



सत्यमेव जयते

Annual Report 2011-12



PROTECTION OF PLANT VARIETIES & FARMERS' RIGHTS AUTHORITY

(Department of Agriculture & Co-operation)

Ministry of Agriculture, Government of India

NASC Complex, DPS Marg, New Delhi – 110 012

www.plantauthority.gov.in



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Dr. P L Gautam
Chairperson
Protection of Plant Varieties &
Farmers' Rights Authority, New Delhi



Foreword

I deem it my privilege to present the Annual Report of the Protection of Plant Varieties and Farmers' Rights Authority (PPV & FRA), New Delhi for the year 2011-12. India is among the first countries to enact and implement PPV&FR Act, 2001 for the protection of plant varieties and farmers' rights. The Act fulfils the aspiration of the farmers / farming communities and the obligations of the Agreement on Trade Related Aspects of Intellectual Property Rights of the World Trade Organization.

The Government of India established the PPV & FR Authority in November, 2005 as per provision of the Act. In a short span, the Authority has created systems and processes for protection of different categories of plant varieties, Plant Variety Registry, National Gene Bank, Field Gene Banks, databases, DUS testing centres, publication of the Plant Variety Journal of India and others to meet its objectives. It has expanded its basket for registration of varieties to 57 notified crop species.

The Authority has instituted the coveted *Plant Genome Savior Community Award* to recognize the contributions of the farming communities in the conservation of agro-biodiversity hotspots. Authority is in the process of developing guidelines for awards and recognitions to individual farmers engaged in the conservation of genetic resources and plant improvement. The Authority is promoting and supporting the awareness generation and capacity building programs regarding the Act among stakeholders through trainings, workshops, seminars, exhibitions, publications and mass media resources. It regularly monitors the performance of the DUS centres, Field Gene Banks and projects. The Authority has already taken necessary steps for construction of its independent corporate office and residential complex in Pusa Campus, New Delhi.

I feel privileged in placing on record the guidance and direction provided by the Hon'ble Union Minister of Agriculture and Food Processing Industries, Shri Sharad Pawar for the growth of the Authority. I also acknowledge the keen interest shown by Hon'ble Ministers of State for Agriculture and Food Processing Industries, Shri Harish Rawat and Dr. Charan Das Mahant, in the activities of the Authority.

I express my sincere gratitude to Shri Ashish Bahuguna, Secretary, DAC and his predecessor Shri P K Basu, and Dr. S Ayyappan, Secretary, DARE and DG, ICAR for their interest and support to the Authority. I sincerely acknowledge the support of Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India; Indian Council of Agricultural Research especially the officers, scientists and staff of Seeds Division of DAC and DUS Centres / Projects / Special Test Centres. I gratefully acknowledge the contributions of the members of the Authority and other officers who have served various Committees/Task Forces with dedication.

I appreciate my colleagues in the Authority for effective coordination in preparation of this Annual Report.

(P L Gautam)



Acknowledgements

I would like to express my sincere gratitude to Dr. P. L. Gautam, Chairperson, PPV&FR Authority, New Delhi for the continuous support, motivation, enthusiasm and comprehensive views in preparation of this document.

I appreciate the efforts of Shri D. S. Mishra and Shri Dipal Roy Choudhury, Joint Registrar(s) in compilation and designing of this annual report.

Dr. Manoj Srivastava, Dr. Tejbir Singh, Dr. Ravi Prakash, Registrar(s) compiled and edited the contents to give it a final shape.

My appreciation is also to Shri Umakant Dubey, Deputy Registrar; Shri D.S. Rajganesh & Shri R.R. Pradhan, Legal Advisor(s); Dr. A.K. Singh, Senior Technical Officer; Dr. D.S. Pilania, Technical Assistant;

Dr. A.C. Sarma (Deputy Registrar, Guwahati); Dr. Manoj Kumar (Deputy Registrar, Ranchi); Dr. S.P. Yadav (PVE-Ranchi); Dr. Amit (PVE- Guwahati); Shri Bertie Alexander and other Staff of the Authority for their inputs and suggestions. I thank Shri J.P. Singh, Financial Advisor, Shri T.D. Tiwari, Shri Sodhi Singh, and Shri Roshan Lal, Consultants for their help. Secretarial assistance from Shri Sunil, Smt. Bhawna and Km. Lalita is also acknowledged.

We cherish the partnership that PPV & FR Authority has built over time with the DUS Centres at various Indian Council of Agricultural Research (ICAR) institutes/SAUs/ Research organisations of CSIR and ICFRE.



R.C. Agrawal
Registrar-General



Executive Summary

The Government of India enacted the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act in 2001 with the objective to establish 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 of economic importance. The Act follows a unique *sui generis* system that recognizes the concurrent rights to breeders, researchers and farmers. As per provision of this Act, the PPV&FR Authority was established on 11 November, 2005 at New Delhi. The Authority has put in place the system and processes to implement various provisions of the Act.

So far, 57 crop species have been notified for registration. During the year 2011-12, the Government of India, on the recommendation of the PPV&FR Authority, notified 12 more crop species of cereals, plantation crops, medicinal and aromatic plants and flowers for registration of varieties. The guidelines for testing distinctiveness, uniformity and stability (DUS) for *Triticum dicoccum* L., *T. durum* Desf and other species of wheat, coconut, periwinkle, Indian pennywort, damask rose, blond psyllium, menthol mint, bamboo leaf orchid, spray orchid and vanda or blue orchid were published. These will provide an opportunity for the legal protection of plant varieties, diversification of agriculture and overall growth in agriculture.

During the year, Authority received 1247 applications under three categories viz., new-149, extant-177 and farmers' varieties-921 for registration and protection under the Act. In the new and extant category, 197 varieties were from private and 129 from public sector. The applications received for registration included varieties of bread wheat, rice, pearl millet, maize, sorghum, sugarcane, pigeon pea, kidney bean, soybean, groundnut, cotton, okra, jute, brinjal, tomato, potato, Indian mustard, cauliflower, cabbage, turmeric, sunflower, chrysanthemum, castor, sesame, black pepper and onion. Most of the farmers' varieties belonged to rice crop mainly received from the Directorate of Agriculture and Food Production, Government of Odisha.

The maximum number of applications were received in rice (957), followed by cotton (82), brinjal (41), maize (32), wheat (22), potato (16), and 14 each in sugarcane and tomato. In cotton, especially after the introduction of transgenic technology and sub-licensing, a large number

of varieties are now available to the farmers for cultivation and plant breeders are keen in getting their rights secured for hybrids / varieties which may give better economic returns to the farmers.

Out of 133 applications of extant notified varieties received during the year, 93 belonged to Indian Council of Agricultural Research, 31 to State Agricultural Universities and 9 to private sector. Crop wise, maximum applications were received in rice (63), followed by cotton (26), bread wheat (22), chickpea (9), pearl millet (5), maize (4), castor (3), sorghum (3), sesame (3), rapeseed (2), green gram (1), jute (1) and small cardamom (1).

Passport data of the recommended varieties were published in the *Plant Variety Journal of India* for information to stakeholders; and also for inviting objections, if any, within 90 days of publication. Thereafter, applicants were requested to deposit the prescribed fees for registration and specified quantity of seed material for medium term conservation in the National Gene Bank for the period of protection.

Candidate varieties (335) of various crops were tested at different DUS test centres during *Kharif* and *Rabi* seasons. Ninety five candidate varieties completed two years of DUS testing under new variety category and 194 farmers' varieties of rice also completed grow out tests. The Authority supported 94 DUS centres including New Centres across the country located in the institutes of Indian Council of Agricultural Research, Council of Scientific and Industrial Research, Indian Council of Forestry Research and Education and State Agriculture Universities. Funds were released to these DUS centres for strengthening of laboratory and field facilities for DUS testing, maintenance breeding and development of DUS criteria or guidelines. The Authority has established and supported new DUS centres in horticultural crops for development, validation of DUS guidelines and generation of databases of reference varieties. The crops included bougainvillea, gladiolus, canna, China aster, jasmine, tuberose, strawberry, ber, date-palm, jamun, aonla, bael, pomegranate, peach, plum, papaya, custard apple, grapes, chillies, sweet pepper, paprika, cucurbits, elephant foot yam and taro.

The Authority issued 119 certificates of registration during the period of reporting. Among these, 99 varieties belonged to extant category and 20 to new category.

The National Register of Plant Varieties is being maintained at the headquarters of the Authority and its copy in its branch offices at Guwahati and Ranchi. All the registered varieties under extant, new and farmers' category have been duly documented in the said Register.

The Authority has established National Gene Bank for the conservation of seeds of the registered varieties. In addition, three Field Gene Banks have been established at Dr. Balasaheb Sawant Konkan Krishi Vidhyapeeth, Dapoli, Maharashtra; Birsra Agricultural University, Ranchi, Jharkhand; and Regional Horticultural Research Station, Mashobra, Dr. Y. S. Parmar University of Horticulture and Forestry, Solan, Himachal Pradesh for asexually/vegetatively propagated crops. Funds were also made available to the Central Arid Zone Research Institute (CAZRI), Jodhpur for establishing Field Gene Bank for arid zone species.

The Authority has developed an Indian Information System as per DUS guidelines that is being maintained and updated regularly. It also maintains database of Notified and Released Varieties of India in collaboration with National Bureau of Plant Genetic Resources, New Delhi for the selection of most similar reference varieties and to verify the denomination and notification details. To fulfill one of the objectives of the Act, PPV & FR Authority took a step forward for development of online application submission and payment of prescribed fees through payment gateway system for registration process of plant varieties, in addition to manual filing of applications. The software is in final stage of implementation for hosting at National Informatics Centre of the Government of India.

In the three important meetings of the Authority, major decisions were taken for construction of Authority Bhawan, selection of communities for conferring *Plant Genome Savior Community Awards* for the year 2009-10, selection and financing of Plant Genome Savior Community Awards 2010-11, amendments in PPV&FR Rules and Regulations, e-filing of applications for registration, constitution of expert committee for registration of essentially derived varieties and so forth.

The Legal Cell of the Authority pursued the cases filed in different Courts of India. The Cell was involved in drafting of amendments in Rules and Regulations of the PPV&FR Act, 2001 and the following notifications were published in the Gazette of India:

- Notification of ICAR and National Biodiversity Authority (NBA) for the purpose of forwarding a copy of certificates of registration of the plant varieties vide S.O. 1912 (E) dated 18 August, 2011
- Notification of nine crop species eligible for

registration vide S.O. 1913 (E) dated 19 August, 2011

- Notification of three species of orchid eligible for registration vide S.O. 617 (E) dated 27 March, 2012

The Right to Information (RTI) Cell received 24 applications either directly or through transfer from other Departments seeking information under RTI Act, 2005. The information sought was made available within the stipulated time period. Similarly, the replies to Parliament questions relating to Authority were furnished to the Department of Agriculture & Co-operation, Ministry of Agriculture. The Authority provided comments on draft cabinet notes received from various Ministries/Departments.

Farmers' Cell of the PPV&FR Authority implemented the provisions of the farmers' rights as enshrined in the Act and provided funds to various institutions and stakeholders to conduct training and awareness programmes across the country. The Authority participated in *kisan melas*, festivals and agriculture fairs held at various places to disseminate the information on provisions of the Act among stakeholders. Record number of farmers' varieties of rice from the Odisha are being evaluated through grow-out tests at Central Rice Research Institute, Cuttack; Directorate of Rice Research, Hyderabad. The process was initiated for screening of applications for Plant Genome Savior Community Awards and recognition certificates to individual farmers for the year 2010-11. Proposals for Plant Genome Savior Community Awards, 2011-12 have been invited through wide publicity.

The Indian Council of Agricultural Research has allotted land to the Authority in Pusa campus for construction of its corporate office and residential complex. Shri Sharad Pawar, Union Minister of Agriculture and Food Processing Industries, laid the foundation stone of the PPV & FR Authority Campus on 8 July, 2011.

The Authority regularly provided consultation to the government on various technical matters, including international issues relating to ITPGRFA, CBD, UPOV, WIPO and other international agreements / conventions. The DAC constituted an Inter-Ministerial Joint Working Group (JWG) led by Chairperson of the Authority to prepare country position on various matters related to ITPGRFA and other related Treaties/Conventions. The JWG also functions as think tank for matters related to the Treaty and CBD capitalizing the collective wisdom of the stakeholders.

During the period under report, three officers of the Authority participated in training/conference/meeting in foreign countries. Foreign delegations from the Netherlands, Germany and USDA had meetings with officers of the Authority in connection with bi-lateral co-operation in the field of protection of plant varieties, DUS testing, capacity

building and other related areas. In December 2011, the Authority signed an agreement with the Netherlands Inspection Services (Naktuinbouw) and Plantum of the Netherlands for bi-lateral co-operation. Delegations from International Seed Federation and OECD also had interactive sessions with the officers of the Authority.

The Authority celebrated its Seventh Foundation Day

on 11 November, 2011 followed by a national review meeting of DUS centres and projects.

The Authority received ₹ 15.00 crore as grants-in-aid from DAC during the year 2011-12 and utilized the funds as on 31 March, 2012. The Annual Report and the Annual Accounts of Authority, duly audited by CAG, were forwarded to the DAC for placing before both the houses of Parliament.





1. Background

ENFORCEMENT of legal protection for innovation in plant breeding by the plant breeders and farmers/farming communities in development of suitable varieties of food, fodder, fibre, fuel and other plants provide incentive for research, promote trade and regulate use of plant genetic resources. The issue of plant variety protection through enforcement of plant breeders' rights was brought into major focus by the General Agreement on Tariffs and Trade (GATT) that culminated into the establishment of the World Trade Organization (WTO) in 1995. India, having ratified the Agreement on the Trade Related Aspects of Intellectual Property Rights (TRIPS) of the WTO, had obligations to comply with its provision for giving effect to Article 27(3) (b) relating to protection of plant varieties.

The Government of India enacted the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act in 2001 (53 of 2001) to provide for the establishment of an effective *sui generis* system for protection of plant varieties, the rights of farmers and plant breeders and to encourage the development of new plant varieties of different plants. The PPV&FR Rules were notified on 12 September, 2003. Subsequently, for the purposes of the Act, the Government of India having exercised the powers conferred under the section 3 (1) of this Act, established the Protection of Plant Varieties and Farmers' Rights Authority on 11 November, 2005 vide Gazette notification S.O. 1588(E).

1.1 Objectives of the PPV&FR Act, 2001

The objectives of the Act are as under:

- to establish 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
- to recognize and protect the rights of the farmers in respect of their contribution made at any time in conserving, improving and making available plant genetic resources for the development of new plant varieties
- to protect plant breeders' rights to stimulate investment for research and development both in the public and private sector for development of new plant varieties
- to facilitate the growth of seed industry in the country that will ensure the availability of high quality seeds and planting material to the farmers.

The Act is based on a *sui generis* system that is unique in sense that it concurrently recognizes the rights of breeders, farmers, farming communities and researchers. It confers exclusive rights upon the breeder or his successor, his agent or licensee, to produce, sell, market, distribute, import or export of the registered variety. As far as farmers' rights are concerned, the Act recognizes a farmer as cultivator, conserver and breeder and provides that the farmers' variety can also be registered. Further, the Act provides for compulsory license of a registered variety, if the seeds/propagating material is not available to the public at a reasonable price or quantity. Any person or group of persons or any organization can also claim for benefit sharing, if the plant genetic material belonging to them is used in the development of a registered variety. The researchers are conferred the right to use any registered variety for conducting experiment or research and the use of a variety by any person as an initial source of variety for the purpose of developing the other varieties. India is a pioneer country where a national legislation has been enacted to establish and secure Farmers' Rights. The Act also recognizes the past, present and future contributions of the farming communities and provides an opportunity to farming communities/farmers to win award for their contributions in agro-biodiversity conservation.

1.2 PPV&FR Authority

The Authority is a body corporate, having perpetual succession and a common seal with the power to acquire, hold and dispose of movable and immovable properties and to contract, and shall by the said name sue and be sued. The head office of the Authority is at New Delhi functioning from a leased space in the premise of ICAR in the Societies Block, National Agricultural Science Centre Complex, Dev Prakash Shastri Marg, Pusa Campus, New Delhi. The Authority consists of a Chairperson and fifteen members (*Annexure I*).

1.3 Plant Variety Registration

The Authority has finalized the distinctiveness, uniformity and stability (DUS) test guidelines and registration process for 57 crop species covering cereals, pulses, millets, oilseeds, spices, vegetables, flowers and fibre crops. The Authority registered, 347 varieties (under

new, extant notified and farmers' variety category) till 31 March, 2012. To attract more applications, the Authority regularly organizes /supports awareness and capacity building programme (s) for the benefit of stakeholders.

The Authority has established network of DUS test centres across the country under the Central Sector Scheme for the implementation of PPV&FR Act to verify the claims of candidate varieties by applicants, maintenance breeding, multiplication of reference/ example varieties/ the varieties notified under section 5 of the Seeds Act, 1966 and generation of database for varietal characteristics as per crop specific DUS guidelines. In addition, DUS tests for the candidate varieties are being conducted at crop specific centres. These centres submit the data recorded as per the DUS test guidelines to the Authority for further analysis. The Authority, in consultation with the ICAR institutes and SAUs, has identified potential crop species of economic importance and supported projects for the development of the DUS guidelines.

1.4 Plant Breeders' Rights and Farmers' Rights

Breeders' Right is one of the pivotal provisions of this Act with far reaching implications in the context of Indian agriculture and global scenario. The breeder also enjoys provisional protection of his/her variety against any abusive act committed by any third party during the period in between filing of application for registration and the final decision taken by the Authority. In addition, researcher's exemption is also granted. However, for repeated use of a registered variety as an initial source for development of a new variety, the authorization of the breeder of the registered variety is necessary. The plant variety protection, as enshrined in the Act, follows a broad principle of internationally recognized system of DUS and novelty for a new variety. Any person can apply for registration in any of the following category of varieties:

- New variety of such genera and species as specified under section 29(2) of the Act
- Extant variety
 - (a) Notified under section 5 of Seeds Act, 1966
 - (b) Variety of common knowledge (VCK)
 - (c) Farmers' variety which are traditionally cultivated and evolved by the farmers in their fields or wild relative or landrace of a variety about which the farmers' possess common knowledge
- Essentially derived variety (EDV)

The total duration of protection is 15 years for crops and 18 years in case of trees and vines from the date of

registration of the new variety or variety of common knowledge and farmers' varieties. In case of extant notified varieties, it is 15 years from the date of notification of that variety by the Central Government under section 5 of the Seeds Act, 1966 (54 of 1966). As regards the rights of farmers as enshrined under the Act the same are as under:

- Right on seed: To save their own seed from their crop and use it for sowing, re-sowing, exchanging, sharing with and selling to other farmers provided that farmer will not be entitled to sell branded seed of a protected variety
- Right to register their varieties: Traditional varieties developed or conserved by farmers and new varieties developed by them are eligible for registration
- Right for reward and recognition: Farmers engaged in the conservation of genetic resource of landraces and wild relatives of economic plants and their improvement through selection and preservation of plant genetic resources
- Right for Benefit Sharing: In case of important role of Farmers' varieties for breeding new plant varieties
- Protection of innocent infringement
- Exemption from fees

1.5 Rewards to Farmers / Farming Communities

Section 45(2) of the Act read with Rules 70 (2) (a) of PPV&FR Rules, 2003 provides for support and reward, from National Gene Fund, to farmers, communities of farmers, particularly the tribal and rural communities engaged in conservation, improvement and preservation of genetic resources of economic plants and their wild relatives, especially in areas identified as agro-biodiversity hot spots. To operationalize these provisions, *Plant Genome Savior Community Award* has been instituted in 2009-10. Annually, a maximum of five such awards may be conferred. The award consists of ₹10.00 lakh in cash, a citation and a memento. A committee of experts and scientists headed by an eminent scientist selects the awardees.

1.6 Committees of the Authority

The PPV&FR Authority has constituted the Standing Committee on Farmers' Rights; Project Appraisal Committee (PAC); and Programme, Planning and Policy Committee (PPPC) to assist the Authority on various thematic, technical and policy matters. The Extant Variety Recommendation Committee (EVRC) has a mandate to examine the applications for plant variety registration filed under the extant variety category (notified under the section

5 of the Seeds Act, 1966) and to advise the Authority on the related issues. An Expert Committee on registration of essentially derived variety (EDV) has also been constituted for advising PPV&FR Authority.

The Authority has established National Gene Bank and Field Gene Bank(s) across the country. It regularly publishes the *Plant Variety Journal of India* and maintains the National Register of Plant Varieties. Consequent upon transfer of land for construction of PPV&FR Authority Campus in Pusa Campus, New Delhi by the Government of India, the foundation stone was laid by Shri Sharad Pawar, Union Minister of Agriculture and Food Processing Industries on 8 July, 2011 in the gracious presence of Dr. S. Ayyappan, Secretary, Department of Agricultural Research and Education and

Director General, ICAR; Dr. C. D. Mayee, the then Chairman, Agricultural Scientists Recruitment Board; Dr. P. L. Gautam, Chairperson, PPV&FR Authority; Dr. S.K. Datta, Deputy Director General (Crop Sciences), ICAR and officers and staff of the Authority/DAC/ ICAR. M/s Uttar Pradesh Rajkiya Nirman Nigam (UPRNN) Ltd. has been appointed as Project Management Consultant for construction of the Plant Authority Bhawan and the architect-cum-design consultant has also been selected. The layout and site plans have been submitted to the civic agencies including MCD for approval of the construction of Authority campus. The building committee in the Authority has decided the tender for prequalification criteria to appoint contractors for construction of Plant Authority Bhawan.



2. Progress of Plant Varieties Registry

2.1 Notification of Crop Species

In exercise of its powers, the Central Government has notified 12 species eligible for registration of varieties during 2011-12 (Table 1).

Table 1. Crop species notified during 2011-12

Sl. No.	English Name	Hindi/Local Name	Botanical Name
1.	Wheat	Gehun	<i>Triticum durum</i> Desf
2.	Wheat	Gehun	<i>Triticum dicoccum</i> L.
3.	Wheat	Gehun	<i>Other Triticum species</i>
4.	Coconut	Nariyal	<i>Cocos nucifera</i> L.
5.	Periwinkle	Sadabahar	<i>Catharanthus roseus</i> L., G. Don.
6.	Indian pennywort	Brahmi	<i>Bacopa monnieri</i> L. Pennell
7.	Damask Rose	Gulab	<i>Rosa damascene</i> , Mill
8.	Blond Psyllium	Isabgol	<i>Plantago ovata</i> Forsk
9.	Menthol Mint	Pudina	<i>Mentha arvensis</i> L.
10.	Bamboo Leaf	Cymbidium	<i>Cymbidium</i> Sw. orchid
11.	Spray orchid	Jeevanti	<i>Dendrobium</i> Sw.
12.	Vanda or Blue orchid	Rasna	<i>Vanda Jones es R. Br.</i>

These crop species represent processing quality cereals, medicinal and aromatic plants, plantation crops and flowers. It is expected that the registration of medicinal and aromatic plants will provide an opportunity for diversification of agriculture, and may boost the international trade in these crops besides legal protection. Similarly, durum and dicoccum wheat having export potential are now brought under the ambit of legal protection of plant varieties. The foreign breeders will be encouraged to file application for registration of their varieties of flowers and other crop species which may increase the availability of new varieties and technologies for the benefit of Indian farmers and plant breeders.

2.2 Applications received

The Authority received a total of 1247 applications, representing 29 crops for seeking plant variety protection under the Act (Fig 1 and 2). The applications belonged to

new (149), extant (177) and farmers' varieties category (921).

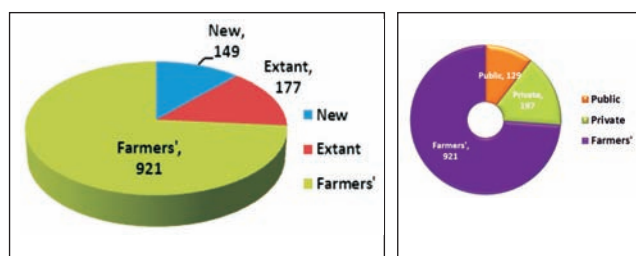


Fig. 1. Category wise applications received

Fig. 2. Sector wise applications received

The applications received during the year seeking registration of plant varieties belonged to 12 different plant families (Table 2).

Table 2. List of crops of plant families received for registration

Sl. No.	Plant Family	Crops
1.	Poaceae	Bread wheat, rice, pearl millet, maize, sorghum and sugarcane
2.	Fabaceae	Pigeon pea, kidney bean, soybean and groundnut
3.	Malvaceae	Cotton and okra
4.	Tiliaceae	Jute
5.	Solanaceae	Brinjal, tomato and potato
6.	Brassicaceae	Indian mustard, rapeseed, cauliflower and cabbage
7.	Zingiberaceae	Turmeric, ginger and small cardamom
8.	Asteraceae	Sunflower, chrysanthemum
9.	Euphorbiaceae	Castor
10.	Pedaliaceae	Sesame
11.	Piperaceae	Black pepper
12.	Amarylidaceae	Onion

The applications were received for cereals, coarse cereals, pulses, commercial crops, oilseeds, vegetables and spices. Highest number of applications were received for cereals (1028) followed by commercial crops (97), vegetables (81) and others crops (41) (Table 3).

Table 3. Crop wise details of applications received for registration

Crop	Public Sector	Private Sector	Farmers' Variety	Total
Black gram	1	0	0	1
Brinjal	2	39	0	41
Cabbage	1	0	0	1
Cauliflower	2	0	0	2
Chrysanthemum	4	0	0	4
Diploid Cotton	2	8	0	10
Groundnut	7	0	0	7
Indian Mustard	0	4	1	5
Jute	1	0	0	1
Kidney bean	0	1	0	1
Linseed	5	0	0	5
Maize	0	31	1	32
Mango	0	0	3	3
Okra	0	6	0	6
Onion	0	1	0	1
Pearl Millet	0	8	0	8
Pigeon pea	2	0	0	2
Potato	16	0	0	16
Rice	27	15	915	957
Safflower	1	0	0	1
Sesame	1	0	0	1
Sorghum	9	0	0	9
Soybean	3	0	0	3
Sugarcane	14	0	0	14
Sunflower	4	2	0	6
Tetraploid cotton	2	70	0	72
Tomato	2	12	0	14
Turmeric	2	0	0	2
Wheat	21	0	1	22
Total	129	197	921	1247

Rice (957) topped the list with highest number of applications followed by cotton (82), brinjal (41), maize (32), wheat (22), potato (16), sugarcane (14), tomato (14) and other crops (69).

2.3 Registration of New Varieties

In the 1247 applications received, 129 applications were from public sector, 197 from private sector. The applications filed under new variety and VCK categories were examined by the Plant Varieties Registry and clarification (s) were sought wherever necessary. It was observed that most of the clarification(s) pertained to the proof of sale of the varieties, proof of legal acquirement of parent material, details in technical questionnaire (grouping/distinct/other characters), parentage, breeding techniques, comparison with reference varieties etc. The Authority has been utilizing various fora to address these issues to make

the breeders aware of the necessary details to further streamline and expedite the registration process.

So far, 33 applications for registration have been withdrawn by the breeders due to withdrawal of their products from market. One hundred two applications of the public sector were also dropped for protection due to completion of 15 years of protection period from the date of their notification under the Seeds Act, 1966. Applicants of the candidate varieties including new and extant varieties fulfilling all requirements were directed to submit the prescribed fees for registration and DUS tests, specified quantity of seed material along with seed analysis report as per crop specific DUS test guidelines of the Authority. Thereafter, seed samples were sent to the respective centres to take up DUS test for two similar crop seasons at two locations.

2.4 Registration of Extant Varieties

The extant varieties include varieties notified under section 5 of the Seeds Act, 1966 (54 of 1966), or farmers' varieties, or a variety about which there is common knowledge. The Act defines that a farmer means any person who (i) cultivates crops 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 (iv) adds value to such wild species or traditional varieties through selection and identification of their useful properties.

Farmers' variety as per the Act means (i) variety which has been traditionally cultivated and evolved by the farmers in their fields, (ii) or is a wild relative or landrace of a variety about which the farmers possess the common knowledge. PPV&FR Authority has also defined the Variety of Common Knowledge (VCK) as published in the *Plant Variety Journal of India*, 3 September, 2009. It mentioned (i) a variety which is not released and notified under the Seeds Act, 1966 but is well documented through publications and is capable of satisfying the definition of variety, or (ii) the candidate variety should either have an entry in the official register of varieties or in the course of being made, or (iii) the candidate variety should find inclusion in a reference collection or is having a precise description in a publication, or (iv) by any other means a variety has become a matter of common knowledge and the variety is under cultivation or marketing at the time of filing the application for registration.

During the period, 177 applications were received for registration under extant varieties. In accordance with the Regulation 6 of the PPV& FR Regulations, 2006 framed

under the Act, the Authority has constituted an Extant Variety Recommendation Committee (EVRC) to examine the applications of varieties released under the Seeds Act, 1966 and to make recommendation to the Registrar on the suitability of these varieties for registration and other technical matters.

2.4.1 Extant Variety Recommendation Committee (EVRC)

After the completion of three years term of the first Extant Variety Recommendation Committee in 2010, the Authority has reconstituted it with following members:

Chairman

Prof. D.P. Ray, Vice-Chancellor, OUA&T, Bhubaneswar, Odisha

Members

Director, NBPGR, New Delhi

Dr. S. Acharya, Research Scientist, Main Pulses Research Station, SDAU, Sardarkrushinagar, Gujarat

Dr. A.K Singh, Rice Breeder, Genetics Division, IARI, New Delhi

Dr. S.K Tripathi, Vice-President, Nuziveedu Seeds Ltd., Barakhamba Road, Delhi

Mr. G. Murlidharan, Tamil Nadu Kissan Sangh, Arayapuram, Malliyam post, Mailaduthurai Taluk, Nagapattinam District, Tamil Nadu

Member Secretary

Dr. Manoj Srivastava, Registrar, PPV & FRA, New Delhi

The EVRC conducted two meetings during 2011-12 and recommended 133 applications for the purpose of registration under extant variety category notified under the Seeds Act. Out of which, 93 belongs to ICAR, 31 to State Agricultural Universities (SAUs) and 9 to the private sector. The crop wise position of varieties recommended is given below (Table 4).

Passport data of the recommended varieties were

Table 4. Crop wise applications

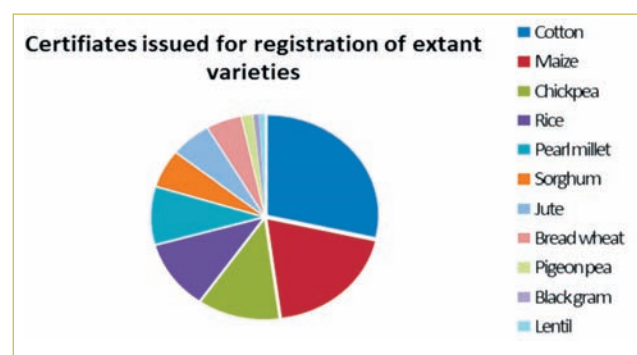
Sl. No.	Crop	Numbers	Sl. No.	Crop	Numbers
1.	Rice	63	8.	Castor	3
2.	Cotton	26	9.	Seasme	3
3.	Bread wheat	11	10.	Rapeseed	2
4.	Chickpea	9	11.	Green gram	1
5.	Pearl millet	5	12.	Jute	1
6.	Maize	4	13.	Small cardamom	1
7.	Sorghum	3		Total	133

published in the *Plant Variety Journal of India* (PVJ) for information of stakeholders and also for inviting objections, if any, within 90 days of publication. Thereafter, applicants were directed to submit specified quantity of seed material for medium term storage in the National Gene Bank during the period of protection.

The registration of extant varieties notified under the Seeds Act, 1966, is an important provision for protecting crop varieties mainly bred under National Agricultural Research System (NARS) at ICAR / SAUs/ other research organizations / industry and tested through multi-location trials under All India Co-ordinated Research Project (AICRP). These varieties have already been released by the Central Seed Committee functioning under the Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India. It is recognition of the untiring devotion of the plant breeders mainly in the public sector and by extending this provision, plant breeders/ institutes can legally protect their varieties, can license and earn royalties/revenues which in turn can be ploughed back in future R&D activities.

2.4.2 Progress of Registration of Extant Varieties

During 2011-12, certificates of registration were issued for 119 varieties of different crops (*Annexure-IX*). The highest number of certificates were issued in cotton (34), followed by maize (23), chickpea (14), rice (13), pearl millet (11), sorghum (7), jute (7), bread wheat (6) pigeon pea (2), black gram (1) and lentil (1). Out of 119 certificates issued, 99 belonged to extant notified varieties and the remaining 20 to new category.



2.5 Varieties of Common Knowledge (VCK)

The criteria for registration of varieties of common knowledge (VCK) was published in the *Plant Variety Journal of India* and subsequently notified vide G.S.R. 452(E) on 30 June, 2009. Applications for varieties, hybrids and parental lines are being accepted under this category

and after examination of applications, the candidate varieties undergo one year DUS testing at two locations.

2.6 Farmers' Varieties

PPV&FR Authority received 921 applications of farmers' varieties for registration in which rice (915) topped the list followed by mango (3), mustard (1), maize (1) and wheat (1). The details of grow-out test of farmers' varieties are given in Table-5.

2.7 DUS Tests

In total, 335 varieties were tested at identified centres for DUS parameters during *Kharif* and *Rabi* seasons of 2011-12 (Table 5). Upto March 2012, 37 varieties of cotton, 23 of maize, 15 rice, 10 of sorghum, 5 of pearl millet, two each of pulses and jute and one of wheat have completed two years of DUS testing under new category. Eight varieties of rice and two varieties of pulses under farmers' variety category have also completed grow out tests (GOT) earlier. These results are being analyzed.

2.8 Expert Committee on Essentially Derived Variety (EDV)

The Authority has constituted an Expert Committee on registration of Essentially Derived Variety (EDV) as under:

Chairman

Dr. B. S. Dhillon, Vice-Chancellor, PAU, Ludhiana

Members

Dr. K.V. Prabhu, Head, Division of Genetics, IARI, Pusa, New Delhi

Dr. P. Anand Kumar, Director, NRC on Plant Biotechnology, IARI, New Delhi

Dr. (Mrs.) G. J. Randhawa, Principal Scientist, NBPGR, New Delhi

Dr. Nirajan Murthy, Professor of Plant Breeding, UAS, Bangalore

Member Secretary

Dr. Manoj Srivastava, Registrar, PPV & FRA, New Delhi

The Committee has been constituted for a tenure of three years and the terms of reference are as follows:

- To provide guidance for the manner and method of testing EDV under section 23 of the PPV&FR Act, 2001
- To provide necessary guidance for conducting such tests and following such procedure as may be prescribed
- To advise the PPV&FR Authority on issues relating to registration



The Expert Committee had two meetings during the reporting period. Out of ten applications, which were initially screened by the Registry, the Expert Committee recommended one application of VICH 5 BG II of tetraploid cotton for registration as an EDV and others were deferred for want of clarification(s). The Expert Committee also

Table 5. Number of candidate varieties of different crops under DUS testing during 2011-12

Crop Species	Kharif 2011			Rabi 2011-12		Total
	New varieties	Extant (VCK) varieties	Farmers' varieties	New Varieties	Farmers' varieties	
Rice	26	17	66	-	128	237
Bread wheat	-	-	-	9	-	9
Maize	13	-	-	-	-	13
Sorghum	5	7	-	7	-	19
Pearl millet	5	7	-	-	-	12
Cotton	9	-	-	-	-	9
Sunflower	-	-	-	34	-	34
Mustard	-	-	-	1	1	2
Total	58	31	66	51	129	335

recommended general guidelines for registration of EDVs as under:

- Confirmation of the Event and gene protein expression data
- No Objection Certificate (NOC) for using the event from the concerned Technology Provider
- The comparative data on bio-efficacy, agronomic and pest infestation, both under protected and unprotected environments, if the transgenic imparts resistance to disease/pest resistance with the respective initial variety (IV) as a comparator, generated preferably by the public sector
- An affidavit from the applicant that the data submitted by the applicant are correct and reliable
- GEAC permission for commercial release of the hybrid/variety
- Comparative statement of EDV and IV as per DUS test specific guidelines

2.9 Task Force for Special Tests

Rule 29 (1) (b) provides that in case the DUS test fails to establish the distinctiveness of a variety, the Authority may undertake special test to ascertain a particular character through biochemical test on the request of the applicant. Authority has constituted a Task Force on matters relating to identification of such institutions to be designated as referral labs to conduct special tests as under:

Chairman

Dr. S.L. Mehta, former Vice-Chancellor, MPUA & T, Udaipur (Rajasthan)

Members

Dr. V. Prakash, Director, CFTRI, Mysore

Dr. Imran Siddiqui, Scientist, CCMB, Habsiguda, Uppal Road, Hyderabad

Dr. (Mrs.) Manjeet Aggarwal, Sr. Asstt. Director, Shriram Institute of Industrial Research, Delhi

Dr. S. Sreenivasan, Director, CIRCOT, Adenwala Road, Matunga, Mumbai

Dr. J.S. Bentur, Principal Scientist (Entomology), DRR, Hyderabad

Member Secretary

Dr. Tejbir Singh, Registrar, PPV & FRA, New Delhi

The Authority invited proposals from different ICAR/CSIR institutions to submit their proposals on special tests. During the reporting year, the Task Force had two meetings to examine the proposals. Task force recommended that crop specific centres (DWR, CICR, CRRI, CPRI, IISR & DMR) will identify specific chemical/biochemical tests to be

considered as Special Tests. In addition, these institutes shall develop a crop specific database over generation(s) and location for biochemical parameters of reference varieties being maintained by them and submit the report within six months to PPV&FR Authority.

2.10 DUS Test Centres/Projects

The Authority supported 52 DUS test Centres (*Annexure-V*) for different crop species with a mandate of maintenance and multiplication of reference/ example varieties and characterization as per DUS descriptors, DUS testing and database maintenance. Brief progress of some of the DUS test centres is given below:

2.10.1 Directorate of Rice Research (DRR), Hyderabad

Directorate of Rice Research (DRR), Hyderabad has played a pioneering role in development of the DUS Test Guidelines and descriptors to be observed for establishment of the distinctness in harmonization with UPOV guidelines. DUS testing of the new/candidate varieties was started at DRR, Hyderabad as nodal centre and CRRI, Cuttack as co-nodal center during *Kharif* 2008. So far, eight candidate varieties have completed two year of testing at two locations and second set of 15 candidate varieties were in the 2nd year of testing during 2011. During *Kharif* 2011, 26 candidate varieties for DUS testing at DRR, 22 at CRRI, Cuttack and 4 at AAU, Jorhat were evaluated against 53 reference varieties. Monitoring of DUS plots was carried out by a committee under the Chairmanship of Dr. E. A. Siddiq on 23-24 October, 2011 which found it in order. During *Rabi* 2011-12, grow out testing of 128 farmers' varieties was undertaken.

2.10.2 Central Rice Research Institute (CRRI), Cuttack

A set of 15 candidate varieties was tested for the second year of DUS testing. Another set of 22 candidate varieties supplied by the DRR, Hyderabad along with 50 reference varieties undergone the first year of DUS testing. Observations were recorded on all the DUS testing characters as per the guidelines. The coordinating agency supplied a set of seven VCK varieties along with 20 reference varieties. Another set of 35 farmers' varieties was received through the DRR, Hyderabad. These were characterized for all the DUS characters as per the guidelines. In addition, a set of 851 farmers' varieties as submitted by the Director, Agriculture & Food Production, Govt. of Odisha, Bhubaneswar were characterized as per the DUS descriptors. These were the farmers' varieties collected from different farmers of the state. The seeds of these varieties were also distributed to 19 NGOs located

at different districts in the state for growing in bigger plots for morphological characterization and maintenance of the varietal identity. The data on essential characters were recorded, compiled and submitted to the State Seed Testing Laboratory (SSTL), Bhubaneswar for evaluation and submission of the applications on behalf of the farmers as farmers' varieties for registration with the PPV&FR Authority. Monitoring of these activities of farmers' varieties was conducted by a committee constituting Dr. B. N. Singh, former Director of Research, BAU, Ranchi; Dr. S. R. Dhua, Principal Scientist, CRRRI, Cuttack; Deputy Registrar, PPV & FRA, Ranchi and a representative of the Authority from HQ during 6-9 October, 2011.

2.10.3 Tamil Nadu Agricultural University (TNAU), Coimbatore

TNAU is one of the DUS test centres for rice, black gram and sunflower. It undertook maintenance breeding of reference/ example varieties of these crops. In rice, 84 varieties were under maintenance breeding. Ten candidate varieties of VCK category were under the first year of DUS testing with 10 reference varieties. Four farmers' varieties were also under grow out test along with reference varieties. Monitoring team for DUS testing of rice trials visited the centre on 7 December, 2011 and found that the trials are being conducted satisfactorily. The centre evaluated and maintained 56 entries of sunflower including 24 hybrids, 22 A, B lines and 10 R lines. The DUS monitoring for sunflower was conducted on 6 March, 2012. In sunflower, 14 hybrids, 15 A, B inbred lines and five R lines along with 10 reference varieties in hybrids, seven reference varieties in A, B inbred and five reference entries in R lines were grown. The centre has published a pamphlet on "Plant Variety Protection and Farmers' Rights" in Tamil. Dr. R. C. Agrawal, Registrar-General; Shri Satish Chandra, Joint Secretary, Department of Legal Affairs and Shri D. S. Mishra, Joint Registrar visited the centre on 28 January, 2012.

2.10.4 Directorate of Wheat Research (DWR), Karnal

DWR is a nodal centre for DUS testing in wheat along with IARI, Regional Station, Indore and PAU, Ludhiana as co-nodal centres. The centre maintained reference varieties of *Triticum aestivum*: (218), *T. durum* (45), *T. dicoccum* (5), and *Triticale* (3). There were eight applications of new varieties under DUS testing for first year at these centres. The monitoring of DUS testing of wheat varieties was conducted on 28 February, 2012 at Indore; on 20 March, 2012 at Ludhiana; and on 21 March, 2012 at Karnal. The monitoring team was satisfied with the DUS traits observed

and expression of claimed characteristics. Director General, ICAR along with DDG (CS) and ADG (FFC), ICAR also visited the place and observed the DUS tests. A team from CIMMYT also visited DUS test field and discussed the Indian legislation.



2.10.5 IARI, Regional Station, Indore

The centre has maintained 130 reference varieties including 80 varieties of bread wheat and 50 of durum wheat. The reference varieties were characterized for required morphological and quantitative characters. Six candidate varieties along with five reference varieties were under DUS testing for the first year in three trials. All candidate and reference varieties were characterized for DUS characteristics in the trials.



2.10.6 Punjab Agricultural University (PAU), Ludhiana

The centre has 30 reference varieties in the maintenance breeding, which include 16 varieties of bread wheat, four of durum and three each of triticale and barley. During Rabi 2011-12, eleven varieties including three candidate varieties of wheat viz., Pusa Bahar, Pusa Basant, and HD 2967 along with their reference varieties were tested. The monitoring of DUS testing was conducted satisfactorily on 20 March, 2012.

2.10.7 Directorate of Maize Research (DMR), New Delhi

A set of 58 lines was evaluated for DUS characterization and seed of the desirable lines would be multiplied for augmenting the reference stocks. A total of 72 candidate varieties were tested at this centre since 2008. Thirteen candidate varieties including six new and seven VCKs were under DUS testing. Five new candidate hybrids viz. HQPM- 7, HM-10, Vivek QPM- 9, Vivek Maize Hybrid- 33 and PAU-352 have completed two years of DUS testing at Delhi and Hyderabad under new category. One new hybrid HM- 11 was in the 1st year of DUS testing under new category in *Kharif*, 2011. Two new composites, Vivek Sankul Makka -35 and Bajaura Makka -1 have undergone 1st year of DUS testing. One candidate variety composite, Vivek Sankul Makka -11, was tested under VCK category at two locations. Out of 58 hybrids filed under new and extant category for registration, 34 have been granted certificates. Similarly, out of 35 extant composite varieties, 24 have been registered. Besides normal maize, four speciality corn viz. two baby corn (VL Baby Corn-1 and COBC 1) and two sweet corn (Win Orange sweet corn and Priya sweet corn) have been registered.



2.10.8 Acharya N.G. Ranga Agricultural University (ANGRAU), Hyderabad

Under the Central Sector Scheme for implementation of PVP legislation, Seed Research & Technology Centre, ANGRAU, Hyderabad was identified as the Nodal Centre for DUS testing and centre for maize and green gram. Thirty five entries (21 hybrids along with six reference hybrids and three candidate inbreds along with five reference inbreds) were evaluated under DUS testing of maize during *Kharif*, 2011. The candidate varieties were tested for 31 morphological characters in the field as well as laboratory as per the DUS guidelines specified by PPV&FR Authority. The monitoring team visited the DUS testing trials on 25 September, 2011.



2.10.9 Directorate of Sorghum Research (DSR), Hyderabad

The centre developed the DUS guidelines for sorghum and also maintained a collection of 114 reference varieties which have been sourced from ICAR and SAUs. During the year 2011-12, thirty one reference varieties were under maintenance breeding in *Kharif* Season. Twelve reference varieties were in the first year of maintenance breeding in *Rabi* 2011-12.

During the period, eight new candidate varieties (KJH 6363, Phule Chitra, KSMS 233, CSH 24MF, DSV 6, CSV 24 SS, CSH 23, KSR 6203) and two VCKs (BGS 801, PVK 809) of sorghum were tested for the second year at the DSR along with 25 reference varieties. Another set of 15 candidate varieties of new category (HTGS 3201, DGJ 021, DGJ 018, DGJ 017, DGJ 015, DGJ 020, HJ 513) and



eight VCK varieties (JKSH 434, JKSH 234, MRS 4094, MIJ 005, NJH 40 (RATNA), DGJ 019, KSMS 263, KSR 6194) were in the first year of DUS testing along with six reference varieties.

Simultaneously, seven candidate varieties (RS 585, 104A, 104B, KSMS 234, KSMS 237, KSR 6192, KSR 6195) of new and VCK category were evaluated for the first year at DSR during *Rabi* 2011-12 along with 12

reference varieties. The monitoring teams of DUS testing visited the fields at DSR during *Kharif* and *Rabi* and expressed satisfaction over field trials. The centre has also published a book entitled *DUS characterization of Indian Sorghum parental lines, hybrids and varieties* authored by Vilas A Tonapi, Dr J.V. Patil & others and a Training manual on Plant Variety Protection and Commercialization.

2.10.10 Mahatma Phule Krishi Vidyapeeth (MPKV), Ahmednagar

The DUS Test centre operating under Seed Technology Research Unit, MPKV, Rahuri has been conferred with the recognition of “Best DUS Test Centre-amongst State Agricultural Universities” on the seventh Foundation day of the Authority, New Delhi on 11 November, 2011. The centre has made outstanding contribution in achieving the mandates of the PPV & FR Act, 2001. It has conducted DUS test for 25 varieties of sorghum including 10 varieties in the second year of testing as new category. Seven new varieties are in the first year of testing and eight varieties of VCK are also in the first year of testing in *Kharif*, 2011. with reference varieties. In *Rabi* 2011-12, three VCK varieties were evaluated. Eleven new varieties are in first year of testing and four varieties of pearl millet and five new varieties are in the second year of DUS testing. Two new varieties and five VCKs are in the first year of DUS testing.

2.10.11 AICPMIP, Regional Station, Mandor, Jodhpur

The centre is maintaining 53 genotypes including B lines (18), R lines (16) and hybrids (19). These were studied for all DUS characteristics at All India Coordinated Pearl Millet Improvement Project (AICPMIP), Jodhpur during 2011-12. Observations were recorded for all DUS characteristics. Five candidate varieties for the second year



and seven varieties for the first year along with eleven reference/example varieties were tested at AICPMIP, Mandor, Jodhpur and MPKV, Rahuri during *Kharif*, 2011. The monitoring team, led by Dr. Sain Dass, former Director, DMR, visited the DUS trial at AICPMIP, Mandor on 22 September, 2011 and Rahuri on 8 October, 2011 and found the DUS test trials satisfactory.

The AICPMIP was awarded for its outstanding contribution towards registration of crop varieties with the PPV&FR Authority. Project Coordinator (Pearl Millet) received the award on 11 November, 2011 in a function held at New Delhi. So far, 26 varieties have been registered with PPV&FR Authority. Four hybrids/varieties have been registered with PPV&FR Authority during the period of report and seven other hybrids/varieties are being processed for registration.

2.10.12 Central Research Institute for Jute & Allied Fibres (CRIJAF), Barrackpore, Kolkata and CSRS, Budbud

The institute is responsible for DUS testing for jute. Under maintenance breeding, the centre has maintained 18 varieties of *C. olitorius* and 15 varieties of *C. capsularis*. The centre has conducted DUS test for candidate varieties JRC 532 and JRC 517 of *C. capsularis* under new varieties category for second growing cycle during 2011-12 to observe uniformity and stability at two designated centres. Monitoring of DUS testing was done on 29 and 30 September, 2011 at CRIJAF, Barrackpore and Budbud and the monitoring team was satisfied with the DUS trials. One application for registration of new variety, JRO 2407 (Sampati) was filed on 12 March, 2012.

2.10.13 Central Institute for Cotton Research (CICR), Nagpur

During the year 2011-12, DUS tests were conducted under CICR, Nagpur. Trial I for second year of testing included six candidate applications and 15 reference varieties. Trial II included four candidate applications and one reference variety. All 32 characters except five fiber quality traits as per the DUS test guidelines were observed for all the varieties. Variation for gossypol gland density per unit area of cotyledonary leaf was also studied as an additional trait in these genotypes. The lint samples have been sent for quality testing to Ginning Training Centre (GTC), Nagpur. The monitoring of DUS trial was conducted on 4 November, 2011.

2.10.14 Central Institute of Cotton Research (CICR), Regional Station, Coimbatore

CICR, Regional Station is the nodal centre for DUS testing for cotton. There are four other co-nodal centres i.e., CCSHAU, Hisar; PAU, Ludhiana; CICR, Nagpur; and UAS, Dharwad. There are four candidate varieties including three new and one VCK applications for DUS testing with eight reference varieties in the first year of testing in *Kharif*, 2011. Ten candidate varieties of new category with eight reference varieties were in the second year of testing in *Kharif*, 2011. The monitoring of DUS trial, led by Dr. B.B. Singh, former Emeritus Scientist, IARI, was conducted on 8 December, 2011 and the monitoring team was satisfied with the expression of claimed characters in the field.



2.10.15 Punjab Agricultural University (PAU), Ludhiana

PAU, Ludhiana is a designated DUS test centre for cotton and wheat. The centre is testing candidate varieties of these crops along with the respective reference varieties



for their registration and protection. A total of 20 varieties including seven candidate and 13 reference varieties, were received for testing during *Kharif* 2011. The crop was raised

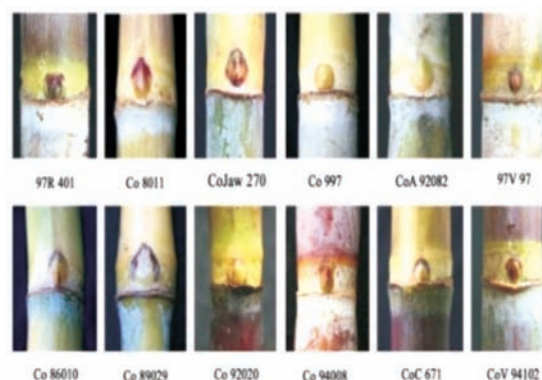
using recommended guidelines for DUS testing and agronomic package and practices. Data were recorded on all 37 traits. The monitoring team, under the Chairmanship of Dr. B.B. Singh, visited the trial on 15 September, 2011 and found the DUS trials in order as per the guidelines.

2.10.16 CCS Haryana Agricultural University (HAU), Hisar

During 2011-12, seeds of 25 varieties of tetraploid cotton were supplied to the centre and the same were sown as per test guidelines on 18 May, 2011. Among these varieties, five varieties viz., RAJA 507 (KDCHH 507 Bt), RCH 308 Bt, RCH 317 Bt, RCH 314 Bt and RCH 134 Bt were under 1st year of DUS testing and remaining ones under 2nd year of testing. The monitoring of DUS trial was conducted on 14 September, 2011 and the team was satisfied over the trials.

2.10.17 Indian Institute of Sugarcane Research (IISR), Lucknow

IISR is a nodal Centre for DUS testing for sugarcane varieties. Three new candidate varieties, Co 0118, Co 0238 and Co 0239, have been planted for DUS testing as per DUS test guidelines along with eight reference varieties, viz Co 453, Co 6811, Co 89029, CoB 94164, CoS 99259, CoS 92423, CoS 96268 and CoS 770. The selection of reference varieties for comparison was made on the basis of three grouping characteristics viz. plant growth habit, leaf blade curvature and leaf sheath adherence.



2.10.18 Sugarcane Breeding Institute (SBI), Coimbatore and its Regional Stations at Agali and Karnal

SBI is also a nodal centre for DUS testing of sugarcane for tropical regions and its Regional Stations at

Agali (Kerala) and Karnal (Haryana) act as co-nodal centres. Agali and Karnal have respectively maintained 176 and 94 reference and example varieties of tropical and subtropical varieties during the year of reporting. A total of 174 reference varieties were under maintenance during 2011 at SBI. A database on reference varieties with details of parentage, notification, year of release, area of adaptation, DUS characteristics, frequency distribution, example varieties and colored photos were published and released by the Director General, ICAR on 24 December, 2011. Flowering was recorded in 55 varieties of reference collection. Dr. R.C. Agrawal, Registrar-General, PPV&FR Authority alongwith Shri Satish Chandra, Joint Secretary (Department of Legal Affairs) and Shri D S Mishra, Joint Registrar, PPV& FRA visited the field trials on 29 January, 2012.



2.10.19 Directorate of Onion and Garlic Research (DOGR), Rajgurunagar

DOGR is responsible for DUS testing of onion and garlic. It is maintaining 49 varieties of onion (41 in *Rabi* and eight during *Kharif*) and 18 varieties of garlic. Long day onion and garlic varieties are being maintained at CITH, Srinagar (J&K). The multiplier type onion varieties are being maintained at TNAU, Coimbatore and the rest of the



Variability in onion varieties



Variability in garlic varieties

varieties are being maintained at Pune itself. Centre is moving forward for registration of newly released varieties.

2.10.20 Directorate of Rapeseed and Mustard Research (DRMR), Bharatpur

DRMR is the nodal centre responsible for maintenance breeding, characterization and DUS testing of Indian mustard and rapeseed-mustard varieties. The other centre for the purpose is CSAUA&T, Kanpur. The centre has maintained about 125 varieties of Brassica species including 81 of *Brassica juncea* (Indian mustard), 13 varieties of Toria, 12 varieties of yellow sarson, six varieties each of Gobhi sarson and Karan rai, three of Taramira and two of brown sarson during the period under reference. One farmer's variety Sitara Shringar and a new hybrid 45S45 were under DUS testing. Both the candidate varieties were grown along with 24 reference varieties on 30 January at DRMR and on 1 February at CSAUA&T, Kanpur. Monitoring of DUS testing of candidate varieties was conducted on both the stations under the leadership of Dr. J. N. Singh, former Professor and Head, Seed production, IARI New Delhi.



2.10.21 Directorate of Soybean Research, (DSR), Indore

DSR is the nodal centre for soybean DUS testing along with Vivekananda Parvatiya Krishi Anusandhan Sansthan (VPKAS), Almora and UAS, Dharwad as co-nodal centres.

The centre maintained 94 soybean varieties. Similarly, the VPKAS maintained 90 released and notified varieties of soybean from different SAUs/ Institutes by selecting single true to the type plants from last year harvest sown in single row and harvested separately.



2.10.22 Directorate of Groundnut Research (DGR), Junagar, Junagarh

DGR is mandated for DUS testing in groundnut and the centre has maintained 30 reference varieties. Fencing work has been completed in the area of DUS testing plot. The centre has released three varieties of groundnut, (RARST-1, Pratapraj Mungphali-1 and RG 425). A training-cum-awareness programme was organised on 27-28 January, 2012 at the centre in which participants were exposed to the various aspects of PPV & FR Act and DUS testing. The training could help clear doubts on the IPRs in general, and PPV&FR Act, in particular.



2.10.23 Junagadh Agricultural University (JAU), Jamnagar

Pearl millet Research Station, JAU, Jamnagar is a co-nodal centre for DUS testing in castor. Under the period of report, 35 genotypes, comprising 11 hybrids, 18 parents and six varieties, were sown on 13 August, 2011. The characterization of 18 castor hybrids, parents and varieties received from various institutes was also done.

2.10.24 Directorate of Oilseeds Research (DOR), Hyderabad

DOR is the nodal centre for DUS testing in sunflower, safflower and castor. The centre evaluated four varieties,



two hybrids and four parental lines of castor. Characterization of new cultivars for reference collection and example varieties was undertaken in castor during *Kharif* and three new cultivars, three example varieties along with two parental lines were characterized for 30 traits. Digitization of data has been completed. Two reference varieties have been characterized in safflower during *Rabi*, 2011-12.

Characterization of two new hybrids, one variety and one parental line was done in sunflower. DUS testing for sunflower started from *Rabi*, 2011-12 with 34 candidate varieties (22 new and 12 VCKs). Three separate replicated trials were laid with sowing on 5 November, 2011 for hybrid tests and on 6 November, 2011 for R-line and A-line trials. The hybrid test comprised 14 candidates and eight reference entries. The R-line test was conducted with five candidate and three reference varieties and A-line test was conducted with 15 candidate varieties including one B line and one new inbred parental line and five reference varieties. The monitoring team visited the sunflower DUS trial on 28 January, 2012. The representatives of three private sector seed companies were also present and expressed satisfaction over expression of the crop and conduct of the trial. Dr. R. C. Agrawal, Registrar-General, PPV & FRA visited the sunflower DUS trial on 7 February, 2012. The centre has filed four applications for registration of two extant varieties and two hybrids.

2.10.25 Dr. Panjabrao Deshmukh Krishi Vidyapeeth (PDKV), Akola

PDKV is one of the co-nodal centres for safflower and pigeon pea. The centre has maintained 27 varieties of safflower and 64 varieties of pigeon pea. Richa-2000 of safflower was under one year DUS testing during 2010-11. The Vice-Chancellor, PDKV, Akola and other senior officers of the University visited the centre.

2.10.26 Jawahar Lal Nehru Krishi Vishwa Vidhyalya (JNKVV), Jabalpur

JNKVV is responsible for DUS testing in sesame and niger under the administrative control of project coordinator (sesame and niger). A total of 72 varieties of sesame were under maintenance breeding.

2.10.27 Chander Shekhar Azad University of Agriculture & Technology (CSAUA&T), Kanpur

CSAUA&T is the nodal centre for wheat, linseed and mustard. Shubra, Garima, Shekhar, Sheela, Sweta, T397, Shikha, Padmini, Parvati, Sharda, Neelam and Rashmi varieties of linseed were under maintenance breeding in 2011-12. One variety of mustard (45 S 45) and a farmers' variety (Sitara Srinagar) was under DUS testing. The DUS monitoring team visited the centre and found the trial upto the mark in all respects.

2.10.28 Indian Institute of Vegetable Research (IIVR), Varanasi

Different varieties of tomato, brinjal, okra, vegetable pea, French bean, cauliflower and cabbage were collected from ICAR Institutes and SAUs for maintenance of reference varieties. These varieties were maintained as per DUS guidelines. The details of varieties and their important descriptors of morphological traits are presented in Table 6.

Table 6. Reference collections of vegetable crops used in DUS testing

S. No.	Crops	2011-2012	
		No. of varieties	No. of morphological traits
1.	Tomato (<i>Solanum lycopersicum</i> L.)	83	46
2.	Brinjal (<i>Solanum melongena</i> L.)	81	47
3.	Okra (<i>Abelmoschus esculentus</i> L. Moench)	39	31
4.	Vegetable pea (<i>Pisum sativum</i> L.)	45	21
5.	French bean (<i>Phaseolus vulgaris</i> L.)	25	22
6.	Cauliflower (<i>Brassica oleracea</i> var. <i>botrytis</i>)	12	28
7.	Cabbage (<i>Brassica oleracea</i> var. <i>capitata</i>)	6	28



Variability in the colour and shape of the brinjal

2.10.29 Indian Institute of Horticultural Research (IIHR), Bengaluru

IIHR is working as DUS centre for tomato, brinjal, okra, chrysanthemum and rose. The institute has maintained reference varieties in tomato (28), brinjal (35), okra (19) and green pea (29) sourced from various ICAR institutes and SAUs. Dr. P.K. Singh, Registrar, PPV&FRA along with Dutch delegation visited the institute on 4 April, 2011. Subsequently, Dr. P. L. Gautam, Chairperson, PPV&FRA accompanied with Dr. Manoj Srivastava, Registrar, and PPV& FRA visited the site on 24 April, 2011.

2.10.30 Indian Institute of Spices Research (IISR), Kozhikode

“Establishment of DUS Test Centre for Spices” is being implemented at the Indian Institute of Spices Research (ICAR), Kozhikode with the mandated crop species i.e., ginger, turmeric, black pepper and small cardamom. ICAR Research Complex for NEH Region, Barapani (for ginger and turmeric), and Indian Cardamom Research Institute, Myladumpara; and Cardamom Research Centre, Heravanad (for black pepper) are the other coordinating centres. These centres evaluated 28 reference varieties in ginger, 35 in turmeric, 21 in small cardamom and 15 in black pepper. In ginger, varieties were characterized for 13 DUS descriptors and rhizome characters will be evaluated after the harvest. In turmeric, data were recorded on 24 DUS descriptors.

2.10.31 Division of Floriculture & Landscaping, IARI, New Delhi

This Division is also one of the DUS testing centres for rose and chrysanthemum in addition to IIHR, Bengaluru. During the period under reference, 33 varieties of rose have been characterized as per new guidelines and digitization of data was completed. Out of 33 varieties, 20 belonged to IARI and 13 to other sources. These varieties will be used for comparison of the test varieties in future. The Division has a good collection of chrysanthemum varieties developed by NBRI and amateur breeders, besides a large number of exotic varieties. Similarly, 45 varieties of chrysanthemum from other sources (37), IARI (2) and ICAR (6) collections were characterized based on the new test guidelines as finalized by the Task Force. Nine new mutants viz. pink incurving, pink fluted, red, lemon yellow, bright yellow, yellow, marigold type and mustard yellow were compared with their parent Thai Chen Queen. These mutants differed significantly for one vegetative and seven floral

characteristics. Applications for seeking the Plant Breeders Rights for two varieties of chrysanthemum, Pusa Anmol and Pusa Centenary, have been submitted to the Authority.

2.10.32 Indian Institute of Horticultural Research, Bengaluru

IIHR is a main DUS testing centre for rose and chrysanthemum. Sixty four varieties of rose and 38 of chrysanthemum are under maintenance breeding and the centre has released four varieties of rose and 16 varieties of chrysanthemum. Four plants per variety were maintained in the field. In case when the number of plants are less, only two plants per variety were maintained in pots.



Young shoot: Anthocyanin colouration of young shoot



Polyhouse facility created for rose

Ten cut flower type varieties have been collected and were grown under protected cultivation. Varieties of rose were characterized for characters as per DUS guidelines. Varieties belonging to the entire colour group are available in collection. The institute has also established a national repository of roses for DUS Project/ where both exotic and Indian rose varieties co-exist. Rose Repository has been established in both open field as well as under protected cultivation. Characterization and digital database development have been completed as per DUS testing guidelines. Digital repository consists visuals of all characters of reference varieties as well as comparative visuals of data for each character under observation. Summary information on ‘Live Repository/Digital Repository of data’ and ‘Digital Repository of visuals’ was created during the reporting period (Table 7).

Table 7. Details of digital repository of rose

Classification	Live Repository	Digital Repository of data	Digital Repository of visuals
Indian varieties (Public sector organization)	24	21	3
Indian varieties – (Private Breeders)	30	16	8
Exotic varieties	117	27	20
Polyhouse varieties	10	2	-
Total	181	66	31

2.10.33 Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow

CIMAP is responsible for developing DUS test guidelines for Medicinal and Aromatic Plants, creating field facilities, digitization, training in medicinal and aromatic



plants and seed spices. Reference varieties of five mandated crops, menthol mint (*Mentha arvensis*), periwinkle (*Catharanthus roseus*), ashawagandha (*Withania somnifera*), damask rose (*Rosa damascene*) and brahmi (*Bacopa monnieri*) were maintained in a separate block specifically developed for DUS project. A list of reference varieties is given in the Table 8.

Table 8. List of Reference varieties of Medicinal and Aromatic Plants

S. No.	Crop species	Name of the varieties
1.	Menthol mint (<i>Mentha arvensis</i>)	‘Kosi’, ‘MAS1’, ‘Kalka’, ‘Shivalik’, ‘Gomti’, ‘Sambhav’, ‘Himalaya’, ‘Sakashm’, ‘Kushal’, ‘CIMAP Saryu’
2.	Periwinkle (<i>Catharanthus roseus</i>)	‘Dhawal’, ‘Nirmal’, ‘Prabal’
3.	Brahmi (<i>Bacopa monnieri</i>)	‘CIM-Jagriti’, ‘Subodhak’
4.	Damask rose (<i>Rosa damascene</i>)	‘Ranisahiba’, ‘Noorjahan’, ‘Aligarh’, ‘Kanouj’
5.	Ashawagandha (<i>Withania somnifera</i>)	‘Poshita’, ‘CWS81’

Field trial was laid out for *Mentha* in the DUS facility in February, 2011 with nine varieties and data were recorded on 13 characters. Harvesting of seeds of other three crops (*Catharanthus roseus*, *Withania somnifera* and *Bacopa monnieri*) has been completed for planting during next year. Transplantation of all menthol mint varieties for sucker production was undertaken to lay trial in February, 2012. Raising of nurseries for *Catharanthus roseus*, *Withania somnifera* and *Bacopa monnieri* for plantation during 2011-12 season; pruning of *Rosa damascene* varieties and plantation for multiplication; and laying out of *Mentha arvensis* trial in DUS testing facility during February, 2012 with 10 varieties were some of the major activities of the centre.

2.10.34 Central Plantation Crops Research Institute (CPCRI), Kasargod

CPCRI has developed DUS test guidelines for coconut that have been notified in the Gazette. There are 10 reference varieties under maintenance breeding and healthy seed nuts of a few selected coconut varieties; WCT, COD, Chandra Sankara, Kera Sankara, Kalpapatibha, Kalpamitra, Chandrakalpa, Kerachandra, Kalpadhenu and Kalparaksha, were sown for recording observations from the germination stage. As per DUS guidelines, the coconut seedling observations were recorded on one year old seedlings. Observations were taken from sprouting onwards in order to note the variations among the varieties before completing one year for generation of additional data for database. Observations were taken to record time taken to germinate and colour of sprout. Observations on length, girth and number of leaves were recorded at an interval of three months and six months after sowing. Initial observations indicated variation among varieties for time taken to germinate and colour of sprout. Early germination was seen in Kerachandra, Kalpapatibha, COD and Kalpadhenu and late germination was noticed in Kalpamitra. Growth rate was high in Kerachandra, Kalpapatibha and low in Kalpamitra. Kerachandra showed the highest plant height, girth and number of leaves, along with early leaf splitting.

2.10.35 Central Potato Research Institute (CPRI), Shimla

CPRI is the nodal centre for DUS testing for potato. A reference collection of 167 varieties was maintained; 138 *in vitro* at Shimla and 106 in fields at Kufri and Modipuram. These include 46 CPRI released varieties, three state varieties, five Indian number released elsewhere, 20 exotic varieties under cultivation in India, 64 indigenous varieties/numbers and 29 UPOV example varieties.

Mini-tubers of 16 cultures, which were not available in tuber form, were produced from *in vitro* plantlets and added to field maintenance at Kufri. Fifty-nine varieties/samples (other than CPRI) were characterized for floral characters at Kufri as per DUS descriptors. Computer databases regarding availability of various reference varieties at different conservation sites were updated.

2.11 National Review Meeting of DUS Centres/Projects

The Foundation Day ceremony of the Authority was followed by the Review Meeting of the DUS Test Centres and Projects, spread in nine interactive technical sessions during 11 and 12 November, 2011. The meeting was chaired by Dr. P. L. Gautam, Chairperson, PPV&FR Authority. Representatives from various DUS centres / projects presented highlight of activities and progress made so far. Deliberations were held on field, horticultural and vegetable crops; gene banks and their management; farmers' varieties; DUS centres for medicinal and aromatic plants, seed spices;



tree species, fruits etc. A separate session was held for the financial monitoring and management of DUS Centres & Projects. The recommendations presented in the concluding session provided the road map for enhancing the performance. This platform provided the participants a greater clarity in respect of management and functioning of the DUS centres / projects. The major recommendations of the review meeting are as follows:

- All varieties notified under the Seeds Act, 1966 should be registered at the earliest. The ICAR institutes; Directorate of Seed Research, Mau; NBPGR, New Delhi and SAUs were requested to make rigorous efforts for the purpose.
- Documentation and DUS characterization of all extant varieties should be made. DUS centres/related organizations and institutes may play key role in this activity.

- The scientists of SAUs and ICAR institutes may be encouraged to submit the applications of their varieties as new varieties as and when these varieties enter Advance Varietal Trial-II of the All India Coordinated Research Project of ICAR.
- Mass awareness/training programs should be organized in collaboration with DUS centres/other stakeholders. Organizers should provide proper feedback/impact of the same to the Authority.
- The national gene fund may be enriched with generous contributions from different sources to develop suitable schemes and projects.
- PV-2 and GURT affidavit in respect of varieties from ICAR/SAUs may be signed by the concerned Project Coordinator on behalf of the applicants.
- The Gene Bank of the Authority may test the stored seeds of registered varieties as per standard practices of gene bank storage depending upon crop species and also rejuvenate to maintain the viability as and when necessary.
- Selection of reference varieties should be rationalized so that numbers of varieties for the claimed characters closest to the candidate variety are minimum.
- During DUS test, it may be ensured that inbred is compared with inbred reference varieties and hybrid with hybrids only.
- Review of the DUS test guidelines of the existing crop species may be revisited by the Authority.
- Efforts should be made to develop guidelines and manuals for various activities, such as training programs, registration of new/extant/farmers' varieties/VCKs, recording of DUS data, field / seed gene banks, etc. in different languages.
- Nodal DUS test centres should ensure that the seed material of reference varieties is made available to the sub-centres for testing of candidate varieties and maintenance of reference varieties.
- IARI, Regional Station, Karnal may identify a sub-centre for DUS testing of Basmati rice varieties.
- For the registration of farmers' varieties of rice in the state of Jharkhand, Orissa and Tamil Nadu, a team will be constituted with representatives from VAANGHAI; TNAU, Coimbatore; DRR, Hyderabad; and CRRI, Cuttack for identifying farmers' varieties and to encourage the farmers of these areas to register their varieties.
- Field Gene Banks at BAU, Ranchi and BSKKV, Dapoli shall critically develop the gene bank block, DUS test block (with the root stock material), reference variety block (collecting local and commercial varieties keeping the maximum intra varietal variability), document the reference materials along with mother plants, harmonize the reference collections in consultation with specific crop institutes and characterize the reference materials in mango/ginger/black pepper/cardamom/citrus /banana etc.
- DUS centres should regularly update and enrich the IINDUS database of the Authority.
- *Citrus grandis* L. shall be included in addition to other allocated citrus species for DUS.
- Nodal officer should indicate the claimed characteristics for their candidate varieties along with digital photographs during their presentation if there is any variation, observed in their claimed characteristics.
- The DUS centres have to submit the DUS test reports to the Authority after compilation of data within one month to avoid delay in release of certificates. Centres should also submit the list of varieties for which DUS tests have been completed.
- Manual for field gene banks may be developed in collaboration with the leading organizations working in the area.
- The Utilization Certificate (UC) for DUS test fees released to the centres should be submitted before 31 December every year.
- Due steps may be taken by DUS projects/centres in submitting Utilization Certificate before 30 June every year.

2.12 National Gene Bank

Section 27 of the PPV&FR Act, 2001 provisions for the National Gene Bank and prescribes that the breeder shall be required to deposit such quantity of seeds or propagating material including parental line seeds of registered variety in the National Gene Bank. Further, as per the PPV&FR Rules, 2003 the samples of seeds and propagules shall present the maintainable standards of genetic purity; uniformity and germination; and sanitary and phyto-sanitary standards. For this purpose, a separate National Gene Bank was established at the old building of National Bureau of Plant Genetic Resources (NBPGR), Pusa, New Delhi. The facility is being managed under the technical guidance of NBPGR. True seeds of registered varieties under the medium term storage conditions and also the seed samples for varieties undergoing DUS tests /grow out tests are being conserved.

2.12.1 Medium Term Storage of Seeds of Registered Varieties

Seed samples of 322 extant varieties notified under section 5 of the Seeds Act, 1966; 22 of new varieties and three of farmers' varieties for which the registration certificates have already been issued since 2008-09 are being kept in seed cabinets designed specifically for seed storage under controlled climatic conditions at 4°C temperature with 30±5 % relative humidity to ensure that seed samples remain physiologically viable for a long duration.

The seed samples of registered varieties shall be stored upto the period of protection and viability will be checked at prescribed intervals as per crop specific standards and requirement. If necessary, rejuvenation of seed samples will be undertaken or breeder may be asked to submit fresh seed samples at their own cost in case of loss of viability of seed samples. Such seeds are hermetically sealed in a triple layer aluminium foil pouches of suitable size or other seeds packets with proper labels indicating the denomination of candidate variety, application number as allotted by the plant varieties registry, category (new/extant/VCK/farmers' etc.), year of harvest and seed quality parameters (moisture content, viability and genetic purity). The entire specified seed quantity is required to be submitted in two equal size seed packets/pouches. Specialized software is being designed for gene bank database and bar coding of seed samples.

2.12.2 Short Term Storage of Seeds of varieties undergoing DUS test

Section 19 of PPV & FR Act, 2001 stipulated that every

applicant is required to submit seeds of candidate varieties to the Registrar to conduct appropriate tests to evaluate whether varieties conform to the standards as prescribed in the regulations. Rule 29(1) (c) also specifies that distinctiveness, uniformity and stability (DUS) test should be done at field at multi-location for at least two crop seasons. Therefore, for varieties under new category, DUS tests is conducted for two years at different locations while for varieties of common knowledge (VCK) and farmers' varieties, grow out DUS tests are conducted for one year at different locations. The applicant has to submit required quantities of seeds as per crop specific standards along with registration and DUS test fee for new and VCKs. For farmers' varieties, the applicant is required to submit only the prescribed quantities of seeds.

As on 31 March, 2012 seed samples of 525 new varieties, 366 VCKs and 359 farmers' varieties are being maintained under short term storage. Representative seed samples are sent to DUS test centres and rest of the samples are kept for contingency. The seed packets are stored at 20±2°C till the process of grant of registration is over. However, once a candidate variety is eligible for grant of registration certificate, applicants are directed to supply fresh seed samples for storage under medium term condition.

2.12.3 Seed Standards

Applicants are required to submit seeds hermetically sealed in a triple layer aluminium foil pouches of prescribed size with proper labeling indicating the denomination of

Table 9. Seed samples of registered varieties conserved in the National Gene Bank under medium term storage condition

Sl. No.	Crop	2008-09		2009-10		2010-11		2011-12		Total
		Public	Private	Public	Private	Public	Private	Public	Private	
1.	Black Gram	4	0	4	0	1	0	1	0	10
2.	Chickpea	0	0	0	0	1	0	14	0	15
3.	Cotton	0	0	0	0	2	0	31	3	36
4.	Field Pea	8	0	6	0	6	0	0	0	20
5.	Green Gram	5	0	12	0	3	0	0	0	20
6.	Jute	0	0	0	0	0	0	7	0	7
7.	Kidney Bean	1	0	2	0	2	0	0	0	5
8.	Lentil	5	0	1	0	3	0	1	0	10
9.	Maize	6	0	14	2	30	1	13	10	76
10.	Pearl millet	5	1	17	6	0	0	4	7	40
11.	Pigeon Pea	0	0	0	0	0	0	2	0	2
12.	Rice	0	1	2	0	5	0	11	2	21
13.	Sorghum	3	1	8	0	1	0	3	4	20
14.	Wheat	0	0	46	5	5	0	6	0	62
	Total	37	3	112	13	59	01	93	26	344

candidate variety, application number as allotted by the plant varieties registry to different categories, year of harvest and seed quality parameters. The entire seed lot shall be equally divided in 10 (for new varieties) or five (for VCK or Farmers' varieties) or two (extant varieties notified under Seeds Act, 1966) seed packets/pouches. The prescribed standards as per the crop specific DUS guidelines are adhered for this purpose. An illustrative list of seed standards for some of the major crops are given in Table 10.

2.13 Field Gene Banks

The planting materials of some of the perennial crops like coconut, mango, citrus, eucalyptus, casuarina, black pepper, ginger, turmeric and rubber that produce recalcitrant seeds or have long regeneration cycles of sexually sterile or no seeds at all or species that are clonally propagated like sugarcane and potato are conserved *ex-situ* in Field Gene Banks.

Field Gene Banks are strategically established in places considering the abundant genetic resources diversity, or the

Table 10. Seed Standards for medium term storage and DUS testing

Sl. No.	Crop	Seed Requirement (in gms) Candidate/ Parental line Hybrid (each)		Germination %	Moisture %	Physical Purity %	Tentative Season – Months for seed submission for DUS testing	Prescribed size of seed packets (mm)
1.	Rice	3000	1500	80	11-12	98	Kharif – March-Apr	230x300
2.	Bread Wheat	3000	1500	95	8-9	98	Rabi-Aug	230x300
3.	Maize	3000	1500	80 (inbred / SCH) 90 (var/DCH)	8-10	98	Kharif- Mar-Apr Rabi- Aug	230x300
4.	Sorghum	3000	1500	80(inbred/ SCH) 90 (var/DCH)	10-12	98	Kharif-March Rabi-Aug	230x300
5.	Pearl Millet	1000	500	80(inbred/SCH) 90(var/DCH)	10-12	98	Kharif- March	165x220
6.	Green Gram	1000	n.a.	80	8-9	98	Kharif-March	230x300
7.	Kidney Bean	3000	n.a.	80	8-9	98	June-July	230x300
8.	Chickpea	2000	3000 (desi) n.a. (kabuli)	80	8-9	98	Rabi-Aug	230x300
9.	Pigeonpea	2000	1500	80	8-9	98	Kharif-Mar	230x300
10.	Lentil	1000	n.a.	80	8-9	98	Rabi-Aug	230x300
11.	Field Pea	2000	n.a.	80	8-9	98	Rabi-Aug	230x300
12.	Black Gram	1000	n.a.	80	8-9	98	Kharif-March	165x220
13.	Jute	1000	500	85	9	97	Pre-Kharif- early Jan	165x220
14.	Cotton	2000	1000	75	10	98	Kharif- North- Feb Peninsular- South-May	230x300
15.	Tomato	15 (open field) 8 (Green house)	same	85	8	98	April- May	165x100
16.	Cabbage	15	15	*	*	*	April- May	165x100
17.	Cauliflower	15	15	*	*	*	April- May	165x100
18.	Brinjal	15 (open)	15 (open)	85	8	98	April- May	165x100
19.	Rapeseed- Mustard	500	250	85	8	98	Aug-Sept	165x100
20.	Soybean	3000	n.a.	70	9	98	Apr-May	230x300
21.	Sunflower	3000	2000	70	9	98	July-Aug	230x300
22.	Safflower	3000	1500	80	9	98	Rabi-Aug	230x300

*as per breeder seed standards

places that are either primary or secondary centre of origin or domestication, the location at which species concerned are also adapted to the local agro-climatic conditions and places falling in agro-biodiversity hotspots. Most of the horticultural crops like mango, citrus, banana, coconut, tea, spices, turmeric and ginger have significant diversity in India and are also economically important and widely traded. Hence, the Authority identified following centres in different agro-ecological regions for establishing field gene banks:

- Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli, Maharashtra
- Birsa Agricultural University, Ranchi, Jharkhand and
- Dr. Y S Parmar University of Horticulture and Technology (Field Station at Mashobra), H.P.

Many of these crop species are now included either for development of DUS guidelines (e.g., citrus, tea, banana) or already notified for plant variety registration (mango, turmeric, ginger, coconut). During 2011-12, the Authority also provided funds to establish a Field Gene Bank at Central Arid Zone Research Institute (CAZRI), Jodhpur to cater the species endemic to the arid and desert regions of country comprising parts of Madhya Pradesh, Gujarat and Rajasthan.

PPV&FR Authority and the respective institutions have a long term Memorandum of Agreement (MOA) to create necessary infrastructure facilities, employ project based technical and field personnel and generate database of the earmarked crop species. Since the field gene banks have legal implications, hence the area is properly fenced to prohibit trespassing. The field gene banks facility is also used as a repository and referral collection of the released varieties for different geographical contexts having sub-

species / intra-varietal variability conserved at one place. Field gene banks will also have specimen plants of the varieties registered under the PPV&FR Act, 2001. Documentation regarding source, parentage, morphological/ reproductive attributes and value for cultivation is also done. The digitization and database management shall be instrumental in documenting the distinctiveness during DUS test of candidate varieties for resolving techno-legal issues and settlement of disputes. The varieties are being collected from different regions and the mother planting materials are being characterized using PGR descriptors or the crop specific DUS guidelines. High density planting and modern methods of horticultural management with optimum package of practices are being practiced.

2.13.1 Field Gene Bank at Dr. BSKKV, Dapoli, Maharashtra

The project entitled *Collection, maintenance, evaluation and development of descriptors of fruits and plantation crops and tree species through live repository* is being implemented at Dr. B.S. Konkan Krishi Vidyapeeth, Dapoli, Maharashtra. For this purpose, a grant of ₹12.37 lakh was released during 2011-12 for establishment and maintenance of field gene bank, collection of reference varieties, nursery of rootstocks, field lab and procurement of equipments. The site plan for reference varieties, DUS test block and gene bank block have also been laid down.

During 2011-12, varieties of mango (17), turmeric (37), ginger (29), cardamom (9), black pepper (8), citrus (4) and genotypes of banana (30) were collected and maintained. Characterization of varieties of the collected species is in progress. The details of reference collections in mandated crops are given in Table 11.

Table 11. List of varieties collected and maintained at BSKKV, Dapoli

Crop species	Varieties
Mango	Alphonso, Ratna, Sindhu, Pairi, Fernandin, Mankurad, Goamankur, Kesar, Ratna, Neelum, Niranjan, Totapuri, Himayatpasand, Peddarasam, Banganapalli, Chinnarasam
Turmeric	IISR Pratibha, IISR Prabha, Alleppey supreme, Kedarum, Krishna, Salem, Rajapuri, Phule swarupa, Tekurpettah, Suroma, Badlapur, Cooch behar, KPAU-656, Amalapuram, SB-10735, SB-10723, SB-10843, SB-10746, SB-10715, SB-10810, SB-10757, Suvarna, Kuchipudi, Arunachal local, Jalpaiguri local, Sudarshana, RH-5, Suguna, Sikandarabad local, Suranjana, dhundhigam, CO-1, Sikandarabad local, Alleppey, Kedaram, GL puram and Sugantham
Ginger	Suprabha, Varada, Rajada, Mahim, Aurangabadi, Udepur, Chandgad, Bangalore, Surabhi, Suruchi, Suprabha, V3S8, V1E8, Sunavhi, Himachal, Kohni local, Silent valley, Sabarmala, PGS-5, Kundali local, Rejatha, Jugijan, PGS-19, Irathupeya, S-666, Jamaica, China, Brudvan and Himagiri
Cardamom	MHC-1, RRI, NKE-12, CCS-1, ICRI-1, ICRI-2, ICRI-3, ICRI-5, ICRI-7
Black pepper	Panniyur-1, Panniyur-2, Panniyur-3, Panniyur-4, Panniyur-5, Panniyur-6, Panniyur-7, Sreekara
Citrus	Nagpur mandarin, Mosambi, Kagzi lime, Seedless lime
Banana	Dwarf Cavendish, Anaikomban, Grand nain, Amrit sagar, Nendran, Pacheladan, Ladan pointed, Sabri, Red banana, Peyan, Ankur, Bangrier, Saba, Pache bontha banthesa, Birbutia, Jawahar bale, Kanai Bansai, Robusta, Kunnan, Poovan, Malaikali, Nendra padathi, Ney Poovan, Karpuravalli, Udhayam, Kachkel, Kothia, Nutepong, Ashyathesa, and many collection of Musa balbitiana

The characterization of mother plants for mango was made for noted DUS descriptors. The scion sticks were procured and conserved in reference variety block on common poly-embryonic rootstock, Vellaikolamban, which is a locally adapted variety. The nursery was established for grafting of mango varieties on common polyembryonic rootstock. The Vellaikolamban rootstocks for mango were established in gene bank at 3x3m spacing. The citrus varieties viz., Nagpur mandarin, mosambi, kagzi lime and seedless lemon were collected from NRC for Citrus, Nagpur and planted in reference variety block. To establish reference varieties and gene bank block, land was cleaned, counter terracing and layout was made and plants were planted in respective blocks. Earlier irrigation system was established through pitcher and drip irrigation method. Irrigation facilities were further strengthened by lifting water from newly constructed well. A pipeline of about 400 meter was joined to existing line to facilitate water supply for all crop species. The fencing was done for coconut, banana and citrus crops covering seven hectare area. The construction of the field laboratory building is under progress.

2.13.2 Field Gene Bank at Birsa Agricultural University (BAU), Ranchi

The project entitled *Maintenance of live repository for fruit trees and medicinal plant varieties under in-situ collection for Eastern India ecosystem* is being implemented since 1 April, 2009 at BAU, Ranchi. During the period under report, ₹ 9.70 lakh was released as grants-in-aid for different works related to the field gene bank. The mandated crops assigned for the centre are mango, aonla, pineapple, guava, bamboo, citrus and banana. The objectives of the project include:

- i) Evaluation of important varieties of eastern India by means of DUS for its morphological characterization;
- ii) establishment and maintenance of live repository of registered/example/farmer's varieties; and
- iii) development/refinement of descriptors for regionally important fruit crops

In the initial year of the project, the basic infrastructure facilities were created by development of earmarked areas, land leveling, fencing, creation of temporary water bodies etc. In addition, iron gates and watchman room facilities to keep small farm equipments were also erected. Planting materials related to different fruit crops and their scions were collected from different centres and institutions. These collections are performing well. The salient achievements are as follows:

- For the time being, 13 acre area has been earmarked for all types of activities and more area shall be

acquired as per requirement. Eight acre area has been fenced for mango DUS block, gene bank and reference block, banana and guava plantation.

- The scion sticks of 36 varieties of mango have been procured from BAC, Sabour (RAU), Department of Horticulture, BAU; BCKV (WB); IARI (New Delhi); CISH (Lucknow); FRS Sangareddy and other places and grafted on root stocks.
- Thirty-six plants of Khasi mandarin from ICAR, Research Station for North Eastern region at Barapani, Shillong and 27 plants each of Nagpur mandarin, sweet orange and acid lime from NRC Citrus, Nagpur have been procured and were planted in the DUS block.
- Planting materials as conventional suckers for 30 varieties of banana have been collected from NRC for Banana, Tiruchirapalli and were planted in DUS block in 2.1x2.1 m spacing.

2.13.3 Field Gene Bank at Regional Horticultural Research Station (RHRS), Mashobra of Dr. Y. S. Parmar University of Horticulture and Forestry, Solan, HP

In apple, this centre has procured 247 collections including 71 exotic and 27 indigenous germplasm from NBPGR (Phagli station); 63 from RHRS (Mashobra); budwood from 17 varieties collected from Indo-Italian



project at Bajura; 15 varieties from GBPUA&T (Ranichauri); 50 varieties from CITH, Srinagar and four varieties from Sher-e-Kashmir University of Agricultural Sciences & Technology at Kashmir (SKUAS&T). In pear, budwood of 31 varieties from NBPGR (Phagli), 9 varieties from GBPUA&T (Ranichauri), 14 varieties from CITH and one variety each from SKUAS&T and RHRS (Sharbo); 13 varieties of cherry, four varieties of walnut and other seedling materials were collected from various parts of Himachal Pradesh. The collections of apple were characterized for 35 descriptors for different leaf, flower and fruit characters; pear for 12 descriptors

and walnut for 14 descriptors like tree habit, leaf, flower and kernel characters, and type of flowering etc. Collections in apple, pear and sweet cherry are being established at Mashobra station (Altitude: 2286 m; Climate: Temperate) whereas walnut collections are being established at UHF, Nauni (Altitude: 1270 m, Climate: Sub-temperate). In apple, 801 plants, in pear 568 planting materials are ready for transfer to field during the next growing season in 2012. During March-April, 2012 budding/grafting in apple, pear and cherry is planned and characterization will be done during April-November, 2012.



3. Activities Related to Farmers' Rights

PPV&FR Act, 2001 has provision of reward and recognition to farmers, group of farmers and farming communities, including tribal population, engaged in conservation of genetic resource of landraces and wild types of economic plant resources, particularly in the areas identified as agro-biodiversity hotspots. The farmers' varieties are result of continuous selection by the farmers through their experience and skills gained over the years. These varieties serve as breeding material for developing new varieties due to their acquired adaptability to varied agro-climatic conditions and soil. The farmers' varieties, as specified in the Act, are entitled for registration without any charges and fees. The ownership rights of the farmers/communities safeguard the valuable agro-biodiversity from exploitation and strengthen the concept of benefit sharing among conservers and the end users. Thus, the farmers are encouraged for registration of varieties developed or evolved by them. It is imperative that awareness among farmers may be generated regarding their rights, registration of farmers' varieties and *Plant Genome Savior Community Award* which recognises contributions in conservation and preservation of plant genetic resources. Authority sponsored several programmes to create and enhance awareness among farmers, plant breeders, researchers and other stakeholders regarding different provisions of the PPV&FR Act in collaboration with SAUs, ICAR institutes, academia, societies, KVKs and NGOs.

The Authority has constituted a Standing Committee on Farmers' Rights as per provision under section (3) of the PPV&FR Act, 2001 to advice on farmers' rights as under:

Chairman

Prof. R. B. Singh, former Member, National Commission on Farmers

Members

Dr. R. K. Dhiman, Vice-Chancellor, Dr. Y.S. Parmar University of Horticulture & Forestry, Solan, Himachal Pradesh

Dr. K.C. Bansal, Director, National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi

Dr. N. Parasuram, M. S. Swaminathan Research Foundation, 3rd Cross Street, Taramani Institutional

Area, Chennai, Tamil Nadu

Dr. Ravindra Nirwal, Farmer & Social Worker, Shamli, Distt. Muzaffarnagar, U.P

Member Secretary

Dr. Tejbir Singh, Registrar PPV&FRA, New Delhi

The Committee in its meeting held on 14 October, 2011 recommended a scheme to reward ₹ 1.00 lakh each to individual farmers (up to maximum of 10 in a year) for their contribution in conservation of plant genetic resources in accordance with the provisions contained in section 39 (iii) of the Act. It also approved guidelines for creating awareness among farmers through different agencies.



3.1 DUS Projects on Farmers' Varieties/Rights

3.1.1 Rice biodiversity conservation and training on Farmers' Rights in Jharkhand and Meghalaya by Gene Campaign, New Delhi

Gene Campaign is actively involved in the *in-situ* and *ex-situ* conservation of agro-biodiversity in the predominantly tribal state of Jharkhand which is among the 22 agro-biodiversity hotspot regions. During the reporting period, 78 seed samples of traditional varieties of paddy have been collected from Jharkhand along with passport information. The seeds were processed, dried and conserved in the Seed Bank. In the collected traditional varieties, four varieties are suitable for upland, 13 for midland, while remaining 61 are being cultivated in the lowland. Midland and lowland varieties are suitable for transplanted ecologies while upland varieties are suitable for dry land ecologies. A Seed Bank was constructed for



conservation of nearly 150 paddy varieties. A Committee has also been constituted for management and maintenance of the Seed Bank. The Committee comprises of seven members who have been trained on book keeping, maintenance of record for germplasm availability, supply to farmers and recollection, seed cleaning, seed drying and other related processes.

Gene Campaign has provided seeds of 101 traditional varieties in small quantities to farmers after motivation and encouragement to cultivate traditional varieties in their fields. Gene Campaign is characterizing the varieties. A total of 451 varieties were planted for characterization at three locations, viz., BAU rice farm, Gene Campaign, Tirla Farm and farmers' fields. Among these, 101 varieties were provided to farmers for multiplication, cultivation, conservation and onfarm characterization. Remaining 350 were planted at two locations viz., BAU and Tirla farm. All the varieties that have been characterized at farmers' fields have shown good expression of characters. However, due to lack of rainfall and scarcity of irrigation from October to December, 2011, some of the varieties at BAU and Tirla farm could not express characters properly. However, 150 varieties at these locations expressed characters which are identified for registration with PPV&FRA.

Gene Campaign conducted programmes in 10 villages to generate awareness among the communities regarding importance of conservation of traditional varieties. A training programme was also conducted for the farmers on conservation of traditional varieties and Gene Seed Management.

3.1.2 Collection, characterization and conservation of indigenous landraces of colocasia (*C. esculenta*) from North Eastern Hills, ICAR NEH, Medziphema, Nagaland

The project is being implemented with the following objectives:

- (i) survey and collection of indigenous landraces/cultivars of colocasia,

- (ii) study morphological variation and evaluation of *ex-situ* collection for traits relevant for germplasm enhancement,
- (iii) evaluate and characterize collected landraces/cultivars as per the standard descriptor,
- (iv) prepare the descriptors of colocasia, documentation and conservation of indigenous landraces; and
- (v) to create awareness and training on protection of plant varieties and farmers' rights.

Surveys were conducted to collect local landraces of colocasia from four districts of Nagaland (Kohima, Mon, Wokha and Dimapur) and adjoining areas of Assam. In total, 22 accessions were collected, of which, eight were from Wokha district, three each from Kohima and Mon district and four each from Dimapur and Golghat district of Assam.



Among the lines evaluated, 19 lines have the leaf shape classification of erect-apex down, one line is under erect-apex up, four lines having cup shaped leaves, and one line has horizontal leaves. For the leaf blade margin character, 18 lines fall under the category of undulate, six lines under entire and one line fall under sinuate category. Regarding leaf blade colour 21 lines were found to have green and four lines had dark green colour. In all the varieties, there was no leaf blade variation except in line number 10. Seven lines found to have green leaf blade margin, one found to be yellow and 17 lines were having purple margin. For the petiole junction pattern character, eleven lines fall under the category of small, one under medium and there was no petiole junction pattern in 13 lines. All the lines recorded green leaf main vein colour. Twenty three lines recorded light green petiole colour, one line recorded green and one line showed purple colour. Various types of cormel shape were observed, viz., elliptical, round, dumb-bell, elongated, cylindrical and conical. Among the evaluated lines, eight were elliptical, five were round, one was dumb-bell, one was elongated, two were cylindrical and eight were conical in shape. For cormel length, four lines fall in the category



of long, 14 lines intermediate, and four lines under the category of short.

3.1.3. Characterisation and registration of traditionally cultivated rice varieties along coastal belt and Cauvery delta of Tamil Nadu, Virtual Action on Agriculture by Nagurway Growing and Husbandary of Animals in India (VAANGHAI), Nagapattinam, Tamil Nadu

The project focused on characterization of traditional rice varieties from coastal belt and Cauvery delta of Tamil Nadu. VAANGHAI collected 69 rice varieties from Kanyakumari, Tutikorin, Ramad, Pudukottai, Tanjore, Thiruvarur, Cuddalore and Nagapattinam districts of Tamil Nadu. Seed samples, crop details and farming practices were also collected and noted from farmers' field and documented. The selected varieties were grown for characterization and further distribution among farmers. These varieties belonged to short (70-100 days), medium (120-135 days) and long (140-180 days) duration. Collected seed samples were stored in the Seed Bank established by VAANGHAI. The achievements are as under:

- Uzhavar Mughaam, a state wide workshop was conducted as a special awareness programme on 28 July, 2011 to rejuvenate the traditional farming methodology and conservation of traditional rice varieties. Seeds were distributed to the network farmers for participatory plant breeding.
- Nursery was raised for progeny of selected rice varieties from the collection of varieties of the previous year.
- Rice varieties were planted for further multiplication and to identify the area of adoption to the different geographical regions. After the harvest, the seeds were dried, processed and kept for storage. A team from PPV&FR Authority visited the project site and Seed Bank.
- VAANGHAI identified and submitted application for registration of six varieties to PPV&FR Authority.

3.2 National Gene Fund

The National Gene Fund was created by the DAC, Ministry of Agriculture, Government of India under the PPV&FR Act, 2001 with an initial contribution of ₹ 50.00 lakh to the Authority. The Authority is operating and maintaining a separate account for the purpose. The contributions in the National Gene Fund may also include:

- benefit sharing received from the breeder of a variety or an essentially derived variety registered under the Act;
- annual fee received by PPV&FR Authority;
- compensation deposited; and
- contributions by National and International organizations.

As per the Act, the National Gene Fund may be utilized to meet:

- any amount payable by way of benefit sharing,
- payable compensation;
- the expenditure for supporting the conservation and sustainable use of genetic resources including *in-situ* and *ex-situ* collections and for strengthening the capability of the Panchayats in carrying out such conservation and sustainable use; and
- the expenditure of the schemes relating to benefit sharing framed under section 46.

Table 12. Status of National Gene Fund during 2011-12

Items	₹ (in lakh)
Opening balance as on 01.04.2011	112.97
Contribution to Gene Fund	50.00
Annual fee received	6.78
Bank interest	9.86
Expenditure incurred on PGSC Award (2009-10) including administrative expenses	22.13
Closing balance as on 31 March, 2012	157.48

3.2.1 Plant Genome Savior Community Award

The PPV&FR Rules, 2003 provides that the Gene Fund shall be utilized to support and reward farmers and community of farmers, particularly the tribal and rural communities, engaged in conservation, improvement and preservation of genetic resources of economic plants and their wild relatives particularly in areas identified as agrobiodiversity hotspots.

After a series of meetings with experts, the Authority in consultation with Government of India, finalized the modalities and criteria for Plant Genome Savior Community Award. A maximum of five awards per year may be given from Gene fund.

The Plant Genome Savior Community Award, carries ₹10 lakh in cash, a citation and a memento. The award was conferred to two farming communities for the the year 2009-10 for their contribution in a ceremony held on 16 July, 2011 on the occasion of ICAR Foundation Day at New Delhi. Shri Sharad Pawar, Hon'ble Union Minister of Agriculture and Food Processing Industries conferred the awards. The following farming/rural communities were awarded:

- **The Kopatgiri Nandiverimath Seva Foundation (KNSF), Gadag, Karnataka**

KNSF undertook programme for rain water harvesting, afforestation and *in-situ* conservation of local flora including threatened medicinal plants. With the active participation of local community over the years, several water harvesting structures and conservation measures were initiated. It resulted in the appreciable rise of underground water level that



supported the growth of minor forest cover and *in-situ* conservation of rare and threatened medicinal plants. Over 5 lakh saplings of karanja, neem, tamarind, aonla, tapasi bael, terminalia, soapnut, bamboo, teak, acacia, ficus, cassia were raised and planted in Kopatgiri hills. The foundation undertook study of rare medicinal plants in Kopatgiri region, identified 210 species of 55 families and documented the traditional knowledge with the help of experts. In the bunch, 83 species are herbs, 45 shrubs, 43 trees and 39 are climbers (important among them are *Androghaphis paniculata*, *Ocimum sp.*, *Gymnema sylvestre*, *Azadirchta indica*, *Tinospora cordifolia*, *Withania somnifera*, *Hemidesmus indicus* etc.) Local people use these plant materials for preparation of traditional medicines. The *in-situ* conservation of rare and endangered medicinal plants, preservation of ecosystem and biodiversity, and watershed development are well recognized activities of KNSF in which local communities are involved.

- **Panchbati Gramya Unayana Samiti, Koraput, Odisha**

Koraput region of Odisha is inhabited by 52 recognized tribal groups and among them, the Kandha, Paroja, Soura, Bhatra, Bonda, Koya, Didayi and Amantya have traditionally conserved landraces of rice which occupy more than 52% of the rice area in the

region. These materials have been characterized by the farmers who are growing these landraces to minimize risk. This ensures stable yield of grain with good cooking and nutritive quality and thereby contribute to the food security in the region. Some of these varieties are being used by agricultural scientists in varietal development. As a result of conservation work of the tribal communities, this region has become unique site for valuable landraces of economic plants. Their conservation efforts have been further strengthened by linking with cultivation, breeding and food security. For this purpose, the Samiti has established field, seed and grain banks. The Samiti was earlier recognized by the PPV&FR Authority by honouring Plant Genome Savior Recognition Certificate during 2007-08.

The conservation of genetic resources of landraces and wild relatives of economic plants and their improvement through selection and preservation are also entitled for recognition. The Authority advertised in major newspapers of vernacular languages seeking applications/nominations for the recognition. The applications received from individual farmers/institutions/communities were screened by a Committee which recommended seven recognition Certificates during the year. The Authority has also decided *Plant Genome Savior Community Awards* to four farming communities for the year 2010-11.

3.2.2 Task Force for the documentation of traditional knowledge in respect of farmers' varieties

The PPV & FR Authority constituted a Task Force under the Chairmanship of Dr. D.K. Marothia, Professor and former Head,



Department of Agricultural and Natural Resources Economics, Indira Gandhi Agricultural University, Raipur, for documentation, indexing and cataloguing of farmers' varieties as one of the mandate of the Authority under section 8(2)(c) of PPV & FR Act, 2001. The Task Force, during the period under report, conducted two meetings and decided to prepare a base paper on the subject indicating the importance of the registration of the farmers' varieties and associated traditional knowledge.



4. Development of DUS test guidelines

4.1 DUS test guidelines completed during 2011-12

DUS test guidelines of coconut, five species of medicinal and aromatic plants and three species each of wheat and orchids were finalized, approved and published by the Authority. These crops species were also notified for receiving applications for plant variety registration. Task Forces were constituted for finalizing DUS test guidelines for pomegranate, grapes, apple, cherry, pear, walnut, almond, apricot, barley and a number of vegetables and flowers. The Task Forces had several rounds of meetings to discuss the descriptors and draft DUS guidelines. Progress in this regard in some of the institutes is given below:

4.2 Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore

The project entitled *Validation of DUS testing guidelines for casuarina and eucalyptus* aims to develop DUS testing procedure; assemble and validate clonal collections available with industries and other institutions; and develop database for the descriptors for IINDUS. In the first phase, draft guidelines are being developed for both the crops and validated with clones held with other organizations, such as paper industries, universities, forest departments and research institutions.

In casuarina, methods were developed for recording the colour of the needles. Most of the clones are discriminated in two colours- dark green and yellowish green. Vegetative characters like deciduous branchlets, bark and lenticel were identified. In reproductive characters,



anther of the male inflorescence discriminates for three different colours, viz. pink (clones CJ22, CJ30, CJ64, CJ41, CJ54, CJ56), reddish pink (CJ8, CJ10, CJ25, CJ68) and yellow (CJ 23, CJ69). Similarly, the position of male inflorescence, cone and seed characters were categorized for all IFGTB clones. The cladode, leaf, bark, branch and reproductive structures were taken as DUS characters based on a study in around 300 clones. About 49 different descriptors were given for discrimination of clones. Plantations raised by the forest department at Hoskote in Karnataka, Rajamundri in Andhra Pradesh, Varattupallam in Tamil Nadu and clones maintained by Tamil Nadu News Print Ltd. Karur; Seshasayee paper boards, Erode; Forest College and Research Institute, Metupalayam and Panampall in Kerala were also evaluated. Tree habit, bark colour, distribution and grouping of bark lenticel, colour, length, nodes, and colour of leaf tip of cladodes and sexual system were identified as essential characters in casuarina.



In eucalyptus, the juvenile leaf characters were studied in 45 clones. Seventy five clones available with IFGTB were characterized for the draft DUS characters. Plantations for commonly grown five ITC clones in Tamil Nadu were also assessed for their uniformity with respect to all the DUS characters. To develop DUS descriptors of both the crops, the base population available with the institute was studied. Variation in morphological characters in leaf, stem, bark and reproductive structures were also studied. Nearly 69 clones of eucalyptus species planted across two locations at Karunya Nagar near Coimbatore and Sathyavedu in Andhra Pradesh were characterized for leaf morphology using image analyzer. For each clone, 50 leaves were collected per replication. The images were taken using a digital SLR camera and subjected to image analyzer for leaf morphological characters like surface area, length, breadth, equivalent diameter, perimeter, convex perimeter etc.

4.3 Central Institute of Temperate Horticulture (CITH), Srinagar (J&K)

The DUS project, entitled *Validation of International guidelines under Indian condition for apple, pear, walnut, almond, apricot and cherry* is being implemented by the institute since 2009 with the following objectives:

- i) to standardize, validate and evaluate the DUS test guidelines;
- ii) to characterize the extent of variability; and
- iii) to develop national data base.

More than 85 genotypes/varieties of walnut and all the almond varieties have also been characterized. Fifty four apricot and 26 cherry varieties/germplasm/landraces were evaluated and maintained in germplasm block. Forty descriptors for apricot and 21 descriptors for cherry as per the Bioversity International descriptor list were utilized for varietal evaluation.



Variability in fruit shape, colour and eye basin

Eighty eight apple cultivars/varieties/germplasm/landraces/selections/root stocks were evaluated and are being maintained in germplasm block. The data in respect of vegetative growth, tree habit, flowering/fruit set characters, fruit related data and quality parameter related traits were recorded in apple. Ten rootstocks of apple and nine *Malus baccata* accessions were also evaluated. Apple and pear descriptors were observed, recorded and evaluated under Srinagar conditions. Data recorded for one year were analyzed for further grouping to prepare descriptors of apple and pear. Apart from this, the institute is maintaining 204 apple varieties and 35 pear varieties.

4.4 National Research Centre for Citrus (NRCC), Nagpur

The centre is working on the DUS project entitled *Finalizing Crop Specific DUS Testing Guidelines for Citrus (C. reticulata, C. sinensis, C. grandis and C. aurantifolia)*. ICAR Research Complex for NEH, Meghalaya is a co-nodal centre in the project. The centre was assigned for the identification of citrus varieties in different groups, registration of varieties, create varietal information system



and data base and to establish reference collection. The centre has identified seven commercial citrus cultivars, viz. Nagpur mandarin, Khasi mandarin, Coorg mandarin, Sathgudi, Mosambi, Kagzi niboo and Pummelo. Centre has also finalized 14 descriptors for DUS testing such as leaf size, absence/presence of petiole wings, flower type, number of stamens, fruiting season, fruit weight, fruit size, shape of fruit base, shape of fruit apex, fruit surface texture, albedo colour, juice content in endocarp, TSS/Acid ratio and cotyledon colour. Observations were recorded in different seasons for these characteristics for six commercial citrus cultivars. The centre is also maintaining reference collections which will be used for on-site DUS testing.

4.5 Tocklai Experimental Station, Jorhat

The project entitled *Validation of Tea Descriptors for developing DUS Guidelines and Registration of Tea Varieties (Camellia sinensis and C. assamica)* was initiated at Tocklai Experimental Station, Tea Research Association, Jorhat, Assam with UPASI Tea Research Foundation, Tea



Research Institute, Valparai, Tamil Nadu; Darjeeling Tea Research and Development Centre, Tea Board of India, Kurseong, West Bengal as other participating Institutes. Thirty one varieties for plain region; 27 for Darjeeling hills and 32 of UPASI, Tea Research Institute have been developed and released by Tocklai Experimental Station, Jorhat for commercial plantation. For DUS study, clones were marked at Tocklai Experimental Station, Jorhat and R & D Centre at Nagrakata, West Bengal. The varieties were characterized for 14 morphological and floral characters. Apart from these, some special morphological characters were also identified.

4.6 Himalayan Forest Research Institute (HFRI), Shimla

The project entitled *Identification of distinct traits for DUS for conifers (pine and deodar)* is assigned to HFRI, Shimla. To achieve the objectives of the project, selective surveys to collect the preliminary information on the population of *Pinus roxburghii* and *Cedrus deodara* were

carried out during the period under report. Efforts were made to screen individual plants within populations



possessing distinctness for morphometric traits. Needle size and colour, bark pattern and thickness, crown form and cone size were included as traits. Populations of pinus were surveyed from Kopra forest of Nurpur, Dibkan Forest of Joginder Nagar, Peontra Forest (Nerwa) of Chopal, Banethi Forest of Nahan and Chabbal Forest of Solan Forest Division.

Populations of the *Cedrus deodara* at Labrang, Jhangi and Kalpa under Kinnaur, Cheog Forest of Theog, Chail and Kufri Forests of Shimla and Thharoach forests of Chopal Forest Division were surveyed. Characters with respect to needle colour and size, bark colour and shape and crown form were identified as descriptors.

Table 13. Identified DUS traits of *Pinus roxburghii*

Traits	Expressions	Remarks
Needle colour	Dark green, green, light green, light yellow, shining green and bluish green	-
Needle size	Normal size 20-30cm	Observed needle length 31.6 & 30.8 cm in Urla-Dibkan Forest (Mandi)
Needle thickness	Normal size 0.45mm-0.9mm	Dark green needles with thickness varying from 1.18mm to 1.25 mm in Urla-Dibkan Forest (Mandi) Jogindernagar Forest Division
Bark	Longitudinal and deep furrow	Two types of bark pattern, one with longitudinal, dark brown, deep fissures and other with wide, less deep, light brownish regular pattern
Crown	Round and conical	Flat, scattered. Umbrella shaped and conical with varying branch angles (angular, acute angular and horizontal)
Cone	Small to large (10-20 cm long and 7.5-15 cm wide)	Observed biggest cone with 17.2 cm length and 9.5 cm width from Urla-Dibkan forest (Jogindernagar Forest Division) and 15.5cm long and 8.9cm wide from Chhabal forest (Dharampur Forest range, Solan Forest Division)

Table 14. Identified DUS traits of *Cedrus deodara*

Traits	Expressions	Remarks
Needle colour	Green, light green, dark green, bluish, greyish	-
Needle length	1.5- 4.0 cm	Observed 4.8 cm in Cheog Forest (Theog Forest Division) and 5.8cm in Kinnaur Forest
Bark	Long furrows	Dark brown coloured, long, deep and scaly ridges pattern of furrows
Crown	Conical and Flat	Conical, flat and round
Cone Size	Normal size 12.5 to 15 cm long	Observed cone size of 9.0 cm long and 5.8cm wide in Kinnaur Forest
Branch Pattern	Normally angular or horizontal	Drooping Branch pattern of branches

4.7 Rain Forest Research Institute (RFRI), Jorhat

The project, Development of DUS descriptors and variability studies on *Bambusa balcooa* and *Dendrocalamus hamiltonii*, is being carried out at RFRI. The objectives include identification of morphologically distinct characters for development of DUS guidelines, establishment of germplasm bank and development of database of documented characters of the above bamboo species. All the plant materials of *D. hamiltonii*, were collected from the natural forest areas. However, materials of *B. balcooa* were collected from the home gardens or plantations as this species is not available in natural forests. During the period under report, morphological characteristics related to clump, culm and branching characters, leaf and culm sheath have been documented.



4.8 Central Institute for Arid Horticulture (CIAH), Bikaner

The institute has been supported for validation of DUS descriptors for ber, datepalm, muskmelon and watermelon. Task Force has been constituted by the Authority for guiding the centre.



● Validation of DUS descriptors for Ber (*Ziziphus* sp.)

Thirty varieties were evaluated for morphological descriptors. The analysis of data revealed that wide genetic variability exists with respect to different morphological parameters. Morphological diversity in ber has been noted for growth habit (erect, semi-erect and spreading), foliage characteristics such as leaf apex and base (acute and obtuse), leaf size (length and width), leaf curving, leaf shape (oval, cordate and ovate), leaf pubescence, thorn characteristics like thorniness, thorn shape and size. Diversity has also been observed for fruit characters such as fruit shape (oval, ovate and round), fruit surface (ridged and plane), fruit apex (round and pointed), pulp cavity and pulp stone ratio. The Task Force constituted for the purpose had its meeting on 16 December, 2011 which suggested five categories of morphological characters (growth habit, foliage characteristics, thorn characteristics, floral characteristics and pulp characteristics) for DUS guidelines in ber.



● Validation of DUS descriptors for date-palm

This centre is maintaining 40 varieties of date-palm in which maximum are introduced from abroad. Six varieties viz. Punjab Red, Bhugoso, Khotho, Bikaner Local, Javantri and Gulchati belong to indigenous collections that are being evaluated for their performance under hot arid conditions. Observations on the morphological characters, viz., leaf size, leaflet size, rachis length, number of thorns per unit length, height of palm, size of thorn, length of thorn,



inter thorn distance, leaflet folding angles, leaflet apex shape, spines shape, spine size, number of leaflet per feet, distance to leaf per feet, date of spathe emergence, date of completion of emergence, opening of spathe, date of pollination and spathe size, were recorded from 10 varieties. The observations on fruiting characters shall be recorded in June–July, 2012. Construction of compound wall fencing of date-palm experimental block is under progress.



● **Validation of DUS testing guidelines for watermelon and muskmelon**

Watermelon: A total of nine released varieties and seven genotypes of watermelon were collected, evaluated and characterized for different morphological characters during summer season of 2011. The ground colour of seed testa in RW 187-2 was found to be uniform white. Maximum seed length was observed in Charleston Grey (1.25 cm) and minimum in Arka Manik (0.68 cm). The weight per 100 seed varied from 3.77 gm in Arka Manik to 10.44 gm in Thar Manak. Length of cotyledon varied from 2.46 cm in Durgapura Lal to 4.71 cm in Thar Manak. Leaf shape was



Variation in fruit traits

pentalobate in all references varieties of watermelon except Durgapura Lal in which the leaf shape was non-lobed. Monoecious sex form was found in all the genotypes except AHW-65 which was andromonoecious in sex form. Two types of ovary shape, oval and long were observed with varying degree of pubescence (weak, medium and strong). Flesh colour was found to be red in all the observed genotypes except RW 187-2 in which it was yellow. The firmness of flesh was categorized as soft, medium and firm. Fruit weight varied from 2.32 kg in Charleston Grey to 4.00 kg in Asahi Yamato. The range of TSS was recorded from 8.32% in AHW-19 to 12.21% in RW 187-2. The seed of all the collected

varieties/genotypes was maintained through selfing for utilization in next year. A total of 47 DUS descriptors were developed, out of which, five descriptors for cotyledon characters, ten for plant growth (internodes, leaf, petiole), three for ovary, two for flowering attributes, one for maturity of fruits, twenty one for fruit traits, five for seed characters and one for TSS were developed.

Muskmelon: Eleven references varieties and nine genotypes were collected and sown for characterization and maintenance breeding. Seed colour was white (Arka Jeet, Arka Rajhans, Kashi Madhu, Pusa Madhuras), creamy yellow (GMM-3, RM-43, Durgapura Madhu) and yellow (Pusa Sharbati). The weight per 100 seed varied from 1.75 gm in Arka Jeet to 4.02 gm in RM-50. The intensity of green colour of cotyledon was found to be light (MHY-3, RM-50), medium (Durgapura Madhu, Kashi Madhu, Pusa Sharbati) and dark (Arka Jeet). Length of cotyledon ranged from 2.49 cm in Arka Jeet to 4.47 cm in RM-50. The intensity of leaf blade colour varied from light (RM-43), medium (Arka Jeet, Durgapura Madhu) to dark (Kashi Madhu, Pusa Sharbati, Pusa Madhuras). Two types of sex forms, viz., andromonoecious in all released varieties and monoecious in AHMM-8 was observed. Flesh thickness ranged from 1.54 cm in Arka Rajhans to 3.20 cm in Pusa Sharbati. Flesh colour was found to be salmon (Pusa Sharbati, Pusa Madhuras), white (Arka Jeet), green (Durgapura Madhu), salmon orange (Kashi Madhu) and greenish white (Arka Rajhans, GMM-3). Strength of attachment of peduncle at maturity was observed to be zero slip (Arka Jeet, Durgapura Madhu), half-slip (Arka Rajhans, Kashi Madhu) and full slip (GMM-3). Fruit weight varied from 0.35 kg in Arka Jeet to 1.22 kg in MHY-5. TSS of fruits ranged from 11.60% in RM-50 to 12.95% in GMM-3. All the varieties/genotypes were selfed and seeds were harvested for further utilization. In



Variation in fruit traits

muskmelon, 44 DUS descriptors were developed including three for seedling characters, six for leaf, one for petiole, three for ovary characters, two for flowering, one for maturity of fruits, twenty three for various fruit traits and five for seed traits.

4.9 Indian Institute of Vegetable Research (IIVR), Varanasi

The centre is working on development and validation of DUS testing guidelines for cucurbits (bottle gourd, pumpkin, bitter gourd, cucumber and pointed gourd).



Varieties of pumpkin (16), bottle gourd (32), bitter gourd (27), cucumber (21) and pointed gourd (20) were collected from different ICAR Institutes and SAUs for validation of DUS test guidelines. All the varieties of these crops were evaluated for various descriptors states. Number of important morphological descriptors, essential traits as well as grouping characters of these vegetables are presented as under (Table 15):

Table 15. List of morphological, essential and grouping characters and number of reference varieties for cucurbits

S. No.	Crops	2011-2012			
		No. of varieties	No. of morphological traits	Essential characters	Grouping characters
1.	Bottle gourd (<i>Lagenaria sinceraria</i>)	32	31	13	6
2.	Pumpkin (<i>Cucurbita moschata</i>)	16	36	16	6
3.	Bitter gourd (<i>Momordica charantia</i>)	27	30	13	7
4.	Cucumber (<i>Cucumis sativus</i>)	21	36	12	5
5.	Pointed gourd (<i>Trichosanthus dioica</i>)	20	15	10	5

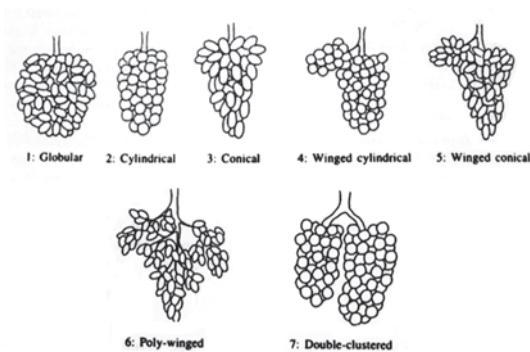
4.10 Indian Institute of Horticulture Research (IIHR), Bengaluru

The project, development of DUS guidelines for chillies, sweet pepper and paprika (*Capsicum annuum L.*) is being implemented by IIHR, Bengaluru as the nodal centre and Vegetable Division of IARI, New Delhi as co-nodal centre. There are 22 wild species of *Capsicum* and five species are under domestication (*Capsicum annuum*, *C. frutescens*, *C. baccatum*, *C. chinense* and *C. pubescens*). During the period, 45 morphological characters have been identified for recording of observations and use as DUS descriptors. The centre has initiated the collection of local varieties, landraces, notified extant varieties of chilli, sweet pepper and paprika. Draft guidelines for the conduct of DUS test have been formulated. The Task Force constituted for this purpose recommended that reference varieties may be evaluated in the main season at both the centers (IIHR & IARI) to identify the example varieties for specific characteristics.



4.11 National Research Centre for Grapes (NRCG), Pune

The project, *Development of DUS test guidelines for grapes* is being implemented by NRC for Grapes. The centre is also assigned to develop database for grapes and



validation and refinement of descriptors for grapes for use in the DUS test guidelines. There are 46 characteristics to discriminate the varieties which consists of shoot (7), leaf (11), flower (2), bunch (6), berry (16) and timing of different stages of vines (4) under tropical Indian conditions. A total of 112 accessions were identified for characterization and recording of observations from the available field germplasm. Data were evaluated for the purpose of using as descriptors in the DUS test guidelines.

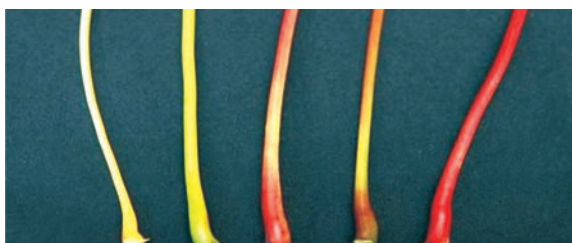
4.12 Forest College and Research Institute (FCRI), Metupallyam, Tamil Nadu Agricultural University, Coimbatore

The progress of the project *Developing descriptors and DUS test guidelines for tree species of Neem, Karanj and Jatropha* is as under:

- In Neem, 12 descriptors were developed and documented
- Pencil thick root stock was used to graft scion materials from mother trees/ candidate plus trees in cleft grafting method in Karanj
- In Karanj, 19 descriptors were developed and documented with photographic evidences for growth and reproductive traits
- In *Jatropha curcus*, medium size cuttings of 20 cm length and diameter of 1.3 to 1.7 cm resulted in more than 90% rooting
- In *Jatropha* hybrids, 25 descriptors were developed for various growth and reproductive traits

4.13 Central Tuber Crops Research Institute (CTCRI), Thiruvananthapuram

The project, *Developing DUS testing criteria and Varietal Gene Bank establishment for the Tropical Tuber crops, cassava and sweet potato* is being implemented at CTCRI, Thiruvananthapuram with co-nodal centre at Bhubaneswar. Besides, “National Varietal Gene Bank” of cassava and sweet potato is being established. The centre is also developing a computerized data base for DUS characterization in cassava where 20 released varieties were evaluated in a replicated trial. The cassava varieties were characterized on the basis of 66 traits. The six characteristics



identified for grouping of cassava varieties were predominant colour of stem; emerging leaf colour and petiole colour; and shape, cortex colour and flesh colour of tuber. Reference varieties were identified and maintained with respect to each of the DUS descriptors. In addition to the 22 released varieties, 30 germplasm accessions were also maintained as reference varieties. Based on DUS characterization, draft DUS test guidelines are under development. Five cassava and seven sweet potato varieties released in India were added to the Field Gene Bank and also to the database.

Characterization of 40 sweet potato varieties and other reference varieties was done to identify DUS characters. A total of 53 descriptors were recorded. Some of the characteristics identified for grouping of sweet potato varieties were predominant colour of vine leaf shape; stigma exertion and shape of corolla in flower; and predominant skin and flesh colour of tuber. Six characters in cassava and five descriptors in sweet potato were identified for grouping of these crops varieties respectively.

4.14 National Research Centre for Orchids (NRCO), Pakyong, Sikkim

The centre is responsible for development and validation of DUS test guidelines for three species of orchids, viz., *Cymbidium*, *Dendrobium* and *Vanda*. These guidelines were



finalized and approved by Task Force and subsequently notified. The centre is maintaining 30 hybrids and 12 species of *Cymbidium*; 20 hybrids and 26 species of *Dendrobium* and 23 hybrids and six species of *Vanda*. These hybrids and species were studied for 22 major morphological descriptors of orchids. Characterization and digitalization of the identified hybrids of *Cymbidium*, *Dendrobium* and *Vanda* orchids were also completed.

4.15 Directorate of Medicinal and Aromatic Plants Research (DMAPR), Anand

DMAPR is responsible for development of DUS guidelines and strengthening of DUS test centres for laboratory and field facilities, digitization and training in medicinal and aromatic plants species. The Directorate has developed and finalized DUS test guidelines for *Isabgol (Plantago ovata Frosk)* and maintained 11 reference

varieties in *Rabi*, 2011-12 for comparing with the new varieties. Seeds were collected from these lines for their maintenance. Centre is also working on development of DUS descriptors for Kalmegh (*Andrographis paniculata*) and Guggal (*Commiphora wightii*). During *Kharif*, 2011, seeds of *Andrographis paniculata* were sown for the development of DUS descriptors at DMAPR. On the basis of information on the morphological characters collected during the last season, 15 morphotypes were identified and observed for stability of the characters.

In Guggal (*Commiphora wightii*), 73 accessions being maintained in the field gene bank were used for the development of DUS descriptors. Among these, 47 are from Gujarat and 26 from Rajasthan. They are represented by 61 females, 9 males and three hermaphrodites. All the accessions from Rajasthan are females. Based on plant architecture, three main types were identified, viz., erect, semi-erect, drooping (spreading). Seed shape categories, viz., ovate, globose-ovate, ovate-lanceolate, elliptical and round were also recorded for different accessions. The characters of leaf and fruit, viz., colour and size were also observed for inclusion in DUS descriptor list. The arrangement of fruits were also studied in different accessions and it was found that they were arranged either solitary or in groups of 2-5. Bark color was also studied in different accessions and greenish yellow to greenish brown colour variation were found in different accessions.

4.16 National Research Centre for Seed Spices (NRCSS), Ajmer

During the period under report, seed samples of 24 varieties of coriander (*Coriandrum sativum* L.) were collected from different states and are being maintained at this centre. DUS descriptors used for varietal characterization include early plant vigour, leaf margin, leaf size, leaf colour, length of longest basal leaf including petiole



(cm), number of basal leaves, habit of longest basal leaf, number of leaflets, leaf luster, number of days to stem initiation, streaks on stem, stem pubescence, stem colour, corolla colour, ratio of hermaphrodite flowers to male flowers, plant height, number of primary branches per plant, number of secondary branches, arrangement of umbellate on main umbel, number of umbel per plant, number of umbellate per plant, number of fruit/umbel, seed yield per plant, 1000 seed weight, seed colour, seed shape and seed size.

The centre also characterized 18 reference varieties of fenugreek for seven descriptors like primary branch and secondary branch number, pod length, pods per plant, seeds per pod and plant height. The variability in plant length varies from 33.5 cm in Hisar Madhavi to 49.3 cm in Rmt 3; whereas seeds per pod were lowest in AM 1 to highest 16.5 in Rmt 3.

4.17 National Botanical Research Institute (NBRI), Lucknow

NBRI has been entrusted with development and validation of DUS test procedures and characterization of bougainvillea, gladiolus and canna varieties; maintenance

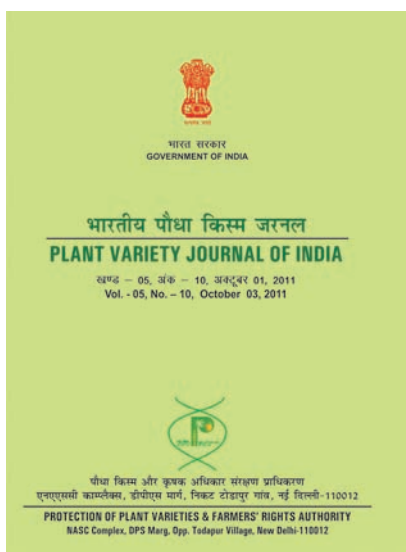


of live germplasm collections; and development of database for use in DUS testing for registration purpose. The institute has 200 cultivars of bougainvillea as germplasm collection out of which 25 new varieties have been developed. In gladiolus, out of 110 germplasm accessions, 40 new varieties have been developed. In canna, germplasm collection as representative of mother stock of all varieties was maintained and DUS descriptors consisting stem, leaf, inflorescence and flower characteristics were used for variation among varieties.



5. Plant Variety Journal of India, National Register of Plant Varieties and Publications of the Authority

In accordance with Rule 2(g) of PPV&FR Rules, 2003, the Authority publishes its official journal, *Plant Variety Journal of India* (PVJ) as a monthly bilingual (Hindi and English) publication which appears on the first working day of the month. This journal has been given the status of a gazette for the purpose of the Act. During the period under report, specific DUS test guidelines of durum, dicoccum and other *Triticum* species of wheat, isabgol, damask rose, mentha, periwinkle, brahmi, coconut and three species of orchids for the purpose of DUS testing; fee for conducting

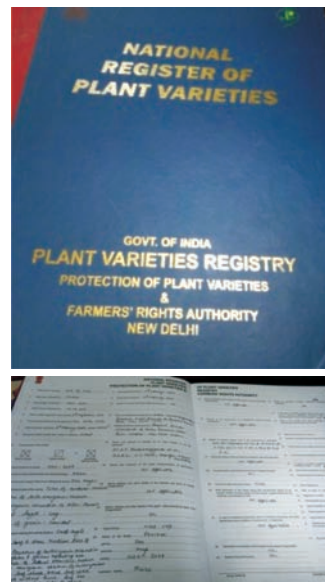


DUS test for oilseed crop species; and notice for DUS testing before acceptance under section 20 of the Act were published. Passport data of 237 new and extant varieties about which there is a common knowledge (VCK), were accepted for DUS test. Passport data of 133 extant varieties notified under the Seeds Act, 1966 and accepted for registration were published seeking objections, if any, from any person/organization. Details of 49 varieties which were registered and issued certificate of registration by the Registrar on behalf of the Authority were also published in the PVJ for the purpose of inviting claims for benefit sharing.

5.1 National Register of Plant Varieties

The PPV&FR Authority, in compliance with section 13 of the PPV&FR Act, 2001, has opened the National Register of Plant Varieties at the Head office of the Plant

Varieties Registry. It contains complete details of the names of all the registered plant varieties along with the names and addresses of the respective breeders, denomination, specifications, salient features etc. During the period under report, 119 varieties including 20 new varieties and 99 extant varieties, released and notified under section 5 of Seeds Act, 1966 have been registered under the Act. A copy of the National Register of plant variety maintained at headquarters has also been provided to branch offices at Guwahati and Ranchi.



5.2 Publications of the Authority

The *Plant Variety Journal of India* is being published regularly in bilingual mode (Hindi and English). Two



brochures on PPV&FR Act, 2001 and farmers' rights were distributed by the Authority in meetings, training-cum-

awareness programmes, workshops etc. The other brochures and posters, annual report and other publications were prepared and published by the Authority in Hindi language also. The Authority maintains its website in bilingual mode. The DUS test guidelines were published regularly by the Authority in both the languages. The letters and official communications received in Hindi were responded in Hindi. The officers of the Authority also delivered their lectures in Hindi and English as per need of the occasion.

Two pamphlets on Farmers' Rights and PPV&FR Authority were published in 10 languages, viz. Gujarati, Kannada, Malayalam, Marathi, Oriya, Tamil, Telugu, Urdu, Hindi and English. Posters highlighting the farmers' rights and the activities of PPV&FR Authority were published and exhibited in various events including kisan mela, farmers' fairs and awareness programmes. Twelve guidelines for the conduct of test for distinctiveness, uniformity and stability on durum, dicocum, triticum species of wheat, isabgol, menthol mint, damask rose, periwinkle, brahmi, coconut, bamboo leaf orchid or boat orchid, spray orchid or Singapore orchid and vanda or blue orchid were published in Hindi and English.

In addition, the following papers were also published:

- Gautam, P.L. (2011). Farmers' Rights under the Protection of Plant Varieties and Farmers Rights Act of India. *Think India Quarterly*, Vol. 14 (3): 165-182.
- P. L. Gautam, Ajay Kumar Singh, Manoj Srivastava and P. K. Singh (2012) Protection of Plant Varieties and Farmers' Rights: A Review. *Indian J. Plant Genetic Resources*. 25(1): 8-29.

5.3 Library

The Authority is maintaining a library for the reference of the staff/employees. As on 31 March, 2012, the library has a collection of nearly 550 books on various subjects including agriculture, horticulture, intellectual property rights, plant breeding, bio-diversity conservation, genetics, seed science and technology, literature, rules and regulations for central government employees, legal matters etc. The library subscribes to various journals of agriculture, law and administration. The library has 69 publications of the Authority on general and crop specific DUS test guidelines, plant genome savior community award guidelines, agrobiodiversity hotspots and awareness generating literature. □

6. Development of Databases, IINDUS, NORV and Website

6.1 Databases

The database software, Indian Information System as per DUS Guidelines (IINDUS) and Notified and Released Varieties of India (NORV) were developed. The Authority is maintaining these databases for the selection of most similar reference varieties; to verify the denomination and notification details.

6.2 Website

The Authority maintains its website www.plantauthority.gov.in, in Hindi and English which is hosted on National Informatics Center (NIC) server. The website contains information regarding members of the Authority; overview of the PPV&FR Act, 2001; details of DUS centres; publications; list of crop species eligible for plant variety registrations; DUS guidelines; status of applications and other relevant information. The Authority has also stepped further to develop its Web Portal to display and manage the data and activities taken up by the Authority having the features of content management strategy, UTF for bilingual support, customization of portal from client and bulk mail to registered users. M/s Sahara Next, a National Informatics Centre Services Inc (NICSI) empanelled firm, is developing the online system for application submission and payment processing for registration process of plant varieties. It has submitted a comprehensive proposal for developing the Web Portal of the Authority which has been forwarded to NICSI for evaluation.

6.3 Development of Portal of the Authority

To highlight/display the activities and progress/achievements made by the Authority, presently it is having a website which is hosted at NIC server. Though all the activities of the Authority are being uploaded on the existing website, effective and dynamic display of data cannot be featured. Further, many other features which are necessary to make the website user friendly and interactive are not available in the existing static website. M/s Sahara Next, a NICSI empanelled firm, who is developing the online system for Application Submission and Payment processing for registration process of Plant Varieties for the Authority,

submitted a Techno-Commercial Proposal for Designing and Development of Portal of the PPV&FRA. The Expert Committee for PVIS under the Chairmanship of Shri M. Moni, Deputy Director General, NIC has recommended the proposal of M/s Sahara Next and work order to complete the work within the stipulated time frame has been allotted. The proposal of web portal of the Authority contains content management features having design features such as XHTML and CSS compliant, auto generated menu, theme based user login, design protected from content editors and multiple content areas on one page, facilities of dynamic content search, polls, picture album, thumb nail, news and other features of use. It will also have the Search Engine Optimization (SEO) of friendly URLs which will enable us more awareness about the Authority. Installation of Drupal CMS and its customization, designing of templates for portal and development of website for the PPV&FRA will have multiple features/display such as crop guidelines, image maintenance, provision of user login, e-journal, downloads, etc. The RSS feed will enable real time synchronization with other websites. It will also have bilingual data segregation and integration with PVIS. The development environment of the application will be PHP, Drupal, MySQL, Apache, HTML and Linux.

6.4 Online filing of applications for registration

The Authority initiated registration of plant varieties in 2007 with 12 crop species which has been extended to 57 crop species at present. Authority is accepting the applications filed by the applicants along with prescribed fee (fee deposited in the form of demand drafts) either by person or by postal services. Development of online application submission and payment processing for registration process of plant varieties will facilitate/permit the applicants to file their applications online in the Authority and also to pay the prescribed fee through 'Payment Gateway' which may be either through Debit card / Credit card / Net Banking. This system is being developed by M/s Sahara Next. The application is in the final stage and will be hosted at NIC server for implementation.

6.5 e-Governance

Initiatives have been taken as under:

- **Biometric Attendance system:** The system is being installed and would be functional in the due course of time.
- **Scanning and micro-filming of documents:** To safeguard the applications and files of the Authority

from damage and loss of information, process of scanning of documents and preparation of microfilms has been started.

- **Installation of CCTV cameras:** To secure the premises of the Authority, Authority processed the proposal for procurement and installation of CCTV cameras.



7. Legal Cell and RTI matters

7.1 Legal Cell

The legal cell of the Authority has pursued the cases filed against the Authority. The summary of 20 court cases is given (Table 16). A total of six cases were disposed, out of which five cases in Hon'ble Andhra Pradesh High Court and one case in Hon'ble Delhi High Court were decided in favour of the Authority. Counters and pleadings were filed in time. The court cases are monitored and contested effectively. Further, in case of quasi-judicial proceedings before the Registry, legal inputs were rendered and daily order sheets were dispatched to the parties in time. During the reporting period, none of the orders passed by Registrar were set-aside.

The Hon'ble Delhi High Court by its order dated 30 November, 2011 in W.P. (C) No. 8431/2011 has upheld the order passed by the Registrar, Plant Varieties Registry. Legal inputs were rendered on international matters relating to law of plant variety protection and on issues relating to registration of plant varieties. The Gazette notification namely S.O. 1912 (E) dated 18 August, 2011, was issued by concerned department for the purpose of forwarding a copy of certificates of registration of the plant varieties to National Biodiversity Authority (NBA), Chennai and Indian Council of Agricultural Research (ICAR), New Delhi. Another notification, vide S.O. 1913 (E) dated 19 August, 2011 for notification of durum, dicocum, other triticum species of wheat, coconut, periwinkle, Indian pennywort, damask rose, blond psyllium and menthol mint species eligible for registration was also issued. The third notification for inclusion of three species of orchids eligible for registration was issued vides S.O. 617 (E) dated 27 March, 2012 in the Official Gazette.

Important gazette notifications were forwarded for consideration of the Central Government. The most notable includes the PPV&FR Recognition and Reward from Gene Fund under Rules, 2012 which will provide recognition and reward from gene fund to individual farmers who are eligible for the same as provided under section 39 (1) (iii) of PPV&FR Act, 2001.

Table 16. Status of Court Cases

S.No.	Particulars	No. of Cases
1.	Hon'ble Supreme Court of India	4
2.	Hon'ble Delhi High Court	9
3.	Hon'ble AP High Court	7
	Total	20

7.2 Parliament and other related matters

The Authority received one question of Rajya Sabha and three questions of Lok Sabha through DAC and draft replies/information were sent to DAC, Ministry of Agriculture, Government of India. Information for preparation of draft replies to other parliament questions relating to the Authority received from DAC and other Ministries/Departments were also provided in time. Reply to one calling attention of Rajya Sabha was also submitted to the DAC. PPV&FR Authority provided its comments/observations on following matters:

- Framing of Citizen Right to Grievance Redress Bill, 2011
- Distressed Farmers (special facilities, protection and welfare) Bill, 2010
- Utility Model Bill
- Draft Cabinet note for public private partnership in agriculture research and education
- Implementation of Cartagena Protocol on Bio-safety (CPB)
- Trade Policy review by World Trade Organization (WTO)
- Text of Conference of Parties (COP) to CBD
- India Greece Joint Economic Cooperation
- Review of report of sub-committee on "Enhancing Agricultural Productivity and Food Security"
- 5th Trade Policy review by Chinese Taipei

7.3 Right to Information (RTI)

As per RTI Act, 2005, the PPV&FR Authority has nominated officers and first Appellate Authority for furnishing information to the concerned persons. The details of the designated officers are available on Authority's website under the menu heading RTI. Compliance of provision contained under section 25 (2) of RTI Act, 2005 for submission of information to Chief Information Commissioner (CIC) is being done. During the period, the Authority received 24 applications either directly or through transfer from other departments seeking information under RTI Act, 2005. The information sought was made available within the stipulated time. There is no single application pending before first Appellate Authority or CIC. Most of the applications pertained to registry section of the PPV&FR Authority.



8. Training-cum-awareness Programmes

THE PPV&FR Act, 2001 is relatively a recent legislation on Intellectual Property Rights (IPR) in Agriculture, hence requires awareness among stakeholders. The Authority, since inception, took initiatives to popularize its provisions in the civil societies and grassroot workers. There exists a close linkage of the Act with the farmers, researchers, plant breeders, intellectuals, scientists, students, NGOs, and public and private organizations active in this area. During the last seven years, the Authority has been releasing funds to disseminate information on provisions of the Act to the relevant stakeholders through agricultural fairs, kisan melas, kisan utsav, farmers' fora etc. In order to ensure that farmers are aware of their rights, as envisaged under the PPV&FR Act, a Farmers' Cell has been established in the Authority.

The Cell looks after the implementation of provisions of the farmers' rights in the Act and invites applications for awarding *Plant Genome Savior Community Awards* and recognition certificates. The Cell is also responsible for extending financial assistance to training-cum-awareness programmes to various organizations/stakeholders. During the period under report guidelines for funding to NGOs were finalized and approved. Nearly 75 training-cum-awareness programmes (*Annexure VIII*) were organized through ICAR/SAUs/ other Government Departments and NGOs with financial support from the Authority. Highlights of Some of the major programmes are given below:

8.1 Directorate of Sorghum Research (DSR), Hyderabad

During 2011-12, DSR conducted two awareness-cum-training programmes on Protection of Plant Varieties and DUS testing. The first training was held on 27 January, 2012 with 140 participants from DSR, ICAR Institutes, Ph. D scholars, Research Associates / Senior Research Fellows, students and representatives from the seed companies. Chief Guest, Dr. R. Sudhakar Rao, Director of Research, ANGRAU, released the Telugu version of the Authority's brochure and delivered a key note address on the importance of PPV&FR Act, 2001. Lectures and presentations were made by the faculties and IPR experts. Second awareness programme on Protection of Plant Variety and Commercialization was held on 21 March, 2012. Chief

Guest, Dr. Vilas A. Tonapi, Head, Division of Seed Science and Technology, IARI, New Delhi delivered his address and released the Training Manual containing 43 crop specific DUS test guidelines. About 120 participants from various ICAR Institutes along with post-graduate students, Ph. D scholars and farmers participated in the event.

8.2 National Research Centre for Orchids (NRCO), Sikkim

A training-cum-awareness programme on provisions of farmers' rights in PPV&FR Act, 2001 was organized on 24 January, 2012 in which around 50 participants including farmers participated.

8.3 National Research Centre for Seed Spices (NRCSS), Ajmer

The centre organized two training-cum-awareness programmes on the Protection of Plant Varieties and Farmers' Rights on 14 and 22 March, 2012. In the first training, about 100 farmers participated. Chief Guest, Dr. S. N. Shukla, former ADG (F&FC), ICAR and other dignitaries including Dr. Harji Ram Choudhary, Deputy Director (Agriculture), Govt. of Rajasthan delivered informative lectures. In the second training programme, several speakers including Director, NRCSS, Nodal officer of DUS centre and Project Coordinator KVK, Ajmer, delivered lectures on the provisions of farmers' rights in the PPV&FR Act, 2001 and related matters.



8.4 Indian Institute of Spices Research (IISR), Kozhikode

The centre organized training-cum-awareness programme on the provisions of PPV&FR Act, 2001 at the institute on 17 February, 2012. Ms. R. Ushamani, Principal Agricultural officer, Department of Agriculture, Kozhikode was the Chief Guest of the function. She inaugurated the event and said, “the Protection of Plant Varieties and Farmers’ Rights Act, 2001 is a boon to the experimenting farmers for developing new varieties of crops as it protects their rights”. Dr S. Ramachandran, Director, Regional Science Centre and Planetarium, Kozhikode, presided over the function. More than 100 delegates including farmers, agricultural officers and scientists participated in the programme. During an interactive session, clarifications were given on the queries related to the registration of farmers’ varieties and other aspects to the farmers and scientists.

Another awareness programme on farmers’ rights was jointly organized by Spices Board and IISR at Indian Cardamom Research Institute (ICRI), on 9 March, 2012. Speakers from Kerala Agricultural University, Thrissur; Indian Institute of Spice Research, Calicut; and Sugarcane Breeding Institute, Coimbatore delivered lectures on the subject. Farmers, scientists, students and representatives of NGOs, Farmers’ clubs and Krishi Vigyan Kendra (KVK) participated in the programme. More than 150 delegates including farmers cultivating various spices crops such as cardamom, pepper, nutmeg etc were present on the occasion. Shri G. Muralidharan, Member, Spices Board inaugurated the programme and Dr. M.R. Sudharshan, Director (Research), KAU presided over the function. Some farmers exhibited their unique collections which included black pepper with very long spike and bold berries, black pepper with branched spike and also expressed interest in registration of their varieties.



8.5 Indian Institute of Pulses Research (IIPR), Kanpur

The Institute organized awareness-cum-training programme on PPV&FR Act, 2001 during 13-14 March, 2012. Director, IIPR was the Chief Guest of the function. Speakers from the institute delivered lectures on related aspects including provisions for farmers’ rights. Several technical aspects relating to DUS guidelines, variety registration system, filing of application for registration and identification of varieties of green gram and black gram were discussed through presentations. Scientists from different organizations including SAUs, agricultural colleges, Ph.D scholars and technical staff including farmers participated in the event.



8.6 Mahatma Phule Krishi Vidyapeeth (MPKV), Rahuri

To highlight the provisions of the PPV&FR Act, 2001 among scientists and students, a training programme was organized on 12 February, 2012 at MPKV. Chairperson, PPV&FR Authority was the Chief Guest and Vice-Chancellor, MPKV, Rahuri presided over the function. More than 170 scientists and students including Heads of the Departments were benefited from the programme. Speakers from various Departments made presentations on the subject. Lectures were also delivered in vernacular languages, i.e. Marathi and Hindi highlighting procedure for registration of varieties, benefit sharing, rights of farmers, researchers and plant breeders. A pamphlet of PPV&FR Authority in Marathi was also released on the occasion.

Another awareness-cum-training programme on PPV&FR Act, 2001 was organised on 24 February, 2012 in which more than 90 participants including farmers, technical staff of the university, and officers from state agriculture departments participated and also visited DUS centres. A booklet on plant variety registration and different provisions under PPV&FR Act, 2001 was published in Marathi and distributed. The centre has filed applications

for registration of seven varieties (three new & three extant varieties of groundnut and one variety of cotton) with the Authority.

8.7 CSK Himachal Pradesh Krishi Vishwavidyalaya (CSKHPKV), Palampur

To generate awareness on PPV&FR Act, 2001 several trainings were organized at Regional Station, Salooni, Bhandal on 5 October, 2011; KVK, Una on 27 December, 2011; KVK Bajaura on 29 December, 2011; and KVK Berthin on 30 December, 2011 for the faculty members, technical staff and farmers, on an average 100 participants from various organizations including the officials of agricultural department participated in the programmes at each station/ KVK. At Salooni, Mrs. Renu Chadha, Hon'ble MLA was the Chief Guest and the Vice-Chancellor, CSKHPKV presided over the function. Vice-Chancellor highlighted the importance of PPV&FR Act and its relevance in crop improvement and also shared experiences in this area.

At KVK, Una, Dr. J. C. Bhandari, Head and scientists from the CSKHPKV delivered lectures and various relevant presentations were made on the Act. At KVK, Bhajaura, scientists from the CSKHPKV and NBPGR, Shimla made presentations and apprised the farmers regarding implications of the Act. It was followed by a question-answer session between the resource persons and farmers in the programme. At KVK, Berthin, there was overwhelming response to the programme and the participants were satisfied with the presentations and information relating to PPV&FR Act. These awareness programmes proved useful in promotion and conservation of the indigenous and traditional knowledge of farmers and tribal population.

8.8 CCS Haryana Agricultural University (CCSAU), Hisar

Department of Seed Science and Technology, CCS HAU organized two training-cum-awareness programmes on 6 March and 30 March, 2012 for farmers, students, representatives from public and private seed sector, scientists/faculty members, and officials from state agriculture departments. Director of Research, CCSHAU inaugurated the first training programme and addressed more than 100 participants including farmers. The second training programme was inaugurated by Director of HRM, CCSHAU, in capacity as a Chief Guest. They highlighted the importance of PPV&FR Act, farmers' rights and the registration of farmers' & breeders' varieties. About 150 participants from different organizations, farmers, students,

scientists and faculty members joined the programme. The participants emphasized the benefits of such trainings and requested the need for conducting the same in future.

8.9 Acharya N.G. Ranga Agricultural University (ANGRAU), Hyderabad

To enlighten the farmers on plant variety protection and farmers' rights and to create awareness among the farmers regarding protection of bio-diversity and plant genetic resources one day awareness programme was conducted on 13 March, 2012 at, ANGRAU, Rajendra Nagar, Hyderabad. Nearly 65 participants including progressive farmers, NGOs, research associates, senior research fellows and Post-Graduate and Ph. D. students participated in the programme. Farmers from Mahboobnagar, Nalgonda and Ranga Reddy districts of Southern Telengana zone also participated in the event. Lectures and presentations on farmers' rights, protection of plant varieties and conservation of bio-diversity created a suitable platform to interact and exchange views and ideas on the subject. The second programme was conducted at Seed Research Training Centre at ANGRAU on 15 March, 2012 to upgrade the knowledge of the scientific community, students, research scholars, faculty members and farmers. About 60 participants including progressive farmers and NGOs participated in the event. The farmers and the students interacted with the speakers and organizers and appreciated the information made available through pamphlets and lectures. A pamphlet highlighting the activities of PPV&FR Authority in Telugu was also released for the benefit of local farmers.

8.10 Directorate of Rice Research (DRR), Hyderabad

The centre organized one day awareness-cum-training programme on Plant Variety Protection with a focus on registration of plant varieties in collaboration with PPV&FR Authority to sensitize the scientific community and the representatives of the seed companies including farmers on



7 February, 2012 at DRR. Director, DRR and Dr. R.C. Agrawal, Registrar-General, PPV&FRA delivered lectures on the registration process of varieties and farmers' rights under the Act respectively.

8.11 Directorate of Maize Research (DMR), New Delhi

DMR organised two training programmes during the period under report. One day awareness- cum-training programme on Protection of Plant Varieties and Farmers' Rights with special reference to maize was organized on 30 October, 2011 at Maize Winter Nursery, Hyderabad.

Another programme was organized on 29 February, 2012 at Aterna where more than 90 participants including farmers, NGOs and students were benefited from the programme. The scientists of the DMR, officials of the Authority and Dr. Sain Dass, former Project Director, DMR delivered lectures on various aspects of the Act. Dr. Jyoti Kaul, Principal Scientist made a presentation on filing of application for registration of hybrid/varieties of maize including farmers' varieties.



8.12 Junagadh Agricultural University (JAU), Jamnagar

The Seed Technology Research Unit at JAU, Jamnagar organised one day training programme on characterization, registration and seed production technology of castor and provision of the Act on 27 March, 2012. Nearly 50 officials of Pearl millet Research Station, KVK and ATMA project along with nearly 100 farmers/seed producers from different village of Jamnagar (e.g., Dhrol, Lalpur, Kalawad and Jamjodhapur Talukas) participated in the event. Lectures were delivered for an overview of the farmers' rights, registration of varieties, DUS testing and salient provisions of the PPV&FR Act. Field visit to castor DUS testing plots was also organised by the organizers.

8.13 Directorate of Wheat Research (DWR), Karnal

The first sensitization workshop on the provisions of the PPV&FR Act, with reference to farmers' rights was conducted by DWR at village Bhangu, Sirsa district of Haryana on 25 January, 2012. Nearly 350 farmers participated and a training manual was distributed. The second programme was organised at Nagina, Bijnor district of Uttar Pradesh on 15 March, 2012 in which 250 farmers participated. Farmers were made aware regarding provisions of farmers' rights in the Act through lectures and presentations in the programme. Posters, presentations and brochures related to the Authority and farmers' rights were also distributed.



8.14 Regional Station, Central Institute of Cotton Research (CICR), Coimbatore

To generate the awareness on Protection of Plant Varieties and Farmers' Rights, two day training-cum-awareness programme was organised at CICR, Regional Station, Coimbatore on 26-27 March, 2012. The participants were mostly farmers from nearby cotton growing villages of Coimbatore, such as Vadapudur, Kinathukadavu, Annur, Kanjapalli, Kallapuram, Meenakshipuram, Veerappagoundanor etc. The scientists, faculty members and



research scholars/students from other institutes like SBI, TNAU and IFGTB were also attended the programme. During the training and lectures were delivered by resource persons from CICR, SBI and TNAU, Coimbatore.

8.15 Central Institute of Cotton Research (CICR), Nagpur

Two training programmes on *Awareness of Plant Variety Protection, Farmers' Rights and DUS testing in Cotton* were organised at the Institute. First training was organised on 28 March, 2012 in which nearly 120 farmers, from various villages of Nagpur district participated. The second training held on 30 March, 2012 focused youths in which around 125 students from various colleges of Nagpur University participated.



8.16 Indian Institute of Sugarcane Research (IISR), Lucknow

Two awareness-cum-training programmes were organized on 23 and 24 March, 2012 on implementation of PPV&FR Act, 2001. An exhibition was also arranged for scientists, technocrats, farmers, students etc.

8.17 Sugarcane Breeding Institute (SBI), Coimbatore and Regional Stations (Karnal and Agali)

One day awareness-cum-training programme on PPV&FR Act, 2001 was organized on 17 March, 2012. Post-graduate and Ph. D students from TNAU, Coimbatore and Madurai campus participated along with technical and scientific staff of SBI and farmers. SBI, Regional Centre, Karnal also convened a talk on Farmers' Rights under PPV&FR Act which was organized at Kalesar Forest Range, Yamunanagar on 15 March 2012. In another awareness programme at SBI, Regional Centre, Karnal, Smt. Neelam P. Kasini, IAS Deputy Commissioner, Karnal was the Chief Guest on the occasion and delivered inaugural address. Another training programme was also held at SBI Regional Station at Agali, Palakkad, Kerala in November, 2011.



8.18 Directorate of Medicinal and Aromatic Plants Research (DMAPR), Anand

The Directorate organised one day training-cum-awareness programme at Anand on 3 March, 2012 to highlight the provisions of the Act. Director, DMAPR was the Chief Guest and representative of PPV&FR Authority was also present on the occasion. Delegates from the institute and 80 farmers from the nearby districts, including Rajasthan participated in the event. A question-answer session was arranged for the benefit of the stakeholders. A quiz was also conducted for farmers to test their knowledge after the session.

8.19 Central Institute of Temperate Horticulture (CITH), Srinagar

Training programme-cum-workshop were organized during 27-31 December, 2011 at Dirang, Bomdilla and other places of Arunachal Pradesh to apprise the Government officials of Temperate Zone Horticulture, Department of Agriculture and Department of Horticulture, progressive farmers of temperate areas and nursery owners of the North East region. Sh. Yesi Tsering, Joint Director of Temperate Zone Horticulture; Dr. D.B. Singh, Horticulturist-cum-



Deputy Director, Regional Apple nursery of Dirang; Sh. N. Lobsang, Horticulturist-cum-Deputy Director, Shergaon,

Bomdila; Horticulture Department Officers of Rupa, Dirang, Tawang, Bomdila and Yazoli; Horticulture Field Assistants of Shergoan, Anini, Ziro, Bomdila, Dirang, Kalatang Rupa, Anjaw and Allo; Horticulture Development officers, Yomeha; farmers from Rupa, Dirang, Tawang, Ziro, Domkho, Morshing, Anjaw, Anini, Chug, Kalatang and local advocates participated in the event. The importance of Protection of Plant Varieties and Farmers' Rights Act, objectives, breeders' rights, researchers' rights, farmers' rights, registration of plant varieties, eligibility to register farmers' varieties and breeders' varieties, certificate of registration, national register of plant varieties, national gene bank, national gene fund, community rights etc. were discussed in detail during the workshop.

8.20 Awareness-cum-training campaign in Bihar, Haryana and Uttar Pradesh by VARDAN

Voluntary Action for Research, Development and Networking (VARDAN), an NGO, run by Dr. C. Prasad, former Deputy Director General (Crop Science), ICAR, is working for the welfare of the farming communities of the various states. VARDAN organized three awareness-cum-training campaigns at Bulandshahar on 22 May, 2011; at Aterna village near Sonapat, Haryana on 12 August, 2011 and at Saran, Bihar during the last week of August, 2011 with the financial support from Authority. During these meetings, representative of PPV&FRA were also invited to highlight the provisions of the Farmers' Rights in the Act and to clarify the queries of the farming communities. Scientists from NBPGR, New Delhi; DWR, Karnal; DMR, New Delhi; IARI, New Delhi and Rajendra Agricultural University, Pusa, Samastipur delivered lectures on importance of plant genetic resources and their conservation and protection. More than 500 farmers participated in these events.

8.21 National Workshops/Kisan Mela/Kisan Utsav

- Government of Kerala, in partnership with the Ministry of Agriculture and Consumer Affairs, Government of India, National Horticulture Board and National Horticulture Mission organized a mega Agri-Horticulture Exhibition called Haristholsavam - 2011 during 3-7 September, 2011 at the Agricultural Urban Wholesale Market, Maradu, Cochin (Kerala). Prof. K. V. Thomas, Hon'ble Union Minister of State (Independent charge) for Consumer Affairs, Food and Public Distribution, Government of India inaugurated the festival on 3 September, 2011. Shri Oommen Chandy, Hon'ble Chief Minister, Government of Kerala, presided over the function. Prof. M. S.



Swaminathan, Chairman, MSSRF and Member of Parliament (Rajya Sabha) also graced the occasion as Guest of Honour. The Authority organized one exhibition during the festival. Local farmers, scientists and students interacted with the officials and expressed keen interest in literature brought out by PPV&FR Authority. During the five day festival, the Authority showcased its various activities through posters, charts, publications on farmers' rights, plant genome savior community awards and also distributed brochures containing information on its mandate, objectives, information about farmers' rights in the Act. More than one lakh persons visited various events during the festival.

- A National workshop and exhibition on farmer-led innovations was organized jointly by Haryana Kisan Aayog, ICAR, PPV&FRA, Trust for Advancement of Agricultural Sciences and National Innovation Foundation to commemorate the birthday of former Prime Minister of India, Late Ch. Charan Singh at CCS Hisar Agricultural University, Hisar on 23 December, 2011 as Kisan Diwas. The workshop was inaugurated by Dr. Bhupender Singh Hooda, Hon'ble Chief Minister of Haryana. Senior officials of the Government of Haryana, DARE/ICAR, SAUs and State Agriculture Department participated in the workshop. The deliberations provided a useful platform to the farmers, scientists, research managers, development officials, students, research scholars and planners from different parts of the country to interact



and exchange views and ideas. Chairperson, PPV&FR Authority and the officials of the Authority participated in the event. The Authority also showcased its publications including brochure, literature and posters related to the Act.

- Dr. R C Agrawal, Registrar-General, PPV&FR Authority delivered a lecture on ICAR's Initiatives in Knowledge Management using ICT in 65th Annual Conference at National Dairy Research Institute, Karnal on 4 December, 2011 organized by the Indian Society of Agricultural Statistics. The forum was also used for sensitizing the scientific community of ICAR centres regarding important provisions of the PPV&FR Act, 2001.
- The Authority participated in *Pride of India* Expo held at KIIT University, Bhubaneswar, Odisha on the occasion of 99th Indian Science Congress on 3-7 January, 2012. Publications on Plant Genome Savior Community Awards, registration of farmers' variety, Farmers' Rights etc. were distributed among the participants including students. The event provided a good opportunity to disseminate the awareness regarding the Act among the participants from various sections of the society.
- In order to preserve and promote cultivation of Navara, a traditional rice variety having medicinal properties from Kerala, farmers of the Chittur district organized *Navara Utsav* at Navara Eco Farm Chittur, Palakkad on 30 January, 2012. The 15th Meeting of the PPV&FR Authority was also held at Navara Eco Farm on this occasion. The members of the Authority visited the Navara rice fields after the meeting and joined the Utsav.



- National Innovation Foundation (NIF), is an autonomous body of the Department of Science and Technology, Govt. of India to promote grass root innovations. NIF has assisted in filing of many

applications under various IPRs as Patent, Trademark, Design and Plant Variety Registration. NIF organized First Grassroots Technology Acquisition Fund (TAF) Meeting at NASC Complex, New Delhi on 21 Feb 2012 in collaboration with PPV&FRA. Dr. P L Gautam, Chairperson, PPV&FRA and Prof. Anil Gupta, IIM, Ahmedabad and Vice-Chairman, NIF conferred Technology Acquisition Fund (TAF) Awards to 24 farmers from 8 states, who had developed over 39 improved varieties of crops like paddy, wheat, mustard, bean, pigeon pea, cardamom, pepper etc. and ₹13.00 lakh were disbursed to awardees from the TAF. NIF has filed many applications for Plant Variety Registration on behalf of the innovator(s)/farmer(s) for plant variety registration.



- Indian Agricultural Research Institute (IARI), Pusa, New Delhi organized Krishi Vigyan Mela during 3-5 March, 2012 to demonstrate farm technologies and R&D products developed by IARI and other ICAR Institutes. PPV&FR Authority used the event as a platform for educating and promoting the awareness about the Act and Farmers' Rights. Thousands of farmers across the country visited the mela and reaped benefits from the exhibition stall of the Authority.



- PPV&FR Authority in collaboration with Division of Agricultural Extension, IARI, New Delhi organized a Farmers' Meet at Badarpur Said village, Faridabad to educate the farmers on provisions of the PPV&FR Act with reference to farmers' rights on 30 March, 2012. Dr. R C Agrawal, Registrar-General, PPV&FRA inaugurated the meet and highlighted the provisions of the Act and farmers' rights.

8.22 Awareness Programmes at other institutes

During 2011-12, the awareness programmes were

organized at State Agricultural Universities, UAS, Dharwad; GBPUA&T, Pantnagar; PAU, Ludhiana and institutes of ICAR, such as Directorate of Rapeseed and Mustard Research, Bharatpur; Indian Institute of Vegetable Research, Varanasi; Indian Institute of Horticultural Research, Bangalore; CRIJAF, Barrackpore; Directorate of Onion and Garlic Research, Pune; Directorate of Groundnut Research, Junagarh; CPRI, Shimla; CPCRI, Kasargod; DSR, Indore; CRRI, Cuttack; VPKAS, Almora; SBI, Coimbatore etc.



9. General Activities of the Authority

9.1 Foundation Day of the Authority

The 7th Foundation Day of the Authority was celebrated on 11 November, 2011 at the National Bureau of Plant Genetic Resources, New Delhi. Dr. R. S. Paroda, former Secretary, DARE and DG, ICAR and presently Chairman, Haryana Farmers Commission and Trust for Advancement of Agricultural Sciences (TAAS) was the Chief Guest and Shri P. K. Basu, Secretary, Department of Agriculture and Co-operation presided over the function. Dr. Gurbachan Singh, Chairman, Agricultural Scientists Recruitment Board; Shri Prem Narain, Senior Advisor, Planning Commission; Dr. P. L. Gautam, Chairperson of the PPV&FRA; and Dr. K. C. Bansal, Director, National Bureau of Plant Genetic Resources were the guests of honour.



Following awards were conferred during the event:

Awards for DUS Test Centres (ICAR Institute Category)

- Directorate of Wheat Research, Karnal in recognition of outstanding performance as the Best DUS Test Centre
- Directorate of Sorghum Research, Hyderabad in recognition of outstanding performance as DUS Test Centre
- Central Institute for Cotton Research, Regional Station, Coimbatore in recognition of outstanding performance as DUS Test Centre

Awards for DUS Test Centres (State Agricultural University Category)

- Mahatma Phule Krishi Vidyapeeth, Rahuri in recognition of outstanding performance as the Best DUS Test Centre
- Tamil Nadu Agricultural University, Coimbatore in recognition of outstanding performance as DUS Test Centre
- University of Agricultural Sciences, Dharwad in recognition of outstanding performance as DUS Test Centre

Awards for 'Best Institute Promoting Registration of Plant Varieties'

- Directorate of Maize Research, New Delhi in recognition of outstanding performance as the Best Institute promoting Plant Variety Registration
- Directorate of Rice Research, Hyderabad in recognition of outstanding performance as Institute promoting Plant Variety Registration
- Project Co-ordinator (Pearl Millet), Jodhpur in recognition of outstanding performance in promoting Plant Variety Registration

Awards for 'Best Project Centre'

- Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli in recognition of outstanding performance as the Best Project Centre
- Central Institute of Temperate Horticulture, Srinagar (J&K) in recognition of outstanding performance as Project Centre
- M. S. Swaminathan Research Foundation, Chennai in recognition of outstanding performance as Project Centre

Best State Promoting Registration of Farmers Varieties

Directorate of Agriculture and Food Production, Odisha in recognition of outstanding performance for promoting Farmers' Variety Registration received the award for Odisha State.

Special Awards

- National Bureau of Plant Genetic Resources, New

Delhi for long standing association for establishment of National Gene Bank and co-ordinating Plant Variety Registration

- Division of Seed Science and Technology, IARI, New Delhi in recognition of excellent performance for capacity building and providing technical support

Awards for the Best Employee of the Authority

1. Shri Rajeev Talwar, SAO
2. Shri D. S. Rajganes, LA
3. Dr. Ajay K Singh, STO

9.2 Branch Office, Guwahati

The Guwahati Branch Office of PPV&FRA commenced its functioning from the College of Veterinary Campus of Assam Agricultural University (AAU) at Khanapara. Deputy Registrar of the branch office joined on 20 May, 2011 and subsequently other supporting staff also joined. Detailed estimates were prepared for conversion of two rooms of AAU as Branch Office of the Authority. Deed of Agreement between PPV&FR Authority, New Delhi and Assam Agricultural University, Jorhat was signed and the office was shifted to new premises on 5 March, 2012. The office is now fully functional with required facilities.

9.2.1 Activities of Branch Office

Awareness on PPV&FR Act, 2001 was initiated by way of personal contacts, communication with concerned institutions like State Agricultural Universities, ICAR Research Stations, KVKs, delivering lectures in training programs and participation in Agriculture fairs. Some of the farmers who are growing and conserving traditional varieties over generations, were given a demonstration of filing of applications for plant variety registration. Deputy Registrar, Guwahati Branch office participated in various training-cum- awareness programmes and delivered lectures on “Protection of Plant Varieties and Farmers’ Rights in India” at Assam Agricultural University, Jorhat on 19 July, 20 December, 2011 and 3rd January, 2012.

9.2.2 Visits to DUS Projects /Centres

- Deputy Registrar visited DUS Project at Tea Research Association, Tocklai Experimental Station, Jorhat on 2 November, 2011. Dr. T.S. Barman, Head, Department of Plant Physiology and Breeding, Tocklai Experimental Station, Jorhat and Co-Nodal Officer, DUS Project (Tea), Mr. Abhijit Medhi and Mr. Bidyut Mohan also participated in the activity.
- Monitoring of DUS tests for rice was conducted at Assam Agricultural University, Jorhat on 3 and 4



November, 2011 under the Chairmanship of Dr. B.N. Singh, former Director of Research, Birsa Agricultural University, Kanke, Ranchi. Dr. L. V. Subba Rao, DRR, Hyderabad; Dr. S.R. Dhua, CRRI, Cuttack; Dr. P. Bora, Nodal Officer; Dr. Akashi Sharma, Co-Nodal Officer; DUS Test Centre; AAU; and Deputy Registrar, Guwahati Branch Office also participated in the activity.

- Deputy Registrar visited DUS project on bamboo at RFRI, Jorhat along with Dr. R. K. Kalita, Principal Investigator on 4 November, 2011.



9.2.3 Participation in seminars, Agri. Fairs, Conferences etc.

The Branch office participated in North East Regional Agri. Fair, 2012 at Khanapara during 10-12 February, 2012. Nearly 175 persons visited the stall including eminent personalities such as Dr. R.N. Goswami, Dean, C. V. Sc.,



AAU, Khanapara; Dr. D.N. Chakroborty, former Dean, CA, AAU; Dr. K. Borkakoti, Director of Agriculture and Dr. A. Deuri, Director of Horticulture, Government of Assam and encouraged the event with inspiring comments.

9.3 Branch Office, Ranchi

The Branch Office, Ranchi was established on 21 September, 2010 in a small building of Prakiriti Bhawan, College of Forestry, Birsa Agricultural University (BAU), Kanke, Ranchi (Jharkhand). The office started with the outsourced staff and Deputy Registrar (HQ) shouldered the responsibility as In-Charge of the same. Branch office will be shifted next year to another building of Computer Centre, BAU, Ranchi after signing a MOU between the PPV&FR Authority and BAU, Ranchi. The officers from headquarters including Ranchi office took initiatives for dissemination of information regarding PPV&FR Act, 2001 and farmers' rights.

9.3.1 Training-cum-awareness programme

The Deputy Registrar and Registrar from the Head Office visited the Branch office and also monitored the projects assigned to 'Gene Campaign' and 'Field Gene Bank project' of BAU, Ranchi from time to time and provided the necessary guidance. The officials and staff of the Branch office interacted with the Horticulture, Agriculture and Forestry Departments of Jharkhand state and also with the scientists working with BAU and ICAR for dissemination of information on matters related to the PPV&FR Act.

9.4 Meetings of PPV&FR Authority

The Authority conducted three meetings during 2011-12.

Table 17. Meetings of PPV&FR Authority

Meetings	Date	Venue
13 th Meeting of the Authority	28.06.2011	Committee Room III, NASC Complex, New Delhi
14 th Meeting of the Authority	20.10.2011	Committee Room III, NASC Complex, New Delhi
15 th Meeting of the Authority	30.01.2012	Navara Eco Farms, Karukamani, Chittoor, Palakkad, Kerala

9.4.1 Major decisions of the Authority taken during meetings

- Progress of construction of the campus to be monitored regularly to expedite the work.
- The Authority should make an endeavor for making the office paperless.



- The Authority may take steps to obtain exemption under section 80 G of Income Tax Act, 1961 for donations made to National Gene Fund and also seek exemption of Income Tax under section 10 (17A) of the Income Tax Act, 1961 for the awardees receiving cash rewards from the Authority.
- Constitution of an Expert Committee on registration of Essentially Derived Varieties (EDV) and (IV) Initial Variety, for processing the applications under EDV category.
- Comprehensive proposal regarding amendments in PPV&FR Rules and Regulations in harmony with PPV&FR Act, 2001 for approval by Govt. of India may be proposed.
- Invite applications for the *Plant Genome Savior Community Award* for 2010-11 by giving wide publicity in popular newspapers and circulation to State Agricultural Universities, ICAR institutes/ICAR magazines, KVKs, National Biodiversity Authority and State Biodiversity Boards etc.
- Recognition of CGHS empanelled hospitals by the PPV&FR Authority for providing treatment to its employees on CGHS rates.
- Approval of the Annual Accounts and Annual Report 2010-11 for laying before both Houses of Parliament.

9.5 Programme, Planning and Policy Committee of the Authority (PPPC)

During the period under report, the PPPC had a meeting on 16 January, 2012 Chaired by Mrs. Radha Singh, former Secretary, DAC with experts from various line Departments/Organizations for guiding and improving the functioning of the Authority to develop, design and plan its programmes and policies to fulfill its mandate as per the requirements of stakeholders.

9.6 Meetings of the Project Appraisal Committee (PAC)

The Authority constituted a Project Appraisal

Committee (PAC) to appraise and finalize the new projects received for funding during the reporting period.

Chairman

Dr. B. L. Jalali, former Director of Research, CCS HAU, 601, Neelkant, Sector – 21/C, Part III, Faridabad

Member

Dr. S. Mauria, ADG (IPR & Policy), Indian Council of Agricultural Research, Krishi Anusandhan Bhawan-I, New Delhi

Dr. V. A. Parthasarathy, Director, Indian Institute of Spices Research, Marikunnu P.O., Calicut, Kerala

Dr. Rajbir Yadav, Principal Scientist, Division of Genetics, I.A.R.I., New Delhi

Member Secretary

Dr. Tejbir Singh, Registrar, PPV&FRA, New Delhi

The PAC, in its meeting held on 6 February, 2012, deliberated on the presentations given by 14 institutions out of 16 project proposals submitted and recommended projects of different crops for sum of ₹355.50 lakh for grants-in-aid during the year 2011-12. The progress of ongoing projects was also reviewed and mid-course recommendations made.

9.7 Construction of the Authority Bhawan

- The Authority took the possession of the earmarked land in Pusa Campus measuring 10,480 m² from IARI on 28 April, 2011.



- The foundation stone for the construction of the building was laid by Shri Sharad Pawar, Hon'ble Union Minister of Agriculture and Food Processing Industries on 8 July, 2011.
- M/s Uttar Pradesh Rajkiya Nirman Nigam (UPRNN) Ltd. was awarded the contract to work as Project Management Consultant (PMC).
- An agreement was signed with the UPRNN Ltd. on 28 June, 2011.
- M/s Adharshila Designs Pvt. Ltd. was selected as Architectural Design Consultant.
- A building committee was constituted to plan and review the progress and to coordinate the construction work.
- M/s UPRNN has already constructed its temporary office at the site.

9.8 Staff Welfare and News

- For medical facilities to the Staff on CGHS rates; 38 hospitals/labs at NCR have been recognized
- Shri Nitesh Kumar Verma joined as Computer Assistant on his repatriation from the Director General of Foreign Trade on 20 June, 2011
- Dr. A.K. Malhotra, Registrar-General was relieved on 1 September, 2011 in order to enable him to join his parent office
- Shri Shyam Narayan Prasad joined as Computer Assistant on 8 November, 2011
- Dr. R.C. Agrawal, National Coordinator, NAIP (ICAR), joined as Registrar-General, PPV&FRA on 23 November, 2011.

9.9 Participation by Dr. P. L. Gautam, Chairperson, PPV&FRA

- Chaired the session during the seminar on Protection of Plant Varieties and Agricultural Biotechnology inventions jointly sponsored by United States Patent and Trademark Office (USPTO) and PPV&FR Authority held at New Delhi during 11-18 August, 2011
- Chaired the National Research Advisory Committee Meeting of National Innovation Foundation (NIF) at IIM, Ahmedabad on 7-9 October, 2011
- Participated and addressed the inaugural ceremony of 3rd Indian Youth Science Congress and Panel discussion on "Rio+20: Agenda for Sustainable Future" held at New Delhi on 3 November, 2011
- Chaired the 1st Meeting of Joint Working Group on issues of ITPGRFA and related Treaties held at PPV&FR Authority, New Delhi on 8 December, 2011

- Participated in the National Advisory Board for Management of Genetic Resources at NBPGR, New Delhi on 13 December, 2011
- Chaired the Inaugural and Plenary Session on implementation of multilateral system under ITPGRFA at national and international level- Issues and current status at NBPGR, New Delhi on 23 -25 January, 2012
- Participated in Indian Seed Congress, 2012 (organized by NSAI) at Pune and visited the DUS Centre at MPKV, Rahuri on 10 -11 February, 2012
- Chaired technical session held at MSSRF, Chennai on 20 years of Rio-Conference on 15 February, 2012
- Participated in the Award Function of National Innovation Foundation at Rashtrapati Bhawan, New Delhi on 21 February, 2012

9.10 Participation by Registrar-General (upto 1 Sep., 2011)

Dr. A.K. Malhotra, Registrar-General

- Participated in the awareness-cum-training workshop on the PPV&FR Act, 2001 organized by the Birsa

Agricultural University, Ranchi on 29 April to 1 May, 2011

- Visited Directorate of Soybean Research, Indore to review the progress of DUS testing centre and to inspect the test plot/experimental area under maintenance breeding of reference varieties on 17 June, 2011
- Visited Central Research Institute of Jute and Allied Fibers (CRIJAF), Barrackpore, the nodal centre for DUS testing, maintenance breeding of reference and example varieties in jute on 6 August, 2011

Dr. R. C. Agrawal, Registrar-General (23 Nov. 2011 onwards)

- Participated in the Indian Science Congress held at Bhubaneswar during 3-7 January, 2012
- Participated as a panelist during a session on Mainstreaming Agri-business for Inclusive Development on February 8, 2012 in Second Global Agri-Business Incubation Conference: NIABI- 2012 held at Indian Agricultural Research Institute, New Delhi during February 6-8, 2012



10. International Co-operation

10.1 Bi-lateral Co-operation

During the period under report, the PPV&FR Authority through the DAC took initiatives for bi-lateral co-operation with a number of countries in the field of protection of plant varieties, DUS testing and plant breeders' rights. The PPV&FR Authority signed a Memorandum of Agreement (MoA) with the Netherlands Inspections Service for Horticulture (Naktuinbouw), the Netherlands and Plantum in December, 2011. The MoA was signed in pursuance to the Work Plan under the MoU signed between the Ministry of Agriculture, Government of India and the Ministry of Economic Affairs, Agriculture and Innovation of the Government of the Netherlands. The agreement covers sharing of experience in the implementation of PVP Act by both countries, training on DUS procedures in India by the Naktuinbouw, participation of the Indians in the PVP course in Netherland and sharing of Plant Breeders' Rights system.

India has joined OECD recently and a two member OECD delegation consisting of Mr. Peter Johnston from New Zealand and Mr. Michael Ryan, Head, Codes and Schemes, Paris visited India from 23-25 August, 2011. During their visit the delegation had interaction with the officers of the PPV&FR Authority.

A 15-member delegation of International Seed Federation visited India and had an interactive session with NSAI-PPV&FRA in respect of Protection of Plant Varieties, Plant Breeders' Rights and DUS testing and related matters on 27 September, 2011 at NASC Complex, New Delhi. Besides, on the issues of International importance in respect of International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), Convention on Biological Diversity (CBD) and related Instruments and Conventions, DAC constituted a Joint Working Group (JWG) under the Chairmanship of Dr. P.L. Gautam, Chairperson, PPV&FRA and with members from the related Ministries/Departments to take Government of India's stand on various matters

related to ITPGRFA to which India is signatory and other related Treaties/Conventions. During the period of reporting, the JWG had two meetings in which matters were discussed related to ITPGRFA, Inter-governmental Committee on Nagoya Protocol -2, Conference of Parties (COP-11) of the CBD to be held at Hyderabad from 1-19 October, 2012.

10.2 Foreign Visitors

- Meeting with Prof. Huge W. Pritchard, Head of Research, Seed Conservation & Senior Science Group, UK on 2 June, 2011.
- A delegation from United States Department of Agriculture (USDA) visited PPV&FR Authority on 12 September, 2011.
- Delegation from German Plant Breeder Association (BDP) visited PPV&FR Authority on 4 October, 2011.
- Participated in the meeting with Dutch Delegation Chaired by Hon'ble Union Minister of Agriculture at Krishi Bhawan on 8 November, 2011.

10.3 Foreign Visits

- Shri D S Mishra, Joint Registrar participated in Plant Variety Protection (PVP) Course- 2011 at Wageningen, the Netherlands from 19 June-1 July, 2011 jointly organized by the Naktuinbouw & Wageningen University Research Centre for Development Innovation.
- Dr. Manoj Srivastava, Registrar participated in Asia Pacific Seeds Association (APSA) Conference held at Pattaya, Thailand from 27 February-2 March, 2012.
- Dr. P.L. Gautam, Chairperson, PPV&FRA participated as Co-Chairman (Asia Region) in the 2nd meeting of the Bureau of the Fifth Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture held from 26-27 March, 2012 at Rome, Italy.



11. Financial Statements of the Authority for 2011-12

THE Financial statements were prepared under the historical cost convention, in accordance with Generally Accepted Accounting Principles (GAAP), the applicable mandatory accounting standards (AS) issued by Institute of Chartered Accountants of India and relevant presentational requirements for Central Autonomous Bodies as prescribed by Controller General of Accounts (CGA). The Authority follows the accrual method of accounting in respect of all items of expenditure and income except where otherwise stated. A copy of balance sheet as on 31 March, 2012, Income and Expenditure Account and Receipt and

Payment Account for the year ended 31 March, 2012 are given below:

In compliance with section 62(2) of PPV & FRA Act, 2001, the accounts of the Authority were submitted to Comptroller and Auditor General of India (CAG). The audited accounts along with audit report and management reply shall be sent to the Ministry separately for placing before both the houses of Parliament. The Authority has received Grants-in-aid of ₹1500.00 lakh during the year 2011-12 and the grant was fully utilized.



Balance sheet of Authority as on 31 March, 2012

Amount (in ₹)

CORPUS / CAPITAL FUND AND LIABILITIES	Current Year	Previous Year
CORPUS / CAPITAL FUND	10,12,55,674.84	66,079,819.96
RESERVES AND SURPLUS	-	-
EARMARKED/ENDOWMENT FUNDS	-	-
SECURED LOANS AND BORROWINGS	-	-
UNSECURED LOANS AND BORROWINGS	-	-
DEFERRED CREDIT LIABILITIES	-	-
CURRENT LIABILITIES AND PROVISIONS	1,91,77,979.26	10,970,026.03
TOTAL	12,04,33,654.10	7,70,49,845.99
ASSETS		
FIXED ASSETS	2,12,03,696.00	16,132,222.00
Less: Accumulated Depreciation	(1,47,54,455.22)	(11,761,619.82)
NET FIXED ASSETS	64,49,240.78	4,370,602.18
INVESTMENTS-FROM EARMARKED/ENDOWMENT FUNDS	-	-
INVESTMENTS-OTHERS	-	-
CURRENT ASSETS,LOANS ADVANCES ETC.	11,39,84,413.32	72,679,243.81
MISCELLANEOUS EXPENDITURE (to the extent not written off or adjusted)	-	-
TOTAL	12,04,33,654.10	77,049,845.99
SIGNIFICANT ACCOUNTING POLICIES		
CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS		

**Income and Expenditure Account of the Authority
for the Year Ended 31 March, 2012**

Amount (in ₹)

INCOME	Current Year	Previous Year
Income from Sales/ Services	-	-
Grants/Subsidies	14,45,84,986	90,525,753.00
Fees/Subscriptions	47,80,650	6,740,840.00
Income from Investments	-	-
Income from Royalty,Publication etc.	-	-
Interest Earned	25,29,652.28	1,136,603.08
Other Income	3,15,027	365,601.00
Increase/(Decrease) in stock of Finished goods and works in progress	-	-
Deferred Income(Depreciation on fixed asset)	31,00,540.40	3,402,376.17
TOTAL (A)	15,55,10,855.68	102,171,173.25
EXPENDITURE		
Establishment Expenses	3,50,50,111.00	22,429,965.00
Other Administrative Expenses etc.	2,31,74,602.00	13,081,945.00
Expenditure on Grants , Subsidies etc.	5,97,39,470.00	33,551,802.00
Interest	9,562.00	6,040.00
Depreciation including Impairment Loss(Net Total at the year-end-corresponding to Schedule 8)	31,00,540.40	3,402,376.17
Prior period Adjustment A/c (ANN-A)	1,15,98,662.00	10,208,891.35
TOTAL(B)	13,26,72,947.40	82,681,019.52
Balance being excess of Income Over Expenditure (A-B)	2,26,37,908.28	19,490,153.73
Authority Fund - Rs. 28410708.28	-	-
Gene Fund - Rs. 4450673.00	-	-
Transfer to Special Reserve (Specify each)		
Transfer to / from General Reserve		
Balance being surplus (Deficit) carried to corpus / Capital fund	2,26,37,908.28	19,490,153.73

Receipts and Payments for the year ended 31st March, 2012

Amount (in ₹)

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
1. Opening Balances			1. Expenses		
a) Cash in Hand	5,300.00	5,300.00	a) Establishment Expenses	2,08,69,459.00	1,53,21,749.00
b) Bank Balances			b) Administrative Expenses (Authority)	1,83,08,129.00	1,05,29,465.00
Gene Fund	1,20,923.00	27,524.00			
Authority Fund (SBI) including mode A/c Syndicate Bank	99,30,185.70 25,06,758.08	67,14,406.70	2. Payments made against funds DUS Centres (Annexure B & C) Projects (Annexure-D & E)	4,67,23,504.00 2,32,29,717.00	1,94,10,901.00 2,70,23,238.00
2. Grants received					
a) From Government of India	15,00,00,000.00	9,28,00,000.00	3. Expenditure on fixed Assets and Capital Work in Progress		
b) From State Government			a) Purchase of Fixed Assets (Authority)	46,37,286.00	7,91,039.00
c) From Other Sources			b) Expenditure on Capital Work-in-Progress		
3. Interest Received					
a) On Bank deposits			4. Advance to Training Centres (Annexure F)	53,21,499.00	62,91,292.00
b) Loans, Advances etc. Gene Fund			5. Advance to outsiders (Annexure G)	30,98,574.00	8,61,338.00
Authority Fund	10,48,775.28	39,335.08	6. Advance for construction of Authority Bhawan	1,55,23,604.00	
4. Advance Received (Annexure K)	1,05,000.00	5,48,074.00	7. Advance Against DUS Test fees (Annexure H)	9,24,000.00	5,32,000.00
5. Refund of Income Tax		23,370.00	8. Refilling of Franking Machine	1,75,000.00	1,75,000.00
6. Recovery of Advance (Ann. L)	3,41,675.00	91,016.00	9. Refund to DOC	185.00	12,68,390.00
7. Fees / Subscriptions/ Other Income			10. Contribution to Organisation/institutions		15,79,041.00
Application/Registration Fee Received	39,20,000.00	64,76,000.00			
PVJ Fees	49,000.00	49,890.00	11. Advance to Staff (Ann-I)	28,41,414.00	18,56,801.00
Fees for Notice of Opposition	1,27,500.00	1,53,000.00			
Annual Fees-Gene Fund	5,26,000.00	72,000.00	12. Finance Charges	6,908.00	6,040.00
Sale of Old Newspapers, Scrap	600.00	2,595.00			
DUS Test Fee Received	57,97,500.00	19,15,000.00	13. Payments against advance received	55,000.00	10,000.00
Other Fees Received	683.00	6,604.00			

Contd...

Receipts and Payments for the year ended 31 March, 2012 (Contd.)

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
8. Refundable to DOC		185.00	14. CPF Deposit Account		3,71,204.00
9. Recovery of Advance to Staff (Ann. M)	10,39,389.00	7,19,605.00	15. Fixed Deposit	3,40,00,000.00	50,00,000.00
10. Encashment of FD	3,67,97,466.00		16. Reversal of Stale Demand Draft	600.00	
11. Reversal of Stale Cheques		4,204.00	17. Payment to DUS Centre against old claim	22,38,064.00	
12. Discount received from GPO		5,975.00	18. Statutory Liabilities Paid (Annexure J)	37,04,910.00	60,80,172.00
13. Wrongly Debited by Bank now reversed	2,000.00	16,753.00	19. Closing Balances		
			a) Cash in Hand	5,000.00	5,300.00
			b) Bank Balances		
			State Bank of India(Including Mod)	4,63,721.70	99,30,185.70
			Syndicate Bank	2,41,96,312.36	25,06,758.08
			Gene Fund	58,53,950.00	1,20,923.00
			Guwahati's Bank	48,856.00	
			Ranchi's Bank	93,062.00	
TOTAL	21,23,18,755.06	10,96,70,836.78	TOTAL	21,23,18,755.06	10,96,70,836.78

12. Citizen's Charter

VISION

Ensure an effective system for protection of plant varieties, the rights of the farmers, plant breeders and to encourage the development of new varieties of plants.

MISSION

Protection of intellectual property rights of plant varieties to stimulate plant variety innovations and also to recognize and reward the farmers for their contributions in preserving and conserving the plant genetic resources and traditional varietal wealth

OBJECTIVES

- To provide an effective system for protection of plant varieties and rights of farmers, plant breeders and researchers
- To protect plant breeders' rights and to stimulate investment for Research & Development and evolution of new varieties
- To recognize the farmers in respect of their contributions made for conserving, improving and making available plant genetic resources for development of new plant varieties
- To facilitate the growth of seed industry to ensure production and availability of high quality seeds and planting material to the farmers

FUNCTIONS

1. Encourage the development of new varieties of plants and to protect the rights of the farmers and the plant breeders
2. Establishment of National Gene bank for orthodox seed and field gene bank for perennial crops
3. Registration of new and extant varieties of plants
4. Developing characterization and documentation of registered plant varieties
5. Documentation, indexing and cataloguing of farmers' varieties
6. Compulsory cataloguing facility for all varieties of plants
7. Ensuring seeds of varieties registered under the Act are available to farmers and providing for compulsory license, if needs arise
8. Ensuring maintenance of National Register of plant varieties
9. Utilization of Gene Fund for supporting the conservation and sustainable use of plant genetic resources and

capacity building of the panchayats in carrying out such conservation and sustainable use and meeting the expenditure of the schemes relating to benefits sharing and compensations to the stakeholders

Stakeholders

Protection of Plant Varieties and Farmers' Rights is a unique subject involving diverse activities, initiatives and stakeholders. The stakeholders in Protection of Plant Varieties and Farmers' Rights are Central Government, State Governments, Union Territories, Research organizations including Agricultural Universities, Seed Industries, NGOs and above all the farmers including tribal farming communities.

Services offered

- i. Providing IPR protection to plant varieties bred by farmers, researchers / plant breeders in the form of plant variety registration
- ii. Maintaining National Register of Plant varieties wherein details of plant varieties and the rights of respective breeders are mentioned
- iii. To provide compensation to the farmers in case a registered variety does not perform as per the claim made by the breeders
- iv. Benefit sharing to the communities / farmers for the contribution / sharing of plant genetic resources
- v. To create awareness and capacity building for the rights of plant breeders and farmers towards implementation of PPV & FR Act
- vi. Providing plant varieties database to stakeholders
- vii. To support and reward farmers, community of farmers, particularly the tribal and rural communities engaged in conservation, improvement and preservation of genetic resources

Grievances redressal mechanism

Registrar-General, PPV & FR Authority has designated officer for redressal of public grievances and can be addressed to:

Registrar-General

Protection of Plant Varieties and Farmers' Rights Authority
S-2, A Block, NASC Complex, Opp. Todapur Village
New Delhi -110012. Ph: 011-25843316.

Fax: 011-25840478. E mail: ppvfra-agri@nic.in

www.plantauthority.gov.in

Members of the PPV&FR Authority

Dr. P L Gautam, Chairperson of the Authority

Ex officio Members

- Dr. Gurbachan Singh (upto 12 October, 2011), Agriculture Commissioner, Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India, Krishi Bhavan, New Delhi – 110 114
- Dr. Swapan Kumar Datta, Deputy Director General (Crop Sciences) , ICAR, Krishi Bhawan, New Delhi – 110 114
- Shri Anindo Majumdar, (upto 22nd July, 2011), Shri S.K.G. Rahate, (from 23 July, 2011) Joint Secretary (Seeds), Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India, Krishi Bhawan, New Delhi- 110 014
- Dr. Gorakh Singh, Horticulture Commissioner, Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India, Krishi Bhawan, New Delhi- 110 014
- Dr. K C Bansal, Director, National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi- 110 012.
- Dr. S Natesh, Adviser Grade-I, Government of India, Department of Biotechnology, CGO Complex, Lodhi Road, New Delhi- 110 003
- Shri Satish Chandra, Joint Secretary and Legal Affairs, Department of Legal Affairs, Ministry of Law and Justice, Government of India, Shastri Bhawan, New Delhi- 110 001.
- Shri Hem Pande, Joint Secretary (dealing with Biosafety), Government of India, Ministry of Environment and Forests, Paryawaran Bhawan, CGO Complex, Lodhi Road, New Delhi- 110 003.

Nominated Members

- Shri V Nagi Reddy, Principal Secretary (Agriculture), Government of Andhra Pradesh, D Block, 1st Fl, Room No 270, Secretariat Office, Hyderabad.
- Dr. S N Puri, Vice-Chancellor, Central Agricultural University, Manipur, Imphal- 795001
- Sh. Roshan Lal, Finance Commissioner & Principal Secretary (Agriculture), Room No 430, 4th Floor, Sector 17, New Haryana Secretariat Building, Chandigarh- 160 017
- Shri Raju Barwale, Managing Director (as seed Industry representative), Maharashtra Hybrid Seeds Company Ltd. (Mahyco), Dawalwadi, PO Box 76, Jalna (MS) 431203
- Shri A C Zonumawia, Coordinator & Chairman (as tribal organization representative), Centre for Environment Protection (CEP), B-27/1, Tuikual South, Aizwal- 796001 (Mizoram)
- Shri P Narayanan Unny (as Farmers' organisation representative), Navara Eco Farm, Karukamani Kalam, Chittor College PO, Dist. Pallakad, Kerala- 678 104 ·
- Representative of women's organization associated with agricultural activities-Vacant

Member-Secretary (ex officio)

- Dr. A K Malhotra, (upto 1 September, 2011) and Dr. R C Agrawal, Registrar-General, PPV&FR Authority (from 23 November, 2011)

Members of Programme, Planning and Policy Committee

Chairperson

- 1) Mrs. Radha Singh, former Secretary, Dept. of Agriculture and Co-operation, C-2/32, Tilak Lane, New Delhi 110 001

Members

- 2) Mr. S K Roongta, Chairman-cum-Managing Director, National Seeds Corporation Ltd. , Beej Bhawan, PUSA Campus, New Delhi 110 012
- 3) Dr. S R Rao, Advisor, Department of Biotechnology, Ministry of Science and Technology, Block-2, CGO Complex, Lodhi Road, New Delhi 110 003
- 4) Dr. T Ramakrishna, Additional Professor of Law and Coordinator Centre for Intellectual Property Rights, Research and Advocacy, IPR Chair, National Law School of India University, Nagarbhavi, P.B. 7201, Bangaluru 560 072
- 5) Dr. R K Gupta, Head, Intellectual Property Management Division, Council of Scientific and Industrial Research, NISCAIR Building, 3rd Floor, 14, Satsang Vihar Marg, Special Institutional Area, New Delhi 110 067
- 6) Dr. Nazeer Ahmed, Director, Central Institute for Temperate Horticulture, K.D. Farm, Old Air Field, Rangreth, Srinagar 190 007 (J&K)
- 7) Director, IFGTB, P.B. No. 10, 61, Forest Campus, R.S. Puram, Coimbatore 641 002
- 8) Prof. D.P. Ray, Vice-Chancellor, Odisha University of Agriculture and Technology, Bhubanseshwar, Odisha 751 003
- 9) Mr. Anindo Majumdar, Joint Secretary (Seeds), Dept. of Agriculture and Co-operation, Ministry of Agriculture, Krishi Bhawan, New Delhi 110 014
- 10) Mr. Hem Pande, Joint Secretary, Ministry of Environment and Forests, Lodhi Road, CGO Complex, New Delhi 110 003
- 11) Dr. S S Banga, National Professor, Department of Plant Breeding and Genetics, Punjab Agricultural University, Ludhiana 141 004
- 12) Dr. Ramesh Chand, Director, NCAP, New Delhi 110 012
- 13) Dr. K C Bansal, Director, National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi 110 012
- 14) Dr. B P Singh, Director, Central Potato Research Institute, Shimla, Himachal Pradesh 170 001
- 15) Dr. N K Dadlani, Director, National Seed Association of India, 909, Surya Kiran Building, 19, Kasturba Gandhi Marg, New Delhi 110 001

Member-Secretary

- 16) Dr. Manoj Srivastava, Registrar, PPV&FRA, New Delhi

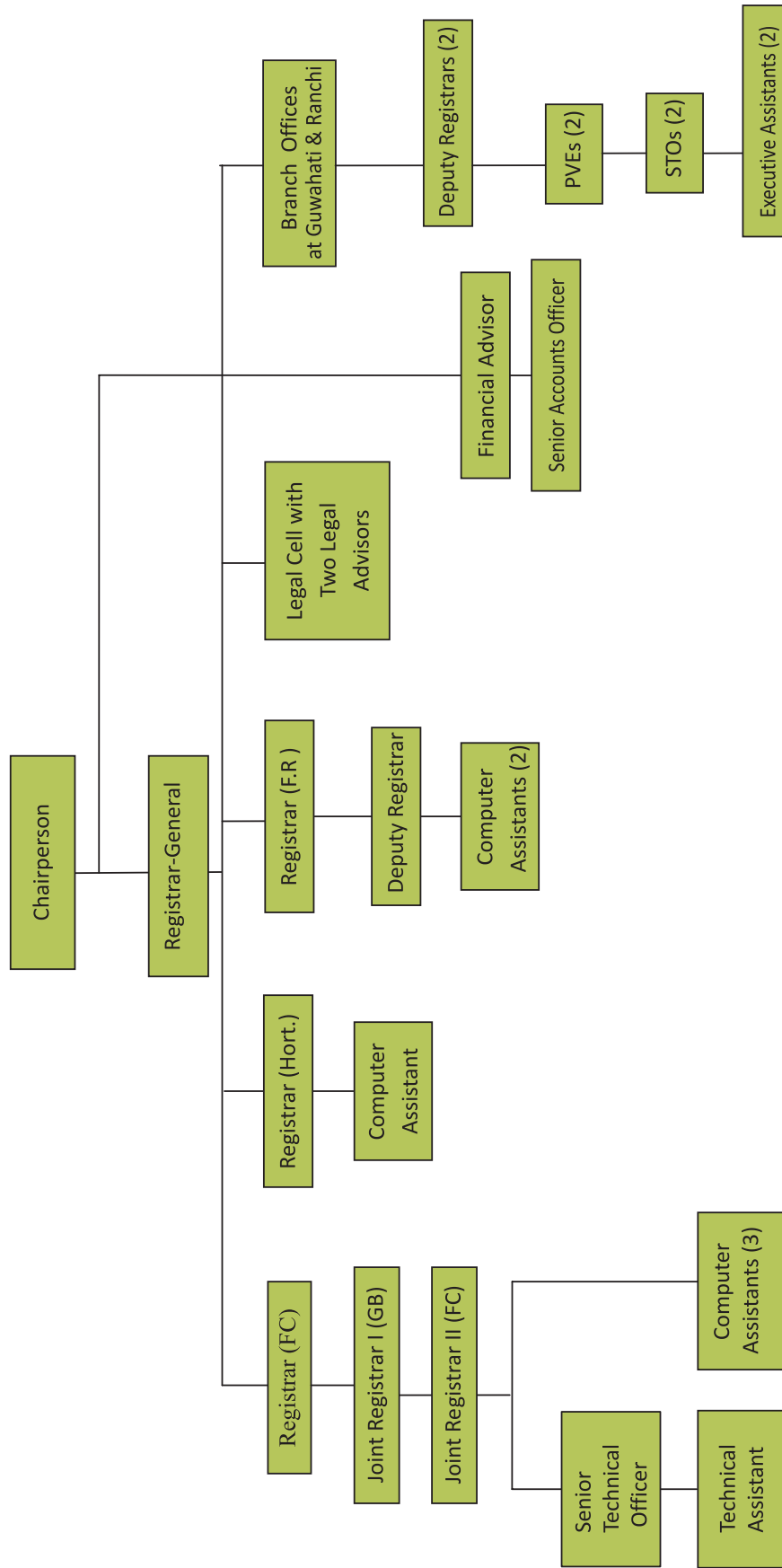
Sanctioned Posts of the PPV&FR Authority

Head Office (New Delhi)	
Name of the Post with pay scale	Posts sanctioned
Chairperson ₹ 80000/- (fixed)	1
Registrar-General ₹ 67000-79000/-	1
Registrar ₹ 37400-67000 with GP ₹ 8700/-	3
Financial Advisor ₹ 37400-67000 with GP ₹ 8700/-	1
Joint Registrar ₹15600-39100 with GP ₹ 7600/-	2
Deputy Registrar ₹ 15600-39100 with GP ₹ 6600/-	1
Legal Advisor ₹15600-39100 with GP ₹ 6600/-	2
Senior Accounts Officer ₹15600-39100 with GP ₹ 6600/-	1
Senior Technical Officer ₹ 9300-34800 with GP ₹ 4600/-	3
Technical Assistant ₹ 9300-34800 with GP ₹ 4200/-	1
Computer Assistant ₹ 9300-34800 with GP ₹ 4200/-	6
Sub Total	22
Branch Offices (Guwahati & Ranchi)	
Deputy Registrar ₹ 15600-39100 with GP ₹ 6600/-	2
Plant Variety Examiner ₹15600-39100 with GP ₹ 5400/-	2
Senior Technical Officer ₹ 9300-34800 with GP ₹ 4600/-	2
Executive Assistant ₹ 9300-34800 with GP ₹ 4200/-	2
Sub Total	8
Total	30

Details of Human Resources

<i>Name of the post and its incumbent</i>	<i>Filled posts</i>	<i>Vacant posts</i>
Chairperson Dr. P. L. Gautam	1	-
Registrar-General Dr. R.C. Agrawal	1	-
Registrars Dr. Manoj Srivastava Dr. Tejbir Singh Dr. Ravi Prakash	3	-
Financial Advisor Shri J.P. Singh	1	-
Joint Registrars Shri D.R. Choudhury Shri D.S. Mishra	2	-
Deputy Registrar Shri Uma Kant Dubey	1	-
Legal Advisors Shri D.S. Raj Ganesh Shri R.R. Pradhan	2	-
Senior Accounts Officer Shri Rajiv Talwar	1	-
Senior Technical Officers Dr. A. K. Singh Dr. Susheel Kumar	2	1
Technical Assistant Dr. D.S. Pilia	1	-
Computer Assistants Shri Arvind Kumar Rai Shri Sanjay Kumar Gupta Mrs Shipra Mathur Shri Nitesh Kumar Verma Shri Shyam Narayan Prasad Ms. Jyoti	6	-
Branch Office (Guwahati) Dr. A.C. Sharma (Deputy Registrar) Plant Variety Examiner Senior Technical Officer Executive Assistant	1	3
Branch Office (Ranchi) Deputy Registrar Plant Variety Examiner Senior Technical Officer Executive Assistant	-	4

Organogram of the Authority



Registrar (FC): Field Crops
 Registrar (Hort.): Horticulture
 Registrar (F.R): Farmers Rights
 PVE: Plant Variety Examiner

Financial support provided by the Authority to the DUS centres

(₹ In Lakh)

Sl. No.	Name of Centre	Crops	Funds Released
1.	Indian Institute of Vegetable Research, Varanasi	Cabbage, cauliflower, okra, eggplant, tomato, green peas and kidney bean	4.96
2.	IIHR, Bengaluru	Okra, eggplant, tomato	14.99
3.	CCS HAU, Hisar	Cotton, chickpea, sorghum	3.20
4.	CSAUA&T, Kanpur	Rapeseed and mustard, wheat, linseed	2.25
5.	PC, Sesame and Niger, JNKVV, Jabalpur	Linseed, lentil, field pea	2.50
6.	IIPR, Kanpur	Pigeon pea, chickpea, field pea, kidney bean	10.00
7.	IIPR, Kanpur (MULLaRP)	Lentil, green gram, black gram	1.50
8.	Directorate of Oilseed Research, Hyderabad	Sunflower, safflower, castor	5.83
9.	TNAU, Coimbatore	Paddy, sunflower, black gram	6.27
10.	MPKV, Rahuri	Chickpea, pearl millet, sorghum	5.90
11.	Regional Station, IARI, Karnal	Rice	3.12
12.	Regional Station, IARI, Indore	Wheat	4.00
13.	Regional Station, IARI, Katrain	Cauliflower, cabbage	1.94
14.	Division of Floriculture, IARI, New Delhi	Rose, chrysanthemum	3.92
15.	NRC Onion & Garlic, Rajgurunagar	Onion, garlic	4.44
16.	Central Potato Res. Instt. (CPRI), Shimla	Potato	3.92
17.	Indian Instt. of Sugarcane Res. (IISR), Lucknow	Sugarcane	3.85
18.	Sugarcane Breeding Instt. (SBI), Coimbatore		3.43
19.	Sugarcane Breeding Instt., (SBI) Agali		2.22
20.	Sugarcane Breeding Instt., (SBI), Karnal		2.42
21.	CRIJ&AF, Barrackpore/ (Bud Bud)	Jute	7.89
22.	Central Rice Res. Instt. (CRRRI), Cuttack	Rice	6.28
23.	Directorate of Rice Res. (DRR), Hyderabad		8.25
24.	VPKAS, Almora	Maize, kidney bean, soybean	3.84
25.	GBPUA&T, Pantnagar	Forage sorghum	4.09
26.	Directorate of Sorghum Res. (DSR), Hyderabad	Sorghum	14.01
27.	Directorate of Soybean Res, Indore	Soybean	3.89
28.	DRMR, Bharatpur	Rapeseed and mustard, taramira	3.74
29.	DWR, Karnal	Wheat	9.03
30.	PDKV, Akola	Pigeon pea, safflower	4.49
31.	AICPMIP, Mandor (PC Pearl Millet)	Bajra	5.71
32.	PC, CICR RS, Coimbatore	Cotton	2.61
33.	CICR, Nagpur		5.08
34.	PAU, Ludhiana	Wheat	3.63
35.	Directorate of Groundnut Research, Junagarh	Groundnut	4.14
36.	NRC for Orchids, Sikkim	Orchids	3.16
37.	PC, Linseed, (CSAUA&T) Kanpur	Linseed	2.25
38.	AAU, Jorhat	Rice	0.88
39.	IISR, Kozhikode	Turmeric, ginger, black paper, cardamom	2.93
40.	CISH, Lucknow	Mango	15.30
41.	JAU, Jamnagar	Castor, pearl millet	3.41

Sl. No.	Name of Centre	Crops	Funds Released
42.	Central Plantation Crops Research Institute, Kasargod	Coconut	3.00
43.	Directorate of Maize Research, New Delhi	Maize	8.84
44.	IIHR, Bengaluru	Ornamentals crops	4.50
45.	IARI, Division of Floriculture & Landscaping, New Delhi (National repository of chrysanthemum)	Chrysanthemum	6.25
46.	IARI (Division of Vegetable Science)	Cabbage, cauliflower	1.32
47.	PC (Sesame & Niger), JNKVV, Jabalpur	Sesame	2.11
48.	ANGRAU, Hyderabad	Maize	5.40
49.	University of Agril.Sciences(UAS), Dharwad	Wheat, cotton	3.18
50.	CIMAP, Lucknow	Mentha, damask rose, catharanthus, withania, bacopa	2.00
51.	DMAPR, Anand	Isabgol	5.87
52.	IIHR, Bangalore	Rose	4.88
		Total	252.62

Financial Support provided by the Authority to the projects for developing DUS guidelines

(₹ In Lakh)

Sl. No.	Name of Centre	Crops	Funds Released
1.	CITH, Srinagar	Strawberry	7.75
2.	IIHR, Bengaluru		4.35
3.	CITH, Srinagar	Apple, walnut, pear, almond	9.24
4.	Dr. Y. S. Parmar University of Horticulture & Forestry, Solan	Carnation	5.45
5.	IIHR, Bengaluru	Carnation	5.58
6.	Dir. of Floriculture., IARI, New Delhi	Tuberose	6.30
7.	IIHR, Bengaluru		6.30
8.	IIHR, Bengaluru	Papaya & custard apple	2.07
9.	TNAU, Coimbatore		1.50
10.	IIHR, Bengaluru		4.51
11.	MPKV Research Station, Ganeskhind, Pune	China Aster	4.51
12.	IIHR, Bengaluru	Jasmine	8.08
13.	TNAU, Coimbatore		5.42
14.	IIHR, Bengaluru	Marigold	1.55
15.	IARI, New Delhi		4.95
16.	IIHR, Bengaluru	Betal vine	4.80
17.	BCKV, Kalyani		1.55
18.	IIHR, Bengaluru	Chilli, sweet pepper, paprika	13.46
19.	IARI, New Delhi		1.46
20.	IIHR, Bengaluru	Amaranth, spinach and ridged gourd	4.88
21.	IARI, New Delhi		1.25
22.	KAU, Thrissur	Cattleya Orchid, Phalaenopsis	6.18
23.	SFRI, Itanagar, Arunachal Pradesh		6.18
24.	NDUA&T, Faizabad	Barley	2.75
25.	DWR, Karnal		15.05
26.	NRC Pomegranate, Sholapur	Pomegranate	3.03
27.	CAZRI, Jodhpur		2.70
28.	NBPGR, New Delhi	Grain Amaranth, buck wheat, faba bean	9.02
29.	NBPGR (Regional station Akola)		1.34
30.	NBPGR (Regional station Phagli - Shimla)		1.34
31.	BCKV, Kalyani	Elephant foot yam, taro	2.41
32.	CTCRI RS, Bhubaneswar		3.42
33.	CISH, Lucknow	Bael	1.25
34.	CIAH- RES, Godhra (Bikaner)		6.18
35.	CISH, Lucknow	Jamun	6.16
36.	CIAH, Godhra (Bikaner)		1.28
37.	CISH, Lucknow	Anola	3.15
38.	CIAH RES, Godhra (Bikaner)		1.15
39.	Dir. of Floricultural Res. IARI, New Delhi	Gladiolus	1.38

Sl. No.	Name of Centre	Crops	Funds Released
40.	NBRI, Lucknow	Gladiolus	4.80
41.	CIAH, Bikaner	Date-palm	8.29
42.	CIAH, Bikaner	Ber	16.75
43.	CITH, Srinagar	Peach & plum	9.13
44.	NBRI, Lucknow	Bougainvillea	5.05
45.	NBRI, Lucknow	Canna	5.00
46.	NRC for Citrus, Nagpur	Citrus species	6.89
47.	Tocklai Experimental Station, Jorhat	Tea	Nil
48.	HFRI, Shimla	Conifer	1.50
49.	ICAR Research Complex for NEH Region, Medziphema, Nagaland	Colocasia	Nil
50.	Rain Forest Research Institute, Jorhat	Bamboo	Nil
51.	Central Institute for Arid Horticulture, Bikaner	Melons	20.00
52.	NRC for Grapes, Pune	Grapes	12.75
53.	NRC for Banana, Trichy	Banana	8.30
54.	NRCSS, Ajmer	Coriander and seed spices	4.17
55.	IFGTB, Coimbatore	Eucalyptus, casuarina	5.84
56.	Division of Seed Science and Technology, IARI	PQP project	3.31
57.	FCRI(TNAU), Coimbatore	Neem, karanj, jatropha	0.62
58.	IIVR, Varanasi	Cucurbits	17.61
		Total	308.93

**Financial Support to Insitutions responsible for Special Tests,
Farmers Related Projects and Field Gene Banks**

(₹ In Lakh)

Special Tests			
Sl. No.	Name of Centre	Particulars	Funds Released
1.	NBPGR, New Delhi	Referral Lab, for Biochemical Test	8.65
2.	CRRRI, Cuttack (New Project)	Molecular characterization of FVs in Rice	5.45
3.	NRCPB, New Delhi	Biochemical and molecular test	8.00
		Total	22.10
Projects Related to Farmers			
1.	Department Agriculture & Food Production, Bhubaneswar	Characterization and evaluation of farmers' varieties of rice in Odisha	7.00
2.	Institute of Environment & Eco Development, Patna	Exploration, documentation, indexing and characterization of farmers varieties of arhar, and bakla in Bihar	6.82
3.	MSSRF, Chennai	DUS characterization and evaluation of farmers varieties in the community gene bank in Kerala and Odisha	0.50
4.	Gene Campaign, New Delhi	Rice biodiversity conservation and training on farmers rights in Jharkhand and Meghalaya	10.80
5.	VAANGHAI, Nagapattinam	Characterization and registration of tradionally cultivated rice varieties along coastal belt and Cauvery delta of Tamil Nadu	5.40
		Total	30.52
Gene Banks			
1.	BAU, Ranchi	Mango, citrus, banana, guava etc	9.70
2.	Dr. Balasaheb Konkan Krishi Vidyapeeth, Dapoli	Mango, citrus, coconut, spices etc	12.37
3.	CAZRI, Jodhpur (Field Gene Bank)	Arid crops	46.25
4.	Dr. Y. S. Parmar, University of Horticulture & Forestry, Mashobra	Apple, pear, peach, walnut	Nil
5.	CTCRI, Trivandrum	Sweet potato, cassava	14.16
6.	NBPGR, New Delhi	National Gene Bank & DUS repository	2.87
		Total	85.35

Funding Support to different Organizations for awareness-cum-training programmes

S. No.	Organizations	Amount (₹ in lakhs)
1.	Indian Institute of Vegetable Research, Varanasi	1.20
2.	CCS Haryana Agricultural University, Hisar	1.20
3.	Indian Institute of Pulses Research, Kanpur	1.80
4.	Directorate of Agriculture & Food Production, Bhubaneswar	1.80
5.	Division of Vegetable Crops, IIHR, Bengaluru	0.80
6.	Head, Division of Ornamental Crops, IIHR, Bengaluru	0.80
7.	Directorate of Oilseed Research, Hyderabad	1.60
8.	National Seed Project Unit, ANGRAU, Hyderabad	1.60
9.	Mahatma Phule Krishi Vidyapeeth, Rahuri	1.20
10.	Central Research Institute for Jute and Allied Fibre, Barackpore, Kolkata	1.60
11.	National Research Centre for Onion & Garlic, Rajgurunagar,Pune	1.20
12.	Central Potato Research Institute, Shimla	1.20
13.	Indian Institute of Sugarcane Research, Lucknow	1.20
14.	Sugarcane Breeding Institute, Coimbatore and its Regional Station Agali, Kerala	2.40
15.	Directorate of Rice Research, Hyderabad	1.60
16.	Directorate of Sorghum Research, Hyderabad	1.60
17.	Directorate of Wheat Research, Karnal	1.60
18.	Punjab Agril. University, Ludhiana	1.60
19.	Indian Institute of Spices Research, Kozhikode	1.60
20.	Vivekananda Parvatiya Krishi Anusandhan Sansthan, Almora	1.20
21.	National Research Centre for Seed Spices, Ajmer	1.60
22.	Crop Research Institute, Kasargod	1.60
23.	Dr. Panjab Rao Deshmukh Krishi Vidyapeeth, Akola	1.20
24.	Central Institute for Cotton Research, Nagpur	2.40
25.	Directorate of Groundnut Research, Junagarh	1.20
26.	Junagarh Agril. University, Jamnagar	1.20
27.	Directorate of Medicinal and Aromatic Plants Research, Anand, Gujarat	1.20
28.	Central Institute for Medicinal and Aromatic Plants, Lucknow	1.20
29.	Directorate of Maize Research, New Delhi	1.60
30.	Central Rice Research Institute, Cuttack	1.60
31.	Sher-e- Kashmir University of Agri. & Tech., Srinagar, Jammu	0.80
32.	IARI, KVK, Shikohpur, Gurgaon	0.80
33.	University of Agril. Sciences, Dharwad	0.80
34.	GBPUA&T, Pantnagar	1.51
35.	Directorate of Rapeseed and Mustard, Bharatpur	0.80
36.	CSKHPKV, Palampur	0.79
37.	Directorate of Soyabean Research, Indore	1.20
38.	MSSRF, Chennai	2.00
39.	SKRAV, Bikaner	0.92
	Total	53.22

Certificates of Registration issued by the Authority during 2011-12

S. No.	Registration No./ Date of issue	Category of Variety	Denomination of the Candidate Variety	Crop	Species	Applicant and Address
1.	12 of 2011/24.06.2011	Extant	Birsa Dhan-108	Rice	<i>Oryza sativa</i> L.	Birsa Agricultural University Kanke, Ranchi
2.	13 of 2011/24.06.2011	Extant	DBW-16	Bread wheat	<i>Triticum aestivum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
3.	14 of 2011/24.06.2011	Extant	GW-322	Bread wheat	<i>Triticum aestivum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
4.	15 of 2011/24.06.2011	Extant	Pusa Wheat- 105 (HD-2833)	Bread wheat	<i>Triticum aestivum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
5.	16 of 2011/24.06.2011	Extant	TT 401	Pigeonpea	<i>Cajanus cajan</i> (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
6.	17 of 2011/24.06.2011	Extant	Sidhanta (ORS 102-4) (IET-15296)	Rice	<i>Oryza sativa</i> L.	Orissa University of Agriculture & Technology P.S. Khandagiri, District: Khurda, Orissa
7.	18 of 2011/24.06.2011	Extant	Upahar (ORS 1234-12-1) (IET-17318)	Rice	<i>Oryza sativa</i> L.	Orissa University of Agriculture & Technology, P.S. Khandagiri, District: Khurda, Orissa
8.	19 of 2011/24.06.2011	Extant	JRC 80 (Mitali White)	Jute	<i>Corchorus capsularis</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
9.	20 of 2011/24.06.2011	Extant	JRO128 (Surya) CO-28	Jute	<i>Corchorus olitorius</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
10.	21 of 2011/24.06.2011	Extant	JRO 66 (PBO 6)	Jute	<i>Corchorus olitorius</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
11.	22 of 2011/24.06.2011	Extant	Subala (S-19)	Jute	<i>Corchorus olitorius</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
12.	23 of 2011/24.06.2011	Extant	JRO-8432 (Shakti, Tossa, Co-32)	Jute	<i>Corchorus olitorius</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
13.	24 of 2011/24.06.2011	Extant	UP 2382	Bread wheat	<i>Triticum aestivum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
14.	25 of 2011/24.06.2011	Extant	UP 2425	Bread wheat	<i>Triticum aestivum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
15.	26 of 2011/24.06.2011	Extant	NCS-207 Mallika (NCHH-207)	Cotton	<i>Gossypium hirsutum</i> L.	Nuziveedu Seeds Limited NSLICON, No. 8-2-684/2/A, Plot No. 1 to 4, Banjara Hills Hyderabad

S. No.	Registration No./ Date of issue	Category of Variety	Denomination of the Candidate Variety	Crop	Species	Applicant and Address
16.	27 of 2011/24.06.2011	Extant	RBDV-7 (Pratap Kapi-1)	Cotton	<i>Gossypium herbaceum</i> L.	Maharana Pratap University of Agriculture & Technology Udaipur, Rajasthan
17.	28 of 2011/24.06.2011	Extant	Shresth (CSHH-198)	Cotton	<i>Gossypium hirsutum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
18.	29 of 2011/24.06.2011	Extant	Hybrid Kalyan (CSHH-238)	Cotton	<i>Gossypium hirsutum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
19.	30 of 2011/24.06.2011	Extant	Pratima (CNH 120 MB)	Cotton	<i>Gossypium hirsutum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
20.	31 of 2011/24.06.2011	Extant	Ujala (OBG 17)	Black gram	<i>Vigna mungo</i> (L.) Hepper	Orissa University of Agriculture & Technology P.S. Khandagiri, Dist. Khurda, Orissa,
21.	32 of 2011/24.06.2011	Extant	Gajapati (IET-13251)	Rice	<i>Oryza sativa</i> L.	Orissa University of Agriculture & Technology P.S. Khandagiri, Dist. Khurda, Orissa
22.	33 of 2011/24.06.2011	Extant	Kharavela (IET-13253)	Rice	<i>Oryza sativa</i> L.	Orissa University of Agriculture & Technology P.S. Khandagiri, Dist. Khurda, Orissa
23.	34 of 2011/24.06.2011	Extant	Jawahar Tapti	Cotton	<i>Gossypium arboreum</i> L.	Jawahar Lal Nehru Krishi Vishwavidyalaya80, Krishi Nagar, Adhartal, Jabalpur
24.	35 of 2011/24.06.2011	Extant	JKBH-676 (MH-1299)	Pearl millet	<i>Pennisetum glaucum</i> (L.) R. Br.	J.K.. Agri Genetics Limited 1-10-177, 4th floor, Varun Towers, Hyderabad
25.	36 of 2011/24.06.2011	Extant	MACS-6145	Bread wheat	<i>Triticum aestivum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
26.	37 of 2011/24.06.2011	Extant	Asha (RSG-945)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
27.	38 of 2011/24.06.2011	Extant	Haryana Chana-3 (H-86-18)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
28.	39 of 2011/24.06.2011	Extant	Haryana Chana-5 (H 96-99)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
29.	40 of 2011/24.06.2011	Extant	RSG-896 (Arpan)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
30.	41 of 2011/24.06.2011	Extant	Haryana Kabuli-1 (HK89-131)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
31.	42 of 2011/24.06.2011	Extant	Hybrid-6129 (IET-18815)	Rice	<i>Oryza sativa</i> L.	Bayer Crop Science AG Alfred Nobel Strasse50. 40789 Monheim, Germany
32.	43 of 2011/24.06.2011	Extant	AKSSV-22	Sorghum	<i>Sorghum bicolor</i> (L.) Moench	Dr. Panjabrao Deshmukh Krishi Vidyapeeth P.O. Krishi Nagar, Akola

S. No.	Registration No./ Date of issue	Category of Variety	Denomination of the Candidate Variety	Crop	Species	Applicant and Address
33.	44 of 2011/24.06.2011	Extant	AKSV-13R (PKV-Kranti)	Sorghum	<i>Sorghum bicolor</i> (L.) Moench	Dr. Panjabrao Deshmukh Krishi Vidyapeeth P.O. Krishi Nagar, Akola
34.	45 of 2011/24.06.2011	Extant	AKA-8	Cotton	<i>Gossypium arboreum</i> L.	Dr. Panjabrao Deshmukh Krishi Vidyapeeth P.O. Krishi Nagar, Akola
35.	46 of 2011/24.06.2011	Extant	PKV Hy-4 (CAHH-8)	Cotton	<i>Gossypium hirsutum</i> L.	Dr. Panjabrao Deshmukh Krishi Vidyapeeth P.O. Krishi Nagar, Akola
36.	47 of 2011/24.06.2011	Extant	Lalitagiri (IET-1319)	Rice	<i>Oryza sativa</i> L.	Orissa University of Agriculture & Technology P.S.: Khandagiri, Dist. Khurda, Orissa
37.	48 of 2011/24.06.2011	Extant	Udayagiri	Rice (IET-12136)	<i>Oryza sativa</i> L.	Orissa University of Agriculture & Technology P.S.: Khandagiri, Dist. Khurda, Orissa
38.	49 of 2011/24.06.2011	Extant	PROAGRO-9444 (MSH-118)	Pearl millet	<i>Pennisetum glaucum</i> (L.) R. Br.	Bayer Bioscience Pvt. Ltd.8-1- 39, Qutub Shahi Tombs Roads, Tolichowki, Hyderabad
39.	50 of 2011/24.06.2011	Extant	H 1117	Cotton	<i>Gossypium hirsutum</i> L.	CCS Haryana Agricultural University Hisar-Haryana
40.	51 of 2011/24.06.2011	Extant	HD-324 (HD 324-1)	Cotton	<i>Gossypium arboreum</i> L.	CCS Haryana Agricultural University Hisar-Haryana
41.	52 of 2011/24.06.2011	Extant	HHH 287 GMS based (intra hirsutum hybrid)	Cotton	<i>Gossypium hirsutum</i> L.	CCS Haryana Agricultural University Hisar-Haryana
42.	53 of 2011/24.06.2011	Extant	H-1226	Cotton	<i>Gossypium hirsutum</i> L.	CCS Haryana Agricultural University Hisar-Haryana
43.	54 of 2011/24.06.2011	Extant	HHH-223	Cotton	<i>Gossypium hirsutum</i> L.	CCS Haryana Agricultural University Hisar-Haryana
44.	55 of 2011/24.06.2011	Extant	AAH-1 (Desi Cotton Hybrid-1)	Cotton	<i>Gossypium arboreum</i> L.	CCS Haryana Agricultural University Hisar-Haryana
45.	56 of 2011 /24.06.2011	Extant	HD-123	Cotton	<i>Gossypium arboreum</i> L.	CCS Haryana Agricultural University Hisar-Haryana
46.	57 of 2011 /24.06.2011	Extant	H-1098	Cotton	<i>Gossypium hirsutum</i> L.	CCS Haryana Agricultural University Hisar-Haryana
47.	58 of 2011/30.09.2011	Extant	Anubhav (RSG-88)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
48.	59 of 2011/30.09.2011	Extant	Birsa Vikas Dhan-110	Rice	<i>Oryza sativa</i> L.	Birsa Agricultural University Kanke, Ranchi
49.	60 of 2011/30.09.2011	Extant	Birsamati	Rice	<i>Oryza sativa</i> L.	Birsa Agricultural University Kanke, Ranchi
50.	61 of 2011/30.09.2011	Extant	Birsa Vikas Dhan-109	Rice	<i>Oryza sativa</i> L.	Birsa Agricultural University Kanke, Ranchi
51.	62 of 2011/30.09.2011	Extant	Vivek Maize Hybrid-23 (FH-3529)	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
52.	63 of 2011/30.09.2011	Extant	Azad Kamal (R 9803)	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi

S. No.	Registration No./ Date of issue	Category of Variety	Denomination of the Candidate Variety	Crop	Species	Applicant and Address
53.	64 of 2011/30.09.2011	Extant	PMH-2 (JH-3851)	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
54.	65 of 2011/30.09.2011	Extant	Parkash (JH 3189)	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
55.	66 of 2011/30.09.2011	Extant	MCU-12 (TCH-1025)	Cotton	<i>Gossypium hirsutum</i> L.	Tamil Nadu Agricultural University Coimbatore-Tamil Nadu
56.	67 of 2011/30.09.2011	Extant	K.C. 2	Cotton	<i>Gossypium hirsutum</i> L.	Tamil Nadu Agricultural University Coimbatore-Tamil Nadu
57.	68 of 2011/30.09.2011	Extant	MCU-13	Cotton	<i>Gossypium hirsutum</i> L.	Tamil Nadu Agricultural University Coimbatore-Tamil Nadu
58.	69 of 2011/30.09.2011	Extant	PAU-626 H	Cotton	<i>Gossypium arboreum</i> L.	Punjab Agricultural University Ludhiana
59.	70 of 2011/30.09.2011	Extant	F-1861	Cotton	<i>Gossypium hirsutum</i> L.	Punjab Agricultural University Ludhiana
60.	71 of 2011/30.09.2011	Extant	Vagad Kalyan (RB-423)	Cotton	<i>Gossypium hirsutum</i> L.	Maharana Pratap University of Agriculture & Technology Udaipur, Rajasthan
61.	72 of 2011/30.09.2011	Extant	Bidhan Pat-2 (D-90)	Jute	<i>Corchorus capsularis</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
62.	73 of 2011/30.09.2011	Extant	Bidhan Pat-1 (D-18)	Jute	<i>Corchorus capsularis</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
63.	74 of 2011/21.10.2011	New	MIM 601	Maize	<i>Zea mays</i> L.	Monsanto India Limited 5th Floor, Ahura Centre, 96, Mahakali Caves Road, Andheri (East), Mumbai
64.	75 of 2011/21.10.2011	New	MIM 101	Maize	<i>Zea mays</i> L.	Monsanto India Limited 5th Floor, Ahura Centre, 96, Mahakali Caves Road, Andheri (East), Mumbai
65.	76 of 2011/21.10.2011	New	MIM 611	Maize	<i>Zea mays</i> L.	Monsanto India Limited 5th Floor, Ahura Centre, 96, Mahakali Caves Road, Andheri (East), Mumbai
66.	77 of 2011/21.10.2011	Extant	PCB 164	Pearl millet	<i>Pennisetum glaucum</i> (L.) R. Br.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
67.	78 of 2011/21.10.2011	Extant	Jawahar Tur JKM- 189	Pigeon Pea	<i>Cajanus cajan</i> (L.) (Millsp.)	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
68.	79 of 2011/21.10.2011	Extant	Pusa 391 (BG-391)	Chick Pea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
69.	80 of 2011/21.10.2011	Extant	Pusa Chamatkar (BG-1053)	Chick Pea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
70.	81 of 2011/21.10.2011	Extant	Buland (JH-6805)	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi

S. No.	Registration No./ Date of issue	Category of Variety	Denomination of the Candidate Variety	Crop	Species	Applicant and Address
71.	82 of 2011/21.10.2011	Extant	PHB-2168	Pearl millet	<i>Pennisetum glaucum</i> (L.) R. Br.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
72.	83 of 2011/21.10.2011	Extant	GHB-744 (MH-1272)	Pearl millet	<i>Pennisetum glaucum</i> (L.) R. Br.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
73.	84 of 2011/21.10.2011	Extant	Abhar (RSG-807)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
74.	85 of 2011/21.10.2011	Extant	Arpita (RSG-895)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
75.	86 of 2011/21.10.2011	Extant	Abha (RSG-973)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
76.	87 of 2011/21.10.2011	Extant	RSG-991 (Arpana)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
77.	88 of 2011/21.10.2011	Extant	RSG-902 (Aruna)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
78.	89 of 2011/21.10.2011	Extant	Ankur-09 (WHH-09)	Cotton	<i>Gossypium hirsutum</i> L.	Ankur Seeds(P) Limited, 27- New Cotton Market Layout, Nagpur
79.	90 of 2011/21.10.2011	Extant	Upahar (ORS 1234-12-1) (IET-17318)	Rice	<i>Oryza sativa</i> L.	Orissa University of Agriculture & Technology P.S. Khandagiri, District: Khurda, Orissa
80.	91 of 2011/21.10.2011	Extant	NCS-145 Bunny (NCHH-145)	Cotton	<i>Gossypium hirsutum</i> L.	Nuziveedu Seeds Limited NSLICON. No. 8-2-684/2/A, Plot No. 1 to 4, 4th floor, Banjara Hills Hyderabad
81.	92 of 2011/21.10.2011	Extant	G.Cot 19 (G.Am-31)	Cotton	<i>Gossypium arboreum</i> L.	Navsari Agricultural University Navsari-396450 (Gujarat)
82.	93 of 2011/21.10.2011	Extant	G.Cot 21	Cotton	<i>Gossypium herbaceum</i> L.	Navsari Agricultural University, Navsari-396450 (Gujarat)
83.	94 of 2011/21.10.2011	Extant	KC-3	Cotton	<i>Gossypium hirsutum</i> L.	Tamil Nadu Agricultural University, Coimbatore
84.	95 of 2011/21.10.2011	Extant	SVPR-2 (TSH 289)	Cotton	<i>Gossypium hirsutum</i> L.	Tamil Nadu Agricultural University, Coimbatore
85.	96 of 2011/21.10.2011	Extant	SVPR-3	Cotton	<i>Gossypium hirsutum</i> L.	Tamil Nadu Agricultural University, Coimbatore
86.	97 of 2011/21.10.2011	Extant	F 1378	Cotton	<i>Gossypium hirsutum</i> L.	Punjab Agricultural University, Ludhiana
87.	98 of 2011/21.10.2011	Extant	CICR-2 (CISAA-2) (GMS based Hybrid)	Cotton	<i>Gossypium arboreum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
88.	99 of 2011/21.10.2011	Extant	Pusa Composite 443 (MP 443)	Pearl millet	<i>Pennisetum glaucum</i> (L.) R. Br.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi

S. No.	Registration No./ Date of issue	Category of Variety	Denomination of the Candidate Variety	Crop	Species	Applicant and Address
89.	100 of 2011/21.10.2011	Extant	Bio-22027	Maize	<i>Zea mays</i> L.	Bioseed Research India Private Limited Plot No. 206, Road No. 14, Jubilee Hills, Hyderabad
90.	101 of 2011/21.10.2011	Extant	Seed tech-740	Maize	<i>Zea mays</i> L. (Seedtec 2324)	Bisco BioSciences Pvt. Ltd, C-39, Bharani Complex, Minister Road, Secunderabad
91.	102 of 2011/21.10.2011	Extant	G.Cot-18	Cotton	<i>Gossypium hirsutum</i> L.	Navsari Agricultural University, Navsari- (Gujarat)
92.	103 of 2011/21.10.2011	Extant	G.Cot MDH-11 (GSGDH-2)	Cotton	<i>Gossypium arboreum</i> L.	Navsari Agricultural University, Navsari- (Gujarat)
93.	104 of 2011/21.10.2011	Extant	G.Cot Hy-12	Cotton	<i>Gossypium hirsutum</i> L.	Navsari Agricultural University, Navsari- (Gujarat)
94.	105 of 2011/01.11.2011	New	J 1126	Sorghum	<i>Sorghum bicolor</i> (L.) Moench	Mahyco, Resham Bhawan, Mumbai
95.	106 of 2011/01.11.2011	New	J 1062	Sorghum	<i>Sorghum bicolor</i> (L.) Moench	Mahyco, Resham Bhawan, Mumbai
96.	107 of 2011/01.11.2011	New	MIM 311	Maize	<i>Zea mays</i> L.	Monsanto India Limited 5th Floor, Ahura Centre, Mumbai
97.	108 of 2011/01.11.2011	New	MIM 301	Maize	<i>Zea mays</i> L.	Monsanto India Limited, 5th Floor, Ahura Centre, Mumbai
98.	109 of 2011/01.11.2011	New	JKSH 574	Sorghum	<i>Sorghum bicolor</i> (L.) Moench	JK AGRIGENETICS, LIMITED 1-10-177, 4th Floor, Hyderabad
99.	110 of 2011/14.11.2011	Extant	Pusa Vaibhav (L 4147)	Lentil	<i>Lens culinaris</i> Medik	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
100.	111 of 2011/07.12.2011	New	B 2114	Pearl millet	<i>Pennisetum glaucum</i> (L) R. Br.	Mahyco, Resham Bhawan, Mumbai
101.	112 of 2011/07.12.2011	New	MIM 502	Maize	<i>Zea mays</i> L.	Monsanto India Limited, 5th Floor, Ahura Centre, Mumbai
102.	113 of 2011/07.12.2011	New	MIJ-007	Sorghum	<i>Sorghum bicolor</i> (L.) Moench	Devgen N.V., Technologiepark 30, B-9052 Zwijnaarde, Belgium
103.	114 of 2011/07.12.2011	New	MIM 003	Maize	<i>Zea mays</i> L.	Monsanto India Limited, 5th Floor, Ahura Centre, Mumbai
104.	115 of 2011/07.12.2011	New	HQPM-5	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
105.	116 of 2011/07.12.2011	New	HM-9	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
106.	117 of 2011/27.12.2011	New	MALVIYA HYBRID MAKKA-2	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research on behalf of Banaras Hindu University, Varanasi Krishi Bhawan, Dr. Rajendra Prasad Road, New Delhi
107.	1 of 2012/ 02.01.2012	Extant	Pusa Kabuli-1003 (BG-1003)	Chickpea	<i>Cicer arietinum</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
108.	2 of 2012/ 02.01.2012	Extant	Aravali Makka-1 (EV-90)	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi

S. No.	Registration No./ Date of issue	Category of Variety	Denomination of the Candidate Variety	Crop	Species	Applicant and Address
109.	3 of 2012/ 02.01.2012	Extant	JM-8	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
110.	4 of 2012/ 02.01.2012	Extant	DMH-1	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
111.	5 of 2012/ 02.01.2012	Extant	Jawahar Makka-216	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
112.	6 of 2012/ 02.01.2012	Extant	Jawahar Composite Makka-12 (JM-12)	Maize	<i>Zea mays</i> L.	Indian Council of Agricultural Research (ICAR) Krishi Bhawan, New Delhi
113.	7 of 2012/ 16.01.2012	Extant	APK-1	Sorghum	<i>Sorghum bicolor</i> (L.) Moench	Tamil Nadu Agricultural University, Coimbatore
114.	8 of 2012/ 07.03.2012	New	B 2124	Pearl millet	<i>Pennisetum glaucum</i> (L) R. Br.	Mahyco Resham Bhavan, Mumbai
115.	9 of 2012/ 07.03.2012	New	MIP-003	Pearl millet	<i>Pennisetum glaucum</i> (L) R. Br.	Devgen N.V. Technologiepark 30,B-9052 Zwijnaarde, Belgium
116.	10 of 2012/ 07.03.2012	New	SYN-PM-0458	Pearl millet	<i>Pennisetum glaucum</i> (L) R. Br.	Syngenta India Limited Shivaji Nagar, Pune
117.	11 of 2012/ 7.03.2012	New	86M64	Pearl millet	<i>Pennisetum glaucum</i> (L) R. Br.	Pioneer Overseas Corporation, Indian Branch Office, Hyderabad
118.	12 of 2012/ 07.03.2012	New	MIM 112	Maize	<i>Zea mays</i> L.	Monsanto India Limited 5th Floor, Ahura Centre, Mumbai
119.	13 of 2012/ 07.03.2012	Extant	Hybrid 6444 (HRI-120:IET-16434)	Rice	<i>Oryza sativa</i> L.	Bayer Crop Science AG Alfred Nobel Strasse50. 40789 Monheim, Germany

Acronyms

AICRP	All India Co-ordinated Research Project
BAU	Birsa Agricultural University
CAG	Comptroller and Auditor General of India
CBD	Convention on Biological Diversity
CCMB	Centre for Cellular and Molecular Biology
CFTRI	Central Food Technology Research Institute
CIMMYT	International Maize and Wheat Improvement Center
CIRCOT	Central Institute for Research on Cotton Technology
CSIR	Council of Scientific and Industrial Research
DAC	Department of Agriculture and Co-operation
DUS	Distinctiveness, Uniformity and Stability
EVRC	Extant Variety Recommendation Committee
GATT	General Agreement on Tariffs and Trade
GEAC	Genetic Engineering Appraisal Committee
IARI	Indian Agricultural Research Institute
ICAR	Indian Council of Agricultural Research
IINDUS	Indian Information System as per DUS Guidelines
IPGRI	Bioversity International (formerly IPGRI)
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
KVK	Krishi Vigyan Kendra
MCD	Municipal Corporation of Delhi
MPUA &T	Mahrana Pratap University of Agriculture and Technology
NARS	National Agricultural Research System
NASC	National Agricultural Science Centre
NBPGR	National Bureau of Plant Genetic Resources
NCF	National Commission for Farmers
NGO	Non-Governmental Organization
NORV	Notified and Released Varieties of India
NSAI	National Seed Association of India

OECD	Organisation for Economic Co-operation and Development
PGR	Plant Genetic Resources
PPV&FRA	Protection of Plant Varieties and Farmers' Rights Authority
PVIS	Plant Variety Information System
R&D	Research & Development
SAU	State Agricultural Universities
TRIPS	Trade Related Aspects of Intellectual Property Rights
UPOV	International Union of Protection of New Varieties of Plants
VCK	Variety of Common Knowledge
WIPO	World Intellectual Property Organization
WTO	World Trade Organisation

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