.	Forfeiture of property.
40.	Offences by companies.
	<b>CHAPTER IX</b> <b>POWER OF CENTRAL GOVERNMENT</b>
41.	Power of the Central Government to give directions to the State Governments.
42.	Power of the Central Government to issue directions to the Committee.
43.	Exemptions from registration
	<b>CHAPTER X</b> <b>MISCELLANEOUS</b>
44.	Protection of action taken in good faith
45.	Power to remove difficulties.
46.	Power of Central Government to make rules.
47.	Power of the Committee to make regulations.
48.	Rules and regulations to be laid before Parliament.
49.	Repeal and savings.
	<b>THE SCHEDULE</b>
	<b>THE SEEDS BILL, 2004</b> <i>A BILL</i> to provide for regulating the quality of seeds for sale, import and export and to facilitate production and supply of seeds of quality and for matters connected therewith or incidental thereto. BE it enacted by Parliament in the Fifty-Fifth Year of the Republic of India as follows:-



	<b>CHAPTER I PRELIMINARY</b>
Short title, extent, application & commencement	<p>1.(1) This Act may be called the Seeds Act, 2004.</p> <p>(2) It extends to the whole of India.</p> <p>(3) Save as otherwise provided in this Act, it shall apply to-(a) every dealer; and (b) every producer of seed except when the seed is produced by him for his own use and not for sale.</p> <p>(4) It shall come into force on such date as the Central Government may, by notification, appoint.</p>
Definitions	<p>2. In this Act, unless the context otherwise requires, -</p> <p>(1) "agriculture" includes horticulture, forestry and cultivation of plantation, medicinal and aromatic plants;</p> <p>(2) "Central Seed Testing Laboratory" means the Central Seed Testing Laboratory established or declared as such under sub-section (1) of section 32;</p> <p>(3) "Certification Agency" means an agency established under section 26 or accredited under section 27 or recognised under section 30;</p> <p>(4) "Chairperson" means the Chairperson of the Committee;</p> <p>(5) "Committee" means the Central Seed Committee constituted under sub-section (1) of section 3;</p> <p>(6) "container" means a box, bottle, casket, tin, barrel, case, receptacle, sack, bag, wrapper or other thing in which any article or thing is placed or packed;</p> <p>(7) "dealer" means a person who carries on the business of buying and selling, exporting, or importing seed, and includes an agent of a dealer;</p> <p>(8) "export" means taking out of India by land, sea or air;</p> <p>(9) "farmer" means any person who cultivates crops either by cultivating the land himself or through any other person but does not include any individual, company, trader or dealer who engages in the procurement and sale of seeds on a commercial basis;</p> <p>(10) "horticulture nursery" means any place where horticulture plants are, in the regular course of business, produced or propagated and sold for transplantation;</p> <p>(11) "import" means bringing into India by land, sea or air;</p> <p>(12) "kind" means one or more related species or sub-species of crop plants each individually or collectively known by one common name such as cabbage, maize, paddy and wheat;</p> <p>(13) "member" means a member of the Committee;</p>
	<p>(14) "misbranded" - A seed shall be deemed to be misbranded if-</p> <p>(i) it is a substitute for, or resembles in a manner likely to deceive, another variety of seed under the name of which it is sold, and is not plainly and conspicuously labelled so as to indicate its true nature;</p> <p>(ii) it is falsely stated to be the product of any place or country;</p> <p>(iii) it is sold by a name which belongs to another kind or variety of seed;</p> <p>(iv) false claims are made for it upon the label or otherwise;</p> <p>(v) when sold in a package which has been sealed or prepared by, or at the instance, of the dealer and which bears his name and address, the contents of each package are not conspicuously and correctly stated on the outside thereof within the limits of variability prescribed under this Act;</p>





	<p>(vi) the package containing it, or the label on the package bears any statement, design or device regarding the quality or the kind or variety of seed contained therein, which is false or misleading in any material particular or if the package is otherwise deceptive with respect to its contents;</p> <p>(vii) it is not registered in the manner required by or under this Act;</p> <p>(viii) its label contains any reference to registration other than the registration number;</p> <p>(ix) its label does not contain a warning or caution which may be necessary, and sufficient, if complied with, to protect human, animal and plant life and health or to avoid serious prejudice to the environment;</p> <p>(x) the package containing it or the label on the package bears the name of a fictitious individual or company as the dealer of the kind or variety; or</p> <p>(xi) it is not labelled in accordance with the requirements of this Act or the rules made thereunder;</p> <p>(15) "notification" means a notification published in the Official Gazette;</p> <p>(16) "prescribed" means prescribed by rules made under this Act;</p> <p>(17) "producer" means a person, group of persons, firm or organisation who grows or organizes the production of seeds;</p> <p>(18) "registered kind or variety", in relation to any seed, means any kind, or variety thereof, registered under section 13;</p> <p>(19) "Registration Sub-Committee" means the Registration Sub-Committee constituted under sub-section (1) of section 7;</p> <p>(20) "regulation" means a regulation made by the Committee under this Act;</p> <p>(21) "seed" means any type of living embryo or propagule capable of regeneration and giving rise to a plant of agriculture which is true to such type;</p> <p>(22) "Seed Analyst" means a Seed Analyst appointed under section 33;</p> <p>(23) "Seed Inspector" means a Seed Inspector appointed under section 34;</p> <p>(24) "seed processing" means the process by which seeds and planting materials are dried, threshed, shelled, ginned or delinted (in cotton), cleaned, graded or treated;</p> <p>(25) "spurious seed" means any seed which is not genuine or true to type;</p> <p>(26) "State Government", in relation to a Union territory, means the administrator thereof;</p> <p>(27) "State Seed Testing Laboratory", in relation to any State, means the State Seed Laboratory established or declared as such under sub-section (2) of section 32 for that State;</p>
	<p>(28) "transgenic variety" means seed or planting material synthesized or developed by modifying or altering the genetic composition by means of genetic engineering;</p> <p>(29) "variety" means a plant grouping except micro-organism 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> <p>(ii) distinguished from any other plant grouping by expression of at least one of the said characteristics; and</p> <p>(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. Footnote: "essentially derived variety", in respect of a variety (the initial variety) shall be said to be essentially derived from such initial variety when it-</p> <p>(a) is predominantly derived from such initial variety, or from a variety that itself is predomi-</p>



	<p>nantly derived from such initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety;</p> <p>(b) is clearly distinguishable from such initial variety; and</p> <p>(c) 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 genotypes of such initial variety; Extant variety - "extant variety" means a variety available in India which is-</p> <p>(a) notified under section 5 of the Seeds Act, 1966; or</p> <p>(b) farmers' variety as defined in PVP Act; or</p> <p>(c) a variety about which there is common knowledge; or</p> <p>(d) any other variety which is in public domain.</p>
	<p><b>CHAPTER II</b></p> <p><b>THE CENTRAL SEED COMMITTEE, REGISTRATION AND OTHER SUB-COMMITTEES</b></p>
Constitution of Central Seed Committee	<p>3.(1) The Central Government shall, by notification, constitute, for the purpose of this Act, a Committee to be called the Central Seed Committee.</p>
Composition of the Committee.	<p>4.(1) The Committee shall consist of a Chairperson, members, ex-officio and other members, to be nominated by the Central Government.</p> <p>(2) The Secretary to the Government of India in the Department of Agriculture and Co-operation, Ministry of Agriculture, shall be Chairperson, ex officio.</p>
	<p>(3) The Committee shall consist of the following members, ex officio namely:-</p> <p>(i) the Agriculture Commissioner, Department of Agriculture and Co-operation, Government of India;</p> <p>(ii) the Deputy Director General (Crop Sciences), Indian Council of Agricultural Research;</p> <p>(iii) the Deputy Director General (Horticulture), Indian Council of Agricultural Research;</p> <p>(iv) the Joint Secretary in charge of seeds in the Department of Agriculture and Co-operation, Government of India</p> <p>(v) the Horticulture Commissioner, Department of Agriculture and Co-operation, Government of India;</p> <p>(vi) a representative of the Department of Bio-technology, Government of India, not below the rank of Joint Secretary to the Government of India;</p> <p>(vii) a representative of the Ministry of Environment and Forests, Government of India, not below the rank of Joint Secretary to the Government of India.</p> <p>(4) The Committee shall consist of the following other members to be nominated by the Central Government, namely:-</p> <p>(i) the Secretary (Agriculture) from five States, one each from three out of the five geographical zones of the country as mentioned in the Schedule on rotation basis;</p> <p>(ii) Director, State Seed Certification Agency from one State which is not represented under clause (i);</p> <p>(iii) Managing Director, State Seeds Corporation, from one State which is not represented under clause (i) or clause (ii);</p> <p>(iv) two representatives of farmers;</p> <p>(v) two representatives of seed industry;</p>



	(vi) two specialists or experts in the field of seed development.
	(5) The Committee may associate with it, in such manner, on such terms and for such purposes as it may deem fit, any person whose assistance or advice it may desire in complying with any of the provisions of this Act, and a person so associated shall have the right to take part in the discussion of the Committee relevant to the purposes for which he has been associated, but shall not have the right to vote and shall be entitled to receive such allowances or fees as may be fixed by the Central Government.
	(6) A Member nominated under sub-section (5) shall, unless his seat becomes vacant earlier by resignation, death or otherwise, be entitled to hold office for two years from the date of his nomination but shall be eligible for re-nomination provided that the said member shall hold office only for so long as he holds the appointment by virtue of which his nomination was made. (7) Save as otherwise provided, the terms and conditions of service of the members shall be such as may be prescribed. (8) A member other than an ex officio member may resign his office by giving notice in writing to the Central Government and on such resignation being accepted, he shall be deemed to have vacated his office.
	(9) A person shall be disqualified for being nominated or appointed as a member if he- (i) has been convicted and sentenced to imprisonment for an offence which, in the opinion of the Central Government, involves moral turpitude; or (ii) is an undischarged insolvent; or (iii) is of unsound mind and stands so declared by a competent court. (10) No act or proceeding of the Committee shall become invalid merely by reason of - (i) any vacancy therein, or any defect in the constitution thereof; or (ii) any defect in the appointment of a person acting as the Chairperson or a member of the Committee; or (iii) any irregularity in the procedure of the Committee not affecting the merits of the case. (11) The Central Government may, at any time, remove from office any member other than member, ex-officio after giving him a reasonable opportunity of showing cause against the proposed removal.
Powers and functions of the Committee	5. The Committee shall be responsible for and shall have all the powers for the effective implementation of this Act and shall advise the Central Government and the State Governments on matters relating to- (a) seed programming and planning; (b) seed development and production; (c) export and import of seeds; (d) standards for registration, certification and seed testing; (e) seed registration and its enforcement; (f) Such other matters as may be specified by the Central Government.
Powers of Committee to specify minimum limits of germination, purity, seed health, etc	6. The Committee may, by notification, specify- (a) the minimum limits of germination, genetic and physical purity, and seed health, with respect to any seed of any kind of variety; (b) the mark or label to indicate that such seed conforms to the minimum limits of germination, genetic and physical purity, and seed health specified under clause (a) and other particulars, such as expected performance of the seed in accordance with the



	information provided by the producer under section 14 which such mark or label may contain.
Registration and other Sub-Committees of the Committee and their functions.	<p>7.(1) The Committee shall constitute a Sub-Committee to be called the Registration Sub-Committee consisting of a Chairman and such number of other members, to assist him in the discharge of the functions of the Committee, as may be prescribed.</p> <p>(2) It shall be the duty of the Registration Sub-Committee-</p> <p>(a) to register seeds of varieties after scrutinizing their claims as made in the application in such manner as may be prescribed;</p> <p>(b) to perform such other functions as are assigned to it by the Committee.</p> <p>(3) The Committee may appoint as many other Sub-Committees including a Sub-Committee on Seed Certification as it deems fit consisting wholly of the members of the Committee or wholly of other persons or partly of members of the Committee and partly of other persons as it thinks fit to exercise such powers and perform such duties as may be delegated to them.</p>
Procedure of the Committee & its Sub-Committees	8. The Committee may, subject to the previous approval of the Central Government, make regulations for the purpose of regulating its own procedure and the procedure of any Sub-Committee thereof.
Secretary and other officers of the Committee	<p>9. The Central Government shall –</p> <p>(a) appoint a person to be the Secretary of the Committee; and</p> <p>(b) Provide the Committee with such technical and other officers and employees as may be necessary for the efficient performance of the functions of the Committee under this Act.</p>
Meetings of the Committee	<p>10. (1) The Committee shall meet as and when necessary at such time and place and shall observe such procedure in regard to transaction of business at its meetings (including the quorum at meetings) as may be provided by regulations.</p> <p>(2) The Chairperson or, in his absence, the Agricultural Commissioner or, in the absence of both the Chairperson and the Agriculture Commissioner, any member chosen by the members present from amongst themselves, shall preside at a meeting of the Committee.</p> <p>(3) All questions at a meeting of the Committee shall be decided by a majority of votes of the members present and voting and in the case of an equality of votes, the Chairperson or, in his absence, the Agriculture Commissioner or, in the absence of both the Chairperson and the Agriculture Commissioner the person presiding shall have and exercise a second or casting vote</p>
State Seed Committee	<p>11. Every State Government shall establish a State Seed Committee to –</p> <p>(a) advise the Committee on registration of regional or local seeds of any kind or variety;</p> <p>(b) advise the State Government on registration of seed producing units, seed processing units, seed dealers and horticulture nurseries;</p> <p>(c) maintain, in each district, a list of seed dealers, seed producers, seed processing units and horticulture nurseries;</p> <p>(d) seek information from persons engaged in the production, supply, distribution, trade or commerce in seeds of any kind or variety regarding stocks, prices, sales and other information in the manner as may be prescribed;</p> <p>(e) advise the State Government and the Committee on all matters arising out of the administration and implementation of this Act; and</p> <p>(f) carry out other functions assigned to, by, or under this Act.</p>



<b>CHAPTER III</b>	
<b>REGISTRATION OF KINDS AND VARIETIES OF SEEDS, ETC.</b>	
Maintenance of National Register of seeds of kinds and varieties	<p>12(1) For the purposes of this Act, a register of all kinds and varieties of seed to be called the National Register of Seeds shall be kept by the Registration Sub-Committee wherein all specifications, as may be prescribed, shall be maintained.</p> <p>(2) Subject to the directions of the Committee, the Register shall be kept under the control and management of the Registration Sub-Committee.</p> <p>(3) The Registration Sub-Committee shall, within such intervals and in such manner as it thinks appropriate, publish the list of kinds and varieties of seed which have been registered during that interval.</p>
Registration of seeds of any kind or variety.	<p>13(1) No seed of any kind or variety shall, for the purpose of sowing or planting by any person, be sold unless such seed is registered under sub-section</p> <p>(2) by the Registration Sub-Committee in such manner as may be prescribed.</p> <p>(2) Subject to the provisions of sections 14 and 15, the Registration Sub-Committee may register, or refuse any kind or variety of seed on the basis of information furnished by the producer on the results of multi-locational trials for such period as may be prescribed to establish the performance of that seed.</p> <p>(3) The Registration Sub-Committee may grant provisional registration as prescribed to the varieties of seeds which are available in the market on the date of commencement of this Act.</p> <p>(4) Registration made under this Act shall be valid for a period of fifteen years in the case of annual and biennial crops, and eighteen years for long duration perennials.</p> <p>(5) At the expiry of the period granted under sub-section (4), the kind or variety of seed may be re-registered for a like period by the Registration Sub-Committee on the basis of information furnished by the producer on the results of such trials as may be prescribed under sub-section (2) to re-establish performance of the kind or variety of seed.</p> <p>(6) The Registration Sub-Committee shall have the power to issue such directions to protect the interests of a producer against any abusive act committed by any third party during the period between the date of filing of application for registration and the date of decision by the Committee on such application.</p>
Procedure for registration.	<p>14.(1) Every application for registration under sub-section</p> <p>(1) section 13 shall be made in such form and contain such particulars and be accompanied by such fees as may be prescribed.</p> <p>(2) On receipt of any such application for the registration of a kind or variety of seed, the Registration Sub-Committee may, after such enquiry as it deems fit and after satisfying itself that the kind or variety of seed to which the application relates conforms to the claims made by the importer or by the seller, as the case may be, as regards the efficacy of the kind or variety of seed and its safety to human beings and animals, register the kind or variety, as the case may, of the seed on such conditions as may be specified by it and allot a registration number thereto and issue a certificate of registration.</p> <p>(3) The Registration Sub-Committee may, having regard to the efficacy of the seeds and its safety to human beings and animals, vary the conditions subject to which a certificate of registration has been granted and may, for that purpose, require the certificate holder by notice in writing to deliver the certificate to it within such time as may be specified in the notice.</p>



Special provision for registration of transgenic varieties.	<p>15.(1) Notwithstanding anything contained in section 14, no seed of any transgenic variety shall be registered unless the applicant has obtained clearance in respect of the same as required by or under the provisions of the Environment (Protection) Act, 1986: Provided that the Registration Sub-Committee may, subject to clearance under the said Act, grant provisional registration, for a period not exceeding two years on the basis of information furnished by the producer on the results of multi-locational trials in the prescribed manner.</p> <p>(2) Save as otherwise provided in sub-section (1), the form and manner in which and procedure for registration of transgenic variety of seed and the fee payable thereto shall be the same as applicable in case of registration under section 14.</p>
Cancellation of registration of seeds of kinds and varieties.	<p>16(1) The Registration Sub-Committee may cancel any registration granted under section 13 or section 15 or any one or more of the following grounds, namely:-</p> <p>(a) that the holder of the certificate has violated any of the terms and conditions of the registration; or</p> <p>(b) that the registration has been obtained by misrepresentation or concealment of essential data; or</p> <p>(c) that the variety is not performing in accordance with the information provided by the producer under sub-section (3) of section 14 or has become obsolete or has outlived its utility; or</p> <p>(d) that prevention of commercial exploitation of such variety of seeds is necessary.</p> <p>(i) in the public interest;</p> <p>(ii) to protect public order or public morality; or</p> <p>(iii) To protect human beings, animal and plant life and health to avoid serious prejudice to the environment.</p> <p>(2) No order of cancellation of registration under this section shall be made unless the holder thereof or the affected person concerned has been given a reasonable opportunity of showing cause in respect of the grounds for such cancellation.</p>
Notification of cancellation of registration of seeds of kinds and varieties.	<p>17. The Registration Sub-Committee shall notify the cancellation of registration of a seed of any kind or variety made under section 13 or any registration made under section 15 in the Official Gazette</p>
Exclusion of certain kinds or varieties of seed from registration.	<p>18. Notwithstanding anything contained in this Act, no registration of any kind or variety of seed shall be made under this Act, if prevention of commercial exploitation of such kind or variety is necessary to protect public order or public morality or human, animal or plant life and health, or to avoid serious prejudice to the environment.</p> <p>(2) A kind or variety of seed containing any technology, which is harmful, or potentially harmful, shall not be registered. Explanation.- For the purposes of this sub-section, the expression "technology" includes genetic use restriction technology and terminator technology.]</p>
Evaluation of performance	<p>19. The Committee may, for conducting trials to assess performance, accredit centers of the Indian Council of Agricultural Research, State Agricultural Universities and such other organizations fulfilling the eligibility requirements as may be prescribed, to conduct trials to evaluate the performance of any kind or variety of seed.</p>
Compensation to farmer.	<p>20. Where the seed of any registered kind or variety is sold to a farmer, the producer, distributor or vendor, as the case may be, shall disclose the expected performance of such kind or variety to the farmer under given conditions, and if, such registered seed fails to provide the expected performance under such given conditions, the farmer may claim compensation from the producer, distributor or vendor under the Consumer Protection Act, 1986.</p>



<p>Seed producers and seed processing units to be registered.</p>	<p>21.(1) No producer shall grow or organize the production of seed unless he is registered as such by the State Government under this Act.</p> <p>(2) No person shall maintain a seed processing unit unless such unit is registered by the State Government under this Act.</p> <p>(3) The State Government shall register a producer or seed processing unit if he or it meets the specifications prescribed by the Central Government in terms of infrastructure, equipment and qualified manpower.</p> <p>(4) Every application for registration under sub-section (3) shall be made in such form and manner and shall be accompanied by such fee as may be prescribed.</p> <p>(5) The State Government may, after making such enquiry and subject to such conditions as it thinks fit, grant a certificate for maintaining a seed producing or a seed processing unit in such form as may be prescribed.</p> <p>(6) Every seed producing and processing units shall furnish periodic returns to the Seed Certification Agency in such form and at such time as may be prescribed on the quantity of seeds of different kinds or varieties processed by them.</p> <p>(7) The State Government may, after giving the holder of certificate of registration under sub-section (1), or sub-section (2), as the case may be, suspend or cancel the registration if ¾</p> <p>(a) such registration has been obtained by misrepresentation as to a material particular relating to the specification in terms of infrastructure, equipment or availability of qualified manpower; or</p> <p>(b) any of the provisions of this Act or the rules made thereunder has been contravened.</p>
<p>Seed dealers to be registered.</p>	<p>22.(1) Every person who desires to carry on the business of selling, keeping for sale, offering to sell, bartering, import or export or otherwise supply any seed by himself, or by any other person on his behalf shall obtain a registration certificate as a dealer in seeds from the State Government.</p> <p>(2) Every applicant for dealership under sub-section (1) shall be required to furnish information about seed stocks, sales and other related information as may be prescribed.</p> <p>(3) Even application for registration under sub-section(1) shall be made in such form and manner and shall be accompanied by such fee as may be prescribed.</p> <p>(4) The State Government may, after making such enquiry and subject to such conditions as it thinks fit, grant a certificate of registration as a dealer in seeds in such form as may be prescribed.</p> <p>(5) Every dealer registered under this section shall furnish such information and returns regarding seed stocks, seed lots, expiry date of seed lots and other related information as may be prescribed to the State Government.</p> <p>(6) The State Government may, after giving the dealer an opportunity of being heard, suspend or cancel a certificate granted under this Act if-</p> <p>(a) such registration had been obtained by misrepresentation of any material fact;</p> <p>(b) Contravenes any of the provisions of this Act or the rules made thereunder.</p>
<p>Horticulture nursery to be registered</p>	<p>23.(1) No person shall conduct or carry on the business of horticulture nursery unless such nursery is registered with the State Government.</p> <p>(2) Every application for registration under sub-section (1) shall be made in such form and contain such particulars and shall be accompanied by such fee as may be prescribed.</p>
<p>Duties of registration holders of horticulture nursery.</p>	<p>24. Every person who is a holder of a registration of a horticulture nursery under section 23 shall-</p> <p>(a) keep a complete record of the origin or source of every planting material and performance record of mother trees in the nursery;</p>



	<p>(b) keep a layout plan showing the position of the root-stocks and scions used in raising the horticulture plants;</p> <p>(c) keep a performance record of the mother trees in the nursery;</p> <p>(d) Keep the nursery plants as well as the parent trees used for the production or propagation of horticulture plants free from infectious or contagious insects, pests or diseases affecting plants.</p> <p>(e) Furnish such information to the State Government on the production, stocks, sales and prices of planting material in the nursery as may be prescribed.</p>
	<p><b>CHAPTER IV</b></p> <p><b>REGULATION OF SALE OF SEED AND SEED CERTIFICATION AGENCIES</b></p>
Regulation of sale of seeds of registered kinds and varieties.	<p>25. No person shall himself, or by any other person on his behalf, carry on the business of selling, keeping for sale, offering to sell, bartering, import or export or otherwise supply any kind of seed of any registered kind or variety unless-</p> <p>(a) such seed is identifiable as to its kind or variety;</p> <p>(b) such seed conforms to the minimum limit of germination and genetic, physical purity, seed health specified under clause (a) of section 6;</p> <p>(c) the container of such seed bears in the prescribed manner, the mark or label bearing the correct particulars thereof, specified under clause (b) of section 6;</p> <p>(d) the container of such seed, in the case of transgenic varieties, bears a declaration to this effect as specified in sub-clause (2) of section 15;</p> <p>(e) he complies with such other requirements as may be prescribed.</p>
State Seed Certification Agency.	<p>26. The Committee may, in consultation with the State Government, by notification, establish a State Seed Certification Agency for the State to carry out the functions entrusted to the State Seed Certification Agency by or under this Act:</p>
Accreditation of Seed Certification Agencies.	<p>27.(1) The Committee may in consultation with the State Government and the State Seed Committee, accredit –</p> <p>(a) organizations to carry out certification, on the fulfillment of such criteria, as may be prescribed, or</p> <p>(b) individuals or seed producing organisations to carry out self- certification, in such manner as may be prescribed.</p> <p>(2) The accredited individuals and seed producing organisations shall be subject to such inspection and control of the Committee, the concerned State Government and State Seed Certification Agency, as may be prescribed.</p> <p>(3) The accreditation may be withdrawn by the Committee, for reasons to be recorded in writing and after giving to the concerned organization or individual, as the case may be, a reasonable opportunity of being heard.</p>
Grant of certificate by the State Seed Certification Agency.	<p>28.(1) Any person selling, keeping for sale, offering to sell, bartering or otherwise supplying any seed of any registered kind or variety may, if he desires to have such seed certified by the State Seed Certification Agency, apply to that Agency for the grant of a certificate for the purpose.</p> <p>(2) Every application under sub-section (1) shall be made in such form, shall contain such particulars and shall be accompanied by such fee as may be prescribed.</p> <p>(3) On receipt of an application under sub-section (1), the State Seed Certification Agency may, after such enquiry as it thinks fit and after satisfying itself that the seed to which the application relates conforms to the prescribed standards, grant a certificate in such form and on such conditions as may be prescribed: Provided that such standards shall not be lower than the minimum limit of germination,</p>





	genetic and physical purity specified for that seed under clause (a) of section 6.	
Revocation of certificate.	<p>29. If the State Seed Certification Agency is satisfied, either on a reference made to it in this behalf or otherwise, that-</p> <p>(a) the certificate granted by it under section 28 has been obtained by misrepresentation as to an essential fact; or</p> <p>(b) the holder of the certificate has, without reasonable cause, failed to comply with the conditions subject to which the certificate has been granted or has contravened any of the provisions of this Act or the rules made thereunder, then, without prejudice to any other penalty to which the holder of the certificate may be liable under this Act, the State Seed Certification Agency may, after giving the holder of the certificate an opportunity of showing cause, revoke the certificate.</p>	
Recognition of seed certification agencies in foreign countries	<p>30. The Central Government may, on the recommendation of the Committee and by notification, recognise any seed certification agency established in any foreign country, for the purposes of this Act.</p>	
	<p><b>CHAPTER V</b> <b>APPEALS</b></p>	
Appeals.	<p>31.(1) Any person aggrieved by a decision of the Registration Sub-Committee under section 14, section 16 or section 27 or of the State Seed Certification Agency under section 28 or section 29 may, within thirty days from the date on which the decision is communicated to him prefer an appeal to such authority (hereinafter referred to as the appellate authority) as the Central Government may think fit to constitute: Provided that the appellate authority may entertain an appeal after the expiry of the said period of thirty days if it is satisfied that the appellant was prevented by sufficient cause from filing the appeal in time.</p> <p>(2) An appellate authority shall consist of a single person or three persons as the Central Government may think fit, to be appointed by that Government.</p> <p>(3) The form and manner in which an appeal may be preferred under sub-section (1), the fee payable for such appeal and the procedure to be followed by the appellate authority shall be such as may be prescribed.</p> <p>(4) On receipt of an appeal preferred under sub-section (1), the appellate authority shall, after giving the appellant and the other party an opportunity of being heard, dispose of the appeal as expeditiously as possible.</p>	
	<p><b>CHAPTER VI</b> <b>SEED ANALYSIS AND SEED TESTING</b></p>	
Central and State Seed Testing Laboratories.	<p>32.(1) The Central Government may, by notification, establish a Central Seed Testing Laboratory or declare any seed-testing laboratory as the Central Seed Testing Laboratory to carry out the functions entrusted to the Central Seed Testing Laboratory by or under this Act in the prescribed manner</p> <p>(2) The State Government may, in consultation with the Committee, and by notification, establish one or more State Seed Testing Laboratories or declare any seed testing laboratory in the Government or non-Government sector as a State Seed Testing Laboratory where analysis of seed of any kind or variety shall be carried out under this Act in the prescribed manner.</p> <p>(3) Every Seed Testing Laboratory referred to in sub-section (1) shall have as many Seed Analysts as the Central Government may consider necessary.</p>	



	(4) Every Seed Testing Laboratory referred to in sub-section (2) shall have as many Seed Analysts as the State Government may consider necessary.	
Seed Analysts.	<p>33.(1) In case of the Central Seed Laboratory, the Central Government and in other cases the State Government may, by notification, appoint such persons as the Government thinks fit and having the prescribed qualifications to be Seed Analysts and define the local limits of their jurisdiction.</p> <p>(2) Every Central Seed Testing Laboratory established or declared under sub-section (1) of section 32 and every State Seed Testing Laboratory established or declared under sub-section (2) of that section shall have as many Seed Analysts as the Central Government or the State Government, as the case may be, specify.</p>	
Seed Inspectors.	<p>34.(1) The State Government may, by notification, appoint such persons as it thinks fit, having the prescribed qualifications, to be Seed Inspectors and define the areas within which they shall exercise jurisdiction.</p> <p>(2) Every Seed Inspector shall be subordinate to such authority as the State Government may specify in this behalf.</p>	
Powers of Seed Inspectors.	<p>35.(1) The Seed Inspector may-</p> <p>(a) take samples of any seed of any kind or variety from-</p> <p>(i) any person selling such seed; or</p> <p>(ii) any person who is in the course of conveying, delivering or preparing to deliver such seed to a purchaser or a consignee; or</p> <p>(iii) a purchaser or a consignee after delivery of such seed to him;</p> <p>(b) send such sample for analysis to the Seed Analyst of the area within which such sample has been taken;</p> <p>(c) enter and search, at all reasonable times, with such assistance, if any, as he considers necessary, any place in which he has reason to believe that an offence under this Act has been or is being committed and order in writing the person in possession of any seed in respect of which the offence has been or is being committed, not to dispose of any stock of such seed for a specific period not exceeding thirty days or, unless the alleged offence is such that the defect may be removed by the possessor of the seed, seize the stock of such seed;</p> <p>(d) examine any record, register, document or any other material object found in any place mentioned in clause (c) and seize the same if he has reason to believe that it may furnish evidence of the commission of an offence punishable under this Act; and</p> <p>(e) exercise such other powers as may be necessary for carrying out the purposes of this Act or any rule or regulation made thereunder.</p> <p>(2) The power conferred by this section includes the power to break-open any container in which any seed of any kind or variety may be contained or to break-open the door of any premises where any such seed may be kept for sale: Provided that the power to break-open the door shall be exercised only after the owner or any other person in occupation of the premises, if he is present therein, refuses to open the door on being called upon to do so.</p> <p>(3) Where the Seed Inspector takes any action under clause (a) of sub-section (1), he shall, as far as possible, call not less than two persons to be present at the time when such action is taken and take their signatures on a memorandum to be prepared in such form and manner as may be prescribed.</p> <p>(4) The provisions of the Code of Criminal Procedure, 1973, or in relation to the</p>	



	State of Jammu and Kashmir, the provisions of any corresponding law in force in that State, shall, so far as may be, apply to any search or seizure under this section as they apply to any search or seizure made under the authority of a warrant issued under section 94 of the said Code, or, as the case may be, under the corresponding provisions of the said law.	
	<b>CHAPTER VII</b> <b>EXPORT AND IMPORT OF SEEDS</b>	
Import of seeds.	<p>36.(1) All import of seeds –</p> <p>(a) shall be subject to the provisions of the Plants, Fruits and Seeds (Regulation of Import into India) Order, 1989, or any corresponding order made under section 3 of the Destructive Insects and Pests Act, 1914;</p> <p>(b) shall conform to minimum limits of germination, genetic and physical purity, and seed health as prescribed under section 6; and</p> <p>(c) Shall be subject to registration as may be granted on the basis of information furnished by the importer on the results of multi-locational trials for such period as may be prescribed to establish performance.</p> <p>(2) The Central Government may, by notification, permit to import an unregistered variety in such quantity and subject to fulfilling such conditions as may be specified in that notification for research purposes.</p>	2 of 1914.
Export of seeds.	37. The Central Government may, on the advice of the Committee, restrict, by notification, the export of seeds of any kind or variety if it is deemed that such export may adversely affect the food security of the country, or if it is felt that the reasonable requirements of the public will not be met, or on such other grounds as may be prescribed.	
	<b>CHAPTER VIII</b> <b>OFFENCES AND PUNISHMENT</b>	
Offences and punishment.	<p>38. If any person –</p> <p>(a) contravenes any provision of this Act or any rule made thereunder; or</p> <p>(b) imports, sells, stocks or exhibits for sale or barter; and or otherwise supplies any seed of any kind or variety deemed to be misbranded ; or</p> <p>(c) imports, sells, stocks or exhibits for sale or barter, or otherwise supplies any seed of any kind or variety without a certificate of registration; or</p> <p>(d) obstructs the Committee, Registration Sub-Committee or Seed Certification Agency or Seed Inspector or Seed Analyst or any other authority appointed or duly empowered under this Act in the exercise of its powers or discharge of their duties under this Act or the rules made thereunder, he shall, on conviction, be punishable – with fine which shall not be less than five thousand rupees but which may extend to twenty five thousand rupees.</p> <p>(2) If any person sells any seed which does not conform to the standards of physical purity, germination or health or does not maintain any records required to be maintained under this Act or the rules made thereunder he shall, on conviction, be punishable with fine which shall not be less than five thousand rupees but which may extend to twenty- five thousand rupees.</p> <p>(3) If any person furnishes any false information relating to the standards of genetic purity, misbrands any seed or supplies any spurious seed or spurious transgenic variety, sells any non-registered seeds he shall, on conviction be punishable with imprisonment for a term which may extend to six months or with fine which may extend to fifty thousand rupees or with both.</p>	



For forfeiture of property.	39. When any person has been convicted under this Act for the contravention of any of the provisions of this Act or the rules made thereunder, the seed in respect of which the contravention has been committed shall be forfeited to the Central Government.	
Offences by companies	40.(1) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed was in charge of, and was responsible to the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly: Provided that nothing contained in this sub-section shall render any such person liable to any punishment under this Act if he proves that the offence was committed without his knowledge and that he exercised all due diligence to prevent the commission of such offence. (2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly. Explanation. – For the purpose of this section,- (a) “company” means any body corporate and includes a firm or other association of individuals; and (b) “director”, in relation to a firm, means a partner in the firm.	
	<b>CHAPTER IX</b> <b>POWER OF CENTRAL GOVERNMENT</b>	
Power of Central Government to give directions to the State Governments	41. The Central Government may give such directions to any State Governments as may appear to the Central Government to be necessary for carrying into execution in the State any of the provisions of this Act or of any rule made there under.	
Power of Central Government to issue directions to the Committee.	42.(1) Without prejudice to the foregoing provisions of this Act, the Committee shall, in the discharge of its functions and duties under this Act, be bound by such directions on questions of policy as the Central Government may give in writing to it from time to time.(2) The decision of the Central Government whether a question is one of policy or not shall be final.	
Exemption from registration.	43.(1) Nothing in this Act shall restrict the right of the farmer to save, use, exchange, share or sell his farm seeds and planting material, except that he shall not sell such seed or planting material under a brand name or which does not conform to the minimum limit of germination, physical purity, genetic purity prescribed under clause (a) or clause (b) of section 6. (2) The Central Government may, by notification, and subject to conditions, if any, as it may specify therein, exempt from all or any of the provisions of this Act or the rules made thereunder, any educational, scientific or research or extension organization.	



<b>CHAPTER X MISCELLANEOUS</b>		
Protection of action taken in good faith.	44. No suit, prosecution or other legal proceeding shall lie against the Government or any person for anything which is in good faith done or intended to be done under this Act.	
Power to remove difficulties	45.(1) If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order published in the Official Gazette, make such provisions not inconsistent with the provisions of this Act as may appear to be necessary for removing the difficulty: Provided that no order shall be made under this section after the expiry of two years from the date of commencement of this Act.  (2) Every order made under sub-section (1) shall be laid before each House of Parliament.	
Power of Central Government to make rules	46.(1) The Central Government may by notification, make rules to carry out the provisions of this Act.  (2) In particular and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:- (a) the terms and conditions of service of members of the Committee under sub-section (7) of section 4; (b) the matters to be specified under clause (f) of section 5; (c) the functions of the registration sub-committee under sub-section (1) of section 7; (d) the manner of scrutinizing applications under clause (a) of sub-section (2) of section 7; (e) the specifications which shall be maintained in the National Register of Seeds of kinds or varieties under sub-section (1) of section 12; (f) the manner of registration of seed of any kind or variety under sub-section (1) and (3) of section 13; (g) the period for which multi-locational trials shall be conducted under sub-section (2) of section 13; (h) the form of application and the particulars which should be furnished in such application under sub-section (1) of section 14; (i) the eligibility requirement which an organization shall fulfil for accreditation under section 19; (j) the specification required to be fulfilled for registration as a producer or seed producing unit under sub-section (3) of section 21; (k) the form and manner in which an application for registration under sub-section (3) of section 21 shall be made and the fee with which such application shall be accompanied under sub-section (5) of said section 21; (l) the form in which a certificate for maintaining a seed producing or seed processing unit may be granted under sub-section (5) of section 21; (m) the form in which and time within which periodic returns shall be filled under sub-section (6) of section 21; (n) the information which an application for dealership in seeds shall be furnished under sub-section (2) of section 22; (o) the form and manner in which an application for registration as seed dealer under sub-section (1) of section 22 shall be made and the fee which shall accomi-	



	<p>pany such application under sub-section (3) of that section;</p> <p>(p) the form in which a certificate of registration as a dealer in seeds shall be granted under sub-section (4) of section 22;</p> <p>(q) the information and return which a registered dealer shall furnish to the State Government under sub-section (5) of section 22;</p> <p>(r) the form in which an application for registration of a horticulture nursery shall be made, the particulars which such application shall contain and fee which shall accompany such application under sub-section (2) of section 23;</p> <p>(s) the information on production, stocks, sales and prices of planting material in a nursery shall be furnished to the State Government under section 24;</p> <p>(t) the requirement which a person carrying on business of selling, etc. of any registered kind or variety of seeds shall comply with under clause (e) of section 25;</p> <p>(u) the criteria to be fulfilled under clause (a) and the manner of carrying out self-certification under clause (b) of sub-section (1) of section 27;</p> <p>(v) the inspection and control of the Committee, the concerned State Government and the State Seeds Certification Agency for accrediting individuals and seed producing organizations under sub-section (2) of section 27;</p> <p>(w) the form of application and the particulars to be furnished in such application and the fee which shall accompany such application under sub-section (2) of section 28;</p> <p>(x) the form in which and the conditions subject to which a certificate shall be granted under sub-section (3) of section 28;</p> <p>(y) the form and manner in which an appeal shall be preferred and the fee which such appeal shall accompany under sub-section (3) of section 31;</p> <p>(z) the manner in which a Central Seed Testing Laboratory established or declared under sub-section (1) of section 32 shall carry out its functions;</p> <p>(za) the manner of carrying out analysis of seeds shall be made under sub-section (2) of section 32;</p> <p>(zb) the qualifications which a person to be appointed as Seed Analysts shall possess under sub-section (1) of section 33;</p> <p>(zc) the qualifications which a person to be appointed as Seed Inspector shall possess under sub-section (1) of section 34;(zc) the form and manner in which the memorandum shall be prepared under sub-section (3) of section 35;</p> <p>(zd) the grounds on which the Central Government may restrict export of seeds under section 37;</p> <p>(ze) any other matter which is to be or may be prescribed.</p>	
<p>Power of Committee to make regulations</p>	<p>47.(1) The Committee may, with the previous approval of the Central Government, by notification, make regulations not inconsistent with the provisions of this Act and the rules made thereunder, to provide for all matters for which provision is necessary or expedient for the purpose of giving effect to the provisions of this Act.</p> <p>(2) In particular and without prejudice to the generality of the foregoing power, such regulations may provide for all or any of the following matters, namely:-</p> <p>(a) the procedure for conduct of business to be transacted by the Committee or any Sub-Committee thereof under section 8;</p> <p>(b) the procedure in regard to transaction of business at meetings of the Committee (including the quorum at meetings) under sub-section (1) of section 10.</p>	



Rules and regulations to be laid before Parliament.	<p>48. Every rule and every regulation made under this Act shall be laid as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or regulation or both Houses agree that the rule or regulation should not be made, the rule or regulation shall, thereafter, have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule or regulation.</p>	
Repeal and savings	<p>49. On the commencement of this Act, the Seeds Act, 1966 shall stand repealed; Provided that such repeal shall not affect,-</p> <p>(a) the previous operation of the law so repealed or anything duly done or suffered thereunder; or</p> <p>(b) any right, privilege, obligation or liability acquired, accrued or incurred under the law so repealed; or</p> <p>(c) any penalty, forfeiture or punishment incurred in respect of any offence committed against the Act so repealed; or</p> <p>(d) any investigation, proceeding, legal proceeding or remedy in respect of any such right, privilege, obligation, liability, penalty, forfeiture or punishment as aforesaid; and any such investigation, proceedings, legal proceeding or remedy may be instituted, continued or enforced; any such penalty forfeiture or punishment may be imposed as if this Act had not been passed: Provided further that, subject to the first proviso and any saving provisions made elsewhere in this Act anything done, any action taken, any rule made, any notifications or orders issued under the provisions of the Act so repealed shall, in so far as they are not inconsistent with the provisions of this Act, be deemed to have been done, taken, made or issued under the corresponding provisions of this Act, and shall continue to be in force accordingly, unless and until expressly or impliedly repealed by any thing done, action taken, rules made or, notification or orders issued under this Act.</p> <p>(2) Notwithstanding such repeals any kind or variety of seeds that has been notified under the law as so repealed shall be deemed to have been registered under this Act, and any seed certification agency established under section 18 of the Seeds Act, 1966 shall be deemed to have been established or recognized, as the case may be, under this Act.</p>	
ZONE-I	<p><b>THE SCHEDULE [See section 4(4) (i), (ii) and (iii)]</b></p> <p><b>GEOGRAPHICAL ZONES</b></p> <p>ANDHRA PRADESH, KARNAKATA, KERALA, LAKSHADWEEP, PONDICHERRY AND TAMIL NADU.</p>	
ZONE-II	<p>ANDAMAN AND NICOBAR ISLANDS, BIHAR, CHHATISGARH, JHARKHAND, MADHYA PRADESH, ORISSA AND WEST BENGAL.</p>	
ZONE-III	<p>ARUNACHAL PRADESH, ASSAM, MANIPUR, MEGHALAYA, MIZORAM, NAGALAND, SIKKIM AND TRIPURA.</p>	
ZONE-IV	<p>DADRA AND NAGAR HAVELI, DAMAN AND DIU, GOA, GUJARAT, RAJASTHAN AND MAHARASHTRA.</p>	
ZONE-V	<p>CHANDIGARH, HARYANA, HIMACHAL PRADESH, JAMMU AND KASHMIR, NATIONAL CAPITAL TERRITORY OF DELHI, PUNJAB, UTTRANCHAL AND UTTAR PRADESH.</p>	



## ANNEXTURE II

### HIGHLIGHTS OF THE SEEDS BILL, 2004

The Seeds Bill, 2004 aims to regulate the quality of seeds sold, and replaces the Seeds Act, 1966.

- All varieties of seeds for sale have to be registered. The seeds are required to meet certain prescribed minimum standards.
- The Bill does not restrict the farmer's right to use or sell his farm seeds and planting material, provided he does not sell them under a brand name. All seeds and planting material sold by farmers will have to conform to the minimum standards applicable to registered seeds.
- If a registered variety of seed fails to perform to expected standards, the farmer can claim compensation from the producer or dealer under the Consumer Protection Act, 1986.
- The Bill permits self certification of seeds by accredited agencies and allows the central government to recognize certification by foreign seed certification agencies.
- Every seed producer and dealer, and horticulture nursery has to be registered with the state government.

#### KEY ISSUES AND ANALYSIS

- Some provisions of the Seeds Bill, 2004 contradict and overlap with the Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR Act).
- Although farmers are exempt from registering their seed varieties, the seeds have to conform to standards prescribed for

commercial seeds. Farmers may find it difficult to adhere to the standards required of commercially sold seeds.

- Compensation for underperformance of seeds will be governed by consumer courts. This provision is unlike the PPVFR Act, which allows compensation to be decided by the Authority established under that Act.
- Seed inspectors can take samples from anyone selling purchasing or transporting seed. They have the power of search and seizure without a warrant.
- It is not clear whether the Bill bans certain genetic engineering technologies such as 'genetic use restriction technology' and 'terminator technology.' These technologies preserve intellectual property rights by either requiring specific additives, or by making the next generation seeds sterile.

#### PART A: HIGHLIGHTS OF THE BILL

##### Context

Agricultural growth in India averaged just 2.8% per annum during the period of 1991-2005, much lower than the average annual GDP growth of 6.2% during this period. Given that about two-thirds of the country's population is dependent on farm related income, increasing agricultural growth rate will be beneficial not just for the country's food security but also for improving the livelihood of a large proportion of the population. Availability of good quality seeds to farmers is a necessary condition for boosting agricultural output.





Currently, the seed sector is governed by the Seeds Act, 1966, the Seeds Control Order, 1983 (under the Essential Commodities Act, 1955), and the Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR Act). The Seeds Act, 1966 regulates the quality of certified seeds; the Seeds Control Order, 1983 regulates and licenses the sale of seeds; and the PPVFR Act protects the intellectual property rights of plant breeders.

The seeds sector has witnessed many changes since 1966 when the existing Seeds Act was passed. These include new technologies such as genetically modified seeds, and the entry of private and foreign seeds companies. In order to address these changes, the proposed Seeds Bill, 2004 seeks to replace the Seeds Act, 1966. The principal changes include regulation and registration of all seeds to be sold (instead of only notified kinds), provisions for self-certification and accreditation of private seed testing laboratories, and regulation of transgenic seeds [\*].

#### Key features

The Bill aims to promote the production and supply of quality seeds. It will regulate the quality of seeds for sale, import and export. The proposed Act would replace the Seeds Act, 1966.

- *Registration and Certification*

The Bill proposes to establish a Central Seed Committee (CSC), which may appoint as many Sub-Committees as needed. One of the sub-committees that would be established is the Registration Sub-Committee, which shall maintain a National Register of Seeds for all varieties of seed. Every state government would establish a State Seed Committee which would have an advisory role. The CSC may, after consulting with state governments, establish a State Seed Certification Agency in the respective states.

Any type of seed for sale has to be registered with the Registration Sub-Committee. The registration is valid for 15 years for annual/biennial crops (such as paddy, where harvesting is done once or twice a year) and 18 years for long duration perennial crops (such as mango). On expiry, the registration can be renewed for a similar period. All registered seeds need to meet minimum standards with respect to the proportion of seeds that must germinate, levels of genetic and physical purity, and the permitted proportion of diseased seeds.

No transgenic variety of seed would be registered unless the applicant has obtained clearance under the provisions of the Environment (Protection) Act, 1986. A variety of seed containing any technology considered harmful or potentially harmful shall not be registered.

Any seller of seeds can get the seed certified by the State Seed Certification Agency or any other accredited certification agency; self certification may also be permitted to accredited agencies. The central government may recognize certification by a foreign seed certification agency.

Every seed producer and dealer, and horticulture nursery has to be registered with the state government. Seed producers need to meet specifications regarding infrastructure, equipment and qualified manpower. An owner of a horticulture nursery has to keep records such as the origin of every planting material, a layout plan as well as the performance record of every mother tree in the nursery.



- *Rights of farmers*

Exemption: The Bill protects the right of a farmer to save, use, exchange, share or sell his farm seeds and planting material. However, the farmer cannot sell seeds or planting material under a brand name. Also, all seeds sold by farmers need to conform to the minimum standards regarding germination, physical purity and genetic purity applicable to registered seeds.

Compensation: For all registered varieties, seed producers, distributors and vendors have to disclose the expected performance under certain given conditions. If the seed fails to perform to expected standards, the farmer can claim compensation from the dealer, distributor or vendor under the Consumer Protection Act, 1986.

- *Regulatory structure*

- The central government shall establish the Central Seed Committee (CSC), consisting of a Chairperson, seven ex officio members and thirteen members nominated by the central government. These include two members each to represent the seed industry and farmer interests. The CSC would advise the central and state governments on matters related to seed planning, seed development and production, export and import of seeds, standards for registration, certification and seed testing, and seed registration and its enforcement. CSC may also specify the details to be stated on the label of seed container to indicate minimum standards and expected performance.
- State Seed Committees would advise the CSC and the state government on issues related to the registration of local seeds, and

of producers, dealers and nurseries. They will maintain a district-wise list of seed dealers, seed producers, seed processing units and horticulture nurseries.

- The Registration Sub-Committee would register the varieties of seeds after scrutinizing their claims in the prescribed manner. It will maintain a National Register of Seeds for registering all kinds of seeds and publish the list at appropriate intervals.
- The central government shall constitute an appellate authority consisting of a single person or three persons. This authority will hear appeals from persons aggrieved by the decision of the Registration Sub-Committee or the State Seed Certification Agency.
- Central and State Seed Testing Laboratories, would analyse all varieties of seed. Every Seed Testing Laboratory would employ Seed Analysts who have the prescribed qualifications.
- State governments would appoint seed inspectors. The Seed Inspector may (a) take samples of any variety from a seed seller; (b) send the samples for analysis to the Seed Analyst; (c) enter and search any place where he has reason to believe that an offence has been committed against the provisions of the Act; (d) examine any record or document and seize it if he thinks that it may be necessary for providing evidence against an offence punishable under this Act; and (e) break open any container of seeds or any door where any such seed may be kept for sale.

- *Import and export*

Import of seeds would be subject to the Plant Quarantine (Regulation of Import into India)



Order, 2003 or any corresponding order under the Destructive Insects and Pests Act, 1914. Such seeds also need to conform to the standards of germination, genetic and physical purity and seed health, as applicable for registered seeds. The central government can restrict export of seeds if it is deemed to affect the food security of the country.

- *Penalties*

Any person who contravenes any provisions of the Act or imports, sells or stocks seeds deemed to be misbranded or not registered, can be punishable by a fine between Rs 5,000 and Rs 25,000. The penalty for giving false information is a prison term up to six months and/or a fine up to Rs 50,000. In case of

companies, the person(s) in charge of conduct of the business of the company will be held accountable.

### PART B: KEY ISSUES AND ANALYSIS

The Seeds Bill, 2004 should be seen in the context of the Seeds Act, 1966 which it replaces, and the PPVFR Act, 2001. The main objective of the Seeds Bill is to ensure availability of quality seeds to farmers. The proposed Bill seeks to update the existing Act in order to address changes in technology and the structure of the seeds sector. The PPVFR Act sets up a framework to protect the intellectual property rights of breeders, while safeguarding the rights of farmers. We list below the main changes in the Seeds Bill 2004 from the Seeds Act, 1966.

#### Comparison of Seeds Act, 1966 and Seeds Bill, 2004

	Seeds Bill, 2004	Seeds Act, 1966
<b>Definitions</b>	"Agriculture" includes horticulture, forestry, and cultivation of plantation, medicinal and aromatic plants.	"Agriculture" includes horticulture.
	Definitions of "Seed" and "Variety" have been changed to make them more specific and technical.	Does not define these terms
	Defines terms such as "Dealer", "Essentially Derived Variety", "Extant Variety", "Farmer", "Horticulture Nursery", "Misbranded", "Spurious Seed", and "Transgenic Variety".	Only varieties notified by the government need to be registered.
<b>Registration</b>	All seeds for sale must be registered.	Constitutes Central Seed Committee. The central government, after consulting with the CSC, may notify a seed in order to regulate the quality of seed.



	Seeds Bill, 2004	Seeds Act, 1966
<b>Seed Committee</b>	Constitutes Central and State Seed Committees. A Registration Sub-Committee would register seeds of all varieties.	No provision for transgenic varieties of seeds.
<b>Transgenic Varieties</b>	Special provisions for registration of transgenic varieties of seeds.	No specific provision for compensation mentioned in the Act.
<b>Compensation to Farmers</b>	Provides for compensation to farmers under the Consumer Protection Act, 1986 in the event of under performance of seeds.	A person is restricted from exporting or importing notified variety of seed unless it conforms to minimum limits of germination etc.
<b>Export and Import</b>	All seed imports are regulated by the Plant Quarantine (Regulation of Import into India) Order, 2003 or any corresponding order of the Destructive Insects and Pests Act, 1914; shall conform to minimum limits of germination etc. Exports can be restricted if it adversely affects the food security of the country.	Any person who contravenes any provisions of the Act, prevents a Seed Inspector from taking samples etc. shall be punished for the first offence with a fine which may extend to Rs 500. If the offence is repeated he may be imprisoned for a maximum term of six months and/or fined up to Rs 1,000.
<b>Penalties</b>	Any person who contravenes any provisions of the Act or imports, sells or stocks seeds deemed to be misbranded or not registered, can be punishable by a fine of Rs 5,000 to Rs 25,000. The penalty for giving false information is a prison term up to six months and/or a fine up to Rs 50,000.	

There are several contradictions and overlaps between the PPVFR Act and the Seeds Bill, 2004. We list these below. Unless these are reconciled and there is clarity on which of these two legislations will supercede the other in cases of conflict, there would be scope for litigation.



**Comparison of Seeds Bill, 2004 and PPVFR Act, 2001**

	<b>Seeds Bill, 2004</b>	<b>PPVFR Act, 2001</b>
<b>Definitions</b>	“Farmer” means any person who cultivates crops either by cultivating the land himself or through any other person but does not include any individual, company, trader or dealer who engages in the procurement and sale of seeds on a commercial basis.	“Farmer” means any person who cultivates crops by cultivating the land himself or cultivates crops by directly supervising the cultivation or land through any other person; or conserves and preserves, severally or jointly, with any other 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.
<b>Registration</b>	Establishes a Registration Sub-Committee, which would maintain a National Register of Seeds.	Establishes a Plant Varieties Registry, which would maintain a National Register of Plant Varieties.
	No specifications regarding parentage of variety.	Specifies details under which a variety may be registered such as a complete passport data of the parental lines from which a variety has been derived.
	Registration is for 15 years for annual/biennial crops and 18 years for long duration perennials. On expiry, registration can be renewed for a similar period.	Registration is for 15 years for annual/biennial crops and 18 years for long duration perennials. Registration cannot be renewed.
<b>Farmers' Rights</b>	A farmer can save, use, exchange, share or sell his farm seeds and planting material. He cannot sell seeds under a brand name. Seeds sold have to conform to the minimum limit of germination, physical purity, genetic purity prescribed by the Act.	A farmer is entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under the Act in the same manner before this Act came into force. He cannot sell branded seed of a variety protected under the Act.
<b>Compensation</b>	The seed producer, distributor or vendor will have to disclose the expected performance of a particular variety of seed under certain given conditions. If the seed fails to perform to expected standards, the farmer can claim compensation from the dealer, distributor or vendor under the Consumer Protection Act, 1986.	If a breeder of a propagating material of a variety registered under the Act sells his product to a farmer, he has to disclose the expected performance under given conditions. If the propagating material fails to perform, the farmer can claim compensation in the prescribed manner before the Protection of Plant Varieties and Farmers' Rights Authority.



	Seeds Bill, 2004	PPVFR Act, 2001
<b>Penalties</b>	Any person who contravenes any provisions of the Act, prevents a Seed Inspector from taking samples etc. shall be punished for the first offence with a fine up to Rs 500. If the offence is repeated he may be imprisoned up to six months and/or fined up to Rs 1,000.	Penalty for applying false denomination to a variety is imprisonment up to two years and/or a fine between Rs 50,000 and Rs five lakh. Penalty for falsely representing a variety as registered is imprisonment up to three years and/or a fine between Rs one lakh and Rs five lakh or both. Penalty for subsequent offence is imprisonment up to three years and/or a fine between Rs two lakh and Rs 20 lakh.

- *Protection of farmers' rights*

Exemption for farmers: This Bill exempts a farmer from compulsory registration of seed varieties in order to use, exchange, share or sell his farm seeds or planting material. However, it stipulates that he cannot sell any seed under a brand name. Also, any seed sold by a farmer has to conform to the minimum limits of germination, and physical and genetic purity as applicable to commercially sold seeds. This last proviso (minimum standards of germination and purity) could be difficult to implement. It is estimated that seeds saved and exchanged by farmers constitute above 80% of the seeds planted [1], and there would be a need to establish the physical infrastructure required to test these. Such testing would also lead to an increase in the cost of seeds.

In contrast, The PPVFR Act, 2001, only restricts the farmer from selling branded seed. There is no other requirement for a farmer to sell seeds. The exemption clause given in the PPVFR Act is easier to implement [2].

Compensation: The farmer has to approach the Consumer Courts to claim compensation

if the seeds do not perform to expected levels. There is a contradiction between this provision and the PPVFR Act which permits farmers to claim compensation through the Authority set up under that Act. Given the number of factors (such as climate, fertilizer, water) that affect the performance of a crop, it may be difficult to prove that underperformance of a crop was on account of poor quality of seed. Indeed, there have been recent cases where the issue has not been fully resolved [3]. Furthermore, it is not clear whether the compensation would include the value of the crop or only the cost of the seed [4].

- *Registration and certification*

Exclusivity: Only those varieties of seeds that are registered may be sold. The Bill does not clarify whether a seed producer may sell seed which is registered by a different producer. The absence of a non-exclusivity requirement could lead to a monopoly on existing and common varieties by the first mover on any registration. Issues regarding intellectual property rights may be addressed through the provisions of the PPVFR Act.



Disclosure of Parentage: The Bill leaves it to regulations to specify the information that an applicant has to furnish, such as data about the source and geographical origin, in order to register a seed variety. It might lead to a situation where seeds could be registered without disclosing the parentage or origin of the seed. Although the PPVFR Act, 2001, makes it mandatory for the applicant to issue specific details about the parental lines of a variety, it is not clear which legislation would take precedence in case of conflict. In such a case, an applicant might be able to register a variety of seed which has traditionally been used by a farmer (i.e., farmers' variety). The Bill also does not have the provision of benefit-sharing [\*] (as mentioned in the Convention on Biological Diversity and the PPVFR Act), in which case any applicant can register and use a farmer's variety of seed without compensating the farmer [5].

Traceability and Quality Assurance: The Bill does not provide for a mechanism to trace back a packet of seed to the dealer, processor and producer. Also, there is no specification of quality assurance systems. This would make it difficult to trace back a defective lot, and rectify any deficiencies in the supply chain.

Transgenic Varieties: The Bill forbids the use of any technology that may be harmful or potentially harmful, and includes 'genetic use restriction technology' and 'terminator technology' [\*] in the definition of 'technology'. It is not clear whether both these technologies are explicitly banned in this Bill. A farmer planting seeds containing terminator technology cannot use the seed from his crop for the next generation, and has to purchase new seed every season. The

PPVFR Act, 2001 does not permit registration of any variety containing terminator technology.

Self Certification and Testing before Registration: Seed producers would be permitted to self-certify the performance of their seeds under certain conditions. The seed companies need to provide the results of multi-locational trials before registration. This opens up the possibility of false declaration by seed companies. To prevent this, there could be a case for allowing only government agencies to conduct these trials and grant certification.

- *Horticulture Nurseries*

Every horticultural nursery has to be registered with the state government and has to maintain records of layout plan, source of every planting material etc. The argument is that performance of horticultural planting material (such as mango) is known only after a number of years, and these trees are harvested for a number of years. The investment and risk for the farmer is significantly higher than in the case of one-season grain, and this justifies stricter norms. That said, nurseries in the unorganized sector may find it difficult to adhere to these conditions.

- *Role of Seed Inspectors*

The Seed Inspector has the power to enter and search as well as break open container or break open doors, without a warrant. This is different from the provisions under the Code of Criminal Procedure, 1973 under which a warrant signed by the district magistrate, sub-divisional magistrate or first



class magistrate is necessary for search and seizure.

- *Penalties*

The penalty for selling substandard seeds is between Rs 5,000 and Rs 25,000. This may not prove to be a deterrent for a large seed company but which may be significant for a farmer or a small dealer.

- *Finances*

The financial memorandum estimates that Rs 36 lakh may be required to meet the recurring and non-recurring expenditure during the financial year 2004-05. It does not estimate the expenditure that would be required to establish central and state testing laboratories and appointing seed inspectors and seed analysts.

#### Footnotes

- Transgenic seeds refer to genetically engineered seeds whose DNA has been modified by integrating part of the DNA sequence from another organism. This results in the organism displaying new

characteristics. For example, the FlavrSavr tomato developed by Calgene Inc. in 1992 contained a gene that interfered with the production of an enzyme which softens the cell walls of a ripening fruit. This resulted in the tomato resisting rotting, without change in taste or vitamin, proteins and minerals.

- Benefit-sharing means that if a farmer's variety of seed has been used in breeding a new variety, farmers are entitled to share in the profits through a benefit-sharing mechanism.
- Genetic use restriction technology (GURT) involves programming specific genes in the organism to restrict certain traits, which would be expressed in the absence of such programming. Terminator technology is a special case of GURT which leads to the seed (or offspring) being unable to reproduce. Another type of GURT triggers genetic enhancement only if the crop is treated with a specific chemical.



809294





## Annexure III

### NATIONAL SEEDS POLICY, 2002

#### INTRODUCTION

Indian Agriculture has made enormous strides in the past 50 years, raising food grains production from 50 million tonnes to over 200 million tonnes. In the process, the country has progressed from a situation of food shortages and imports to one of surpluses and exports. Having achieved food sufficiency, the aim now is to achieve food and nutritional security at the household level.

The increase in agricultural production, however, has brought in its wake, uneven development, across regions, crops, and also across different sections of farming community. In the decade of the 'nineties', a marked slackening in the pace of growth has occurred, pointing to the need for infusing a new vitality in the agricultural sector.

Seed is the most important determinant of agricultural production potential, on which the efficacy of other agriculture inputs is dependent. Seeds of appropriate characteristics are required to meet the demand of diverse agro-climatic conditions and intensive cropping systems. Sustained increase in agriculture production and productivity is dependent, to a large extent, on development of new and improved varieties of crops and an efficient system for timely supply of quality seeds to farmers.

The seed sector has made impressive progress over the last three decades. The area under certified seeds has increased from less than 500 hectares in 1962-63 to over 5 lakh hectares in 1999-2000. The quantum of quality seeds has crossed 100 lakh quintals.

The Seeds Act, 1966 and Seeds Control Order promulgated thereunder, and the New Policy on Seeds Development, 1988, form the basis of

promotion and regulation of the Seed Industry. Far-reaching changes, however, have taken place in the national economic and agricultural scenario and in the international environment since the enactment of the existing seed legislation and the announcement of the 1988 Policy.

#### AIMS AND OBJECTIVES

It has become evident that in order to achieve the food production targets of the future, a major effort will be required to enhance the seed replacement rates of various crops. This would require a major increase in the production of quality seeds, in which the private sector is expected to play a major role. At the same time, private and Public Sector Seed Organizations at both Central and State levels, will be expected to adopt economic pricing policies which would seek to realize the true cost of production. The creation of a facilitative climate for growth of a competitive and localized seed industry, encouragement of import of useful germplasm, and boosting of exports are core elements of the agricultural strategy of the new millennium.

Biotechnology will be a key factor in agricultural development in the coming decades. Genetic engineering/modification techniques hold enormous promise in developing crop varieties with a higher level of tolerance to biotic and abiotic stresses. A conducive atmosphere for application of frontier sciences in varietal development and for enhanced investments in research and development is a pressing requirement. At the same time, concerns relating to possible harm to human and animal health and bio-safety, as well as interests of farmers, must be addressed.



Globalization and economic liberalization have opened up new opportunities as well as challenges. The main objectives of the National Seeds Policy, therefore, are the provision of an appropriate climate for the seed industry to utilize available and prospective opportunities, safeguarding of the interests of Indian farmers and the conservation of agro-biodiversity. While unnecessary regulation needs to be dismantled, it must be ensured that gullible farmers are not exploited by unscrupulous elements. A regulatory system of a new genre is, therefore, needed, which will encompass quality assurance mechanisms coupled with facilitation of a vibrant and responsible seed industry.

### **THRUST AREAS:-**

#### **1. VARIETAL DEVELOPMENT AND PLANT VARIETY PROTECTION**

- 1.1 The development of new and improved varieties of plants and availability of such varieties to Indian farmers is of crucial importance for a sustained increase in agricultural productivity.
  - 1.1.1 Appropriate policy framework and programmatic interventions will be adopted to stimulate varietal development in tune with market trends, scientific-technological advances, suitability for biotic and abiotic stresses, locational adaptability and farmers' needs.
- 1.2 An effective *sui generis* system for intellectual property protection will be implemented to stimulate investment in research and development of new plant varieties and to facilitate the growth of the Seed Industry in the country.
  - 1.2.1 A Plant Varieties & Farmers' Rights Protection (PVP) Authority will be established which will undertake registration of extant and new plant varieties through the

Plant Varieties Registry on the basis of varietal characteristics.

- 1.2.2 The registration of new plant varieties by the PVP Authority will be based on the criteria of novelty, distinctiveness, uniformity and stability.
- 1.2.3 The criteria of distinctiveness, uniformity and stability could be relaxed for registration of extant varieties, which will be done within a specified period to be decided by the PVP Authority.
- 1.2.4 Registration of all plant genera or species as notified by the Authority will be done in a phased manner.
- 1.2.5 The PVP Authority will develop characterisation and documentation of plant varieties registered under the PVP Act and cataloguing facilities for all varieties of plants.
- 1.3 The rights of farmers to save, use, exchange, share or sell farm produce of all varieties will be protected, with the proviso that farmers shall not be entitled to sell branded seed of a protected variety under the brand name.
- 1.4 The rights of researchers to use the seed/planting material of protected varieties for bonafide research and breeding of new plant varieties will be ensured.
- 1.5 Equitable sharing of benefit arising out of the use of plant genetic resources that may accrue to a breeder from commercialisation of seeds/planting materials of a new variety will be provided.
- 1.6 Farmers/groups of farmers/village communities will be rewarded suitably for their significant contribution in evolution of a plant variety subject to registration. The contribution of traditional knowledge in



agriculture needs to be highlighted through suitable mechanisms and incentives.

- 1.7 A National Gene Fund will be established for implementation of the benefit sharing arrangement, and payment of compensation to village communities for their contribution to the development and conservation of plant genetic resources and also to promote conservation and sustainable use of genetic resources. Suitable systems will be worked out to identify the contributions from traditional knowledge and heritage.
- 1.8 Plant Genetic Resources for Food and Agriculture Crops will be permitted to be accessed by Research Organisations and Seed Companies from public collections as per the provisions of the 'Material Transfer Agreement' of the International Treaty on Plant Genetic Resources and the Biological Diversity Bill.
- 1.9 Regular interaction amongst the Private and Public Researchers, Seed Companies/Organisations and Development Agencies will be fostered to develop and promote growth of a healthy seed industry in the country.
- 1.10 To keep abreast of global developments in the field of Plant Variety Protection and for technical collaboration, India may consider joining Regional and International Organisations.
- 1.11 The PVP Authority may, if required, resort to compulsory licensing of a protected variety in public interest on the ground that requirements of the farming community for seeds and propagating material of a variety are not being met or that the production of the seeds or planting material of the protected variety is not being facilitated to the fullest possible extent.

## 2. SEED PRODUCTION

- 2.1 To meet the Nation's food security needs, it is important to make available to Indian farmers a wide range of seeds of superior quality, in adequate quantity on a timely basis. Public Sector Seed Institutions will be encouraged to enhance production of seed towards meeting the objective of food and nutritional security.
- 2.2 The Indian seed programme adheres to the limited three generation system of seed multiplication, namely, breeder, foundation and certified seed. Breeder seed is the progeny of nucleus seed.
  - 2.2.1 Nucleus seed is the seed produced by the breeder to develop the particular variety and is directly used for multiplication as breeder seed.
  - 2.2.2 Breeder seed is the seed material directly controlled by the originating or the sponsoring breeder or Institution for the initial and recurring production of foundation seed.
  - 2.2.3 Foundation seed is the progeny of breeder seed. Foundation seed may also be produced from foundation seed. Production of foundation seed stage-I and stage-II may thus be permitted, if supervised and approved by the Certification Agency and if the production process is so handled as to maintain specific genetic purity and identity.
  - 2.2.4 Certified seed is the progeny of foundation seed or the progeny of certified seed. If the certified seed is the progeny of certified seed, then this reproduction will not exceed three generations beyond foundation stage-I and it will be ascertained by the Certification



- Agency that genetic identity and genetic purity has not been significantly altered.
- 2.3 Public Sector Seed Production Agencies will continue to have free access to breeder seed under the National Agriculture Research System. The State Farms Corporation of India and National Seeds Corporation will be restructured to make productive use of these organisations in the planned growth of the Seed Sector.
- 2.4 Private Seed Production Agencies will also have access to breeder seed subject to terms and conditions to be decided by Government of India.
- 2.5 State Agriculture Universities/ICAR Institutes will have the primary responsibility for production of breeder seed as per the requirements of the respective States.
- 2.6 Special attention will be given to the need to upgrade the quality of farmers' saved seeds through interventions such as the Seed Village Scheme.
- 2.7 Seed replacement rates will be raised progressively with the objective of expanding the use of quality seeds.
- 2.8 DAC, in consultation with ICAR and States, will prepare a National Seed Map to identify potential, alternative and non-traditional areas for seed production of specific crops.
- 2.9 To put in place an effective seed production programme, each State will undertake advance planning and prepare a perspective plan for seed production and distribution over a rolling (five to six year) period. Seed Banks will be set up in non-traditional areas to meet demands for seeds during natural calamities.
- 2.10 The 'Seed Village Scheme' will be promoted to facilitate production and timely availability of seed of desired crops/varieties at the local level. Special emphasis will be given to seed multiplication for building adequate stocks of certified/quality seeds by providing foundation seed to farmers.
- 2.11 For popularising newly developed varieties and promoting seed production of these varieties, seed minikits of pioneering seed varieties will be supplied to farmers. Seed exchange among farmers and seed producers will be encouraged to popularise new/non-traditional varieties.
- 2.12 Seeds of newly developed varieties must be made available to farmers with minimum time gap. Seed producing agencies will be encouraged to tie up with Research Institutions for popularization and commercialization of these varieties.
- 2.13 As hybrids have the potential to improve plant vigour and increase yield, support for production of hybrid seed will be provided.
- 2.14 Seed production will be extended to agro-climatic zones which are outside the traditional seed growing areas, in order to avoid unremunerative seed farming in unsuitable areas.
- 2.15 Seed Banks will be established for stocking specified quantities of seed of required crops/varieties for ensuring timely and adequate supply of seeds to farmers during adverse situations such as natural calamities, shortfalls in production, etc. Seed Banks will be suitably strengthened with cold storage and pest control facilities.
- 2.15.1 The storage of seed at the village level will be encouraged to facilitate immediate availability of seeds in the event of natural



- calamities and unforeseen situations. For the storage of seeds at farm level, scientific storage structures will be popularised and techniques of scientific storage of seeds will be promoted among farmers as an extension practice.
- 2.16 Seed growers will be encouraged to avail of Seed Crop Insurance to cover risk factors involved in production of seeds. The Seed Crop Insurance Scheme will be reviewed so as to provide effective risk cover to seed producers and will be extended to all traditional and non-traditional areas covered under the seed production programme.
3. **QUALITY ASSURANCE**
- 3.1 The Seeds Act will be revised to regulate the sale, import and export of seeds and planting materials of agriculture crops including fodder, green manure and horticulture and supply of quality seeds and planting materials to farmers throughout the country.
- 3.2 The National Seeds Board (NSB) will be established in place of existing Central Seed Committee and Central Seed Certification Board. The NSB will have permanent existence with the responsibility of executing and implementing the provisions of the Seeds Act and advising the Government on all matters relating to seed planning and development. The NSB will function as the apex body in the seed sector.
- 3.2.1 All varieties, both domestic and imported varieties, that are placed on the market for sale and distribution of seeds and planting materials will be registered under the Seeds Act. However, for vegetable and ornamental crops a simple system of varietal registration based on "breeders declaration" will be adopted.
- 3.2.2 The Board will undertake registration of kinds/varieties of seeds that are to be offered for sale in the market, on the basis of identified parameters for establishing value for cultivation and usage (VCU) through testing/trialling.
- 3.2.3 Registration of varieties will be granted for a fixed period on the basis of multilocational trials to determine VCU over a minimum period of three seasons, or as otherwise prescribed as in the case of long duration crops and horticultural crops. Samples of the material for registration will be sent to the NBPGR for retention in the National Gene Bank.
- 3.2.4 Varieties that are in the market at the time of coming into force of the revised Seeds Act, will have to be registered within a fixed time period, and subjected to such testing as will be notified.
- 3.2.5 The NSB will accredit ICAR, SAUs, public/private organisations to conduct VCU trials of all varieties for the purpose of registration as per prescribed standards.
- 3.2.6 The NSB will maintain the National Seeds Register containing details of varieties that are registered. This will help the Board to coordinate and assist activities of the States in their efforts to provide quality seeds to farmers.
- 3.2.7 The NSB will prescribe minimum standards (of germination, genetic characteristics, physical purity, seed health, etc.) as well as suitable guidelines for registration of seed and planting materials.
- 3.2.8 Provisional registration would be granted on the basis of information filed by the applicant relating to trials over one season to tide over



- the stipulation of testing over three seasons before the grant of registration.
- 3.3 Government will have the right to exclude certain kinds or varieties from registration to protect public order or human, animal and plant life and health, or to avoid serious prejudice to the environment.
- 3.4 The NSB will have the power to cancel the registration granted to a variety if the registration has been obtained by misrepresentation or concealment of essential data, the variety is obsolete and has outlived its utility and if the prevention of commercial exploitation of such variety is necessary in the public interest.
- 3.5 Registration of Seed Processing Units will be required if such Units meet the prescribed minimum standards for processing the seed.
- 3.6 Seed Certification will continue to be voluntary. The Certification tag/label will provide an assurance of quality to the farmer.
- 3.6.1 The Board will accredit individuals or organisations to carry out seed certification including self-certification on fulfillment of criteria as prescribed.
- 3.7 To meet quality assurance requirements for export of seeds, Seed Testing facilities will be established in conformity with ISTA and OECD seed certification programmes.
- 3.8 The State Government, in conformity with guidelines and standards specified by the Board, will establish one or more State Seed Testing Laboratories or declare any Seed Testing Laboratory in the Government or non-Government Sector as a State Seed Testing Laboratory where analysis of seeds will be carried out in the prescribed manner.
- 3.9 Farmers will be encouraged to use certified seeds to ensure improved performance and output.
- 3.10 Farmers will retain their right to save, use, exchange, share or sell their farm seeds and planting materials without any restriction. They will be free to sell their seed on their own premises or in the local market without any hindrance provided that the seed is not branded. Farmers' right to continue using the varieties of their choice will not be infringed by the system of compulsory registration.
- 3.11 Stringent measures would be taken to ensure the availability of high quality of seeds and check the sale of spurious or misbranded seeds.
4. **SEED DISTRIBUTION AND MARKETING**
- 4.1 The availability of high quality seeds to farmers through an improved distribution system and efficient marketing set-up will be ensured to facilitate greater security of seed supply.
- 4.2 For promoting efficient and timely distribution and marketing of seed throughout the country, a supportive environment will be provided to encourage expansion of the role of the private seed sector. Efforts will be made to achieve better coordination between State Governments to facilitate free Inter-State movement of seed and planting material through exemption of duties and taxes.
- 4.3 Private Seed Sector will be encouraged and motivated to restructure and reorient their activities to cater to non-traditional areas.



- 4.4 A mechanism will be established for collection and dissemination of market intelligence regarding preference of consumers and farmers.
- 4.5 A National Seed Grid will be established as a data-base for monitoring of information on requirement of seed, its production, distribution and preference of farmers on a district-wise basis.
- 4.6 Access to term finance from Commercial Banks will be facilitated for developing efficient seed distribution and marketing facilities for growth of the seed sector.
- 4.7 Distribution and marketing of seed of any variety, for the purpose of sowing and planting will be allowed only if the said variety has been registered by the National Seeds Board.
- 4.8 National Seeds Board can direct a dealer to sell or distribute seeds in a specified manner in a specified area if it is considered necessary to the public interest.
5. **INFRASTRUCTURE FACILITIES**
- 5.1 To meet the enhanced requirement of quality/certified seeds, creation of new infrastructure facilities along with strengthening of existing facilities, will be promoted.
- 5.2 National Seed Research and Training Center will be set up to impart training and build a knowledge base in various disciplines of the seed sector.
- 5.3 The Central Seed Testing Laboratory will be established at the National Seed Research and Training Center to perform referral and other functions as required under the Seeds Act.
- 5.4 Seed processing capacity will be augmented to meet the enhanced requirement of quality seed.
- 5.5 Modernisation of seed processing facilities will be encouraged in terms of modern equipment and latest techniques, such as seed treatment for enhancement of performance of seed, etc.
- 5.6 Conditioned storage for breeder and foundation seed and aerated storage for certified seed would be created in different regions.
- 5.7 A computerized National Seeds Grid will be established to provide information on availability of different varieties of seeds with production agencies, their location, quality etc. This network will facilitate optimum utilisation of available seeds in every region.
- 5.7.1 Initially, seed production agencies in the public sector would be connected with the National Seed Grid, but progressively the private sector will be encouraged to join the Grid for providing a clear assessment of demand and supply of seeds.
- 5.8 State Governments, or the National Seeds Board in consultation with the concerned State Government, may establish Seed Certification Agencies.
- 5.9 State Governments will establish appropriate systems for effective execution and implementation of the objectives and provisions of the Seeds Act.
6. **TRANSGENIC PLANT VARIETIES**
- 6.1 Biotechnology will play a vital role in the development of the agriculture sector. This technology can be used not only to develop new crops/varieties, which are tolerant to disease, pests and abiotic stresses, but also to improve productivity and nutritional quality of food.



- 6.2 All genetically engineered crops/varieties will be tested for environment and bio-safety before their commercial release, as per the regulations and guidelines of the Environment Protection Act (EPA), 1986.
- 6.3 The EPA, 1986, read with the Rules, 1989 would adequately address the safety aspects of transgenic seeds/planting materials. A list will be generated from Indian experience of transgenic cultivars that could be rated as environmentally safe.
- 6.4 Seeds of transgenic plant varieties for research purposes will be imported only through the National Bureau of Plant Genetic Resources (NBPGR) as per the EPA, 1986.
- 6.5 Transgenic crops/varieties will be tested to determine their agronomic value for at least two seasons under the All India Coordinated Project Trials of ICAR, in coordination with the tests for environment and bio-safety clearance as per the EPA before any variety is commercially released in the market.
- 6.6 After the transgenic plant variety is commercially released, its seed will be registered and marketed in the country as per the provisions of the Seeds Act.
- 6.7 After commercial release of a transgenic plant variety, its performance in the field, will be monitored for at least 3 to 5 years by the Ministry of Agriculture and State Departments of Agriculture.
- 6.8 Transgenic varieties can be protected under the PVP legislation in the same manner as non-transgenic varieties after their release for commercial cultivation.
- 6.9 All seeds imported into the country will be required to be accompanied by a certificate from the Competent Authority of the exporting country regarding their transgenic character or otherwise.
- 6.9.1 If the seed or planting material is a product of transgenic manipulation, it will be allowed to be imported only with the approval of the Genetic Engineering Approval Committee (GEAC), set up under the EPA, 1986.
- 6.10 Packages containing transgenic seeds/planting materials, if and when placed on sale, will carry a label indicating their transgenic nature. The specific characteristics including the agronomic/yield benefits, names of the transgenes and any relevant information shall also be indicated on the label.
- 6.11 Emphasis will be placed on the development of infrastructure for the testing, identification and evaluation of transgenic planting materials in the country.
- 7. IMPORT OF SEEDS AND PLANTING MATERIAL**
- 7.1 The objective of the import policy is to provide the best planting material available anywhere in the world to Indian farmers, to increase productivity, farm income and export earnings, while ensuring that there is no deleterious effect on environment, health and bio-safety.
- 7.1.1 While importing seeds and planting material, care will be taken to ensure that there is absolutely no compromise on the requirements under prevailing plant quarantine procedures, so as to prevent entry into the country of exotic pests, diseases and weeds detrimental to Indian agriculture.
- 7.1.2 All imports of seeds will require a permit granted by the Plant Protection Advisor to the Government of India, which will be





- issued within the minimum possible time frame.
- 7.2 All import of seeds and planting materials, etc. will be allowed freely subject to EXIM Policy guidelines and the requirements of the Plants, Fruits and Seeds (Regulation of import into India) Order, 1989 as amended from time to time. Import of parental lines of newly developed varieties will also be encouraged.
- 7.3 Seeds and planting materials imported for sale into the country will have to meet minimum seed standards of seed health, germination, genetic, and physical purity as prescribed.
- 7.4 All importers will make available a small sample of the imported seed to the Gene Bank maintained by NBPGR.
- 7.5 The existing policy, which permits free import of seeds of vegetables, flowers and ornamental plants, cuttings, saplings of flowers, tubers and bulbs of flowers by certain specified categories of importers will continue. Tubers and bulbs of flowers will be subjected to post-entry quarantine.
- 7.5.1 After the arrival of consignments at the port of entry, quarantine checks would be undertaken; which may include visual inspection, laboratory inspection, fumigation and grow-out tests. For the purpose of these checks, samples will be drawn and the tests will be conducted concurrently.
8. **EXPORT OF SEEDS**
- 8.1 Given the diversity of agro-climatic conditions, strong seed production infrastructure and market opportunities, India holds significant promise for export of seeds.
- 8.2 Government will evolve a long term policy for export of seeds with a view to raise India's share of global seed export from the present level of less than 1% to 10% by the year 2020.
- 8.2.1 The export policy will specifically encourage custom production of seeds for export and will be based on long term perspective, dispensing with case to case consideration of proposals.
- 8.3 Establishment and strengthening of Seeds Export Promotion Zones with special incentives from the Government will be facilitated.
- 8.4 A data bank will be created to provide information on the International Market and on export potential of Indian varieties in different parts of the world.
- 8.5 A data base on availability of seeds of different crops to assess impact of exports on domestic availability of seeds will be created.
- 8.6 Promotional programmes to improve the quality of Indian seeds to enhance its acceptability in the International Market will be taken up.
- 8.6.1 Testing and certification facilities will be established in conformity with international requirements.
9. **PROMOTION OF DOMESTIC SEED INDUSTRY**
- 9.1 Incentives will be provided to the domestic seed industry to enable it to produce seeds of high yielding varieties and hybrid seeds at a faster pace to meet the challenges of domestic requirements.
- 9.2 Seed Industry will be provided with a congenial and liberalized climate for increasing seed production and marketing, both domestic and international.



9.3 Membership to International Organisations and Seed Associations like ISTA, OECD, UPOV, ASSINSEL, WIPO, at the National level or at the level of individual seed producing agencies, will be encouraged.

9.4 Emphasis will be given to improving the quality of seed produced and special efforts will be directed towards improving the quality of farmers' saved seeds.

9.5 Financial support for capital investment, working capital and infrastructure strengthening will be facilitated through NABARD/ Commercial Banks/Cooperative Banks.

9.6 Tax rebate/concessions will be considered on the expenditure incurred on in-house research and development of new varieties and other seed related research aspects. In order to develop a competitive seed market, the States will be encouraged to remove unnecessary local taxation on sales of seeds.

9.7 To encourage seed production in non-traditional areas including backward areas, special incentives such as transport subsidy will be provided to seed producing agencies operating in these marginalised areas.

9.8 Reduction of import duty will be considered on machines and equipment used for seed production and processing which are otherwise not manufactured in the country.

#### 10. STRENGTHENING OF MONITORING SYSTEM

10.1 The Department of Agriculture & Cooperation (DAC) will supervise the overall implementation and monitoring of the National Seeds Policy.

10.2 The physical infrastructure in terms of office automation, communication facilities, etc., in

DAC will be augmented in a time bound manner.

10.3 The technical capacity of DAC need to be augmented and strengthened to undertake the additional work relating to implementation of National Seeds Policy, implementation of PVP&FR Bill, Seeds Act, Import and Export of Seeds, etc.

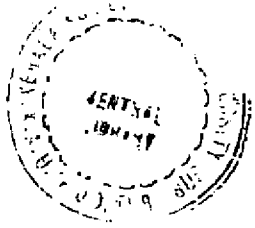
10.4 Capacity building, including National and International training and participation in Seminars/Workshops will be organized for concerned officials

#### 11. CONCLUSION

The Government of India trusts that the National Seeds Policy will receive the fullest support of State Governments/Union Territory Administrations, State Agricultural Universities, plant breeders, seed producers, the seed industry and all other stakeholders, so that it may serve as a catalyst to meet the objectives of sustainable development of agriculture, food and nutritional security for the population, and improved standards of living for farming communities.

The National Seeds Policy will be a vital instrument in attaining the objectives of doubling food production and making India hunger free. It is expected to provide the impetus for a new revolution in Indian agriculture, based on an efficient system for supply of seeds of the best quality to the cultivator.

The National Seeds Policy will lay the foundation for comprehensive reforms in the seed sector. Significant changes in the existing legislative framework will be effected accompanied by programmatic interventions. The Policy will also provide the parameters for the development of the seed sector in the Tenth and subsequent Plans. The progress of implementation of the Policy will be monitored by a High Level Review Committee.



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